

canning fruits

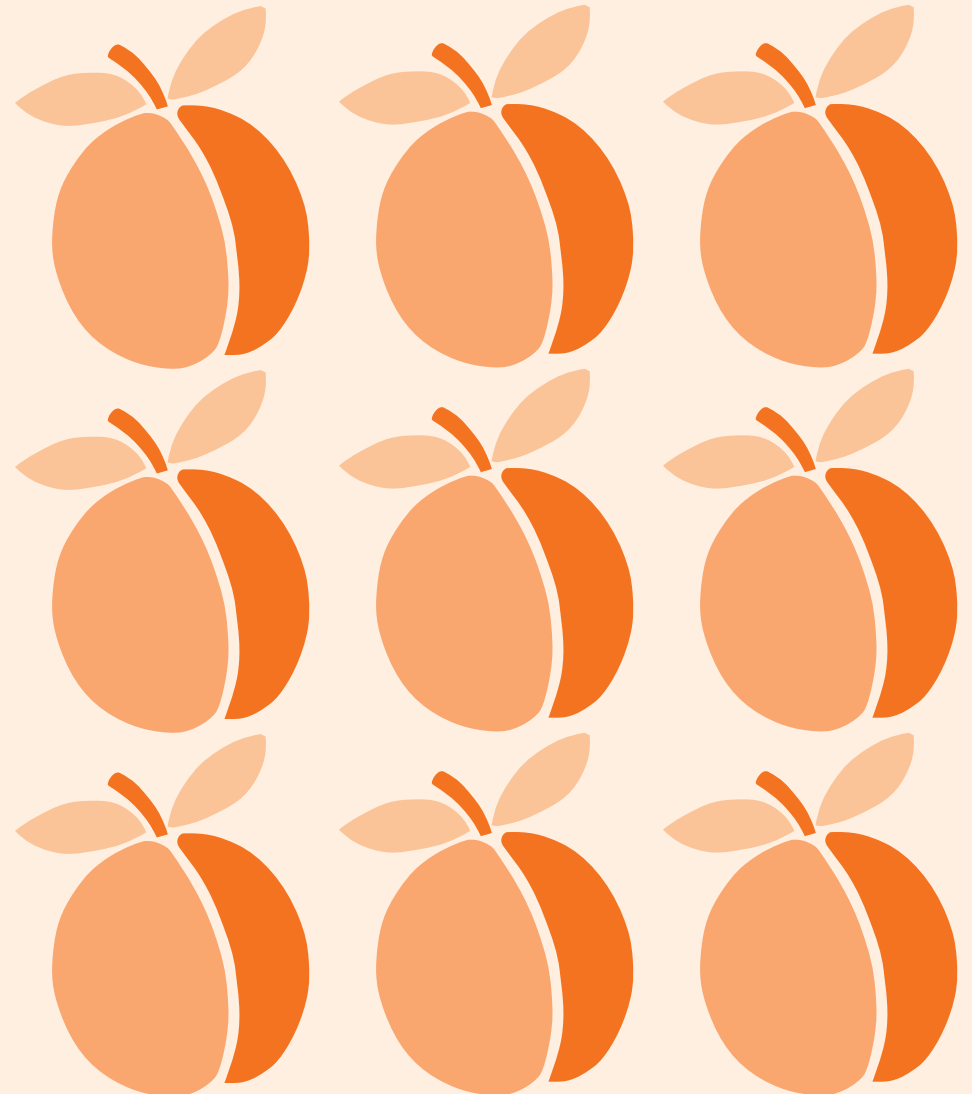
By Val Hillers, Extension Food Specialist, Washington State University, retired. The information in this bulletin is based on U.S. Department of Agriculture recommendations. The material was reviewed by Extension specialists in food and nutrition at Oregon State University and the University of Idaho.

