

## Canning Fruits And Vegetables❖

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Canning is one method of preserving food. All foods taste better fresh than canned and canning requires some time, labor and capital so one would not ordinarily can a food that he could use fresh or could keep by storing in its natural state or in a freezer locker. Preserving the surplus food makes it possible to have a more palatable and a more nearly adequate diet the year round without increasing the grocery bill.

It is desirable to have the canned product as nearly like the freshly cooked product as possible so no acid should be added and the temperature and time for processing should be just enough to insure keeping the product. To prevent undesirable changes in the fruits and vegetables due to the action of enzymes, bacteria, yeast and molds, handle the products in rather small quantities, start canning the products as soon as possible after they are gathered, and do not delay any step in the canning.

### GENERAL DIRECTIONS FOR CANNING

1. Select well-ripened sound fruit and grade according to size and degree of ripeness. Use fresh, quickly-grown vegetables that are at their best eating stage. Vegetables that have grown poorly, or are over-mature or have stood for some time after picking are more difficult to can successfully and should be processed a longer period of time than freshly gathered high quality products.
2. Wash the jars and the lids thoroughly and make sure that all the utensils used are clean.
3. Test all jars and lids, except the self sealing types, and keep the proper lid and jar together. Test jars and lids as follows: Place about 1 cupful of hot water in the jar, adjust the rubber and lid, invert and shake. If the seal is not perfect, tighten the bail, or press down the edge of the lid or try a different lid. To test rubber rings, stretch them out and note whether they snap back without change of shape. When the rings are

\*Adapted from Farmers' Bulletin No. 1762—"Home Canning of Fruits, Vegetables & Meats".

doubled and pinched, the fold should show no cracks or pinholes.

4. Wash the products to be canned carefully and thoroughly. Soil bacteria are the more dangerous bacteria and the most difficult ones to kill. Wash fruit before removing caps or stems to prevent loss of juice and rapid fermentation.
5. Prepare the product as for cooking and follow the directions for each product as given on the canning card under "Preparation Before Processing." Precooking the product removes air from the tissues, shrinks them, facilitates packing, speeds processing, and all of the product is processed at more nearly the same temperature. Precooking may cause a loss of some of the desirable flavor and texture of the product.
6. Pack the products in the containers quickly to keep the food hot. Use sufficient liquid so the food will not be too dense to prevent adequate heat penetration. Work out the air bubbles with a knife blade or spatula. Fill jars to within  $\frac{1}{2}$  inch of top, for all foods except those containing much starch as corn, lima beans and dried beans or peas. These should have a one-inch head space for expansion. Tin cans should have from  $\frac{1}{4}$  to  $\frac{1}{2}$  inch of head space.
7. Carefully wipe the top of the can or jar to remove any particles of food, immediately adjust the top, and partly seal. The self-sealing lids should be turned firmly tight. If raw food is put in tin cans or if no liquid is added, tin cans should be exhausted before sealing. To exhaust, place the filled cans in a bath of boiling water, deep enough to come within about 2 inches of the top of the can. Cover the bath to hold in the steam and boil 5 to 10 minutes depending on the density of the food in the can. Remove cans from bath and seal immediately.
8. Place the jars and cans in the hot canner as soon as they are sealed. The water in the pressure cooker, steam cooker, or the water bath, should be boiling or near boiling. Do not crowd the jars. In the water bath the water should be 1 inch over the top of the jars or cans, the water level in the pressure cooker should be just to the top of the rack. Enough water should be in the steam cooker to keep it from boiling dry during the processing period. Cover the water bath with a well fitted lid. Tighten the lid of the pressure cooker, allow steam to escape from the petcock for 7 minutes, then close and let the pressure rise to the required number of pounds. See Ext. L 48— "Using a Pressure Cooker."

9. Process at the temperature and for the time indicated in the tables on the canning card. Do not begin counting time until the water is in a rolling boil in the water bath canner, or the steam flows steadily from the steamer or waterless cooker, or the pressure is up the required number of pounds in the pressure cooker. Keep the temperature the same throughout the processing period. Discount any time the temperature is below what it should be.



Types of Pressure Cookers

10. Remove the jars and cans from the canner as soon as the processing period is completed. Do not turn the tops of the self-sealing lids, but complete the seal of other jars. Do not invert glass jars as the actual seal is formed by the pull of the partial vacuum in the jar during cooling. Cool jars as quickly as possible and after they are cool, invert and observe for leakage. Do not attempt to tighten jar lids after the jars are cool. Cool tin cans in cold water, preferably running water.
11. Label with the name of the product and the date canned. Remove clamps or bands from jars with self sealing lids.
12. Watch for spoilage for about one week.
13. Store all canned foods in a cool, dry, frost-proof place, protecting the glass jars from light.

