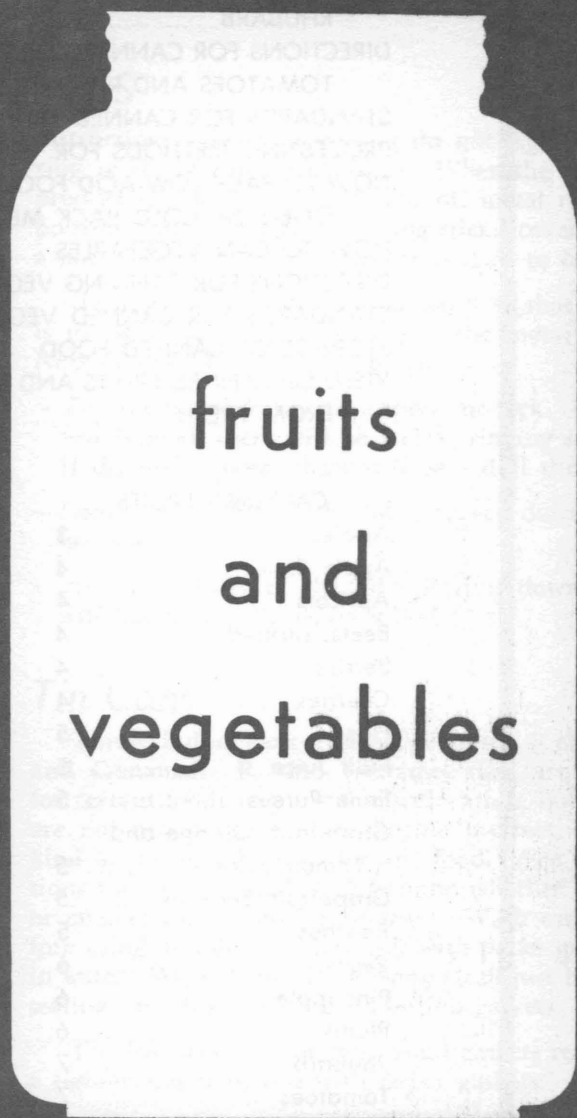


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HOME CANNING



fruits
and
vegetables

TEXAS AGRICULTURAL EXTENSION SERVICE
THE TEXAS A&M UNIVERSITY SYSTEM
John E. Hutchison, Director, College Station, Texas



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HOME CANNING

fruits and vegetables



Karen Walker*

IMPROVED METHODS OF HOME CANNING make it more enjoyable for the homemaker to preserve the natural goodness of foods. Foods spoil because of the action of yeasts, molds, bacteria and enzymes. In canning, the homemaker stops this action by processing food with heat and protecting it with an airtight seal. The processing time and temperature vary with different kinds of food.

DO NOT Use These Canning Methods

Methods for canning fruits or vegetables which are considered unsafe and are not recommended include:

- Open kettle.
- Oven canning.
- Intermittent sterilization.
- Acidification of low-acid vegetables.
- Addition of canning powders, compounds or antibiotics.

CONTAINERS

Jars and Lids

Use only standard-make jars imprinted with the manufacturer's name. Check tops of jars for cracks, chips and dents, discarding those with defects that would prevent an airtight seal.

A two-piece, self-seal lid may be used. It has a metal disk and a metal ring and is self-sealing as the jar cools after processing. The top of the jar must have a smooth edge to make a seal. The metal disk can be used only once, but the ring may be used more than one time. Use the same brand-name disk, ring and jar.

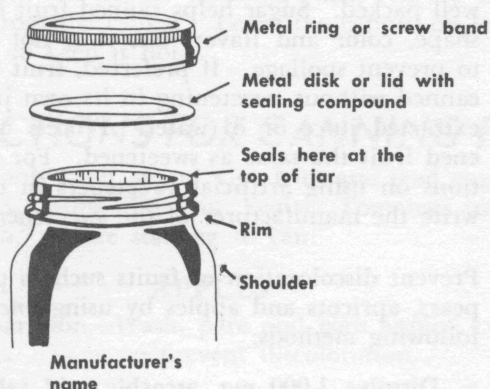
Before processing, adjust the lids and tighten the metal ring according to the manufacturer's

instructions. After processing do not tighten the ring, or the seal may be broken. When the canned product is thoroughly cool, take off metal ring, if possible without forcing. If ring sticks, cover with a hot, damp cloth for a minute or two to loosen.

To test the seal, shake food down so that none is touching the lid; then remove the metal ring. Next do one of these three things.

- Tap the metal disk with a spoon or fork. If the seal is good, there will be a clear ringing sound. If the seal is poor, there will be a dull thud.
- Look at the seal. If the lid is curved down, the jar is sealed.
- Press the center of the lid. If it is down and will not move, the jar is sealed.

Two-Piece Metal Jar Cap



Tin Cans

Three kinds of cans are used: plain tin, R-enamel and C-enamel. R- and C-enamel cans are used for certain foods to prevent discoloration, but they are not necessary for a wholesome product. Any kind of can may be used for any food. (See directions for specific food to determine whether plain or enamel can would be helpful.) Wash cans before using, but do not place lids with paper gaskets in water. Wipe them with a damp cloth just before sealing. Wash lids with composition gaskets.

The lids with rubber compound gaskets require a tighter seal than lids with paper gaskets.

Make sure the sealer is properly adjusted. To test, put a little water into a can and seal it. Then submerge the can in boiling water for a few seconds.

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If air bubbles rise from the can, the seam is not tight. Adjust sealer, following manufacturer's di-

rections. If the directions have been lost, write the manufacturer for them.

PACKING METHODS

- **Hot Pack.** Some fruits and vegetables are heated in a pan before packing into containers for processing. This is known as precooking.

- **Pack Raw and Steam.** Use this packing method with tin cans. Pack raw in container, add boiling liquid and set container on rack in cooker to steam. This heats the food to 170° or higher before the container is closed for processing. This method

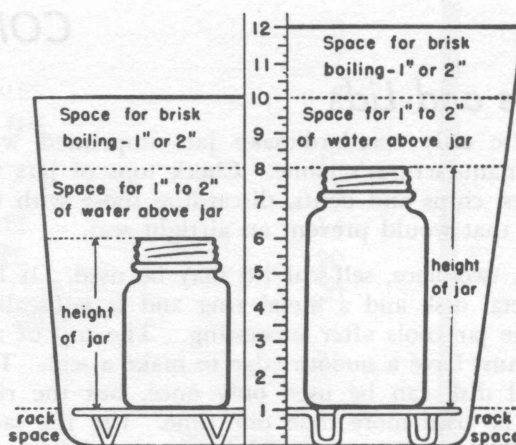
is recommended generally as retaining flavor, texture and quality to a greater extent than the precooking method.

- **One-Step, Cold Pack.** Pack fruit or vegetable raw in container, add boiling liquid, close jar and process. This method requires less time and may be used for certain foods when canned in glass jars.

PROCESSING METHODS FOR FRUITS, TOMATOES AND RHUBARB

- **The boiling-water-bath method** is recommended for canning fruits, fruit juices, tomatoes, tomato juice, rhubarb and pickled vegetables. It is *not recommended for any other vegetable*. Water bath canners may be purchased; however, any big, clean kettle with a rack and tight-fitting lid will do if it is deep enough to hold the cans or jars upright and permit the water to boil gently 1 or 2 inches over the top of them.

Necessary depth of container for boiling-water-bath canning in pint and quart jars. (Diagram courtesy of the Institute of Home Economics, Agricultural Research Service, U. S. Department of Agriculture.)



HOW TO CAN FRUITS, TOMATOES AND RHUBARB

Preliminary Steps

Use either the *hot pack*, *pack raw* and *steam* or the *one-step, cold pack* method of packing when canning fruits and fruit juices, tomatoes, tomato juice, rhubarb and pickled beets.

1. Wash all jars and cans in hot, soapy water and rinse well before canning. It is not necessary to sterilize jars and cans when canning.
2. Make sugar sirup for fruits or rhubarb using for liquid either water or juice extracted from some of the fruit. The proportion of sugar to liquid will depend on the natural sweetness of the fruit and personal taste.

	Sugar	Water or Juice	Yield
Thin sirup	2 cups	4 cups	5 cups
Medium sirup	3 cups	4 cups	5½ cups
Heavy sirup	4¾ cups	4 cups	6½ cups

Boil the sugar and water or fruit juice together for 5 minutes. Skim if necessary. One cup of sirup usually covers 1 quart of fruit when it is well packed. Sugar helps canned fruit hold its shape, color and flavor, but it is not needed to prevent spoilage. If preferred, fruit may be canned without sweetening in its own juice, in extracted juice or in water. Process unsweetened fruit the same as sweetened. For instructions on using artificial sweeteners in canning write the manufacturer of the sweetener.

