Safe Home Canning of Fruits

April C. Mason

William D. Evers
Organisms that cause food spoilage, like molds, yeasts, and bacteria, are always present in the air, water, and soil. And that means they are in raw fruits, too. That is why it is so important that you heat fruits hot enough and long enough to destroy spoilage organisms when you can. This heat process also stops the action of certain enzymes which produce color and flavor changes if left intact. Processing in a boiling-water-bath canner provides sufficient protection for acid foods like fruits.

**General Procedures**

**Selecting Fruits:**

**Quality and Quantity**

For the best quality canned product, use only perfect fruits. Choose fresh, firm fruits, and can them before they lose their freshness. If you must hold them, keep them in a cool, airy place. If you buy fruits to can, try to get them from a nearby market or orchard. Sort the fruit for size and ripeness, because they cook more evenly that way.

Your canning will be much easier and more efficient if you work with quantities you can process at one time. The number of jars of canned food you can get from a given quantity of fresh fruit depends on the quality, variety, maturity, and size of the fruit; on whether it is whole, in halves, or in slices; and on whether it is packed in jars in the raw state (cold pack) or cooked and softened first (hot pack). Table 1 provides information on the measure and weight of various fruits, on approximately how many pounds will fill one quart jar, and on approximately how many quart jars you will need to can one bushel. If you are using pint jars, divide the number of pounds needed to fill a single jar by 2, and double the number of jars needed to can a single bushel.

**Washing**

Wash all fruits thoroughly, even if they are to be pared or scalded, because soil contains some of the hardest-to-kill bacteria. Wash small amounts at a time under running water or through several changes of water. Lift the food out of the water each time so soil that has been washed off will not settle back on the food. Rinse your wash pan thoroughly between washings. Do not let fruit soak; it may lose flavor and food value. And handle gently to avoid bruising.

**Filling Containers**

Before filling canning jars, wash them in hot, soapy water and rinse well. Fill clean, hot jars one at a time with cold, raw fruit or hot fruit, following the packing instructions in this publication. If necessary, you can reheat jars by immersing them in the canning kettle full of hot water.

Most raw fruits should be packed rather tightly into the containers because they will shrink during processing. Hot fruits should be packed fairly loosely when they are at or near boiling temperature.

Be sure there is enough syrup, water, or juice to fill in around the solid fruit in the container and to cover the food. Food at the top of the container tends to darken if it is not covered with liquid. It takes from ½ to 1 ½ cups of liquid for a quart glass jar. You may have to add more liquid to bring the liquid to the desired level.

After packing, remove air bubbles in the liquid by running a long spatula around the jar between the food and jar sides, gently releasing the bubbles. When necessary, add more liquid to bring the liquid to the desired level.

With only a few exceptions, some space should be left between the packed food and the closure. This space is called "head space." The
Table 1. Amount of Fresh Fruit Needed for Canning.

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Fresh quantity and weight</th>
<th>Pounds needed to fill 1 quart jar</th>
<th>Number of quart jars filled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>1 bu. (48 lb.)</td>
<td>2 ½-3</td>
<td>16-20</td>
</tr>
<tr>
<td>Applesauce</td>
<td>1 bu. (48 lb.)</td>
<td>2 ½-3½</td>
<td>14-18</td>
</tr>
<tr>
<td>Apricots</td>
<td>1 bu. (50 lb.)</td>
<td>2-2½</td>
<td>20-25</td>
</tr>
<tr>
<td></td>
<td>1 box (22 lb.)</td>
<td>2-2½</td>
<td>9-10</td>
</tr>
<tr>
<td>Berries (except strawberries)</td>
<td>24 qt. crate</td>
<td>1 ½-3</td>
<td>12-18</td>
</tr>
<tr>
<td>Cherries</td>
<td>1 bu. (56 lb.)</td>
<td>2-2½</td>
<td>22-28 (unpitted)</td>
</tr>
<tr>
<td>Peaches</td>
<td>1 bu. (48 lb.)</td>
<td>2-3</td>
<td>16-24</td>
</tr>
<tr>
<td>Pears</td>
<td>1 bu. (50 lb.)</td>
<td>2-3</td>
<td>17-25</td>
</tr>
<tr>
<td></td>
<td>1 box (35 lb.)</td>
<td>2-3</td>
<td>12-18</td>
</tr>
<tr>
<td>Plums</td>
<td>1 bu. (56 lb.)</td>
<td>1½-2½</td>
<td>22-35</td>
</tr>
<tr>
<td>Strawberries</td>
<td>24 qt. crate</td>
<td>--</td>
<td>12-16</td>
</tr>
</tbody>
</table>

amount of space to allow at the top of the jar is given in Table 2.