## SUGAR AND SIRUPS FOR CANNING FRUITS

Fruits may be canned without sugar but the shape, color and flavor of fruits are retained better when some sugar is added. Either beet or cane sugar may be used.

Soft fruits have a more desirable shape and flavor if packed raw and covered with boiling sirup but less jar space is required if the fruit and sugar are heated together and then packed in the jar. Both methods are suggested under "Preparation Before Processing" on the canning card. Use the method best suited to your needs and the use of the canned product.

Sirups should be made in advance, poured over the fruit boiling hot and enough sirup should be used to cover the fruit. One and one-half cups of water will yield enough sirup for a quart of well-packed fruit.

For **thin** sirups-----Boil together 1 part of sugar and 3 parts of water  
 For **medium** sirup-----Boil together 1 part of sugar and 2 parts of water  
 For **thick** sirup-----Boil together 1 part of sugar and 1 part of water

## CANNING FRUIT JUICES

Fruit juices may well be canned for the making of delicious and wholesome fruit drinks, for sherbets, ices, gelatin desserts, fruit sauces, puddings and for the making of jelly. To extract the maximum amount of juice from a fruit it is necessary to heat the fruit. A low temperature should always be used as even boiling temperatures (212° F.) will cause undesirable changes in the color and flavor of the juice. At no stage in the process of making or canning should the fruit or the fruit juice be allowed to reach a higher temperature than 200° F. To prepare the fruit juice for canning, pick over the fruit carefully, wash it thoroughly, place in a kettle, mash, heat slowly until the framework of the fruit is broken down, and strain through a jelly bag. Add sugar in the proportion of 1 cup to a gallon of juice. The sugar helps to retain the color and flavor of the fruit. Reheat the juice to the simmering point (185° F.) Pour into hot sterilized cans or bottles. Fill bottles to within 1 inch of top if crown caps are used for sealing and 2 inches if corks are used. Seal, place in a hot water bath, being sure the hot water is well over all the containers. Heat to the simmering point (185° F) and pasteurize or hold at this temperature for 10 minutes. Remove at once, cool, label and store in a cool, dark, dry place.

**APPROXIMATE YIELD OF CANNED PRODUCTS FROM RAW PRODUCTS**

<b>Vegetable</b>	<b>Quantity—Raw</b>	<b>Yield</b>
Asparagus -----	2-3 lbs.	1 quart
Beans—String -----	30 lbs. or 1 bu.	16-20 quarts
Baby beets -----	52 lbs. or 1 bu.	16-20 quarts
Corn—Golden Bantam Type -----	8-10 ears	1 pint
Corn—Country Gentleman Type --	4-5 ears	1 pint
Lima Beans—Shelled -----	1 lb.	1 pint
Peas in Pod -----	30 lbs. or 1 bu.	10-14 pints
Spinach or other Greens -----	18 lbs. or 1 bu.	3-5 quarts
Tomatoes -----	53 lbs. or 1 bu.	16-18 quarts
<b>Fruits</b>		
Apples (2-6 per lb.) -----	48 lbs. or 1 bu.	18-20 quarts
Black or Raspberries -----	1 crate or 6 gallons	14-16 quarts
Cherries -----	1 gallon with seeds	3-4 quarts
Gooseberries -----	1 gallon	3-4 quarts
Grapes -----	48 lbs. or 1 bu.	12-16 quarts
Peaches (5-8 per lb.) -----	48 lbs. or 1 bu.	18-20 quarts
Pears (3-4 per lb.) -----	50 lbs. or 1 bu.	25-30 quarts
Plums (15-20 per lb.) -----	56 lbs. or 1 bu.	28-30 quarts
Strawberries -----	1 crate or 6 gallons	11-12 quarts

**STORAGE OF CANNED FOODS**

Well-planned storage space for canned foods will make for less spoilage and breakage and for greater convenience for storing, and later in using the canned foods. For convenience, the shelves should be movable as to distance apart and the lowest shelf should be at least nine inches from the floor and the highest not more than 72 inches from the floor. Twelve inch boards will accommodate two rows of jars which is economical use of shelf space and is also convenient for selecting jars and for checking in spoilage. Twenty running feet will accommodate 100 jars, stored two rows on the shelf while nine feet will hold 100 tin cans stacked two deep and two rows to the shelf.

Canned food should 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 meats; small fruits; apples, pears, peaches; fruit juices; preserves; jellies, jams, conserves, butters; pickles and relishes; hospitality shelf; baby shelf.

**EXAMINATION OF CANNED FOODS**

All canned products should be examined before opening. There should be no corrosion or a bulging of ends, lids or rubbers, or any 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 sput-

tering of liquid. The odor should be characteristic of the product. Any different odor would probably indicate spoilage. Canned products should not be tasted to discover spoilage.