3. Prevent discoloration of fruits such as peaches, pears, apricots and apples by using *one* of the following methods:

- a. Dissolve 1,000 mg. ascorbic acid tablets or ½ teaspoon powdered ascorbic acid in 4 cups hot sirup.

- b. Dissolve $\frac{1}{4}$ teaspoon citric acid in 1 quart cold water. As fruit is peeled, drop into citric acid solution and leave 15 to 20 minutes; remove, pack containers and cover with sugar sirup. (A gallon of solution will treat a bushel of fruit.)
 - c. Follow manufacturer's directions when using commercial preparations for retaining color.
 - d. Mix 2 tablespoons vinegar or lemon juice and 2 tablespoons salt with 1 gallon cold water. Drop the peeled pieces in the solution for no longer than 15 to 20 minutes. Drain and pack in jars immediately. This method is not as effective as the others, but it is less expensive.
 - e. Treatment for discoloration may be omitted by packing the fruit as it is peeled and adding the sirup immediately.
4. Prepare and pack the tomatoes, rhubarb and each fruit according to the directions given for each.

Steps 5 Through 9 Apply ONLY TO THE PACK RAW AND STEAM METHOD. Omit Them When Packing by the One-Step, Cold Pack or the Hot Pack Method.

5. Place the filled containers, without lids, on a rack in boiling water in the water bath canner for steaming, allowing the water to come 2 inches below the top of the containers.
6. Place a pan with extra fruit and sirup on top of the containers. This extra fruit is to be used for refilling containers when fruit has shrunk after steaming.
7. Place the lid on the water bath canner.
8. Count steaming time as soon as the water begins to boil. See specific fruit for the length of time to steam.
9. At the end of the steaming time, remove the lid from the canner. Leave the canner on low heat to keep it hot.

DIRECTIONS FOR CANNING FRUITS, TOMATOES AND RHUBARB

Use only fresh, sound, ripe fruit and read pages 2 and 3, "How To Can Fruits, Tomatoes and Rhubarb," before starting to can.

APPLES

Preparation.—Wash, pare and core apples; cut in pieces. Treat to prevent discoloration.

Pack Raw and Steam.—Pack tightly and pile above the top of plain tin can. Pour boiling sirup to 2 inches from top of container.

Take out one container at a time. Press the food down and work out air bubbles with a knife. Have the food just covered with the sirup, allowing $\frac{1}{4}$ -inch headspace from the top of the sirup to the top of the can for all fruits. It may be necessary to remove or to add some food at this time to get the correct fill.

Processing in a Boiling-Water Bath

After packing, the fruit is ready to be processed. The following steps for processing in a water bath apply to all packing methods.

1. Wipe off the sealing surface of the container. Close according to the type of lid being used.
2. Place the closed containers of food in the water bath canner. For the one-step, cold pack in glass jars, have water in water bath canner hot but not boiling; for all other packs have water boiling. Add additional boiling water to the water bath canner to cover the containers 1 to 2 inches; do not pour boiling water directly on glass jars.
3. Place the lid on the water bath canner.
4. See specific fruit for the length of time to process. Count the processing time as soon as the water comes to a rolling boil. Reduce the heat but maintain a boiling temperature. Adjust the processing time for altitudes according to the following table.

Feet Elevation	If processing time is 20 minutes or less	If processing time is more than 20 minutes
	Minutes added	Minutes added
1000	1	2
2000	2	4
3000	3	6
4000	4	8

5. At the end of the processing time, remove the containers from the water bath. Plunge the cans in cold water. Place the jars right side up on a rack far enough apart to cool quickly.

Steam No. 2 cans.....10 minutes
Steam No. 2½ cans.....15 minutes

Close and Process.—

CONTAINERS BOILING WATER BATH
No. 2 and No. 2½ cans.....10 minutes

Remove containers from water bath and cool.
or

Hot Pack.—Prepare apples and treat to prevent discoloration. Boil 5 minutes in a thin sirup or water. Pack hot fruit to within $\frac{1}{2}$ inch of the top

of glass jars or $\frac{1}{4}$ inch of tin cans. Cover with hot sirup or water, leaving $\frac{1}{2}$ inch head space for jars or fill to top for tin cans. Process in boiling water bath.

CONTAINERS	BOILING WATER BATH
Pints	15 minutes
Quarts	20 minutes

APPLE SAUCE

Preparation.—Scrub cooking apples well. Cut into small pieces and add 1 cup boiling water to each gallon of apples. Cover the kettle and cook about 20 minutes. Press through sieve to remove cores, seeds and peelings. Add sugar and spice according to taste and heat to simmering.

Hot Pack.—Pack hot to $\frac{1}{4}$ inch of top of glass jar or to top of plain tin can.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints and quarts.....	10 minutes
No. 2 and No. 2½ cans.....	10 minutes

Remove containers from water bath and cool.

APRICOTS

Follow methods for peaches, page 5. Peeling may be omitted.

BEETS, PICKLED

Preparation.—Cut off beet tops, leaving 1 inch of stem. Also leave root. Wash beets, cover with boiling water, and cook until tender. Remove skins and slice beets.

Pickling Sirup.—2 cups vinegar (or $1\frac{1}{2}$ cups vinegar and $\frac{1}{2}$ cup water) and 2 cups sugar. Heat to boiling.

Hot Pack.—Pack beets to $\frac{1}{2}$ inch of top. Add $\frac{1}{2}$ teaspoon salt to pints, 1 teaspoon to quarts. Cover with boiling sirup, leaving $\frac{1}{2}$ inch space at top of jars.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints and quarts.....	30 minutes

Remove containers from water bath and cool.

BERRIES, (EXCEPT STRAWBERRIES)

Preparation.—Wash berries and drain well. Cap. Discard soft or moldy berries. Crush smaller, imperfect berries for juice. Add sugar to juice and bring to a boil. Pack according to one of the following methods.

One-Step, Cold Pack.—Fill jars to $\frac{1}{2}$ inch of top with prepared berries. Shake while filling for a full pack. Cover with boiling sirup, leaving $\frac{1}{2}$ -inch space at top of jar.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints	10 minutes
Quarts	15 minutes

Remove from water bath and cool.

or

Pack Raw and Steam.—After cleaning and sorting berries, pack berries tightly and pile above top of R-enameled can. Pour boiling sirup over berries to 2 inches from top of container.

Steam No. 2 and No. 2½ cans.....10 minutes

Close and Process.—

CONTAINERS	BOILING WATER BATH
No. 2 cans.....	15 minutes
No. 2½ cans.....	20 minutes

Remove containers from water bath and cool.

CHERRIES

Preparation.—Wash and sort; remove pits, if desired. If not pitted, the fruit may be punctured with a needle. Pack according to one of the following methods.

One-Step, Cold Pack.—Fill jars to $\frac{1}{2}$ inch of top or to $\frac{1}{4}$ inch of top for cans. Shake while filling for a full pack. Cover with boiling sirup, leaving $\frac{1}{2}$ -inch space at top of jar.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints	20 minutes
Quarts	25 minutes

Remove containers from water bath and cool.

or

Pack Raw and Steam.—After preparing fruit as directed above, pack tightly in R-enameled can until full. Pour boiling sirup to $1\frac{1}{2}$ inches from top of container.

No. 2 cans.....10 minutes
No. 2½ cans.....10 minutes

Close and Process.—

CONTAINERS	BOILING WATER BATH
No. 2 cans.....	20 minutes
No. 2½ cans.....	25 minutes

Remove containers from water bath and cool.

or

Hot Pack.—Prepare fruit as indicated above. Add $\frac{1}{2}$ cup sugar to each quart of fruit. Add a little water to unpitted cherries to keep them from sticking while heating. Cover pan and bring to a boil. Pack to within $\frac{1}{2}$ inch of the top of jars or completely fill cans. Adjust jar lids or exhaust cans and seal. Process in boiling water bath.

CONTAINERS	BOILING WATER BATH
Pint jars.....	10 minutes
Quart jars.....	15 minutes
No. 2 cans.....	15 minutes
No. 2½ cans.....	20 minutes

FIGS

Preparation.—Wash and sort figs. Cover with fresh water and boil for 2 minutes. Drain and use this water to make sirup. (See page 2.)

Hot Pack.—Pack within $\frac{1}{2}$ inch of the top of the jar and add sirup to the same level. Close and process containers.

CONTAINERS	BOILING WATER BATH
Pints and quarts.....	30 minutes

Remove containers from water bath and cool.