Closing Glass Jars

Be sure all jars and closures are perfect. Discard any with cracks, chips, dents, or rust, because defects prevent airtight seals.

Select the size lid, widemouth or regular, that fits your jars. Then wash in hot, soapy water, and rinse all lids and bands.

The most popular canning closure is the two piece type with a metal screw band and a lid with an attached seal. To use this type, wipe the jar rim clean after the fruit is packed. Place the lid on the jar with the seal next to the glass. Metal lids with a seal may require boiling or holding in boiling water for a few minutes before placing them on the jars. Follow the manufacturer's directions. Screw the metal band down tightly by hand. When the band feels tight, the lid still has enough "give" to let air escape during processing. Do not tighten the screw band any more after you take the jars from the canner.

You may remove the bands as soon as the jars are cool. Screw bands that are in good condition may be reused. Metal lids with seals may be used only once.

Another type of closure is the porcelain-lined zinc cap. When using this lid, follow the manufacturer's instructions.

The Water-Bath Canner

Special water-bath canners are available for canning fruits. However, you can use any big, metal container as a boiling-water-bath canner if it is deep enough so that water can boil freely well above the jar tops. Allow 2 to 4 inches above jar tops for brisk boiling.

The canner must have a tight-fitting cover and a wire or wooden rack to hold jars. A rack with dividers will keep jars from touching or falling against the sides of the canner during processing.

If your pressure canner is deep enough, you can use it for a water-bath canner. Cover, but do not fasten the lid. Leave the petcock wide open so that steam escapes and pressure does not build up inside the canner.

Processing in a Boiling-Water-Bath

Place the filled glass jars into the canner containing hot or boiling water. The water should be hot but not boiling if you are using the raw pack method. For all other packs, the water in the canner should be boiling. If necessary, add boiling water to bring the water level an inch or two over the jar tops. But do not pour boiling water directly onto the glass jars. Cover the canner.

When the water in the canner comes to a rolling boil, start to count processing time,
which is listed in Table 2. When the processing time is up, remove the jars from the canner immediately.

If you move to an area of higher altitude (over 2,000 feet), you will have to add more processing time. Check with your county Extension Home Economist for directions for canning at high altitudes.

Cooling Canned Food

Take the jars from the canner. If liquid boiled out during processing, do not open the jars to add more liquid. Liquid loss will not cause spoilage; however, food that is not covered may discolor and be less attractive.

Cool jars, top side up. Give each jar enough room to let air reach all sides. Never put a hot jar on a cold surface; instead, set the jars on a rack or on a folded cloth. Keep hot jars away from drafts, but do not slow cooling by covering the jars.

"Day After" Canning Jobs

Check each jar to see that it is sealed. To test a jar that has a flat metal lid, press the center of the lid; if the lid is down and will not move, the jar is sealed. If the jar is not sealed, use the unspoiled food right away, or can the food again. To do this, empty the jar, check for defects, repack the food, and process as if it were fresh, using a new lid.

If the jars are sealed, remove the screw bands carefully and wipe the jars clean before storing them. Label the jars to indicate contents and date.

Canned food should be stored in a cool, dry place. Properly canned and stored, it will retain good eating quality for a year.

Guarding Against Spoilage

Do not use canned food that shows any sign of spoilage. Look closely at each container before opening it. Leaks or bulging cans, jar lids, or rings may mean the seal has broken and the food has spoiled. When you open a jar, look for other signs of spoilage like spurious liquid, an off color, or mold. If the food shows any sign of spoilage, do not use or even taste the food. Discard it.