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PNW199



CANNING FRUITS

Home canning fruits must be done with care. All foods—even those that are garden fresh and thoroughly washed—harbor microorganisms (bacteria, yeasts, and molds). Microorganisms decrease food quality and may form toxins, or poisons, under certain conditions.

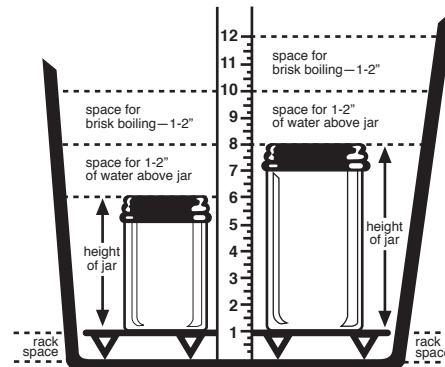
To preserve food for long-term storage, conditions must be made unfavorable for the growth of microorganisms. When fruits are canned, some microorganisms are destroyed by heat; others survive but cannot grow in acid foods or air-free jars. These conditions also retard other undesirable changes (such as vitamin loss, darkened color, and off-flavor).

The directions in this bulletin have been carefully researched for safe home canning. Following the directions exactly is vital.

Selecting Equipment

Food acidity determines which canning method to use. *If you are canning fruits, you may safely use a water-bath canner.* Molds, yeasts, and bacteria

which can grow in these acid foods are destroyed at boiling water-bath temperatures.



The canner must have room for at least 1 inch of briskly boiling water over the tops of jars during processing. Measure with a ruler when you buy; purchase a canner with a lid and a rack.

If you are canning vegetables, you must use a pressure canner. Only pressure canning

produces temperatures high enough (240°F, 28 degrees above boiling) to kill bacteria which can grow in low-acid foods. One of these bacteria is *Clostridium botulinum*, which causes botulism poisoning. For instructions on canning vegetables refer to PNW0172; for instructions on canning tomatoes, refer to PNW0300.

Standard Mason jars are the best choice for canning. Other jars may not be heat tempered and may break from the temperature fluctuations

during canning, or they may not seal properly because the sealing surfaces of packers' jars (mayonnaise jars and the like) may not exactly fit canning lids.

Preparing Equipment

Inspect jars for cracks and chips, and discard damaged ones. Also, inspect and discard rings with dents or rust. Wash jars, metal screw bands, and lids in hot, soapy water. Rinse. Place jars upside down on a clean, dry cloth, or leave them in the dishwasher until needed.

Check manufacturer's directions for heating lids before use. Don't reuse lids. Jars may not seal if lids are reused. Spoilage could result if jars don't seal, and food is wasted.

Preparing Fruits

Select fresh, firm fruit. Gather or purchase only as much as you can practically handle before fruit becomes overripe. Work quickly throughout preparation and canning. If food is allowed to stand, quality is lowered, and food spoilage is more likely to occur.

Yield will depend upon quality, ripeness, size, and variety. The amount generally needed per quart is:

<i>Fruit</i>	<i>Pounds Needed</i>	<i>Fruit</i>	<i>Pounds Needed</i>
Apples	2½ – 3	Peaches	2 – 3
Apricots	2 – 2½	Pears	1½ – 3
Berries	1½ – 3	Plums	1½ – 2½
Cherries	2 – 2½		

Sort for size and ripeness. Wash in cool, running water, or lift in and out of several changes of water. Avoid soaking. Peel (if desired) and trim blemishes after washing the food. Do not can decayed or overripe fruits. Acidity decreases as fruit ripens.

Maintaining Color and Flavor

Follow these guidelines to ensure that fruit retains optimum color and flavor:

- Use only high-quality foods. They must be at the proper maturity and free of diseases and bruises.