FRUIT JUICE

(Plum, Berry, Cherry, Grape or Blends of These)

Preparation.—Wash fruit. Crush and heat to simmering. Extract juice. Add $\frac{1}{2}$ to 2 cups sugar to a gallon of juice according to taste. Add no sugar to juice which is to be used later for making jelly. Heat again to simmering.

Hot Pack.—Pour into hot, clean jar to $\frac{1}{2}$ inch of top or $\frac{1}{4}$ inch of top of R-enamel can.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints and quarts.....	5 minutes
No. 2 and No. 2½ cans.....	5 minutes

Remove containers from water bath and cool.

FRUIT PUREE

(Peach, Apricot and Pear)

Preparation.—Wash. Remove peel and seed from very soft fruit. Chop fine or mash. Add about $\frac{1}{2}$ cup sugar for each quart of raw fruit. Heat to boiling.

Hot Pack.—Pour into hot, clean glass jar to $\frac{1}{2}$ inch of top or to top of plain can.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints and quarts.....	10 minutes
No. 2 and No. 2½ cans.....	10 minutes

Remove containers from water bath and cool.

GRAPEFRUIT, ORANGE AND LEMON JUICE

Preparation.—Wash fruit. Extract juice from citrus fruit with electric or hand reamer, being careful not to get the oil from the fruit peel in the juice. Do not ream too close to the white peel. Screen out seed and any white membrane which gets into juice. Pack according to one of the following methods.

Hot Pack.—Heat juice to simmering. Pour while hot into jar to $\frac{1}{2}$ inch of top or $\frac{1}{4}$ inch of top of plain cans.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints and quarts.....	5 minutes
No. 2 and No. 2½ cans.....	5 minutes

Remove containers from water bath and cool.
or

Hot Pack (Alternate Method)—This method is to be used when a thermometer is available. Prepare only enough juice to fill 4 to 6 cans. Heat juice rapidly to 180–190° F. Remove from heat. Fill clean, plain tin cans full of the hot juice. Seal and invert can for 1 minute to sterilize the lids. Cool immediately in cold water. The rapid cooling of the juice helps retain its natural flavor. Hot pint glass jars may be used, although some loss of color and flavor is likely. Sterilize self-sealing lids by placing in boiling water.

GRAPEFRUIT SECTIONS

Preparation.—Wash fruit. With a sharp knife, cut slices from both ends of the unpeeled fruit, cutting into the flesh or segment. Then remove the rest of the peel and white membrane in wide slices, cutting from one end to the other. Run the blade of a paring knife between the segments and separate them from the rest of the membrane.

One-Step, Cold Pack.—Pack tightly into glass jar or plain can until full. Cover with boiling sirup.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints and quarts.....	7 minutes
No. 2 and No. 2½ cans.....	7 minutes

Remove containers from water bath and cool.

PEACHES

Preparation.—Wash. Peel or place fully ripe, firm fruit in wire basket or cheesecloth and dip in boiling water 2 minutes or until skins slip. Plunge into cold water quickly. Slip off skins. Cut into halves and remove seed. Pack according to one of the following methods.

One-Step, Cold Pack.—Pack raw fruit to $\frac{1}{2}$ inch of top of jar. Cover with boiling sirup, leaving $\frac{1}{2}$ -inch space at top of jar.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints	25 minutes
Quarts	30 minutes

Remove containers from water bath and cool.
or

Pack Raw and Steam.—After peeling and removing seeds, pack tightly and pile above top of

plain can. Pour boiling sirup to 1 or 2 inches from top of container.

Steam No. 2 and 2½ cans.....10 minutes

Close and Process.—

CONTAINERS	BOILING WATER BATH
No. 2 cans.....	30 minutes
No. 2½ cans.....	35 minutes

Remove containers from water bath and cool.
or

Hot Pack.—Wash and peel peaches as directed above. Heat peaches through in hot sirup. If fruit is very juicy you may heat it with sugar, adding no liquid. Pack fruit to ½ inch of jar top or to ¼ inch of can top. Cover with boiling liquid leaving ½ inch space at the top of jar or fill can to the top with liquid. Adjust jar lids or seal cans.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pint jars.....	20 minutes
Quart jars.....	25 minutes
No. 2 cans.....	25 minutes
No. 2½ cans.....	30 minutes

Remove containers from water bath and cool.

PEARS

Preparation.—Can only ripe mellow pears. Gather Kieffer pears when they become slightly yellow. Wrap in paper and allow to mellow. This may require 2 to 3 weeks. Summer pears may be canned after ripening on tree. Wash pears. Peel, cut in halves and core. Pack according to one of the following methods.

One-Step, Cold Pack.—Pack raw fruit to ½ inch of top of jar. Cover with boiling sirup, leaving ½-inch space at top of jar.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints	25 minutes
Quarts	30 minutes

Remove containers from water bath and cool.
or

Pack Raw and Steam.—After cleaning and cutting, pack tightly and pile above top of plain can. Pour boiling sirup to 1 inch from top of container.

Steam No. 2 cans.....	10 minutes
Steam No. 2½ cans.....	15 minutes

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints	20 minutes
Quarts and No. 2 cans.....	30 minutes
No. 2½ cans.....	35 minutes

Remove containers from water bath and cool.

PINEAPPLE

Preparation.—Select ripe fruit from which spines may be pulled easily. Wash, cut off stem end and twist out top. Cut ½-inch slices. Peel each slice as it is cut. Remove core and eyes.

Hot Pack.—Boil in sirup 5 to 10 minutes. Pack. Add sirup to ½ inch of jar top.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints and quarts.....	30 minutes

Remove containers from water bath and cool.
or

Pack Raw and Steam.—Pack tightly and pile above top of plain can. Pour boiling sirup to 1 inch from top of container.

Steam No. 2 cans.....	5 minutes
Steam No. 2½ cans.....	10 minutes

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints and quarts.....	30 minutes

Remove containers from water bath and cool.

PLUMS

Preparation.—Wash plums. To can whole, prick skin of each plum with needle to prevent bursting. Freestone varieties may be halved and pitted. Pack according to one of the following methods.

One-Step, Cold Pack.—Pack raw fruit to ½ inch of top of jar. Cover with boiling sirup, leaving ½-inch space at top.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints	20 minutes
Quarts	25 minutes

Remove containers from water bath and cool.
or

Pack Raw and Steam.—Wash and prepare plums as directed above. Pack tightly and pile above top of R-enamel can. Pour boiling sirup to 1 or 2 inches from top of container.

Steam No. 2 cans.....	10 minutes
Steam No. 2½ cans.....	10 minutes

Close and Process.—

CONTAINERS	BOILING WATER BATH
No. 2 cans.....	15 minutes
No. 2½ cans.....	20 minutes

Remove containers from water bath and cool.
or

Hot Pack.—Wash and prepare plums as directed above. Heat to boiling in sirup or juice. If fruit is very juicy you may heat it with sugar, adding

no liquid. Pack hot fruit to 1/2 inch of jar top or 1/4 inch of can top. Cover with boiling liquid leaving 1/2 inch space at top of jar or fill can to top. Steam can 10 minutes and seal.

Process.—

CONTAINERS	BOILING WATER BATH
Pint jars.....	20 minutes
Quart jars.....	25 minutes
No. 2 cans.....	15 minutes
No. 2 1/2 cans.....	20 minutes

Remove containers from water bath and cool.

RHUBARB

Preparation.—Wash. Remove leaves and blemishes. Cut into 1/2-inch lengths.

Pack Raw and Steam.—Pack tightly and pile above the top of R-enamel can. Pour boiling sirup to 2 inches from top of container.

Steam pints and No. 2 cans.....	5 minutes
Steam quarts and No. 2 1/2 cans.....	8 minutes

Close and Process.—

CONTAINERS	BOILING WATER BATH
No. 2 cans.....	10 minutes
No. 2 1/2 cans.....	10 minutes

Remove containers from water bath and cool.

Hot Pack.—Wash rhubarb and cut into 1/2-inch pieces. Add 1/2 cup sugar to each quart rhubarb and let stand to draw out juice. Bring to boiling. Pack to 1/2 inch of jar top.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints	10 minutes
Quarts	10 minutes

Remove containers from water bath and cool.

TOMATOES

Preparation.—Wash and sort fresh, firm, vine-ripened tomatoes. Put in wire basket or thin cheesecloth bag. Dip in boiling water 1 minute or until skins crack. Plunge into cold water immediately. Remove core and skins. Leave whole or cut in halves or quarters. Add 1/2 teaspoon salt to each pint or No. 2 can and 1 teaspoon salt to each quart or No. 2 1/2 can. Pack according to one of the following methods.

One-Step, Cold Pack.—Pack tomatoes to 1/2 inch of top of jar, pressing gently to fill spaces. Add no water.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints and No. 2 cans.....	35 minutes*
Quarts and No. 2 1/2 cans.....	45 minutes*

Remove containers from water bath and cool.