To Sugar or Not to Sugar

Directions for canning most fruits call for sweetening to be added in the form of sugar syrup. And there is good reason: sugar helps canned fruit hold its shape, color, and flavor.

However, if you must restrict calories, you may want to can fruit without sweetening. In this case, can the fruit in its own juice, in extracted juice, or in water. Use the processing times listed in Table 2 whether you add sweetener or not. If you add nonnutritive sweetener, do so when the fruit is served instead of during canning. Nonnutritive sweeteners sometimes develop an off taste as a result of heating.

If Sugar Is Added

There are several ways to sweeten fruit during canning. The method you use will depend partly on the fruit you are canning and partly on your preference.

If you are going to can a very juicy fruit by the hot pack method, you may add sugar directly to the fruit without making a sugar syrup. Add about ½ cup sugar per quart measure of raw, prepared fruit. Heat the sugared fruit to simmering (185 to 210°F) over low heat. Then simply hot pack the fruit in the juice that cooks out, and process following the instructions in this publication.

If your fruit is not juicy, you will want to make a sugar syrup by mixing sugar with water or with juice extracted from some of your fruit. To extract juice, crush some of the fruit, and then heat it to simmering (185 to 210°F) over low heat. Strain the juice, and use it to hot pack your fruit.

You may make a thin, medium, or heavy syrup to suit the sweetness of the fruit and your taste. To make sugar syrup, combine 4 cups of water or juice with:

2 cups sugar for 5 cups thin syrup
3 cups sugar for 5 ½ cups medium syrup
4 ¾ cups sugar for 6 ½ cups heavy syrup

Can you use sweetening other than sugar? Yes. You can use light corn syrup or mild-flavored honey to replace as much as half the sugar called for in the directions. Do not, however, use brown sugar, molasses, sorghum, or other strong-flavored syrups; their flavor overpowers the fruit flavor, and they may darken the fruit.

