A Home Canning Guide

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A Home Canning Guide

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It is easy to plan and prepare good, wholesome meals when you have many different kinds of high quality foods at hand. Home grown foods can be of the best quality. A wide variety of foods can be produced in Missouri. You can have good meals the year round if you preserve a supply of high quality foods when they are plentiful. Although canning is more popular than any other method of food preservation, you may like to freeze some foods and to dry, brine and store others. Each method of food preservation will add variety to your winter meals.

Your canning efforts will be more successful if you can in small lots. Do not attempt too much in a day. Your work not only will be more pleasant but your canned food will be of higher quality. If you can small quantities it is easier to keep the canner's golden rule—two hours from the garden to the can. Put only high quality, "garden fresh" products into your cans. Sort and lay aside the over-mature vegetables, the tomatoes with soft spots and other imperfect foods for table use.

Accuracy, cleanliness, speed and high quality products are needed to put good canned foods on your pantry shelf. Before you start to can, check your equipment. You will need a good processing kettle with a rack, good tin cans or jars and a supply of dependable lids and rubbers. And you'll need up-to-date directions for canning various foods.

You will more nearly can the right amounts of food for your family if you make out a food preservation budget at the beginning of the canning season. The budget will help you decide how much of each food your family will need. In making a canning budget, you will want to consider the number in your family, their needs and preferences, and the availability of fresh, frozen and stored foods. Also, you will want to consider the cost of canning and your own skill and time.

Whether you use a pressure canner, steamer or water bath, preparing the food before processing and adjusting the lids are the same.

In canning, all foods are divided into two groups—the acid and low-acid foods. Process or cook *acid* food in the jar in a water bath or other container at boiling temperature which is 212° F. Process *low-acid* food in the jar in a pressure canner at 10 pounds pressure with a temperature of 240° F.

Fruits and other acid foods should not be processed under pressure for the higher temperature is not needed to preserve them and the high heat may injure the texture and flavor of fruit.

EQUIPMENT FOR HOME CANNING

A Water Bath is recommended for canning fruits, tomatoes and pickled vegetables. Any deep, clean container will do for a water bath. It must have a rack or something to keep the jars from touching the bottom, and be deep enough to let the water boil over the top of the jars. It should have a well fiitted lid and be large enough to hold four or more jars. The pressure canner may be used for a water bath if another lid is used.

Place the jars in the water bath when the water is boiling or near boiling. The water should remain about an inch over the tops of the jars throughout the processing time. Time for processing begins when the water is in a rolling boil. Any time when the water is not boiling should be discounted from the time required to process. If necessary, boiling water should be added to keep the water circulating over as well as under and around the jars.

A Pressure Canner is recommended for canning meat and all vegetables, except tomatoes and pickled vegetables. To process these low-acid foods safely in a reasonable time a temperature higher than boiling water is necessary. The only way to get this higher temperature is to hold steam under pressure. You will save time, fuel and food by using a pressure canner. If one is not available it may be possible and desirable to can your low-acid food at a community canning center where there is plenty of water, heat and up-to-date equipment.

A pressure canner should have an accurate gauge or other device which shows the pressure. When using a pressure canner follow the directions for operating which came with the canner.

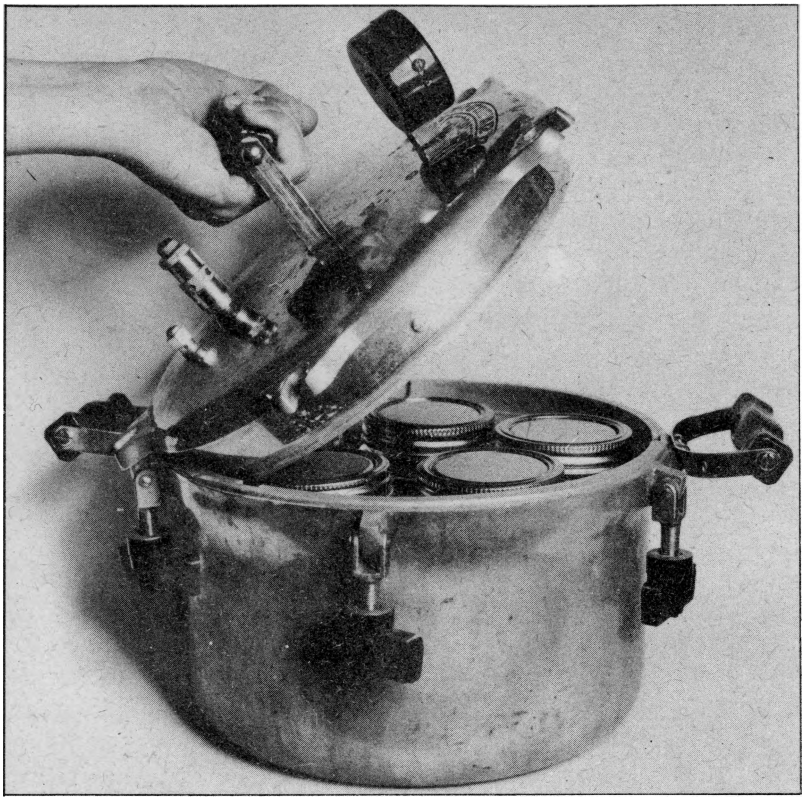
There should be enough water in the pressure canner to make sure it does not boil dry during the processing. If steam escapes throughout the process, more water will be needed.

There should be a rack in the canner so jars will not touch each other or the canner.

Make sure the petcock is open when the lid is placed on the canner and be sure it is open before beginning to release the cover. Let the steam pour through the petcock for 5 to 10 minutes before closing. Be sure all air is out so the steam pressure gauge registers steam pressure only. This is necessary to maintain the right temperature.

When you have the right pressure, hold it there as constantly as possible until the processing time is completed. Turn off the heat, allow pressure to return to zero. Gradually open the petcock and unfasten the cover. As you remove the cover, tilt it away from you to avoid danger of burning. Allow the jars to cool a moment before removing them. (See Cir. 508 "Use and Care of a Pressure Cooker").

Steam Canner.—In a steamer, where the steam is alive and circulates, but is not held under pressure, the temperature is a little less than in the boiling water bath. So if a



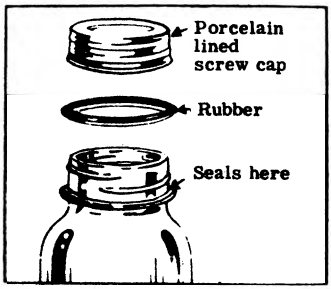
The pressure canner is the easiest, quickest and safest container for processing non-acid foods as vegetables and meat.

steamer is used increase the processing time one-fourth above that given for the water bath. Begin counting time when the jars are surrounded with live circulating steam which may be several minutes after the water begins to boil rapidly. Most steamers have a vent or opening in the top which allows steam to escape. This should be very active before the processing time begins. Have enough water in the steamer to keep it from boiling dry during processing. Good circulation of live steam should be maintained throughout the processing time. A pressure canner with the petcock open may be used as a steamer for processing acid foods.

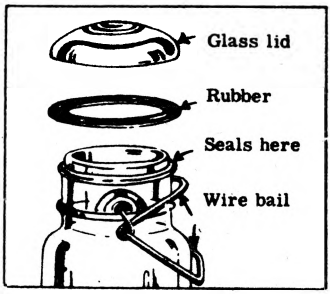
Jars and Lids.—Select the size jar best suited to the product and the size of your family. Half pint jars are usually preferable for canning baby foods or for one person. Quart jars are preferable for canning most fruits and vegetables for a family. Wide mouth jars are more easily filled, emptied, and washed. Use standard jars for canning. Jars which were used for commercial foods may be used for juices, pickles, relishes, jams and preserves. Standard jars are of two types, the screw top Mason and the lightning seal

JAR LIDS AND HOW TO USE THEM

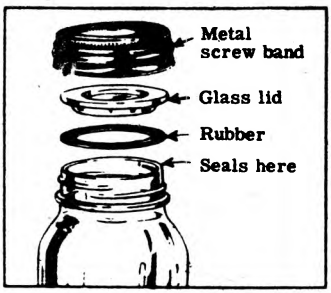
Before filling the jar, fit a wet rubber ring down on the jar shoulder. Do not stretch more than needed. Fill jar. Partially seal by screwing lid down firmly tight and turning it back ¼ inch. At the end of the processing period remove the jar from the water bath or pressure cooker and immediately screw the lid down tight to complete the seal.



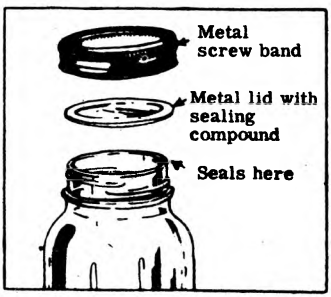
Before filling the jar, fit the wet rubber ring on the jar. Fill jar. Put on glass lid. Partially seal by pushing the long wire bail over top of lid, so it fits into groove. Leave short wire bail up. At the end of the processing period remove jar from the water bath or pressure cooker and immediately push short wire bail down to complete the seal.