Pack Raw and Steam.—Wash and prepare tomatoes as directed above. Pack in plain can. Press together so that juice will cover solid pieces. If whole canned tomatoes are desired, pack slightly above top of container. Pour hot tomato juice to 2 inches from top of container.

Steam No. 2 and 2 1/2 cans.....	10 minutes
---------------------------------	------------

Close and Process.—

CONTAINERS	BOILING WATER BATH
No. 2 cans.....	10 minutes*

Remove containers from water bath and cool.

Note: For a firmer whole tomato, add 1 teaspoon of anhydrous calcium chloride solution to 1 quart of tomatoes. Ask druggist to prepare this solution by dissolving 2 1/4 ounces anhydrous calcium chloride in 1 pint distilled water. One pint of this solution is sufficient for about 100 quarts of tomatoes.

*If low acid tomatoes are used, add 10 minutes processing time.

TOMATO JUICE

Preparation.—Wash well-ripened tomatoes. Cut away any bruised or green portions. Quarter. If sprosieve is available, put tomatoes through it without heating. Otherwise, simmer 10 minutes in covered pan (without adding water) and press through a fine strainer or cheesecloth. Heat juice to simmering in a covered pan. Add 1/2 teaspoon salt to a pint or No. 2 can and 1 teaspoon salt to a quart or No. 2 1/2 can.

Hot Pack.—Pour simmering juice into glass jar to 1/2 inch of top or 1/4 inch of top of plain can.

Close and Process.—

CONTAINERS	BOILING WATER BATH
Pints and quarts.....	10 minutes
No. 2 and No. 2 1/2 cans.....	15 minutes

Remove containers from water bath and cool.

STANDARDS FOR CANNED FRUITS

Full pack, with sirup or liquid just covering the product and coming to 1/2 inch from top of the jar. Have containers free of air bubbles.

APPLES—Practical packs important, shape held,

color good for type of apple, clear sirup.

APPLE SAUCE—Fine particles, no lumps. Color will depend on amount of sugar and spices added.

BERRIES—Full pack, shape held, uniform in size and degree of ripeness, good color for type of berry, clear sirup.

CHERRIES—Shape held, good color, clear sirup.

FRUIT JUICE—Good color for type of fruit. No seed or skin; fine, even pulp.

FRUIT PUREE—Fine, uniform particles; color characteristic of fruit used.

GRAPEFRUIT—Sections held shape; even, light color; clear sirup.

PEACHES, PEARS AND APRICOTS—Halves packed in overlapping layers, with concave surface of each half placed downward. Uniform size, shape held, color characteristic of fruit, unfaded, even ripeness, clear sirup. Not mushy from overripeness, overcooking or flat sour.

PINEAPPLE—Uniform in size and color, no eyes or core, clear sirup.

PLUMS—Uniform in size and color, even ripeness, shape held, food even color, clear sirup. Not mushy from overripeness or overcooking.

RHUBARB—Pieces held shape and retained most of their color. Sirup slightly pink.

TOMATOES, CANNED—Even, rich color characteristic of variety, packed in their own juice, seed visible.

TOMATOES, CANNED WHOLE—Shape held even, rich color characteristic of variety, tomatoes packed in tomato juice, no seed.

TOMATO JUICE—A rich color characteristic of fruit, free from seed and skins. Fine, even division of pulp, which stands suspended in the liquid with little or no separation.

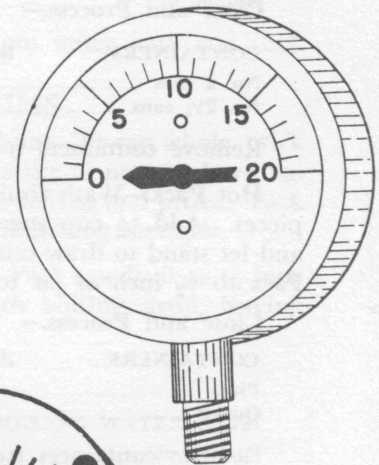
PROCESSING METHODS FOR VEGETABLES

● The pressure canner method is necessary for processing all non-acid vegetables in order to prevent possible spoilage and/or botulinum. Botulinum cannot be detected except in extreme cases, as the flavor, texture and odor are not necessarily affected. Boil all home-canned, non-acid vegetables for 15 to 20 minutes in an uncovered pan before tasting. Instructions in this bulletin apply to most brands of pressure canners.

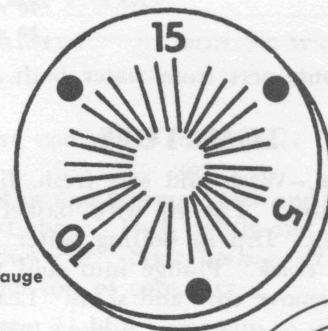
● Pressure saucepans of adequate size and provided with an indicator or gauge, operating accurately at 10 pounds pressure, may be used for canning small amounts of vegetables.

Pressure Canner

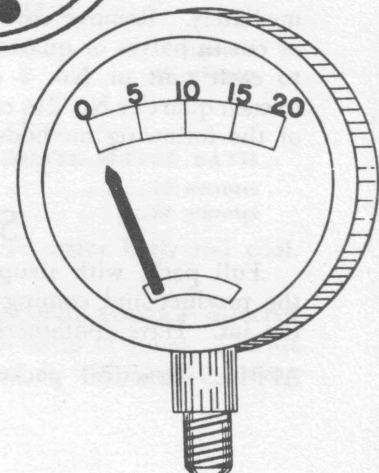
Three types of gauges are used on pressure canners—geared, gearless, and weighted. The geared gauge may be repaired or adjusted when it is slightly out of order. It is easier to read than the gearless gauge which does not have markings to indicate each pound of pressure. Petcocks and safety valves control the escape of air or steam from a pressure canner.



Geared Gauge



Weighted Gauge



Gearless Gauge

Keep Your Pressure Canner In Safe Working Order

- **Take off** removable petcocks and safety valves and wash and dry thoroughly after each use. Occasionally soak these parts in vinegar to remove any corrosion. Follow manufacturer's direction for weighted gauges.

- **Use toothpick**, pipe cleaner or string to clean openings in lid of the canner.

- **Wash pressure canner** thoroughly after each use. Do not immerse lid in water. Do not use harsh scouring powders.

- **To remove odors and stains**, use one of the following mixtures and process at 5 pounds pressure for 5 minutes:

1. Juice of 1 lemon and 2 quarts of water.
2. Two tablespoons of vinegar and 2 quarts of water.
3. Handful of Irish potato peelings and 2 quarts of water.

- **If the lid of a pressure canner** that seals metal to metal is difficult to remove or steam escapes, grease the closing surfaces with saltfree fat.

- **If the canner lid is equipped with a rubber gasket**, keep lid and gasket clean and free from grease.

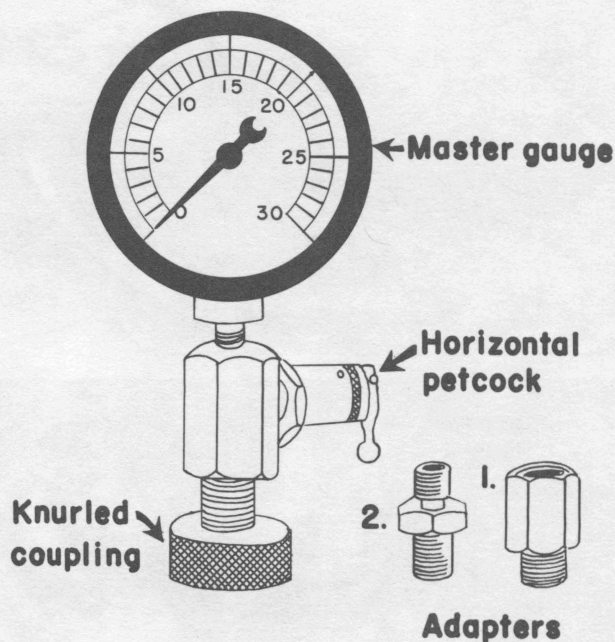
- **Never add cold water to a hot canner.** Guard against sudden cooling that might cause it to warp or crack.

- **Store a clean, dry canner** with crumpled newspaper inside to absorb moisture and odors. Wrap cover in paper and invert it on top of canner.

- **Check the dial gauge** on the pressure canner at least once each year and more often if canner is used frequently or if lid is dropped or receives a hard knock. If the gauge is not registering correctly, food might be either underprocessed or overprocessed. A weighted gauge needs only to be cleaned thoroughly.

Checking the Gauge with a Master Gauge Tester

With a master gauge tester, the pressure gauge is tested without removing it from the canner and the seal of the canner is checked at the same time.