Processing Fruits in a Boiling-Water-Bath

Process raw packed or hot packed fruit following the directions in Table 2. When jars are filled, adjust the lids. Put filled glass jars into the canner containing hot or boiling water. For raw pack, water should be hot, but not boiling. For all other packs, water should be boiling. Add boiling water to bring the level 1 or 2 inches over the tops of jars, but do not pour boiling water directly onto glass jars. Cover the canner. Begin to count the processing time when water in the canner comes to a rolling boil.
<table>
<thead>
<tr>
<th>Fruit</th>
<th>Instructions</th>
<th>Processing time in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pints</td>
</tr>
<tr>
<td>Apples</td>
<td>Raw Pack. Not recommended.</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Hot Pack. Pare, core, cut into pieces. To keep from darkening, place in water containing 2 tablespoons each of salt and vinegar per gallon. Drain, then boil 5 minutes in thin syrup or water. Pack hot apples in jars to ½ inch of top. Cover with hot syrup or water, leaving ½ inch head space at top. For applesauce. Make sweetened or unsweetened applesauce, heating to simmer and stirring to keep from sticking. Pack hot to ¼ inch of top of jar.</td>
<td></td>
</tr>
<tr>
<td>Berries, except straw-berries</td>
<td>Raw Pack. Wash berries, and drain. Fill jars to ½ inch of top, shaking berries down gently. Cover with boiling syrup (thin or medium recommended), leaving ½ inch head space at top. Hot Pack. Wash berries, and drain well. Add ½ cup sugar to each quart measure of fruit. Cover pan, and bring to boil. Shake pan to keep berries from sticking. Pack hot berries to ½ inch of top of jar.</td>
<td>10</td>
</tr>
<tr>
<td>Cherries</td>
<td>Raw Pack. Wash and remove pits if desired. Fill jars to ½ inch of top, shaking cherries down gently. Cover with boiling syrup (thin or medium), leaving ½ inch at top of jar. Hot Pack. Wash and remove pits if desired. Add ½ cup sugar to each quart of fruit. Add a little water to unpitted cherries. Cover pan, and bring to boil. Pack hot cherries to ½ inch of top of jar.</td>
<td>20</td>
</tr>
<tr>
<td>Fruit Juices</td>
<td>Raw Pack. Not recommended.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Hot Pack. Wash, remove pits if desired, and crush fruit. Heat to simmering. Strain through cloth bag. Add sugar if desired, about 1 cup to 1 gallon juice. Reheat to simmering, and fill jars to ½ inch of top of jar.</td>
<td></td>
</tr>
<tr>
<td>Fruit Purees</td>
<td>Raw Pack. Not recommended.</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Hot Pack. Use sound, ripe fruit. Wash and remove pits if desired. Then cut large fruit into pieces. Simmer until soft. Add a little water if needed to keep fruit from sticking. Put through a strainer or foodmill. Add sugar if desired. Reheat to simmering, and fill jars to ½ inch of top of jar.</td>
<td></td>
</tr>
<tr>
<td>Peaches or Apricots</td>
<td>Raw Pack. Wash peaches or apricots, and remove skins. Dipping the fruit in boiling water, then quickly into cold water makes peeling easier. Cut in halves, and remove pits. Slice if desired. To prevent fruit from darkening during preparation, drop it into water containing 2 tablespoons each of salt and vinegar per gallon. Drain just before packing in jars. Pack to ½ inch of top. Cover with boiling syrup (light or medium), leaving ½ inch at top of jar. Hot Pack. Prepare fruit as for raw pack. Heat fruit through in hot syrup. If fruit is very juicy, you may heat it with about ½ cup of sugar to 1 quart of raw fruit, adding no liquid. Pack hot fruit to ½ inch of top of jar.</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 2. Processing Procedures for Specific Fruits.
<table>
<thead>
<tr>
<th>Fruit</th>
<th>Instructions</th>
<th>Processing time in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pints</td>
</tr>
<tr>
<td>Pears</td>
<td>Wash, peel, cut in halves, and core. Follow directions for peaches, either raw pack or hot pack, using the same timetables.</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Plums</td>
<td>Raw Pack. Wash. To can whole, prick skins. Free-stone varieties may be halved and pitted. Pack fruit in jars to ½ inch of top. Cover with boiling syrup, leaving ⅛ inch head space at top of jar. Hot Pack. Prepare as for raw pack. Heat to boiling in syrup or juice. If fruit is very juicy, you may heat it with sugar, adding no liquid. Pack hot fruit to ½ inch of top of jar. Cover with boiling syrup, leaving ⅛ inch at top of jar.</td>
<td>20</td>
</tr>
<tr>
<td>Rhubarb</td>
<td>Raw Pack. Not recommended. Hot Pack. Wash and cut into ½ inch pieces. Add ½ cup sugar to each quart measure of rhubarb, and let stand to draw out juice. Bring to boiling. Pack hot rhubarb to ⅛ inch of top of jar.</td>
<td>10</td>
</tr>
</tbody>
</table>

**Related Publications**

Contact your county Extension office or write the Publications Mailing Room, 301 S. 2nd Street, Lafayette, IN 47905-1092, for the following related publications.

- HE-129 Using and Caring for Your Pressure Canner
- HE-130 Jams and Jellies Without Sugar
- HE-131 Uncooked Jams
- HE-132 Safe Home Canning of Low-Acid Vegetables
- HE-134 Freezing Vegetables at Home
- HE-135 Freezing Fruits at Home
- HE-136 Canning Tomatoes
- HG-8 Home Canning of Fruits and Vegetables
- HG-10 Home Freezing of Fruits and Vegetables
- HG-56 How to Make Jellies, jams, Preserves at Home
- HG-69 Home Care of Purchased Frozen Foods
- HG-92 Making Pickles and Relishes at Home
- HG-93 Freezing Meat and Fish at Home
- HG-106 Home Canning of Meat and Poultry
This publication was originally prepared by Betty Rehfeld, Ph.D., former Extension Specialist, Foods and Nutrition, Cooperative Extension Service, Purdue University.

Cooperative Extension work in Agriculture and Home Economics, state of Indiana, Purdue University, and U.S. Department of Agriculture cooperating; H. A. Wadsworth, Director, West Lafayette, IN. Issued in furtherance of the acts of May 8 and June 30, 1914. The Cooperative Extension Service of Purdue University is an affirmative action/equal opportunity institution.