Before filling the jar, fit the wet rubber ring on the glass lid. Fill jar. Put lid on with rubber side down. Partially seal by screwing the deep metal band on firmly tight; then turn back a quarter of a turn but make sure it really catches. At the end of the processing period remove jar from the water bath or pressure cooker and immediately screw band down tight. When the jar is cold remove the screw band.



Fill the jar. Dip metal lid in boiling water, place on top of the jar with sealing compound next to the glass. Screw shallow metal band on firmly tight but not hard enough to cut through the compound. At the end of the processing period remove the jar from the pressure cooker or water bath. Do not tighten further unless the band is very loose, then hold the lid firmly while the band is tightened. When the jar is cold remove the screw band.



type jar (for use see page 6).

Inspect jar lids and rubbers carefully. Discard jars that are cracked, checked or nicked, and jars with uneven, sunken or wavy places where the seal is to be made. Do not use bent, warped, rusty, cracked or dented lids. Wash jars, rubbers and all lids, except the metal lids with sealing compounds, in hot soapy water and rinse thoroughly. Dip the metal lids in hot water before using. Test jars with loose rubbers and keep the right lid, rubber and jar together.

To test jars, partly fill with hot water, adjust rubber and lid, seal and invert. If water leaks out, the jar, lid, or rubber is faulty. Tighten the bail, or press down the edge of the lid, or change rubber, or use a different jar or lid.

To test rubbers double the ring over on itself and press the fold with the fingers. A good rubber will not crack and it will open and resume its normal shape when released.

LOSS OF LIQUID FROM GLASS JARS

The loss of liquid from glass jars in the pressure canner does not cause the food to spoil but the food above the liquid will be dry and of poor color. If a jar has lost liquid, do not open it and add liquid when the jar is removed from the pressure canner, but seal it as it is.

There are several causes for losing liquid from jars: uneven initial temperature in jars, insufficient head space in the jars, improperly adjusted lids, uneven heating of the pressure canner, steam leaking intermittently from the canner, cooling the canner too rapidly, or waiting too long to open the canner after the pressure is down.

During processing pressure develops inside the jar. Any drop in pressure in the canner will cause a difference between pressure inside and outside the jar and liquid may be forced out of the jar. Most loss of liquid from jars occurs when the canner is removed from the heat and cooled. If it is cooled rapidly more juice is lost than if cooled slowly.

The type of lid makes a difference in the amount of liquid lost. In general the least juice is lost in the pressure canner with the two-piece metal lid and most with the screw zinc lid.

Some products as corn, shelled beans and others may absorb considerable liquid and thereby seem to lose liquid. Products that were not properly preheated may shrink excessively during processing. Jars may not be full and thus appear to have lost liquid.

DEFINITIONS OF CANNING TERMS

Open-Kettle Canning means the food is cooked as for table use then packed boiling hot into sterilized hot jars. The jars are filled brim full and sealed immediately.

This method cannot be used for low-acid foods as vegetables and meats . Open-kettle canning is not a reliable method for canning tomatoes and fruits as bacteria may get

into the jars when the food is transferred from the kettle to the jar and cause it to spoil. If open-kettle canning is used the jars should be inverted for a few seconds immediately after filling to destroy spoilage organisms in the very top of the jar.

The skill and speed of the worker is very important with this method. It is recommended only for preserves, pickles and other foods with enough sugar, vinegar, or salt to help preserve them.

Head Space refers to the space left at the top of the jar. This unfilled space is needed because food expands as it heats in the can. Leave ½-inch space for most all foods except starchy foods and meat. One inch is left for these foods.

Vacuum is an empty space with not even air in it. When a jar is heated everything in it expands and air is pushed out. As the jar cools everything in it shrinks. This leaves an airless space or vacuum at the top of the jar.

Processing is the heating of jars or cans of food in a water bath, steamer or pressure canner for a time long enough to kill spoilage organisms. When food is processed in glass jars, air is forced from the jar. Then when the jar is removed from the processing kettle and cooled this results in a vacuum, great enough to give an air tight seal. This seal may be broken if the jars are inverted or lifted by their tops while they are still hot.

Sterilize means to heat long enough to kill the organisms which would, if not killed, cause the food to spoil.

Acid Foods are fruits and tomatoes, rhubarb, pimentos and pickles.

Low-Acid Foods include all vegetables (except tomatoes and pickled vegetables), soups, meats and fish.

Preheat means to heat the food to boiling or near boiling before putting it in the jar. Heating removes air from the tissues, shrinks the product and facilitates packing. All of the product is processed at more nearly the same temperature if preheated before being placed in the jar.

Pack refers to putting the food in the jar. Also used to designate the way the food is put in the jar as a loose, tight or a fancy pack.

Cold Pack means to put the raw food in the jar or can.

Hot Pack means to put hot food in the jar or can. The food should be heated to at least 160° F. before it is put in the jar.

Adjusting Lids means to wipe the top and shoulder of the jar with a clean cloth and put on the lid according to directions that come with the type of lid used (see page 6, Lids and How to Use Them).

Partly Seal is to leave lids loose enough for air and steam to escape from the jar while it is processing.

Venting refers to the escape of air and steam from the processing canner and containers. The petcock is left open to vent or exhaust the pressure canner. To have a uniform exact temperature for a given pressure it is necessary to have all the air forced out of the canner. If both air and steam are in the canner,

steam condenses on the jars and leaves air around them. The air acts as an insulator as it prevents hot steam from condensing on the jars to heat them. For this reason venting is very important. The petcock should be left open until all air is out. It takes longer to drive all air from a large canner than a small one, and from a canner filled with pint jars than from one filled with quarts. Some canners allow a small trickle of steam to escape or vent from the canner throughout the processing period.

Enzymes are chemical materials which bring about natural changes in raw foods. Enzymes improve the quality of raw products up to the best eating stage then the changes they produce make the food less and less desirable. Enzyme action is stopped if the food is heated to boiling or near boiling temperature.

Organisms of Spoilage are yeasts, molds, and bacteria which cause undesirable changes in foods in which they grow.

Botulism is poisoning caused by the toxin produced as a by-product of the growth of a bacterium, Clostridium Botulinum, in canned food. The bacteria themselves are not poisonous, only the toxin they liberate when growing in food is poisonous. These bacteria will not grow in acid foods. Therefore, they will not grow in fruits or tomatoes unless molds or yeasts first change these foods so there is not enough acid present to prevent bacterial development.

The poisonous toxin is destroyed by boiling. A low-acid home canned food should be boiled before it is tasted. Fortunately there may be an odor which can be detected when the canned food containing this toxin is heated. If there is an off-odor in any canned low-acid food it should be burned.

Flat Sour Bacteria grows best in a canned low-acid food stored at warm temperature. They produce an acid but no gas or bubbles. There is no bulging of the lid or leakage. The food tastes somewhat sour and is usually soft. These bacteria produce spores that are very heat resistant. The bacteria are "heat loving" and grow best at a temperature above 100° or below 170° F. Their favorite temperature is around 130° F.

Flat sour often develops if jars have stood too long before processing, or cool slowly after processing. There is no evidence that food spoiled by flat sour is dangerous to health but it does not taste good.

Yeasts and Molds are the cause of much spoilage. They are easily destroyed by heating. Less than a minute of boiling temperature will kill them. They are often found in foods canned by the open kettle method as they fall on the inside of the lid or on the mouth of the jar during the time between filling and sealing the jar. Mold is often due to a leaky lid or poor seal. When mold or yeast grows on food they may partially neutralize the acid and break down the foods so botulinum bacteria can grow and produce the poisonous toxin.

STEPS IN CANNING

The County Home Agent assists the homemaker with her canning problems.

1. Plan your day so that when you begin to can there will be no delay in any stage of the process. Prepare at one time only the number of jars your processing kettle will hold. Once a jar is filled, process it immediately.

2. Have equipment ready before beginning to prepare the vegetable. Check the jars and lids. Be sure

they are of a standard type that can be sealed. Wash them in hot soapy water. Rinse. Test the seal if spring clamp, screw top, or 3-piece type lid. Place in processing or other kettle to keep hot.

3. Sort and grade the products. Grade for size and uniform degree of ripeness. Heat penetration is slower in green fruit than in ripe. Fruits that are of uniform ripeness will require about the same amount of sugar and processing and will be more attractive when served than pieces that vary greatly in size and ripeness. If the fruit is too green it may be hard and have a poor flavor when canned.

Bacteria on vegetables multiply when vegetables have to wait and there is greater possibility of spoilage. Vegetables should be gathered and put on trays or in baskets and not in bags or sacks in which they may sweat. If they must be held, keep them cool and well ventilated to help retain flavor and fresh crispness.

If immature and quite mature vegetables are packed in the same jar the liquid will be cloudy and the heat penetration will be irregular.

Discard or set aside for table use bruised or partly spoiled products as spoilage organisms are easily scattered.

4. Wash products thoroughly and in small lots. The spoilage organisms most difficult to destroy are found in soil. Do not bruise or let the food stand in water as food materials and flavor leach out.