FRUIT	PREPARATION	Pack	Jar Size	PROCESS TIME (MIN.) AT VARIOUS ALTITUDES		
				0-1000 Ft.	1001-3000 Ft.	Over 3001-6000 Ft.
Rhubarb	Wash; cut into ½-in. pieces. Add ½ c. sugar per quart; let stand to draw out juice. Bring to a boil. Fill jars with hot rhubarb and extracted juice.	Hot	Pints and Quarts	15	20	25

PROCESS TIME (MIN.) AT VARIOUS ALTITUDES

FRUIT	PREPARATION	Pack	Jar Size	PROCESS TIME (MIN.) AT VARIOUS ALTITUDES			
				0-1000 Ft.	1001-3000 Ft.	3001-6000 Ft.	Over 6000 Ft.
Figs (cont.)	<i>Hot pack.</i> Cover figs with water and boil 2 min. Drain. Gently boil figs in light syrup for 5 min. Add 2 tablespoons bottled lemon juice per quart or 1 tablespoon per pint to the jars. Fill jars with hot figs and cooking syrup.	Hot	Pints Quarts	45 50	50 55	50 60	60 65
Fruit juice (apple, citrus, grape, or pineapple)	Wash fruit; remove pits or seeds, crush fruit. Heat to simmering; stir to prevent sticking. Strain through cloth bag. Add 1 c. sugar to 1 gallon juice, if desired. Reheat to simmering (185-210°F). Pour hot juice into jars; process. (Or, use juicer; pour simmering juice into jars; process.)	Hot	Pints and Quarts 1/2-Gal.	5 10	10 15	10 15	15 20
Plums	Remove stems and wash. To can whole, prick skins on two sides of plums with fork to prevent splitting. Freestone varieties may be halved and pitted. <i>Hot pack.</i> Add plums to hot syrup and boil 2 min. Cover saucepan and let stand 20-30 minutes. Fill jars with hot plums, cover with cooking syrup. <i>Raw pack.</i> Fill jars with raw plums, packing firmly. Cover with hot syrup.		Pints Quarts Raw	20 25	25 30		

- Use the hot-pack method.
- Don't unnecessarily expose prepared foods to air. Can them as soon as possible.
- Darkening of light-colored fruits such as apples, apricots, nectarines, peaches, and pears while preparing a canner load of jars can be prevented if the fruit is put into a solution of 3 grams (3000 milligrams) ascorbic acid to 1 gallon of cold water. This procedure is also useful for preventing stem-end discoloration in cherries and grapes. You can get ascorbic acid in several forms:

Pure powdered form. Seasonally available among canners' supplies in supermarkets. One level teaspoon of pure powder weighs about 3 grams. Use 1 teaspoon per gallon of water as a treatment solution.

Vitamin C tablets. Economical and available year round in many stores. Buy 500-milligram tablets; crush and dissolve six tablets per gallon of water as a treatment solution.

Commercially prepared mixes of ascorbic and citric acid. Seasonally available among canners' supplies in supermarkets. Sometimes citric acid powder is also sold in supermarkets, but it is less effective in controlling discoloration. Follow manufacturer's directions for amounts to use.

Packing the Jars

Follow either hot pack or raw pack directions in the chart. In the *hot pack* method, food is briefly boiled in water, syrup, or juice and packed in the jars while still very hot. Then, the cooking liquid or boiling water is added. In the *raw pack* method, raw food is packed in the jars and covered with boiling water, syrup, or juice.

The hot pack method has several advantages. Heated fruits are easier to pack into jars because they are softer. As a result, more can be put in each jar, fewer jars are needed, and there is less floating fruit. The processing time is shorter for most hot-packed foods. Food is further cleansed since the blanching water can be discarded when it is dark or soiled. Color of light-colored fruits, such as apples or peaches is often better protected. Most raw-packed fruit will be firmer in texture.

Pack food and liquid to allow 1/2 inch headspace unless otherwise specified. Headspace is the space between the food or liquid and the top of a jar. If the jars are too full, some of the contents could bubble out during heat processing and leave food on the sealing surfaces so that jars may not seal. Too much headspace may prevent sealing if processing time is too short to exhaust all air from the jar.

