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.

Pacific Northwest Extension publications are produced cooperatively by the three Pacific Northwest land grant universities: Washington State University, Oregon State University, and the University of Idaho. Similar crops, climate, and topography create a natural geographic unit that crosses state lines. Since 1949, the PNW program has published more than 600 titles, preventing duplication of effort, broadening the availability of faculty specialists, and substantially reducing costs for the participating states.

Pacific Northwest Extension publications contain material written and produced for public distribution. You may reprint written material, provided you do not use it to endorse a commercial product. Please reference by title and credit Pacific Northwest Extension publications.

Issued by Washington State University Extension, Oregon State University Extension Service, the University of Idaho Cooperative Extension System, and the U.S. Department of Agriculture in furtherance of the Acts of May 8 and June 30, 1914. Extension programs, activities, materials, and policies comply with federal and state laws and regulations on nondiscrimination regarding race, sex, religion, age, color, creed, or national or ethnic origin; physical, mental, or sensory disability; marital status or sexual orientation; and status as a Vietnam-era or disabled veteran. Washington State University Extension, The Oregon State University Extension Service, and University of Idaho Extension are Equal Opportunity Employers. Evidence of noncompliance may be reported through your local Extension office. Trade names have been used to simplify information; no endorsement is intended. Revised September 1993. Reprinted April 2009. $1.00
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:

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Pounds Needed</th>
<th>Fruit</th>
<th>Pounds Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>2 1/2 – 3</td>
<td>Peaches</td>
<td>2 – 3</td>
</tr>
<tr>
<td>Apricots</td>
<td>2 – 2 1/2</td>
<td>Pears</td>
<td>1 1/2 – 3</td>
</tr>
<tr>
<td>Berries</td>
<td>1 1/2 – 3</td>
<td>Plums</td>
<td>1 1/2 – 2 1/2</td>
</tr>
<tr>
<td>Cherries</td>
<td>2 – 2 1/2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.
• 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:

<table>
<thead>
<tr>
<th>Type Syrup</th>
<th>For 9-Pint Load</th>
<th>For 7-Quart Load</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Water</td>
<td>Sugar</td>
</tr>
<tr>
<td>Very light</td>
<td>6 1/2 cups</td>
<td>3/4 cup</td>
</tr>
<tr>
<td>Light</td>
<td>5 3/4 cups</td>
<td>1 1/2 cups</td>
</tr>
<tr>
<td>Medium</td>
<td>5 1/4 cups</td>
<td>2 1/4 cups</td>
</tr>
<tr>
<td>Heavy</td>
<td>5 cups</td>
<td>3 1/4 cups</td>
</tr>
</tbody>
</table>

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.
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-color, 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 ½ inch headspace for both the fruit and liquid.

<table>
<thead>
<tr>
<th>FRUIT</th>
<th>PREPARATION</th>
<th>Pack</th>
<th>Jar Size</th>
<th>0-1000 Ft.</th>
<th>1001-3000 Ft.</th>
<th>3001-6000 Ft.</th>
<th>Over 6000 Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>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.</td>
<td>Hot</td>
<td>Pints</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quarts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applesauce,</td>
<td>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.</td>
<td>Hot</td>
<td>Pints</td>
<td>15</td>
<td>20</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>other fruit</td>
<td></td>
<td></td>
<td>Quarts</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>purees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apricots,</td>
<td>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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nectarines,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>peaches,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pears</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Continued next page