5. Stem, peel, cut, break or leave whole depending on how the food is to be served. Protect light colored fruits by putting them in water having 2 tablespoons of salt and 2 tablespoons of vinegar per gallon of water, or add lemon juice or citric acid.

6. If the hot pack method is used, heat the product to near boiling or boil several minutes as given in directions for specific foods. If the cold pack is used, pack food firmly tight and cover with liquid. In general, cold pack soft fruits and tomatoes and hot pack the firmer fruits, vegetables and meats.

An orderly arrangement of the product will make it possible to put more into the jars and may make for better circulation of heat. Do not pack so loosely that there will be waste space or too much liquid, but do not pack so tightly that the circulation of heat is poor. Products too tightly packed may be broken while being put in or taken from the jar. Use about ¾ to 1 cup of liquid for 1 quart of well packed food. Add pure salt if desired. It may add to the flavor but will not affect the keeping quality of the food.

7. Fill jars to within ½ to 1 inch of the top, being sure the liquid covers the product. Run a narrow, flexible knife down each side of the jar to remove air bubbles and to insure good circulation of liquid to help carry the heat through the food. Work quickly when hot packing so the food will stay near boiling temperature.

8. Carefully wipe the top edge of the jar and the rubber with a

clean cloth to make sure the sealing surface is free from any particle of food. Adjust the lid (see types of lids and how to use them, page 6). Ascorbic acid (vitamin C tablets) may be added after the jar is filled to add food value and prevent light fruits from darkening.

9. Immediately but carefully place the filled jars in water bath, pressure canner or other processing unit. Be sure they do not touch each other or the sides of the pressure canner.

10. Immediately after the processing kettle is filled begin the processing. Process the length of time given for the particular product. Do not depend on memory or hearsay for length of time to process. Count time only when the water in the water bath is in a rolling boil, and only when the pressure in the pressure canner is of the required amount. Write down the exact time the processing will be completed.

11. As soon as the processing time is complete remove the jars from the water bath or steamer. Allow the pressure to return to zero. Slowly open the petcock and remove the lid, tilting it away so steam does not burn you. Wait a minute or so for jars to cool, then remove them from the pressure canner.

Push down clamp of spring-top type jar; tighten the screw top and the 3-piece type lid. Do not do anything to the 2 piece self-sealing lids unless for some reason the band is loose, then hold the lid or flat securely in place and tighten the rim. Do not invert the jars but let them cool right side up. Place them on a dry towel, dry paper or a cooling rack covered with dry paper.

12. Shine the jars. Have enough space so air can circulate around each jar. Cool them as quickly as possible without the likelihood of breaking the glass.

13. The next day, or when the jars are cold, remove bands from self-sealing and 3-piece lids. If they stick, cover for a few minutes with a hot, damp cloth. Test the seal by inverting jars with *spring top*, *screw top*, and *3-piece lids* and watch for any sign of leakage. Never try to tighten lids after the jars are cold.

Tap the *self sealing* lids with a silver knife. They should give a clear, high note if no food is touching the lid. If the jar is not sealed it gives a dull sound.

If the seal is not perfect put the jar in the refrigerator and plan to use the product as soon as possible, or open it, heat the product to boiling, pack and reprocess.

14. Label each jar giving contents, date and if more than one lot was canned in a day, add the lot number. If a jar spoils, watch all the jars in that lot. If a new method of canning, a special variety of fruit or vegetable, or a different amount of sugar or seasoning was used, this may well be indicated on the label.

Standardized, attractive, neat, clear labels add to the attractiveness of the jars and the satisfaction of the worker.

15. Store in a clean, cool, dry, dark, frost-proof place.

APPROXIMATE YIELD OF CANNED PRODUCTS FROM RAW PRODUCTS

The weight per bushel of vegetables and fruits may vary and the number of quarts canned from a bushel will vary with the quality of the vegetable or fruit, and the way it is packed in the jar. A quart of canned vegetables will usually make 8 servings while a quart of canned fruits will average 6 servings.

Fruits	*Quantity—Raw*	*Yield*
Apples (3-4 per lb.)	50 lbs. or 1 bu.	16 - 20 qts.
	2½ lbs.	1 qt.
Black or Raspberries	1 crate or 6 gal.	14 - 16 qts.
	5 - 8 cups	1 qt.
Cherries as picked	1 bu. or 56 lbs.	22 - 32 qts.
	1 gal.	pitted—2 pts.
		whole—7 pts.
Gooseberries	1 gal.	3 - 4 qts.
Grapes	48 lbs. or 1 bu.	16 - 20 qts.
Peaches (5-8 per lb.)	50 lbs. or 1 bu.	18 - 22 qts.
	2 - 2½ lbs.	1 qt.
Pears (3-4 per lb.)	58 lbs. or 1 bu.	20 - 25 qts.
Plums (15-20 per lb.)	56 lbs. or 1 bu.	25 - 30 qts.
	2 - 2½ lbs.	1 qt.
Strawberries	1 crate or 6 gal.	12 - 16 qts.
	6 - 8 cups	1 qt.
Vegetables		
Asparagus	2 - 3 lbs.	2 pts.
Beans—snap	30 lbs. or 1 bu.	16 - 20 qts.
	1½ to 2 lbs.	1 qt.
Beets, without tops	52 lbs. or 1 bu.	16 - 20 qts.
Carrots, without tops	50 lbs. or 1 bu.	16 - 20 qts.
Corn, sweet, in husks	35 lbs. or 1 bu.	16 - 20 pts.
	3 to 8 ears	1 pt.
Greens	12 - 18 lbs. or 1 bu.	6 - 8 qts.
	2 - 3 lbs.	1 qt.
Lima beans, in pods	32 lbs. or 1 bu.	12 - 16 pts.
	2 - 2½ lbs.	1 qt.
Peas, green, in pods	32 lbs. or 1 bu.	12 - 16 pts.
Tomatoes	50 lbs. or 1 bu.	15 - 20 qts.
	2½ - 3 lbs.	1 qt.

SUGAR FOR CANNING FRUIT

Sugar helps canned fruit hold its natural shape, color, and fresh flavor. Fruit can be canned without sugar but it requires as much or more to make it taste good when it is served. Unsweetened fruit should be processed the same as sweetened. From ¼ to ½ cup of

sugar to a quart of fruit is desirable for all canned fruits. Usually, 10 lbs. of sugar is enough for 40 to 50 quarts of canned fruit.

If fruit is plentiful the ripe fruit may be heated to make juice and the fruit canned in this juice with sugar rather than in a water and sugar sirup. Since all fruits contain some sugar, less sugar will be needed to make a sirup from fruit juice than to make it from water. Ripe fruit contains more sugar than does green or under-ripe fruit. If fruit is allowed to become fully ripe before it is canned, less sugar will be needed and the fruit will have more of its natural flavor.

Honey may be used to replace up to one-half the sugar called for in canning, and corn sirup up to one-third. However, they are usually more expensive and may detract from the flavor of some fruits. Unrefined sirups or brown sugar may cause the fruit to spoil. Do not use saccharin, as it may give the canned food a bitter flavor. Use 1/8 to 1/4 teaspoon of salt to each quart of fruit to strengthen the sweetening power of the sugar.

Sirup for Canning Fruit—To make a sirup for canning, add the sugar to the water or fruit juice. Stir well and heat to boiling temperature.

Sirup	Sugar	Water or Juice
Thin	1 cup	3 cups
Medium	1 cup	2 cups
Heavy	1 cup	1 cup

The amount of sirup needed for a jar will vary with the size of the pieces, the tightness of the pack and the kind and quality of the food. One cup of water will ordinarily yield enough sirup for a quart of well packed food.

CANNING FRUIT, TOMATOES AND OTHER ACID FOODS

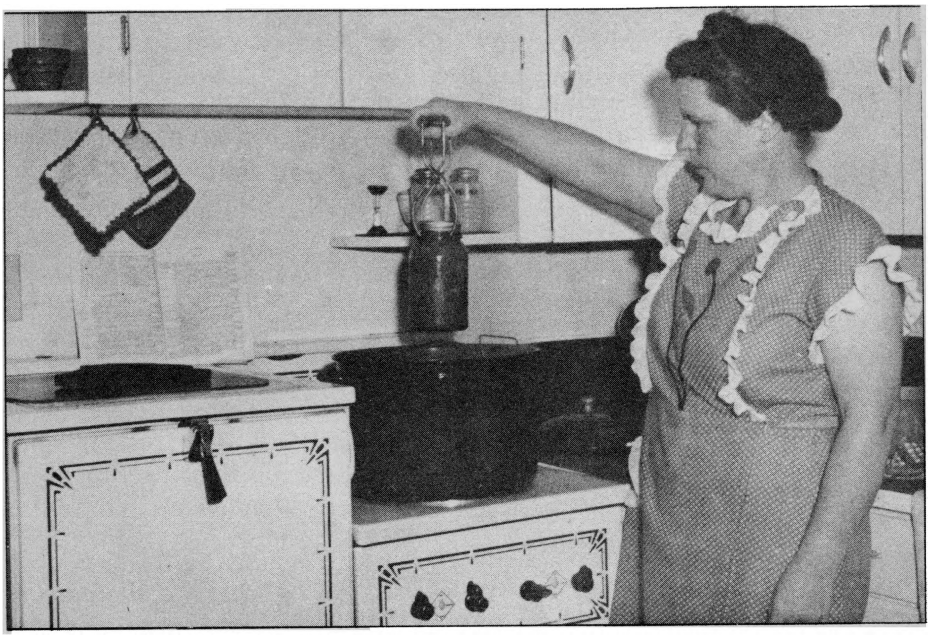
For all foods follow the general directions for canning given under *Steps in Canning* on page 10.