After filling jars, run a plastic spatula around the inside of the jar to remove air bubbles.

Sweetening Fruit

Fruit may be sweetened by adding sugar dry or as a syrup. Other sweeteners may be used, too.

Adding sugar. For hot packing juicy fruit, add 1/2 cup sugar to each quart of raw, prepared fruit. Slowly heat to simmering. Pack hot fruit in jars; cover with juice that has cooked out.

Using syrup. Make a syrup to use when raw packing fruit or when hot packing fruit that is not very juicy. Select the sweetness you desire:

Type Syrup	For 9-Pint Load		For 7-Quart Load	
	Water	Sugar	Water	Sugar
Very light	6 1/2 cups	3/4 cup	10 1/2 cups	1 1/4 cups
Light	5 3/4 cups	1 1/2 cups	9 cups	2 1/4 cups
Medium	5 1/4 cups	2 1/4 cups	8 1/4 cups	3 3/4 cups
Heavy	5 cups	3 1/4 cups	7 3/4 cups	5 1/4 cups

Using other sweeteners. Light corn syrup or honey may be used in place of sugar. Honey can overpower fruit flavor.

Canning Without Sugar

Sugar does not prevent spoilage in canned fruit, but adds sweetness and helps fruit hold its shape. It can be omitted safely. To can without sugar, replace any syrup required in the chart with water or fruit juice and follow regular processing methods and time.

Closing Jars

Wipe jar rims and threads with a clean, damp paper towel to remove any bits of food that might prevent a seal. Follow manufacturer's directions

FRUIT	PREPARATION	Pack	Jar Size	PROCESS TIME (MIN.) AT VARIOUS ALTITUDES			
				0-1000 Ft.	1001-3000 Ft.	3001-6000 Ft.	Over 6000 Ft.
Berries	Choose firm berries with no mold. Wash and drain. <i>Hot pack.</i> Bring berries and sugar (1/2 c. per quart) to a boil in covered saucepan. Shake pan to prevent sticking. Pack hot berries and extracted juice. <i>Raw pack.</i> Pack berries. Shake jar gently to obtain full pack. Cover with boiling syrup. Note: The quality of canned strawberries is poor.	Hot Raw	Pints and Quarts Pints Quarts	15 20	20 25	20 30	25 35
Cherries Sweet or pie	Wash cherries. Remove pits, if desired. <i>Hot pack.</i> Add 1/2 c. water, juice, or syrup per quart cherries. Bring to boil in covered saucepan. Pack hot cherries and cover with cooking liquid. <i>Raw pack.</i> Pack cherries. Shake jar to obtain full pack. Cover cherries with boiling syrup.	Hot Raw	Pints Quarts Pints and Quarts	15 20 25	20 25 30	20 30 35	25 35 40
Figs	Select firm, ripe, uncracked figs. Do not can overripe fruit with very soft flesh. Wash thoroughly. Drain. Do not peel or remove stems.	Raw	Pints and Quarts	25	30	35	40

PROCESS TIME (MIN.) AT VARIOUS ALTITUDES

FRUIT	PREPARATION	Pack	Jar Size	PROCESS TIME (MIN.) AT VARIOUS ALTITUDES			
				0-1000 Ft.	1001-3000 Ft.	3001-6000 Ft.	Over 6000 Ft.
Apricots, nectarines, peaches, pears (cont.)	<i>Hot pack.</i> Heat fruit through in hot syrup. If fruit is very juicy, add sugar without additional liquid. Pack fruit and cover with boiling syrup.	Hot	Pints	20	25	30	35
	<i>Raw pack.</i> Pack fruit, cover with boiling syrup.	Raw	Pints	25	30	35	40
Asian pears	Asian pears are lower in acid than Bartlett or other similar varieties of pears. In order to can safely, add lemon juice before processing. Can Asian pears using the following method. Wash. Peel, halves, and remove cores. Slice if desired. To prevent darkening, put in ascorbic acid solution. Drain. (See page 5 for ascorbic discussion.)	Hot	Pints	20	25	30	35
			Quarts	25	30	35	40
		Raw	Pints	25	30	35	40
			Quarts	30	35	40	45

for preheating lids. Cover rim with a new lid, putting the circle of sealing compound against the glass. Screw on the metal band following manufacturer's directions for tightening bands.