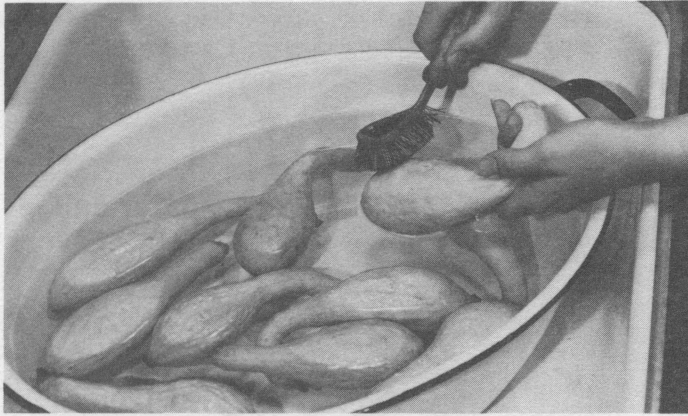


Master Gauge Tester

1. Attach the master gauge tester to the canner by one of the following methods, depending on the make of the canner:
 - a. Remove the upper part of the petcock on cover and replace with master gauge tester. Tighten the knurled coupling (with fingers only).
 - b. Remove the upper part of the petcock and replace with adapter Number 1. Place tester on adapter, tighten the knurled coupling of the tester (with fingers only).
 - c. If the canner does not have a two-piece petcock, remove the entire petcock from the canner cover and replace with adapter Number 2. Place tester on adapter Number 2, and tighten the knurled coupling of the tester (with fingers only).
2. Place 2 inches of water in the pressure canner. Close the pressure canner and leave the petcock on the master gauge tester open, allowing the steam to escape for 10 minutes. Close the petcock on the tester and compare the readings of the canner gauge with the master gauge tester at 5 and 10 pounds pressure.
3. After testing, remove canner from heat and release pressure by opening the petcock on the master gauge tester. Remove the master gauge tester and replace the petcock on the pressure canner lid.

HOW TO PACK LOW- ONE-STEP COLD-

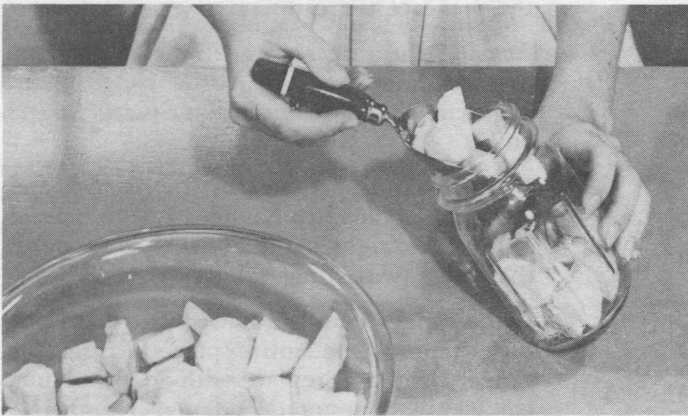
*Example shown here:
summer squash*



1. Select fresh, young, tender squash. Wash thoroughly; a vegetable brush helps remove sand or dirt.



2. Trim off ends and cut squash into 1/2-inch slices. Halve or quarter to make pieces of uniform size.



3. Pack raw squash tightly into clean jars to 1 inch of top. Add 1/2 teaspoon salt to pints, 1 teaspoon to quarts.



4. Fill jar to 1/2 inch of top with boiling water. Wipe jar rim clean. Place clean, hot metal lid on jar so that sealing compound is next to the glass. Screw metal band on firmly.

W-ACID FOODS BY THE LD-PACK METHOD

Photographs and descriptions courtesy of the Institute of Home Economics, Agricultural Research Service, USDA

5. Have 1½ or 2 inches of boiling water in the pressure canner. Place filled jars in canner.



6. Put on canner cover and turn to the locked position. With vent open and heat on high, let steam escape for 10 minutes. Close vent. Bring pressure up to 10 pounds and process 25 minutes for pints of squash, 30 minutes for quarts at sea level. (For higher altitudes, see page 13.)



7. When time is up, remove canner from heat. Let pressure drop to zero. Slowly open vent. Remove cover, tilting the far side up, to keep steam away from your face.

Put jars on a rack or folded cloth, out of drafts to cool. Do not tighten bands on these self-sealing closures. Label to show contents, date and lot number.



- If the gauge is registering more than 4 pounds above or below 10 pounds pressure at sea level, place a new gauge on the canner. If the pressure canner gauge is not registering more than 2 pounds above or below, process at the reading it gave when the master gauge tester read 10 pounds pressure at sea level.

Check Master Gauge Tester

Have master gauge tester checked at least once a year, and more often if it is used a great deal or receives a hard jolt. It may be checked at a power plant or any place where steam pressure gauges are used.

Checking the Gauge with a Maximum Thermometer

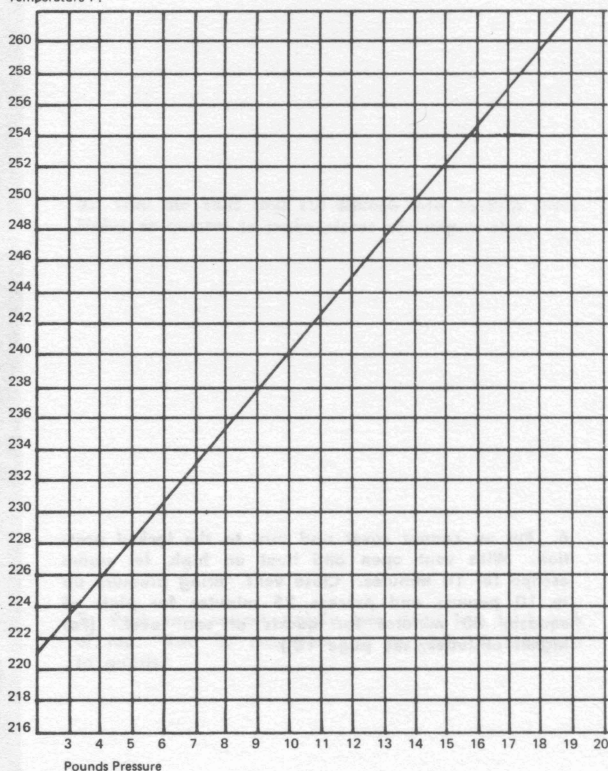
- Shake mercury down as for a clinical thermometer.
- Keep thermometer in case, if open face type, and stand it upright in a tin can or pint glass jar which contains water to a depth of one inch. Use water to depth of one inch in cooker. Put rack in bottom of cooker.
- Put lid on cooker and use same exhausting method as if canned food were in cooker. Leave petcock open for 10 minutes after steam begins to escape in cookers up to 18-quart size and 12 minutes in 19- to 40-quart size.
- Close petcock and let pressure rise to 10 pounds. If pressure goes above 10 pounds, note the highest pressure reached and keep at that pressure for five minutes.
- Remove from heat and let stand till gauge registers zero.
- Open cooker, as if canned products were inside.
- Remove and read the thermometer immediately. Keep it upright while reading. Keep it away from drafts or cool surfaces while it is hot. **THE THERMOMETER IS FRAGILE AND WILL BREAK EASILY.**
- Check recorded temperature with graph to determine necessary correction to make in using cooker.

To Use Graph

Follow line horizontally from figure in left hand column corresponding to temperature reached on thermometer, until horizontal line meets diagonal line. A vertical line from this point will give the corresponding pressure for that temperature. *If the pressure cooker is accurate at 10 pounds pressure the thermometer will read 240° F.* Example: At 10 pounds pressure for the cooker tested, the thermometer actually registered 234 degrees F. This is the correct temperature for 7½ pounds pressure, which means an error of 2½ pounds pressure. (10 pounds minus 7½ pounds.)

When the tested cooker which has this error of 2½ pounds is to be used at 10 pounds—10 plus 2½ equals 12½ pounds. It is better to use more rather than less heat. Since it is difficult to estimate a portion of a pound of pressure on the gauge, let the gauge register the next pound higher.

Temperature F.



Safety Pointers With Pressure Canner

- Never release steam suddenly.
- Never remove the lid until steam has been released or until the pressure gauge registers zero.
- When removing the canner lid, lift the back side of the lid, thus permitting the heat to escape away from the face and arms.

HOW TO CAN VEGETABLES

Preliminary Steps

Use either the *Hot Pack*, *Pack Raw* and *Steam* or the *One-Step*, *Cold Pack* method when canning vegetables.

1. Wash all jars and cans in hot, soapy water and rinse well. Jars and cans need not be sterilized when canning in the pressure canner.
2. Prepare and pack the vegetables according to instructions given for each.