Apples

Hot Packed—Choose a variety of apples that will hold their shape when heated. Sound, slightly underripe, tart apples are preferable. Wash, pare if desired, leave whole or cut in halves, quarters or circles, and core. To prevent darkening, drop immediately into a hot thin sirup or dip into cold water containing 1 tablespoon of salt and 1 tablespoon of vinegar for a half gallon of water. Add boiling thin or medium sirup. Boil from 3 to 5 minutes depending on the size of the pieces. Pack into clean hot jars to 1/2 inch of the top. Cover with boiling liquid. Remove air bubbles. Adjust the lids and process quart jars 15 minutes in a boiling water bath.

Cinnamon Apples—Proceed as for hot packed apples but flavor the thin or medium sirup with red hots or with cinnamon and enough pure red vegetable coloring to give the desired flavor and color. Remember, the color will become more pronounced after standing several hours.

Baked Apples—Choose sound



Jars of fruit are carefully lowered into the boiling water to be processed.

slightly under-ripe apples suitable for baking. Wash, core and bake as for table use until about half done. Pack into clean, hot jars. Cover with a thin or medium sirup. Remove air bubbles. Adjust the lids and process quart jars 15 minutes in a boiling water bath.

Apple Sauce—Choose slightly under-ripe, tart, summer apples or other apples that will make good apple sauce. Wash, remove any blemishes including the stem and blossom area. Do not peel or core but cut into thin pieces that will cook up quickly. Place in a flat bottomed rather shallow pan with well fitted lid. Add boiling water just until it can be seen. Heat quickly. Boil until the apples can be pushed through a food mill or strainer to remove skin and core. Add from one to two tablespoons of sugar for each cup of apple pulp. Heat quickly to boiling, pour into clean hot jars, filling to ½ inch of the top. Remove air bubbles. Adjust lid. Process quart jars 10 minutes in a boiling water bath.

Apricots

Cold Pack—Choose ripe fruit. If the apricots are too green there is an astringent taste that neither cooking nor sugar will wholly overcome. Wash, peel if desired. Leave whole or cut in halves and remove pit. Pack firmly tight, cups downward, into clean jars to ½ inch of the top. Cover with boiling, thin or medium, sirup. Remove air bubbles. Adjust lid. Process quart jars for 20 minutes in a boiling water bath.

Hot Pack—Wash. Peel if desired. Leave whole or cut in halves and remove pits. Drop into boiling, thin or medium sirup. Heat just until fruit is boiling hot. Pack into clean jars to ½ inch of the top. Cover with the boiling sirup. Remove air bubbles. Adjust the lid. Process quart jars 15 minutes in a boiling water bath.

Blackberries, Dewberries, Raspberries, Huckleberries

Gather berries in shallow buckets, pans or baskets to prevent bruising and crushing. Can as soon as possible. Use the smaller, softer, less perfect berries to make juice or puree.

Cold Pack—Select ripe firm berries. Wash. Drain and pack into clean jars to ½ inch of the top. Cover with boiling hot medium sirup (juice from very ripe berries may well be used for making sirup). Remove air bubbles. Adjust the lid. Process quart jars 20 minutes in a boiling water bath.

Hot Pack—Wash, drain. Pour into flat bottomed shallow pan with well fitted lid. Add from ¼ to ½ cup of sugar to each quart of berries. Cover and bring to a boil, shaking pan to prevent sticking. Pour into clean hot jars, filling to ½ inch of the top. Remove air bubbles. Adjust the lid. Process quart jars 15 minutes in a boiling water bath.

Cherries

Cold Pack (not pitted)—Select ripe perfect cherries. Wash, stem, drain, prick and pack firmly tight into clean jars to ½ inch of the top. Cover with a boiling medium or heavy sirup. Remove air bubbles. Adjust the lid. Process quart jars 20 minutes in a boiling water bath.

Hot Pack (pitted)—Wash cherries. Remove stones being careful to save juice and can the pitted cherries immediately as they lose flavor rapidly and darken. Pour juice and cherries in a flat bottomed pan with a well fitted lid. Add ½ cup sugar for each quart of cherries. Heat until all the fruit is boiling hot. Pack in hot jars to ½ inch of the top. Remove air bubbles. Adjust lid and process quart jars 10 minutes in a boiling water bath.

Gooseberries

Cold Pack—Wash. Stem. Pack firmly tight into clean jars to ½ inch of the top. Cover with a medium or a heavy sirup. Remove air bubbles. Adjust the lid. Process quart jars 20 minutes in a boiling water bath.

Hot Pack—Wash. Stem. Put into hot medium or heavy sirup. Heat to boiling. Pour into clean hot jars filling to ½ inch of the top. Remove air bubbles. Adjust the lid. Process quart jars 10 minutes in a boiling water bath.

Peaches

Cold Pack—Select fully ripe peaches. Wash. Place in a wire basket or cheese cloth and dip for a minute or two in boiling water then quickly into cold water. Slip off skins. Leave whole or cut in halves or slice, taking out the pits. To keep from darkening, dip into

water containing 1 tablespoon of salt and 1 tablespoon of vinegar for ½ gallon of water. Pack firmly into clean jars to ½ inch of the top. Cover with a thin or medium sirup in which several cracked pits were boiled. Remove air bubbles. Adjust lid. Process quart jars 25 minutes in boiling water bath.

Hot Pack—Wash. Slip off skins. Leave whole, slice or cut in halves. Drop in a medium sirup and boil from 4 to 8 minutes depending on the firmness of the fruit. Pack into clean hot jars filling to ½ inch of the top. Cover with the boiling liquid. Remove air bubbles. Adjust the lid. Process 15 minutes in a boiling water bath.

Baked Peaches—Bake small seedling peaches in the oven, whole with skins on, until about half done. Pack into jars. Cover with a light to medium sirup and process 15 minutes in a boiling water bath.

Pears

Pick the pears when fully grown but underripe and let them ripen before canning. Kiefer pears need to be held in storage about 2 weeks at a temperature of near 65° F. Bartlett pears ripen more quickly in storage.

Pears may be canned whole, in halves, or sliced and peeled, or without peeling. To prevent darkening, add lemon juice or citric acid, or place them in cold water containing 1 tablespoon of salt and 1 tablespoon of vinegar to ½ gallon of water. If pears are canned whole leave the stem but remove the blossom end. If cut in halves remove the stem and core. Drop the pears in a hot, thin or medium sirup. Boil from 2 to 8 minutes depending on the firmness of the fruit. Pack into clean hot jars. Pack halves with cups downward.

Pack whole pears with the bottom layer stems up and the other layers alternatingly stems down and up. Cover with the boiling liquid. Add a small stick of cinnamon if desired. Remove air bubbles. Adjust the lid. Process quart jars 20 minutes in a boiling water bath.

Because of their mild flavor, pears may well be used with other flavors when various fruits are scarce.

Plum Pears—Use tart red plum juice instead of water for making the sirup.

Orange Pears—Add the juice and rind of 1 orange to each quart of sirup. Rind might be removed before packing the pears.

Cinnamon Pears—Add from 2 to 3 tablespoons of red hots to each quart of sirup or use stick cinnamon and a few drops of red food coloring.

Mint Pears—Add a few drops of mint flavoring and of green cake coloring or vegetable coloring to the sirup.

Ginger Pears—Cook ginger root in water and use this water for making sirup or add candied ginger to the sirup.

Pineapple Pears—Use pineapple juice in place of water in making sirup.

Pickled Beets

Wash, grade for size. Drop in

boiling salted water and cook until the skin will slip off. Remove skins. Slice, cut in quarters or leave whole. Pack into jars up to ½ inch of the top. Cover with boiling liquid made from 2 cups of vinegar and 2 cups sugar. Remove air bubbles. Adjust the lid. Process quart jars 30 minutes in boiling water bath.

Pimento

Select sound firm ripe pimentos. Wash and place in hot oven (450° F.) for 6 to 8 minutes. Dip in cold water. Remove skin, stems and seed cores. Pack firmly into clean half pint or pint jars. Add ½ teaspoon salt to each pint. Do not add liquid. Adjust lid. Process 40 minues in boiling water bath.

Pineapple

Select fully ripe pineapple as the underripe lacks flavor. Wash. Twist out the top and cut off the base. Peel, cutting to about half the depth of the eye. Slice and remove the rest of the eyes and core. Leave the slices whole or cut in finger pieces, chunks, or other desirable pieces. Pack into clean jars to ½ inch of the top. Cover with a boiling thin or medium sirup. Remove air bubbles. Adjust lid and process quart jars 30 minutes in boiling water bath.