Processing in a Water-Bath Canner

1. Use a rack to keep jars from touching canner bottom and allow heat to reach all sides of the filled jars. Fill the canner half full of water.
2. Preheat water to 140°F for raw-packed foods and to 180°F for hot-packed foods. Put jars into canner.
3. Add additional boiling water, if needed, to bring water 1 to 2 inches above jar tops. Don't pour water directly on the jars. Place a tight-fitting cover on canner. (If a pressure canner is used for water-bath canning, leave the cover unfastened and the petcock open to prevent buildup of pressure.)
4. Bring water back to a rolling boil. Set a timer for recommended processing time. Watch closely to keep water boiling gently and steadily. Add boiling water if necessary to keep jars covered.
5. Remove jars from canner when timer sounds. Spoilage could occur if jars are left in hot water.

Cooling Jars

Put jars on a rack or cloth so air can circulate freely around them. There should not be a cold draft or fan blowing on the jars.

Screw bands should not be retightened after processing.

Testing for Seal

Test each jar for a seal the day after canning. Jars with flat, metal lids are sealed if:

1. Lid has popped down in the center.
2. Lid does not move when pressed down.
3. Tapping the center of the lid with a spoon gives a clear, ringing sound (this is the least reliable method).

If a jar is not sealed, refrigerate the contents and use soon, or reprocess. Reprocess using hot or raw pack as recommended for that product. If a hot pack method is used, contents must first be heated as directed for hot pack. Wipe jar rims clean. Use a new lid and process for full time listed. Fruit which has been heat processed twice may not be as firm or as nutritious.

Storing

Wipe jars. Label with the date and, if you like, with the contents of the jar, particularly if some batches were packed differently, without sugar, for example. Remove the screw bands so lids under them will not cause rusting.

Store jars in a cool, dark, dry place. For best eating quality and nutritive value, use within one year. Heat, freezing temperatures, light, or dampness will decrease quality and shelf life of canned food.

Before Using

Before opening each jar, look for bulging lids or rings, leaks, and any unusual appearance of the food. After opening, check for off-odor, mold, or foam. If there is any sign of spoilage, destroy the food.

CANNING FRUITS

Canning Method. Fruits are acid enough to be safely processed in a water bath canner at 212°F. Begin counting processing time when the water comes back to a rolling boil.

Headspace. Leave 1/2 inch headspace for both the fruit and liquid.

FRUIT	PREPARATION	Pack	Jar Size	PROCESS TIME (MIN.) AT VARIOUS ALTITUDES			
				0-1000 Ft.	1001-3000 Ft.	3001-6000 Ft. Over 6000 Ft.	
Apples	Wash, peel core, slice. To prevent darkening, put into ascorbic acid solution (see page 5). Drain. Boil 5 min. in light syrup or water. Pack, cover with boiling cooking liquid.	Hot	Pints and Quarts	20	25	30	35
Applesauce, other fruit purees	Wash, remove seeds or pits. Cut large fruit into pieces. Simmer until soft. Add a small amount of water, if needed, to prevent sticking. Put through food strainer or mill. Add sugar to taste. Reheat to simmering (185-210°F) and pack.	Hot	Pints Quarts	15 20	20 25	20 30	25 35

Apricots, nectarines, peaches, pears
 Wash. Peel if desired (peaches peel best when first dipped in boiling water, then cold water). Halve fruits, remove pits or cores. Slice if desired. To prevent darkening, put into ascorbic acid solution. Drain.