*All home canned non-acid foods should be boiled ten minutes before tasting.* There is always the possibility that home-canned non-acid foods may contain bacteria whose growth would cause serious illness even if only a taste of the food were eaten. These bacteria grow only in non-acid foods and the poisons resulting from their growth are destroyed by boiling the food.

### CAN ACCORDING TO A PLAN

The average family will have a greater variety and a better quality of canned foods if they can according to a plan, than if they just can all they can can. In making a canning plan or budget consider the number and the age of the persons in the family; the number of weeks that fresh foods are not available; the surplus foods that might well be canned rather than preserved by other methods; the amount of money one has to spend for food; the canning equipment available and the time and skill of the person to do the canning.

Most farm families need to make a definite food production plan as well as a food preservation plan if they are to have the two fruits and two vegetables in the diet every day throughout the year. A good garden with 20 to 25 different vegetables and some provisions for 8 to 12 different fruits would afford the desirable variety of these foods which is an important factor in good nutrition and for palatable meals.

The following amounts of preserved fruits and vegetables would meet the needs of one person for the 32 to 38 weeks when, in Missouri, one would ordinarily need to supplement the fresh foods from the garden and orchard with canned, stored or purchased foods:

- 35 to 45 quarts of canned fruits;
- 35 to 45 of canned vegetables, about  $\frac{1}{2}$  of these tomatoes;
- 2 to 3 bushels of potatoes—Irish and Sweet;
- 5 to 10 heads of cabbage;
- 50 to 60 pounds of stored vegetables;
- 60 to 80 pounds of stored fruits;
- 5 to 10 pounds of dried fruits and vegetables.

**WORK SHEET—A FRUIT AND VEGETABLE PRESERVATION BUDGET**

To determine the approximate amount of fruits and vegetables to can, store and dry for your family, multiply the amount suggested for 1 adult by the number of persons in your family. If some food listed is not desirable for your family, write a desirable one over it or distribute the amount suggested for that product among the other products.

Amount to Can			Amount to Store		
	For	For		For	For
Vegetables	1 Adult	My Family	Vegetables	1 Adult	My Family
Tomatoes	15 qts.	-----	Potatoes—Irish	2 to 3 bu.	-----
Tomato juice	5 qts.	-----	Potatoes—sweet	1 to 2 pecks	-----
Greens	2 qts.	-----	Cabbage	5 to 7 heads	-----
Green beans	5 qts.	-----	Chinese cabbage	2 to 4 heads	-----
Carrots	1 qt.	-----	Carrots	1 to 2 pecks	-----
Asparagus	2 pts.	-----	Turnips	5 to 7 lbs.	-----
Lima beans	2 pts.	-----	Beets	3 to 5 lbs.	-----
Peas	4 pts.	-----	Onions	5 to 7 lbs.	-----
Baby beets	1 qt.	-----	Parsnips	3 to 5 lbs.	-----
Corn	2 pts.	-----	Salsify	3 to 5 lbs.	-----
Sauer kraut	1 qt.	-----	Rutabaga	3 to 5 lbs.	-----
Soup mixture	5 qts.	-----	Squash	3 to 5 lbs.	-----
Pickles	1 qt.	-----		<b>Dried</b>	
Relishes	3 pts.	-----	Corn	1 to 2 lbs.	-----
<b>Fruits</b>			Beans—mature	1 to 2 lbs.	-----
Apples	5 qts.	-----		<b>Fruits</b>	
Apple sauce	1 qt.	-----	Apples	1 to 2 bu.	-----
Blackberries	3 qts.	-----	Pears	1 to 2 pks.	-----
Raspberries	2 qts.	-----		<b>Dried</b>	
Gooseberries	2 qts.	-----	Apples	1 to 3 lbs.	-----
Strawberries	2 qts.	-----	Pears	1 to 2 lbs.	-----
Cherries	2 qts.	-----	Peaches	1 to 2 lbs.	-----
Rhubarb	3 qts.	-----	Raisins	1 to 2 lbs.	-----
Plums	3 qts.	-----	Apricots	1 to 2 lbs.	-----
Peaches	5 qts.	-----	Prunes	1 to 2 lbs.	-----
Pears	5 qts.	-----	Others	1 to 3 lbs.	-----
Grape juice	2 qts.	-----	Preserves	3 to 5 pts.	-----
Other fruit juices	5 qts.	-----	Jellies & jams	2 to 5 pts.	-----

To use the preserved foods to the best advantage it is suggested that one write down by each different fruit and vegetable the quantity preserved and the number of times a week or month it can be served during the non-growing season, plan the meals accordingly and check off the quantity of each fruit and vegetable used as they are brought up into the kitchen. Cards to be used for this purpose may be obtained by writing to the Agricultural Extension Service, College of Agriculture, Columbia, Missouri.

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