Plums

Pick the plums just as they are beginning to become soft and ripe. If too ripe they go to pieces, if too green they lack flavor and are sour. They are usually canned whole with the skins. The skin may be removed by plunging in boiling water for one minute and then in cold water. If the skin is removed immediately the plums will be green or yellowish depending on the variety, but if they are allowed to stand a few minutes before peeling, they become reddish from contact with the skin. If let stand too long they become brown. If the skin is not removed it should be pricked with a fork to prevent splitting of the skin. They may be cut in halves, the pits removed and the halves packed cups downward.

Cold Pack—Pack plums in clean jars to ½ inch of the top. Cover with boiling thin to medium sirup. Remove air bubbles. Adjust lid. Process quart jars 20 minutes in boiling water bath.

Hot Pack—Heat to boiling in juice with ¼ to ½ cup of sugar for 1 quart or in thin to medium sirup. Pack in clean hot jars to ½ inch of the top. Cover with boiling liquid. Remove air bubbles. Adjust lid. Process 15 minutes in boiling water bath.

Rhubarb

Select young tender stalks. Wash. Cut off the tip and root ends but do not skin. Cut in ½- to 1-inch pieces. Add ½ cup of sugar to each full quart of rhubarb. Cover and heat in the oven until boiling hot, or let stand in sugar to draw out juice then bring to a boil. Pack into a clean hot jar to ½ inch of the top. Remove air bubbles. Adjust the lid. Process quart jars 10 minutes in a boiling water bath.

Sauerkraut

Can the sauerkraut when it is

crisp, firm and well-matured. Heat in its own juice to a simmer, pack to ½ inch of top of jar. Cover with its own hot juice. Remove air bubbles. Adjust lids. Process 25 minutes in boiling water bath.

Strawberries

Select fresh, fully ripe, juicy berries that have been gathered in shallow containers. Wash thoroughly. Drain. Stem. Add ½ cup sugar to a quart of berries. Heat slowly to boiling point. Remove from fire. Let berries stand in the sirup from 2 hours to overnight. Bring quickly to a boil. Pack in clean hot jars to ½ inch of the top. Adjust lids and process quart jars 10 minutes in boiling water bath.

Tomatoes

Select fresh smooth, firm, vine-ripened tomatoes. Do not use tomatoes that have decayed portions. Wash the tomatoes and plunge them into boiling water for 30 to 45 seconds or until the skin slips. Remove all the core and any green portion and slip off all the skin. Make sure the small black spot at the blossom end is removed. Make sure there is no delay after the tomatoes are heated as flat sour may develop in an hour or so.

Cold Pack—Pack the prepared tomatoes into clean jars to ¼ inch of the top. Press them down just hard enough to form juice to fill the spaces and cover the solid portions. Add 1 teaspoon salt to each quart before the last tomato is put in. Remove air bubbles. Adjust the lid. Process quart jars 25 minutes in a boiling water bath.

To keep the tomatoes whole, do not press them in to make their own juice but fill in the space with tomato juice. Tomatoes canned this way are especially nice for salads.

Hot Pack—Leave the tomatoes whole or cut in quarters and heat until all parts are boiling hot. Pack in clean hot jars to ½ inch of the top of jar adding 1 teaspoon salt to each quart. Remove air bubbles. Adjust lids. Process quart jars 10 minutes in boiling water bath.

Tomato Juice—Select fresh, firm, fully vine-ripened tomatoes that have no soft spots or decayed portions. Wash, remove core and all green and other undesirable parts, but do not peel. Cut into thin pieces. Place in a shallow flat bottomed pan with a well fitted lid. Simmer until soft. Immediately put through a food mill, fine strainer or sieve. Add 1 teaspoon salt for each quart. Reheat to boiling temperature, pour into jars to ¼ inch of the top. Adjust lids. Process quart jars 10 minutes in boiling water bath.

Sterilized jars may be filled brim full with the boiling juice, sealed and not processed.

Fruit Juices

Extract the juice from ripe berries, cherries, plums, or grapes by crushing the fruit and heating to the simmering temperature (170-180° F.). Strain through a cloth bag. Add ½ to 1 cup of sugar to a gallon of juice. Reheat to simmering temperature and pour into jars

or bottles. Fill jars to ¼ inch of the top and bottles to ½ inch of the top. Adjust lids. Process 5 minutes in boiling water bath.

Grape Juice

Select fully ripe grapes. Concord grapes give an excellent product. Wash carefully, remove grapes from stem. Crush. Heat to 140-145° F., in the top of a double boiler until the fruit is soft. If a large double boiler is not available float the pan with fruit or juice in a larger container partly filled with rapidly boiling water. Press out the juice. Strain through jelly bag or heavy muslin cloth. Let it stand 6 to 8 hours or overnight to allow crystals to settle to the bottom. Carefully siphon or pour off the clear juice. Add ¼ cup of sugar for each quart of juice and mix well. Heat juice rapidly to steaming hot (170° F.) in upper part of double boiler. Immediately pour into hot sterilized jars or bottles leaving ½ inch head space. Adjust lids. Process 5 min. in waterbath.

Rhubarb Juice

Select tender, juicy stalks of rhubarb. Red varieties give the best juice. Wash thoroughly. Cut into small pieces, and add 1 quart of water to each 5 pounds of rhubarb. Simmer for about 5 minutes or until the rhubarb is soft. Press out the juice, strain through heavy muslin, add ½ cup of sugar to each quart of juice. Heat the juice steaming hot (170° F.). Pour into clean hot jars or bottles. Adjust lids. Process 5 minutes in a water bath.

Fruit Purees

Use soft, but sound, fully ripe fruit. Simmer until soft. Put through a fine strainer or food mill. Add from ¼ to ½ cup of sugar to each quart. Reheat to simmering temperature (170-180° F.). Pour into clean hot jars to ½ inch of top. Remove air bubbles. Adjust lids. Process quart jars 20 minutes in boiling water bath.

CANNING LOW ACID VEGETABLES

The pressure canner is recommended for canning all low-acid foods, as it is designed to obtain temperatures much higher than can be obtained in a water bath or steam cooker. Vegetables processed in the pressure canner are more likely to keep than those processed in a water bath. It is easier to can vegetables and other low-acid foods in a pressure canner than in a water bath and it takes less time and less fuel.

Now rural families have increased incomes and pressure canners are available. The directions for processing in a water bath are given only for those families who cannot use a pressure canner and wish to take the risk involved in canning low-acid food at a temperature not higher than 212° F.

If a water bath is used, be sure to take the following precautions: (1) Can only fresh, sound, high quality products. (2) Allow no delay in any step of the canning process. (3) Make sure the water in the water bath is boiling when the jars are put

in and that it is at least 1 inch over the tops of the jars. (4) See that the water remains over the top of the jars and in a rolling boil for the full processing time. (5) *Make sure these canned foods when opened are boiled 10 minutes before being tasted or served.*

DIRECTIONS FOR CANNING VEGETABLES

Can only young tender vegetables that are garden fresh. Gather only as many vegetables as can be handled quickly at one time. Sort for uniformity of size and maturity. Set aside any vegetables that are even slightly overmature or show signs of decay, and use for table or purposes other than canning. Wash vegetables thoroughly and can them quickly. If there is not sufficient liquid in which the vegetable was heated to cover the vegetable when it is packed in the container, use boiling water. 1 to 1½ cups of liquid are usually used for 1 quart of vegetables.

Home canning of cabbage, cauliflower, celery, cucumbers, egg plant, lettuce, onions, parsnips, potatoes and turnips is not recommended. The flavor and texture of these vegetables when canned are poor, and most of them are good stored or

Jars of vegetables are lifted from the pressure canner and placed on a dry towel over a rack.

frozen. Follow the directions given under Steps in Canning page 10.

Asparagus

Select tender fresh stalks. Sort according to size. Wash thoroughly. Trim off tough ends. If the scales are not firmly tight remove them to make sure all grit and dirt are washed away. Tie in uniform bundles, stand upright in kettle with heads up. Add boiling water, cover and boil 2 to 3 minutes. Or, cut into 1-inch pieces, cover with boiling water and boil 2 to 3 minutes. Pack hot, cover with hot cooking liquid, leaving ½ inch head space. Add ½ teaspoon of salt to each pint and 1 teaspoon of salt to each quart. Work out bubbles. Wipe top of jar. Adjust the lid. Process immediately. Pint jars 25 minutes and quart jars 55 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 2 hours in a water bath.

Beans—Green Lima

Can only young, tender, fresh lima beans. Older beans may be dried. Shell and wash. Cover with boiling water and bring to a boil. Pack hot, covering with boiling water leaving 1 inch head space. Add ½ teaspoon salt to pints; 1 teaspoon salt to quarts, work out the air bubbles, wipe top of jar, adjust lid and process immediately. Process pint jars 35 minutes and quart jars 60 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 2½ hours in a water bath.