Steps 3 through 6 apply Only to the **PACK RAW AND STEAM METHOD**. Omit Them When Canning By The **One-Step, Cold Pack** method or the **Hot Pack** method.

3. Have at least 1½ to 2 inches of boiling water in the canner. Place the filled containers, without lids, on a rack in the boiling water. Cans may be staggered.
4. Fasten the lid on the canner; leave the petcock open the entire time of steaming to pre-heat.
5. Count steaming time as soon as there is a good issue of steam from the petcock. See specific vegetable for length of time to steam.
6. At the end of the steaming time, remove lid from canner. Leave canner on low heat to keep hot. Lift out one container at a time. Press the food down and work out air bubbles with a knife. Have the food just covered with the liquid, allowing ½-inch headspace from the top of the liquid to the top of the jar for all vegetables except corn, shelled beans and peas. Allow 1-inch headspace for these vegetables. With tin cans allow ¼-inch headspace from the top of the liquid to the top of the can for all vegetables except corn, shelled beans and peas. Allow ½-inch headspace for these vegetables. Some food may need to be removed or added at this time to get the correct fill.

Processing in a Pressure Canner

1. Wipe off the sealing surface of containers. Close according to the type of lid being used.
2. Place the closed containers of hot food in the canner, which contains 1½ to 2 inches of boiling water.
3. Place the lid on the canner and fasten securely. If the lid is fastened by clamps, tighten opposite clamps moderately at first. Then go back

over the whole set to tighten each pair as much as possible (with fingers only).

4. Leave the petcock open until the steam escapes steadily for 10 minutes so that no air will remain in the canner. Close the petcock.
5. Count processing time as soon as the pressure reaches 10 pounds or the adjusted pressure. Adjust pressure for altitudes according to the following table.

FEET ELEVATION	POUNDS PRESSURE TO USE
1-1000	10
2000	11
4000	12

A weighted gauge may need to be corrected for altitude by the manufacturer. See specific vegetable for the length of time to process.

6. Keep a uniform pressure by adjusting the heat or by moving the canner carefully.
7. At the end of the processing time, remove the canner from the heat.
 - a. For No. 2 cans, open the petcock slowly until all the steam is released and the dial registers zero. Open the canner and remove the cans, plunging at once into cold water.
 - b. For No. 2½ cans and glass jars, allow the canner to cool until the gauge registers zero; open the petcock gradually, and remove the cover. Plunge No. 2½ cans into cold water immediately. Leave glass jars in the canner about 5 minutes. Remove jars and place right side up on a rack far enough apart to cool quickly. Do not place in a draft or on a cold surface.

DO NOT PLUNGE GLASS JARS INTO COLD WATER.

Processing Vegetables in a Pressure Saucepan

(Alternate to Pressure Canner Method)

A pressure saucepan may be used for processing small amounts of vegetables in pint jars or No. 2 cans. Place a rack in the pressure saucepan and add 1 quart of boiling water. Prepare and pack vegetable as described in preliminary steps 1 through 6. The following steps for processing in a pressure saucepan apply to all packing methods.

1. Wipe off the sealing surface of the container. Close according to the type of lid being used.
2. Place closed containers of food in the saucepan; adjust the saucepan cover.
3. Allow the steam to escape briskly for at least 1 minute. Place the gauge on the vent and allow the pressure to reach 10 pounds.
4. Count the time exactly from the moment 10 pounds pressure is reached.
5. At the end of the processing time remove the saucepan from the heat and *allow it to cool normally* until the pressure has returned to zero. If the saucepan has a weighted gauge nudge the gauge slightly. If no steam escapes when the gauge is lifted slightly, the pressure is down and the saucepan may be opened safely.

DIRECTIONS FOR CANNING VEGETABLES

Use only fresh, young, tender, clean vegetables and can them quickly. One hour from the garden to the container is a good rule to follow.

Salt: Add 1/2 teaspoon salt to each pint and No. 2 can and 1 teaspoon to each quart and No. 2 1/2 can of vegetables.

ASPARAGUS

Preparation.—Sort according to size. Wash and brush thoroughly; trim off scales and tough ends. Pack according to one of the following methods.

One-Step, Cold Pack.—Cut asparagus into 1-inch pieces and pack as tightly as possible without crushing to 1/2 inch from the top of jar. Cover with boiling water, leaving 1/2-inch space at top of jar.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER —OR—	PRESSURE SAUCEPAN
Pint jars	25 minutes	45 minutes
Quart jars	30 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

or

Pack Raw and Steam.—Cut asparagus into lengths to fit container. Pack raw asparagus tightly with tips up. Pour boiling water to 1 inch from top of the container.

Steam No. 2 cans.....	5 minutes
Steam No. 2 1/2 cans.....	10 minutes

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER —OR—	PRESSURE SAUCEPAN
No. 2 cans	20 minutes	40 minutes
No. 2 1/2 cans	20 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

or

Hot Pack.—Cover with boiling water and boil 2 to 3 minutes. Pack hot asparagus loosely to 1/2 inch of top. Cover with boiling hot cooking liquid or boiling water if cooking liquid contains grit.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER —OR—	PRESSURE SAUCEPAN
Pints	25 minutes	.....
Quarts	30 minutes	.....

Remove containers from water bath and cool.

BEANS AND PEAS, SHELLED FRESH

(*Fresh Lima Beans, Pinto Beans, Cream Peas, English Peas, Blackeye Peas*)

Preparation.—Wash and shell. Pack according to one of the following methods.

One-Step, Cold Pack.—Pack raw shelled peas or beans to 1 1/2 inches of top of pint jars or 2 inches of top of quart jars; do not shake or press down. Cover with boiling water, leaving 1/2-inch space at top of jars.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	PRESSURE
	CANNER	-OR- SAUCEPAN
Pints	40 minutes	60 minutes
Quarts	40 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

or

Pack Raw and Steam.—Pack to top of jar, C-enamel or plain can. Pour boiling water to 1/2 inch from top of container.

Steam No. 2 cans.....	10 minutes
Steam No. 2½ cans.....	15 minutes

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	PRESSURE
	CANNER	-OR- SAUCEPAN
No. 2 cans	40 minutes	60 minutes
No. 2½ cans	40 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

BEANS AND PEAS, SNAP

Preparation.—Wash; trim ends. Snap or cut into 1 or 2-inch pieces. Pack according to one of the following methods.

One-Step, Cold Pack.—Pack raw beans tightly to 1/2 inch of top of jar. Cover with boiling water leaving 1/2-inch space at top of jar.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	PRESSURE
	CANNER	-OR- SAUCEPAN
Pint jars	20 minutes	40 minutes
Quart jars	25 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

or

Pack Raw and Steam.—Pack tightly into plain can. Pile slightly above top. Pour boiling water to 1 inch from top of container.

Steam No. 2 cans.....	8 minutes
Steam No. 2½ cans.....	13 minutes

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	PRESSURE
	CANNER	-OR- SAUCEPAN
No. 2 cans	25 minutes	45 minutes
No. 2½ cans	30 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

BEETS

Preparation.—Use small, dark-red beets. Wash. Leave roots and 1 inch of stems. Place in kettle; add boiling water; cover kettle with lid. Cook until skins slip (15 to 25 minutes for small beets). Dip beets in cold water. Skin and trim. Leave small beets whole. Quarter larger ones.

Pack Raw and Steam.—Pack beets to 1/4 inch from top of R-enamel can. Cover with boiling water.

Steam No. 2 cans.....	5 minutes
Steam No. 2½ cans.....	10 minutes

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	PRESSURE
	CANNER	-OR- SAUCEPAN
No. 2 cans	30 minutes	50 minutes
No. 2½ cans	30 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

or

Hot Pack.—Pack hot beets to 1/2 inch of jar top. Cover with boiling water, leaving 1/2-inch space at top of jar.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	PRESSURE
	CANNER	-OR- SAUCEPAN
Pints	30 minutes	.....
Quarts	35 minutes	.....

Remove containers and cool.

CARROTS

Preparation.—Wash, sort for size and scrape or peel. Pack according to one of the following methods.

One-Step, Cold Pack.—Slice and dice. Pack tightly into jar to 1 inch of top. Fill jar to top with boiling water.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	PRESSURE
	CANNER	-OR- SAUCEPAN
Pint jars	25 minutes	45 minutes
Quart jars	30 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

or

Pack Raw and Steam.—Instead of being scraped or peeled, carrots may be cooked in boiling water until skins slip. Dip cooked carrots in cold water and skin. Can small carrots whole or cut larger ones lengthwise. Pack tightly to 1/4 inch from top of can. Cover with boiling water.