Beans—Green Soy

Can soybeans when beans are green and tender. Wash pods and drop in boiling water. Boil 5 minutes. Cover with cold water. Shell. Cover beans with boiling water and bring to a boil. Pack hot to within 1 inch of the top of jar. Add ½ teaspoon salt to each pint. Cover with the liquid. Use a narrow flexible knife and work out all air bubbles. Make sure the liquid is over the beans and there is 1 inch head space. Adjust lid. Process pint jars 40 minutes and quarts 60 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 2½ hours in a water bath.

Beans—Snap

Select young, tender, uniform pods that are garden fresh. Wash thoroughly. Trim ends. Leave whole or cut into pieces of desired size. Cover with boiling water. Boil 5 minutes. Pack hot to ½ inch of top. Cover with hot cooking liquid leaving ½ inch head space. Add ½ teaspoon of salt to pint; 1 teaspoon to quarts. Work out air bubbles. Wipe top of jar. Adjust lid. Place in a processing kettle. Process pint jars for 20 minutes and quarts 25 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or quart jars 2¼ hours in a water bath.

Beans—Navy, and Other Dried Beans

Pick over carefully and wash. Cover with water using 3 cups to 1 cup of beans and soak over night. Heat to boiling temperature and simmer 40 minutes. Pack in clean

hot jars to 1 inch of top of jar. Add ½ teaspoon of salt to each pint. Cover with boiling water. Adjust lids. Process pint jars 55 minutes and quart jars 85 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 3 hours in a water bath.

Beets

Select young tender beets. Cut off tops, leaving tap root and 1 inch of stem. Wash thoroughly. Cover with boiling water, boil until skins slip easily—15 to 25 minutes—according to size. Skin and trim. Can baby beets whole; medium or large beets cut in ½ inch slices, halves, or quarters. Pack hot to ½ inch of top, cover with boiling water leaving ½ inch head space. Add ½ teaspoon salt for pints and 1 teaspoon for quarts. Work out air bubbles . Wipe top of jars. Adjust lid. Process immediately. Pint jars 25 minutes, quart jars 55 minutes at 10 lbs. presure (240° F.) in a pressure canner; or quart jars 3 hours in water bath.

Carrots

Select young tender carrots. Wash thoroughly. Peel or scrape and cut as desired. Cover with boiling water and boil 5 minutes. Pack hot to within ½ inch of the top of the jar. Cover with hot cooking liquid leaving ½ inch headspace. Add ½ teaspoon salt to pint jars and 1 teaspoon for quarts. Remove air bubbles. Wipe top of jar. Adjust lid. Process pint jars 20 minutes, quarts 25 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or quart jars 2¼ hours in a water bath.

Corn—Whole Grain Style

Select tender, freshly gathered sweet corn. To remove husk and silk from corn cut off about ½ inch of stem end and 1 inch of tassel end and then strip. Place stem end of ear on point of a nail which has been driven through a small board. Place board in bottom of a shallow bowl or on wax paper, hold knife at 45 degree angle and cut straight down the cob getting most of the kernel.

To each quart of corn add 1 pint of boiling water. Heat to boiling. Pack hot to 1 inch of top, dividing hot cooking liquid equally among jars. Leave 1 inch head space. Add ½ teaspoon of salt to pints and 1 teaspoon to quarts. Remove air bubbles. Wipe top of jars. Adjust lid. Process pint jars 55 minutes, quart jars 85 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 3 hours in a water bath.

Corn—Cream Style

Prepare corn like whole grain except cut kernels slightly farther from the cob and scrape cob. To each quart of corn add 1 pint of boiling water. Heat to boiling. Pack hot to 1 inch of the top of pint jars dividing the hot cooking liquid among the jars. Add ½ teaspoon of salt. Work out the air bubbles. Wipe top of jars. Adjust lids. Process pint jars 85 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 4 hours in a water bath. Do not use quart glass jars.

Greens

Can only young, tender, freshly picked greens. Pick over. Wash thoroughly lifting the greens out of the water each time. Remove tough stems, and midribs. Place about 2½ lbs. in a cheese cloth bag and steam about 10 minutes or until wilted. Pack hot and loosely to ½ inch of top of jar. Cover with boiling water leaving ½ inch head space. (The pack should be about ⅓ liquid and ⅔ greens.) Add ¼ teaspoon salt to pints and ½ teaspoon to quarts. Remove air bubbles. Wipe top of jar. Adjust the lid. Process pint jars 45 minutes and quarts 70 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or quart jars 3¼ hours in a water bath.

Hominy

Heat the hominy to rapid boil and pack to within 1 inch of top of the jar. Add ½ teaspoon salt for each pint. Cover with boiling water. Remove air bubbles. Adjust lid. Process pint jars 55 minutes, quarts 85 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 3 hours in a water bath.

Mushrooms

Wash thoroughly, peel and cut if desired. Drop in boiling water containing 1 tablespoon of vinegar and 1 teaspoon of salt per quart of water. Cook 3 or 4 minutes. Pack hot to ½ inch of top of jar. Cover with boiling water. Remove air bubbles. Adjust lid. Process pint jars 35 minutes, quarts 40 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 2½ hours in a water bath.

Nut Meats

Heat nuts in shallow pans in a slow oven (300° F.) until hot through but do not let them become hot enough to parch or to force out the oil. Pack in hot dry jars to top of jar. Adjust lid. Process 1 minute at 5 lbs. pressure. Release pressure immediately.

If a pressure canner is not available use a steam cooker or a water bath with water 1 or 2 inches below top of jars and process 20 minutes.

Okra

Select young tender fresh pods. Wash and trim. Cut or leave pods whole as desired. Cover with boiling water and boil 1 minute. Pack hot to ½ inch of top. Cover with boiling water leaving ½ inch head space. Remove air bubbles. Wipe top of jar. Adjust lid. Process pint jars 25 minutes, quart jars 40 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or quart jars 2½ hours in a water bath.

Peas—Green

Select peas at their best eating stage. Wash, shell and grade. Do not use any that are mature or have changed to light color. Cover with boiling water and bring to a boil. Pack hot to 1 inch of top, cover with boiling water, leaving 1 inch head space. Add ½ teaspoon salt for pint jars and 1 teaspoon for quart jars. Remove air bubbles. Wipe top of jar. Adjust the lid. Process pint jars 40 minutes

at 10 lbs. pressure (240° F.) in a pressure canner; or 2½ hours in a water bath.

Pumpkin, mashed—Add no salt or liquid

Wash, peel, cut into 1 inch cubes. Steam until tender, about 25 minutes. Drain. Put cubes through a food mill or strainer. Simmer strained pumpkin until heated through. Pack hot to ½ inch of top of jar. Remove air bubbles. Wipe top of jar. Adjust lid. Process pint jars 60 minutes and quart jars 80 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 3 hours in a water bath.

Sweet Potatoes—wet pack

Can sweet potatoes only if they cannot be stored successfully. Wash. Boil or steam until skin slips easily. Skin, and cut into pieces of desired size. Pack hot to 1 inch of top of jar. Cover with boiling water leaving 1 inch head space. Add ½ teaspoon salt to pints and 1 teaspoon to quarts. Remove air bubbles. Wipe top of jar. Adjust lid. Process pints 55 minutes and quarts 90 minutes, at 10 lbs. pressure (240° F.) in a pressure canner; or quart jars 4 hours in a water bath.

Sweet Potatoes—dry pack

Prepare like wet packed sweet potatoes. Pack hot to 1 inch of top. Add no salt or liquid. Adjust jar lids. Process pints 65 minutes and quarts 95 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or quart jars 4 hours in a water bath.

Whole Wheat

Clean the wheat and wash it thoroughly. Soak over night using 3 cups of water to each cup of clean wheat. Heat to boiling and simmer 40 minutes. Pack boiling hot to 1 inch of top of jar. Add ½ teaspoon of salt for each pint. Cover with boiling water. Remove air bubbles. Adjust lid. Process pint jars 55 minutes, quart jars 85 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 3 hours in a water bath.

APPROXIMATE YIELD OF CANNED MEAT FROM FRESH

Beef or pork—(without bone) 2 to 2½ lbs.	1 pt.
Beef or pork—(with bone) 1½ to 2 lbs.	1 pt.
Dressed chicken (with bone) 4 to 5 lbs.	1 qt.
Dressed chicken (without bone) 3 to 3½ lbs.	1 pt.

Approximate Weight of Cuts from Home Dressed Animals*

The actual number of pounds will vary with the type and fatness of the animal but these figures may be used as a guide in figuring the number of pints of canned meat and of different cuts of meat from different animals.

Beef

Dressed out 50 to 60% of live weight. A 750-pound beef would yield about 200 pounds in hindquarters and 220 pounds

*Adapted from Circular 709, U. S. Dept. of Agriculture.

in forequarters or a total of 420 pounds.

Hindquarters about 60% tender cuts and 15% less tender cuts. 200 pounds hindquarter will yield 120 pounds steaks and roasts, 35 pounds stew and ground meat.

Forequarters about 25% tender cuts and 60% less tender cuts. 220 pounds forequarter will yield 55 pounds steaks and roasts, 130 pounds pot roasts, stew and ground meat.

Bone, trim and fat—about 10% of live weight or 75 pounds. 25 pounds liver, heart, brains, tongue, sweet breads, kidneys.

Hog

Dressed out 70% to 80% of live weight. A 225-pound hog dressed out 175 pounds.

For Curing—hams, shoulders, bacon and jowls, 90 pounds.

For Freezing or Canning—loins, ribs, sausage, 35 pounds; liver, heart, tongue, 5 pounds; bones, etc., for head cheese, 20 pounds.

Lard rendered 25 pounds.

Lamb

Dressed out about 50%. An 80-pound lamb dressed out 40 pounds.

Tender cuts—legs, chops, and shoulders, 30 pounds.

Less tender cuts—Breast and stew meat, 5 pounds; bone, trim, fat, liver, tongue, heart, 5 pounds.

Poultry

Young chickens dress out about 60%. 2 to 4 pounds live weight will yield 1 to 2 pounds dressed and drawn.

Hens dress out about 60%. 4 to 8 pounds live weight will yield 2½ to 5 pounds dressed and drawn.

Turkeys dress out about 75%. 10 to 20 pounds live weight will yield 7½ to 15 pounds dressed and drawn.

CANNING PORK, BEEF, AND CHICKEN

Processing in a pressure canner is the only method recommended for the canning of meat and all other non-acid foods. It is a safer method than processing in the water bath and saves time, energy and fuel. If a pressure canner is not available and you wish to take the risk involved in canning in a water bath, make sure the water is in a rolling boil throughout the processing period. Later, when you use the meat *be absolutely sure it is boiled 10 minutes before being tasted.*

Canning chicken, beef, pork, rabbit and other home produced meat helps the farm family to have a greater variety of meat through the year. Having the canned meat on the shelf is a real help when unexpected guests arrive, and it is a good time-saver for busy days.

Any kind of meat can be canned. Turkey, squab, other poultry and small game should be canned like chicken. Veal, lamb, mutton and large game animals should be canned like beef.

Only healthy animals should be slaughtered. If they have been

properly fed and well finished the meat will be of superior quality. After killing, the meat should be chilled and kept cold until it is used, quick frozen or canned.

Pork is preferable if it is frozen or canned as soon as the body heat is gone and the meat is cold and firm enough to cut well. Other meats taste better if allowed to ripen for a time—8 to 20 hours for poultry, 2 or 3 days for veal or lamb and 5 or more days for beef. During this time the meat should be kept at a temperature of 40° F. or lower but should not be allowed to freeze. If it does freeze cut or saw the frozen meat into strips 1 or 2 inches thick just before canning.

Meat from mature animals has more flavor and a better texture when canned than meat from very young animals. Plump hens can well but broilers and fryers often lack flavor and fall to pieces when removed from the can.

If a freezer locker is available, can only the cuts that contain considerable connective tissues or bone. Freeze the rest. For large pieces of canned meat use roasts, steaks and chops. Less tender cuts may be cut in small pieces and canned for stews, meat pie, creamed dishes, salads or used as ground meat.

Two methods are used for canning meat—the hot pack and the raw pack. Both methods are given in the directions for canning meat. Salt is added for flavor. It may be added when the canned meat is opened for table use. Pint jars are preferable for canning meat. Do not try to use jars larger than quarts as there is likely to be "cold spots" within the larger jars where spoilage organisms may survive.

Beef, Pork, Veal, Lamb

If meat has soiled spots, wipe them with a clean, damp cloth. Only bloody meat should be washed as part of the flavor and food value would be washed away with the water. Cut the meat from the bone and leave only enough fat for good flavor. Cut the tender cuts of meat in nice sized servings and the less tender cuts in small pieces desirable for stews, creamed dishes, etc. All pieces are handled and processed the same way.

Save all bones and trimmings for soup and soup stocks.

Hot Pack—Heat the meat in the oven or on top of the stove. For the oven, use a pan with low sides and put a rack under the meat. Use a moderate oven (350° F.). Heat until the meat is hot at the center. For the top of the stove use a shallow flat bottomed pan with well fitted lid. Add just enough water to keep the meat from sticking and heat until it is hot through.

Pack firmly in clean hot jars to 1 inch of the top. Add 1 teaspoon of salt to each pint of meat. Cover with meat juice or broth. Use boiling water to get all the juice from the pan. Finish with boiling water if extra liquid is needed. Leave one inch at top of all glass jars. Work out air bubbles with a long, narrow, flexible knife or spatula.

Add more liquid if needed to keep meat covered but leave one inch head space. Adjust lid. Process pint jars 75 minutes, quart jars 90 minutes at 10 pounds pressure (240° F.) in a pressure canner; or pint jars 3½ hours in a water bath.

Raw Pack—Put 1 teaspoon of salt in pint jars. Use 2 teaspoons of salt in quart jars. Pack the raw meat into the jars. Set the jars in a water bath or other large container which has a rack in the bottom, add hot water to come within 1 inch or 2 of the top of the jars. Cover. Heat until the meat near the center of the jars is steaming hot (170° F.). This will take about an hour. The meat will have shrunk and some juice formed. Push the meat down in the jars so the juice comes up over it. Work out the air bubbles. Add boiling broth or water if necessary, leaving 1 inch head space. Adjust the lids. Process pint jars 75 minutes, quart jars 90 minutes at 10 pounds pressure (240° F.) in a pressure canner; or pint jars 3½ hours in a water bath.

Ground Meat

Grind small pieces of fresh, tender and less tender meat. Allow just enough fat for good flavor. Add 1 teaspoon of salt to each pound of meat. With sausage it is usually preferable to omit the sage and other spices as the flavor changes with processing and storage. The raw pack does not give a very desirable product in glass jars but may be used with tin cans.

Hot Pack—Form the ground meat into cakes that can be packed without breaking into the glass jars. Place in a pan with low sides in a medium oven (350° F.) and cook until hot through. The color will have changed at center of the cakes. Pack into clean hot jars, leaving one inch above the meat. Pour fat off drippings in the pan. Pour remaining drippings over the meat. Add small amount of boiling water to pan to get all the good flavor and pour over the meat to cover. Remove air bubbles. Add boiling water if necessary to cover meat leaving 1 inch head space. Adjust the lids. Process pint jars 75 minutes and quarts 90 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 3½ hours in a water bath.

Heart, Tongue, Liver

Heart and tongue can particularly well since they require long cooking. The opposite is true of liver, brains, sweetbreads and other delicate, fragile meat organs.

Cut the heart in desirable pieces to serve. Remove the thick connective tissue and the large blood vessels. Heat through in water on top of the stove. Can as other meat by the hot pack method.

Drop the tongue into boiling water and simmer until the skin can be removed, about 45 minutes. Remove the skin. Cut so it will go into the jar. Can by the hot pack method as other meats.

Cut the liver in desired pieces for serving, removing large blood vessels and membranes. Heat through

in the oven or in water on top of the stove. Can by the hot pack method as other meats.

Soup Stock—Use all bones that are cut from the meat to make soup stock. Break or crack the larger ones so the marrow and other good food materials will enrich the stock. Cover with slightly salted water and simmer until the bones come quite clean. Over cooking or too high a temperature will cause loss or change of flavor. Remove all bones and skim off extra fat. Pour into clean hot jars leaving one inch head space. Adjust lids and process pint jars 20 minutes, quart jars 25 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or quarts 2 hours in a water bath.

Corned Beef—Wash the corned beef to remove extra salt. Cut into desired pieces for packing. Cover with water and bring to a boil. If water tastes salty drain and cover with fresh water and reheat. Pack the hot meat firmly into clean hot jars leaving 1 inch head space. Cover with the broth or fresh boiling water if the broth is salty. Remove air bubbles. Make sure the meat is covered with liquid and that there is one inch head space. Adjust lids. Process pint jars 75 minutes, quart jars 90 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pints in a water bath 3½ hours.

Chicken, Turkey and Other Fowl

Use hot water (130-140° F.) rather than boiling water (212° F.) to scald. Pick, singe and wash fowl thoroughly. Cut up as for frying, removing any large lumps of fat and the breast bone. If pint jars are to be used saw the drumsticks off short. Chill. Keep in a cold place over night or 6 hours or longer.

Sort pieces of meat into 3 piles—meaty pieces, bony pieces, and giblets. If there are many chickens put the livers in one group and the hearts and gizzards in another.

Bony Pieces, hot pack—Put the bony pieces in a flat bottomed pan with a well fitted lid. Cover with water and simmer until the meat will come from the bone. Lift out the pieces, remove the bones and cut meat in desired pieces for various uses, cutting across the fiber of the meat. Put these pieces in clean hot jars; filling to 1 inch of the top. Add 1 teaspoon of salt, cover with the broth. If the broth has quite a lot of fat skim it off before pouring over the meat. Save broth for meaty pieces—about ½ cup per pint. Remove air bubbles. Be sure the broth covers the meat and is 1 inch from the top of the jar. Adjust lid and process pint jars 75 minutes, quart jars 90 minutes at 10 lbs. pressure (240° F.); or pint jars 3½ hours in a water bath.