Steam No. 2 cans.....	10 minutes
Steam No. 2½ cans.....	15 minutes

Close and Process at 10 pounds Pressure.—

CONTAINERS	PRESSURE	
	CANNER	—OR— SAUCEPAN
No. 2 cans	20 minutes	40 minutes
No. 2½ cans	25 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

CORN, CREAM STYLE

(Field corn is not recommended for canning cream style)

Preparation.—Shuck, wash and silk. Cut corn from the cob at about the center of the kernel and scrape the cob. Pack according to one of the following methods.

One-Step, Cold Pack.—Pack raw corn into clean jars and fill to 1½ inches of top of jar. Corn should be leveled before measuring head space, but should not be pressed or shaken down. Fill jar to ½ inch of top with boiling water.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	
	CANNER	—OR— SAUCEPAN
Pint jars	95 minutes	115 minutes
Quart jars	Not recommended	.....

Remove containers from pressure canner or pressure saucepan and cool.

or

Pack Raw and Steam.—Pour corn loosely to 1½ inches from top of No. 2 C-enamel can. Fill container with boiling water to ½ inch from top. Stir well before steaming and stir again after steaming.

Steam No. 2 cans.....	15 minutes
-----------------------	------------

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	
	CANNER	—OR— SAUCEPAN
No. 2 cans	105 minutes	125 minutes

Remove containers from pressure canner or pressure saucepan and cool.

CORN, WHOLE-GRAIN STYLE

Preparation.—Shuck by cutting off both ends of the cob and removing the shuck. Wash, silk and trim. Cut corn from cob at about ⅓ the depth of the kernel. Do not scrape the cob. Pack according to one of the following methods.

One-Step, Cold Pack.—Pack raw corn into clean jars and fill to 1 inch of top of jar for pints and 1¾ inches from top for quarts. Corn should be leveled before measuring head space but should not be pressed or shaken down. Fill jar to ½ inch of top with boiling water.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	
	CANNER	—OR— SAUCEPAN
Pint jars	55 minutes	75 minutes
Quart jars	85 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

or

Pack Raw and Steam.—If field corn is used, pour corn loosely into C-enamel can, ½ to ⅔ full. If sweet corn is used, fill No. 2 can to 1 inch from top and No. 2½ can to 2 inches from top. Fill container with boiling water to ½ inch from top. Stir well before steaming and again after steaming.

Steam pint jars and No. 2 cans.....	15 minutes
Steam quart jars and No. 2½ cans.....	20 minutes

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	
	CANNER	—OR— SAUCEPAN
No. 2 cans	60 minutes	80 minutes
No. 2½ cans	60 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

GREENS

(Mustard, Tender Greens, Turnip Tops, Spinach, Swiss Chard and Wild Greens)

Preparation.—Wash thoroughly. Cut out tough stems and midribs and discard any bad parts. Simmer in a covered kettle with small amount of water 5 minutes or until completely wilted.

Hot Pack.—Pack hot greens loosely to ½ inch from top of jar or ¼ inch from top of can. Cut through center several times with a knife. Cover with boiling water, leaving ½-inch head space for jars. Fill cans to the top and steam 10 minutes.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	
	CANNER	—OR— SAUCEPAN
Pint jars	70 minutes	90 minutes
Quart jars	90 minutes	.....
No. 2 cans	65 minutes	85 minutes
No. 2½ cans	75 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

HOMINY

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

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

Hot Pack.—Pack hot hominy to $\frac{1}{2}$ inch from top of jar or $\frac{1}{4}$ inch from can top. Cover with boiling water leaving $\frac{1}{2}$ inch space at top of jar or fill cans completely. Steam cans 10 minutes before processing.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER	PRESSURE SAUCEPAN
Pint jars and No. 2 cans.....	60 minutes	
Quart jars and No. 2½ cans.....	70 minutes	

Remove containers from pressure canner and cool.

OKRA

Preparation.—Can small, whole pods or cut into 1-inch lengths. Wash well, leave $\frac{1}{8}$ -inch stem on whole pods.

Hot Pack.—Cook okra for 1 minute in boiling water. Pack to $\frac{1}{2}$ inch of jar top or $\frac{1}{4}$ inch of can top. Cover with boiling water, leaving $\frac{1}{2}$ -inch space at top of jar or filling can completely. Steam for 10 minutes.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER	PRESSURE SAUCEPAN
No. 2 cans	25 minutes	45 minutes
No. 2½ cans	35 minutes	.....

Pack Raw and Steam.—Pack tightly to slightly above top of plain can. Pour boiling water to 1 inch of top of container.

Steam No. 2 cans.....	7 minutes
Steam No. 2½ cans.....	12 minutes

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER	PRESSURE SAUCEPAN
No. 2 cans	25 minutes	45 minutes
No. 2½ cans	35 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

OKRA AND TOMATOES

Preparation.—Wash okra and cut into 1-inch lengths. Skin tomatoes, remove cores and cut into quarters. Mix okra and tomatoes.

Pack Raw and Steam.—Fill to top of plain can, pressing enough juice from tomatoes to cover solid pieces. Add no water.

Steam No. 2 cans.....	10 minutes
Steam No. 2½ cans.....	15 minutes

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER	PRESSURE SAUCEPAN
No. 2 cans	25 minutes	45 minutes
No. 2½ cans	35 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

PORK AND BEANS

Preparation.—Sort and wash dry kidney, navy or pinto beans. Cover with boiling water and boil 2 minutes. Remove from heat and let soak 1 hour. Heat again to boiling; drain.

Hot Pack.—Fill containers $\frac{3}{4}$ full with hot beans. Add a small piece of salt pork, ham or bacon and fill with boiling tomato sauce to $\frac{1}{2}$ inch from top of jar or $\frac{1}{4}$ inch from top of can.

Tomato Sauce

(For 1 pound soaked, dried beans)

4 cups tomatoes or juice	$\frac{1}{4}$ to $\frac{1}{2}$ teaspoon whole
2 teaspoons salt	cloves
3 tablespoons sugar or 2 to	$\frac{1}{4}$ to $\frac{1}{2}$ teaspoon whole
4 tablespoons molasses	cinnamon
2 tablespoons onion, chopped	$\frac{1}{4}$ to $\frac{1}{2}$ teaspoon whole
or 1 small garlic, chopped	allspice
$\frac{1}{4}$ cup vinegar	$\frac{1}{2}$ teaspoon cayenne pepper
	1 teaspoon celery seed
	1 bay leaf

Wash, core and skin tomatoes. Chop or grind fine. Add salt, molasses and onion. Boil 20 minutes. Tie spices in bag. Place into tomato mixture. Add vinegar and simmer 20 to 30 minutes.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER	PRESSURE SAUCEPAN
Pint jars and No. 2 cans	65 minutes	85 minutes
Quart jars and No. 2½ cans	75 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

POTATOES

Preparation.—Use potatoes 1 to 2½ inches in diameter. Wash, pare and cook in boiling water 10 minutes. Drain. Pack according to one of the following methods.

For cubed potatoes, wash, pare and cut into ½-inch cubes. Cook for 2 minutes in boiling water. Drain and process using either method.

Hot Pack and Steam (Cans).—Pack hot potatoes to ¼ inch of top of can. Fill to top with boiling water.

Steam No. 2 cans.....10 minutes
 Steam No. 2½ cans.....10 minutes

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER —OR—	PRESSURE SAUCEPAN
No. 2 cans	35 minutes	55 minutes
No. 2½ cans	40 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

or

Hot Pack.—Pack hot potatoes to ½ inch of top of jar. Cover with boiling water, leaving ½-inch headspace at top of jar.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER —OR—	PRESSURE SAUCEPAN
Pints	30 minutes	50 minutes
Quarts	40 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

PUMPKIN, CUBED

Preparation.—Wash and peel. Discard seed. Cut into 1-inch cubes.

Hot Pack.—Cover cubes with water and bring to a boil. Pack to ½ inch of jar top. Cover with hot cooking liquid, leaving ½ inch space at jar top.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER —OR—	PRESSURE SAUCEPAN
Pint jars	55 minutes	75 minutes
Quart jars	90 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

or

Pack Raw and Steam.—Pack tightly to top of R-enamel or plain can. Pour boiling water to 1 inch from top of container.

Steam No. 2 cans.....10 minutes
 Steam No. 2½ cans.....15 minutes

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER —OR—	PRESSURE SAUCEPAN
No. 2 cans	50 minutes	70 minutes
No. 2½ cans	75 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

PUMPKIN, STRAINED

Preparation.—Wash, remove seed and pare pumpkin. Cut into 1-inch cubes. Steam until tender, about 25 minutes. Mash or put through food mill or strainer. Simmer until heated through, stirring to keep from sticking to pan. Pack according to one of the following methods.