Meaty Pieces, hot pack—Heat meaty pieces in the oven or in water on top of the stove until hot through. Pack into clean hot jars. Put drum sticks and second joints in first with skin next to the glass. Then fit in white meat and smaller pieces. Add 1 teaspoon of salt to each pint. Cover with boiling broth left from the bony pieces, leaving

1 inch head space. Remove air bubbles with a long, flexible knife or spatula. Add more broth if necessary to cover the meat but be sure of 1 inch head space. Adjust lid. Process pint jars 65 minutes, quart jars 75 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 3 hours in a water bath.

Meaty Pieces, raw pack—Pack drumsticks and second joints with skin next to the glass. Fit in the white meat and smaller pieces. Add 1 teaspoon salt to each pint. Set jars in a water bath or other large kettle with a rack and well fitted lid. Add hot water to within 2 inches of top of the jars. Cover and boil an hour or more or until all the meat is steaming hot (170° F.) at the center of the jar. Push meat down in the jar and if needed add broth to cover leaving 1 inch head space. Adjust lids. Process pint jars 65 minutes, quarts 75 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pint jars 3 hours in a water bath.

Giblets, hot pack—Put hearts and gizzards in one pan and livers in another. Cover with broth or hot water and heat until steaming hot through (170° F. at the center of meat). Pack into pint jars. Add 1 teaspoon of salt, cover with broth leaving 1 inch head space. Remove air bubbles. Adjust lids. Process pint jars 75 minutes at 10 lbs. pressure (240° F.) in a pressure canner; or pt. jars 3½ hrs. in waterbath.

SPOILAGE OF HOME CANNED FOODS

Most of the spoilage in home canned foods is probably due to: (1) poor quality of the food to be canned, (2) lack of cleanliness and speed, (3) under processing, (4) poor seal, or (5) improper storage.

Crystals and Sediment

Yellow crystals are sometimes seen in asparagus, greens and green beans. They are a combination of sugar and a complex organic complement. They occur naturally and are harmless. Boiling will dissolve most of them.

White crystals in canned spinach are calcium oxalate—a combination of the calcium and the oxalic acid in the spinach. They are harmless.

White sediment usually indicates spoilage, though it may be due to hard water or table salt.

Cloudy liquid in vegetables may be due to the starch that has cooked out of the vegetables. It may be due to flat-sour or other types of spoilage due to a faulty seal. Always boil any doubtful looking vegetable before tasting. Smell the food while it boils. If there is any off odor burn the food.

Off-Color in Vegetables

Sauerkraut may turn brown if it is not heated enough to destroy the enzymes and to exclude most of the air from the jar when it is canned. The pink color in sauerkraut may be due to growth of a pigmented yeast. It may prevent the growth of lactic acid bacteria and thus low-

er the acid content of the sauerkraut and make it undesirable to eat.

Corn may turn brown if it is too young or is overcooked or if the temperature is too high. The sugar caramelizes and causes the brownish discoloration and different flavor.

Beets may turn black if they come in contact with iron. The iron may come from water, iron kettle or a chipped enamel pan.

Adding Other Materials

Calcium chloride is sometimes added to tomatoes and apples to produce a firmer product.

Ascorbic acid (vitamin C) may be added to light colored fruits. It adds food value and helps prevent or retard darkening of the top fruit in the jar. Around 100 to 125 milligrams of ascorbic acid per jar is effective.

Unusual Texture or Color in Canned Fruit

Fruit will float if it is lighter than the sirup it is in. Sometimes the canned as well as the fresh fruit absorbs enough sugar from the sirup, to sink. If air remains in the tissues of the fruit it will continue to float. Over cooking fruit or tomatoes will cause them to separate out and come to the top of the jar.

Some acid fruits may jell if they are not heated enough to destroy the pectin enzymes which with the sugar and fruit acid may form a jelly.

Pink or even a red-brown or purple sometimes occur in apples or pears because of a chemical change brought about by the heat of processing. It occurs more frequently in tin than in glass containers. The longer the fruit is heated the more pronounced the color. It is harmless. It occurs in certain areas due to inherent soil conditions. If bacteria causes color changes in fruit the sirup will be cloudy and usually there will be an undesirable odor.

Brown discoloration of fruit in the top of the jar is due to oxidation. Unless the enzymes are destroyed by heat and the air removed from the fruit by preheating, the fruit in the head space will turn brown. The brown discoloration may occur some time after the food was canned. This is due to underprocessing. Brown discoloration is not harmful. If all the fruit is brown it has probably been overcooked.

Loss of color in fruit is not unusual. Light causes all canned foods to fade. Berries lose color in the sirup and so are lighter. Berries and other red foods bleach in plain tin cans because of the action of the metal.

STORING CANNED FOODS

Canned food is valuable. It should be well treated from the time it comes from the canner until it is served. Improper handling of the canned food, especially while it is still hot, often causes poor seals and spoilage. Canned food should be stored in a cool place as heat will

increase the loss of color, flavor, food value, and may cause flat-sour or other kinds of spoilage. Make sure the canned food will not be kept warm by a chimney, hot pipes or a stove. It should be stored in a dry place as dampness may cause rusting of lids and favors mold growth. Light causes foods to fade and lose quality so glass jars should be protected from light. Freezing softens food. But unless the freezing cracks the jar or breaks the seal the product will continue to keep.

Provide your home canned foods with ample sturdy shelf space. Build the shelves so the jars are only 2 deep and can be handled easily. If the jars are arranged on the shelves according to the months they are to be used, meal planning will be easier and the use of your canned food will be nicely distributed through the year.

The canned food may be grouped according to use or variety as they are stored and the shelves so labeled. A suggested grouping is as follows: Tomatoes and tomato juice; leafy, dark green and yellow vegetables; other vegetables; soup mixtures; meat stock and meat; small fruits; apples, pears, peaches; fruit juices; preserves; jellies, jams, conserves, butters, pickles and relishes; hospitality shelf; baby shelf.

PRECAUTIONS FOR USING HOME CANNED FOOD

Before opening any canned food examine the container. There should be no bulging of lids or rubbers, gas bubbles, unusual deposits or signs of leakage. When the container is opened there should be a sucking in of air, but no outburst of air or sputtering of liquid. Always smell the food as soon as the jar is opened. The odor should be characteristic of the product. Note any off-odor and look carefully for any signs of off-color, mold or softening of the food. These are signs of spoilage. It is possible for food to contain botulinus poison without showing it but it can usually be identified by a bad odor when it is heated. Burn spoiled food so chickens or animals will not eat it.

IMPORTANT—Home canned low-acid food should be boiled 10 minutes before being tasted. There is always a possibility that botulinus poison may be present. This poison will cause serious illness. The harmful effects of such spoilage is removed by boiling all home canned low-acid foods.

If the food was processed in a pressure canner which was in perfect order, and if every step in canning was well done, there is no danger of botulism. But, unless you are absolutely sure of the pressure canner and your method of canning, boil all home canned low-acid foods before tasting.

A SUGGESTED FOOD PRESERVATION BUDGET

This plan is based on using home produced foods most of the time. Using them fresh in season and canned, frozen, dried, brined or stored the rest of the time.

Product	Approximate times to be served	Amt. to be preserved for 1 person	For Our Family
Tomatoes & tomato juice	Every other day.	30 qts.	
Cabbage, Chinese cabbage and other raw leafy veg.	Every other day.	10 heads stored. 1 gal. kraut.	
Green & yellow vegetables Greens, peas, young green beans, carrots, broccoli, yellow squash, etc.	Once a day. Cooked greens once a week.	20 qts. frozen or canned. 1 bu. stored.	
Potatoes	Once a day. Sweet potatoes once a week. Children under 10 half this amount.	2 - 3 bu. of Irish. ½ to 1 bu. of sweet.	
Dried beans, peas and nuts	Once a week.	2 gal. 1 bu. of nuts (in shell)	
Other vegetables Lima beans, beets, onions, corn, mature green beans, turnips, salsify, parsnips, etc.	Once a day.	10 qts. frozen & canned. 2 bu. stored. 1 gal. dried.	
Fruits & fruit juices Apples, pears, peaches, berries, cherries, plums, grapes.	Twice a day.	40 qts. frozen & canned. 2 bu. stored. 1 gal. dried.	
Meat Pork, beef, chicken and other meats.	Once a day. Children under 10 half this amount.	20 qts. frozen & canned. 20 lbs. cured.	
Sweets, Fats, Cereals	Some each day, according to the energy needs of the individual. Children under 10, ¼ these amounts.	5 qts. jam, preserves. 5 qts. relishes, pickles. 2 gal. honey & sorghum. 1 gal. lard. 10 lbs. bacon. 3 gal. popcorn & cereal.	

CANNING EQUIPMENT BUDGET

	We Have	We Need to Buy
A pressure canner		
A water bath		
Tin cans and sealer		
Glass jars, No.		
Jar lids and rubbers		
Jar lifter and a jar filler		
Storage, 1 ft. of shelf space for each 6 qts. if 2 rows deep		

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE AND THE UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

J. W. BURCH, Director, Agricultural Extension Service
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