Pack Hot and Steam.—Prepare pumpkin as above and pack hot pumpkin to ⅛ inch of top of tin can.

Steam No. 2 cans.....10 minutes
 Steam No. 2½ cans.....10 minutes

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER —OR—	PRESSURE SAUCEPAN
No. 2 cans	75 minutes	95 minutes
No. 2½ cans	90 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

or

Hot Pack.—Pack hot to ½ inch of top of jar. Add no liquid or salt.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE CANNER —OR—	PRESSURE SAUCEPAN
Pint jars	65 minutes	85 minutes
Quart jars	80 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

SQUASH, SUMMER

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

One-Step, Cold Pack.—Pack raw squash tightly into clean jars to 1 inch of top of jar. Fill jar to 1/2 inch of top with boiling water.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	
	CANNER	—OR— SAUCEPAN
Pint jars	25 minutes	45 minutes
Quart jars	30 minutes	.....

Remove containers from pressure canners or pressure saucepan and cool.

SQUASH, WINTER

Follow the method given for pumpkin.

SWEET POTATOES, DRY PACK

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

Hot Pack.—Pack hot sweet potatoes tightly to 1 inch of top of jar pressing gently to fill spaces. Add no salt or liquid.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	
	CANNER	—OR— SAUCEPAN
Pint jars	65 minutes	85 minutes
Quart jars	95 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

SWEET POTATOES, WET PACK

Preparation.—Wash. Boil until skins slip. Remove skins and blemishes. Cut into uniform pieces.

Pack Raw and Steam.—Pack loosely to 1/4 inch of top of plain can. Pour boiling water to top of container.

Steam No. 2 cans.....	10 minutes
Steam No. 2 1/2 cans.....	20 minutes

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	
	CANNER	—OR— SAUCEPAN
No. 2 cans	70 minutes	90 minutes
No. 2 1/2 cans	90 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

or

Hot Pack.—Pack hot sweet potatoes to 1 inch of top. Cover with boiling water or medium sirup, leaving 1 inch head space at jar top.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	
	CANNER	—OR— SAUCEPAN
Pints	55 minutes	.....
Quarts	90 minutes	.....

Remove containers and cool.

VEGETABLE SOUP MIXTURE

Preparation.—Use 1 quart tomato pulp; 1 pint whole-grain corn or green shelled beans; 1 pint okra, carrots or snap beans; 1 cup chopped onion; and 1 1/2 teaspoon salt. Cook tomatoes and onions together. Put through sieve to remove seed. Cook until thick. Add salt. Add corn and other vegetables, which have been prepared as for canning. Bring to a boil.

Hot Pack.—Pack hot, to 1/2 inch of top of jar or 1/4 inch of top of can.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	
	CANNER	—OR— SAUCEPAN
Pint jars	60 minutes	80 minutes
Quart jars	70 minutes	.....
No. 2 cans	50 minutes	70 minutes
No. 2 1/2 cans	60 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

VEGETABLE-BEEF STEW

Preparation.—Prepare and mix the following ingredients:

- 2 quarts stewing beef, cut in 1 1/2-inch cubes
- 2 quarts potatoes, cut in 1/2-inch cubes
- 2 quarts carrots, cut in 1/2-inch cubes
- 3 cups celery, cut in 1/4-inch pieces
- 7 cups onion, small (whole, if 1 inch or less in diameter)

One-Step, Cold Pack.—Fill containers to top with raw vegetable-meat mixture. Do not add liquid.

Close and Process at 10 Pounds Pressure.—

CONTAINERS	PRESSURE	
	CANNER	—OR— SAUCEPAN
Pint jars	60 minutes	80 minutes
Quart jars	75 minutes	.....

Remove containers from pressure canner or pressure saucepan and cool.

STANDARDS FOR CANNED VEGETABLES

Full pack with liquid just covering the product and coming to $\frac{1}{2}$ inch from top of the jar. Have containers free of air bubbles.

ASPARAGUS—Uniform in size and color; clear liquid.

BEANS, GREEN SNAP—Half-matured beans with pods, even lengths, uniform maturity, olive green in color, clear liquid.

BEANS AND PEAS, GREEN SNAP—Pods about one-fourth inch in diameter, even length, seed not larger than pinheads, good green color, clear liquid.

BEANS, LIMA—About half mature, color right for variety, liquid slightly starchy.

BEANS, SHELLED FRESH PINTO—Light-brown color, uniform size and maturity, shape held, starchy liquid.

BEETS—Shape held, uniform in size of pieces, dark-red beets and clear-red liquid.

CARROTS—Practical pack, deep-orange color, clear liquid.

CORN—Yellow or white according to variety. Whole grain style; evenly graded, good color, clear liquid. Cream-style: evenly graded, good color; semisolid but should not be stiff.

GREENS—Good green color according to kind of greens, clear liquid.

OKRA—Dull or gray-green color according to variety, shape held, few seed visible, starchy liquid.

PEAS, BLACK EYE—About half mature, uniform maturity, good color, slightly starchy liquid.

PEAS, ENGLISH—Uniform size, good green color, clear liquid or slightly starchy.

PEAS, SHELLED FRESH CREAM—Shape held, uniform size and maturity, cream color, starchy liquid.

PUMPKIN—Orange color, shape held, liquid slightly starchy.

SQUASH—Uniform size or pieces, shape held, clear liquid, good color for variety.

SWEET POTATOES—Uniform size and pieces, shape held, color characteristic of variety, slightly starchy amber-colored liquid.

SWEET POTATOES, DRY PACK—Solid pack, color characteristic of variety.

STORAGE OF CANNED FOOD

After testing seals of jars and cans, store in a clean, cool, dark, dry place. Canned food kept in a warm, damp place may change in color and flavor. It is wise to use all home-canned food within a year.

Freezing of canned food does not cause spoilage but may cause undesirable changes in flavor

and texture. If the seal is broken, the food will spoil. If leaks appear in jars of frozen food, use the food immediately or keep it frozen until ready for use.

For additional information ask your county Extension agent for: *L-1017, Good Quality and Safe Home Canned Food.*

YIELD OF CANNED FRUITS AND VEGETABLES FROM FRESH

The number of pints of canned food you will get from a given quantity of fresh food depends on the quality, variety and maturity of the fruit or vegetable; on the size of the pieces; and on whether the *hot pack*, *pack raw* and *steam*, or the *one-step, cold pack* method is used. The following weights and yields are approximate depending upon the above.

FRUITS	QUANTITY, FRESH	YIELD
Apples	1 bu. (48 lb.)	30-44 pt.
Apricots	1 bu. (48 lb.)	30-44 pt.
Blackberries or dewberries	1 crate (24 qt.)	24-36 pt.
Cherries	1 bu. (56 lb.)	40-60 pt.
Peaches	1 bu. (48 lb.)	30-44 pt.
Pears	1 bu. (50 lb.)	40-50 pt.
Pineapple	5 lb.	4 pt.
Plums	1 bu. (56 lb.)	40-60 pt.
Tomatoes	1 bu. (50-60 lb.)	30-40 pt.

VEGETABLES		
Asparagus	1 bu. (45 lb.)	22 pt.
Beans and peas (shelled)	1 bu. (30 lb.)	12-15 pt.
Beans (snap)	1 bu. (30 lb.)	30-40 pt.
Beets	1 bu. (52 lb.)	30-40 pt.
Carrots	1 bu. (52 lb.)	30-40 pt.
Corn (sweet in husks)	1 bu. (35 lb.)	16-18 pt.
Greens	1 bu. (18 lb.)	12-18 pt.
Okra	1 bu. (26 lb.)	34 pt.
Pumpkin	50 lb.	30 pt.
Squash, summer	1 bu. (40 lb.)	30-40 pt.
Sweet potatoes	1 bu. (55 lb.)	36-44 pt.

ELEVATION OF TEXAS CITIES IN FEET

Abilene	1,738	Longview	339
Amarillo	3,676	Lubbock	3,241
Arlington	616	McAllen	122
Austin	550	Marshall	375
Beaumont	24	Mesquite	491
Big Spring	2,397	Midland	2,779
Bryan	367	Odessa	2,890
Corpus Christi	35	Orange	20
Dallas	512	Pampa	3,234
Dennison	767	Pasadena	35
Denton	620	Port Arthur	18
El Paso	3,762	Richardson	630
Fort Worth	670	San Angelo	1,847
Galveston	20	San Antonio	701
Garland	551	Sherman	728
Grand Prairie	528	Temple	736
Harlingen	36	Texarkana	294
Houston	55	Texas City	12
Irving	470	Tyler	558
Killeen	833	Victoria	93
Kingsville	66	Waco	427
Laredo	438	Wichita Falls	946

Acknowledgment

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