

## Food Preservation Water Bath Canning

### Resources:

<http://www.uga.edu/nchfp/> National Center for Home Food Preservation

[www.homereliance.blogspot.com](http://www.homereliance.blogspot.com) Recipes and Ideas for becoming Self-Reliant

Ball Blue Book: The Guide to Home Canning and Freezing

Local Extension Agency: <http://extension.usu.edu/saltlake/> or call 801.468.3179

### Food Types and Canning Methods

Foods can be placed into two categories for canning purposes. They are acid and low acid.

Acid Foods: Contain natural acid. Generally this includes all fruits. Tomatoes are an acidic vegetable and are considered an acid food for canning. Sauerkraut, rhubarb, and foods that have had vinegar added such as pickles and relish are treated as acids. **Acid foods can be safely canned in a water-bath canner.** *The acid level of tomatoes will vary so it is important to check with the county extension agency before canning tomatoes.*

Low-acid Foods: These contain very little natural acid. Generally all vegetables are low-acid. Meats, poultry, seafoods, mushrooms, and soups are low acids. Dry beans are also low-acid. **Low-acid foods must be canned in a Pressure canner.**

### Equipment

Mason Jars: These are the best glass jars for canning. (Mayonnaise jars are not as strong and may break during processing.) Jars that have been stored for a long period of time, without exposure to liquid may become brittle and break easily during processing. Safety rules for jars include:

- 1: Take care to prevent sudden temperature changes that could crack the jars.
2. Never pour boiling water or hot food into a room temperature jar
3. Never place a hot processed jar on a cool or wet surface
4. Prepare jars by washing them in hot, soapy water and rinsing them well.
5. If the food will be processed for less than 10 minutes, the jars must be sterilized.

Water Bath Canner: Kettle large enough for the canning jars to be fully surrounded in boiling water and completely immersed under 2 inches of water. Generally, they have a tight-fitting cover and a metal basket to hold the jars off the bottom of the kettle and to separate the jars from each other.

Steam Pressure Canner: There are two types available. One has a gasket seal and one has a clamp seal. The clamp seal canners are heavier and more expensive, but they never require a replacement of parts. The gasket on the gasket seal canner should be replaced every 2 years.

A dial gauge or weight gauge is available to determine the amount of pressure. Dial gauges must be checked periodically to insure accurate readings. Because the steam inside the kettle is pressurized, its temperature exceeds the boiling point of water. At 10 pounds of pressure, the temperature will reach 240 F, which is hot enough to kill bacterial processes.

Steam Canners: This is not to be confused with pressure canning. Steam canning is conducted in a covered cooker with a shallow bottom pan which allows steam to circulate around the filled jars. Steam in this type of canner does not maintain a steady flow of even temperature, so it is impossible to know if the heat has penetrated properly. *(I have used the steam canner for juices, jams and jellies because these foods are brought to the appropriate temperature before placing in jars – I prefer using the Water Bath method for ALL raw pack foods)*

### **Food Spoilers:**

Molds and Yeast: Easily destroyed at temperatures between 140 F and 190 F.

Enzymes – Present in all living things. Foods will continue to ripen when enzymes are present. They are easily destroyed by heat, at temperatures beginning around 140 F.

Bacteria: They are not so easily destroyed. Salmonella and Staph are destroyed at 140 F. However, staph can also produce a toxin that is not destroyed unless the food is heated to 240 F. Botulism bacteria can be destroyed by boiling, but they produce a spore that throws off a strong toxin that cannot be destroyed by boiling. Botulism causing bacteria thrive on low-acid foods, and in the present of vacuum (no air) and moisture. These conditions can create a deadly toxin. **Low-acid foods must be processed in a pressure canner to bring the temperature to 240 F.**

*The home canner should not unduly worry about these food spoilers. It is good to understand what they are and how they affect food. Yet, if the directions and precautions are followed in reputable canning guides, foods can be safely canned or frozen with little concern for spoilage.*

### **Shelf Life:**

Properly canned food will keep indefinitely, but it is better to can just the amounts that will be needed until next canning season. The longer canned food is stored, the greater the opportunity for deterioration. Properly canned food has a RECOMMENDED shelf life of approximately one year.

## The Process:

- 1) Examine jars and sealing surfaces for nicks, cracks and sharp-edges. Discard any damaged jars or rings
- 2) Make sure jars are clean and sterile before filling with food
- 3) Fill jars with food, leaving the recommended head space in recipe. Eliminate air bubbles with a rubber spatula. Wipe away any food residue from top edge and threads of jar with a clean, damp cloth.

Raw Pack: Food is placed in jar while it is raw. These foods are usually more delicate after they are cooked. Food should be packed firmly but not crushed.

Hot Pack: This method is preferred when food is relatively firm and handles well. Precooking the food makes it more pliable, permits a tighter pack and requires fewer jars. Fruit canned without sweetening is always hot packed.

- 4) Pour syrup or water over food as instructed by recipe.
- 5) Place a lid on mouth of jar so that sealing compound rests on top edge.
- 6) Screw the band down firmly, so that it is hand tight. Do not use jar wrench or other device to tighten the screw band.
- 7) Process jars of food as recommended in recipe.

Water Bath: Raw Pack jars are placed in the canner in hot water. Hot Pack jars are placed in simmering water. Add boiling water, if necessary to bring the water an inch or two over the tops of the jars. Cover the canner and bring the water to a rolling boil. Start counting processing time at the point when rolling boil begins. Allow the water to boil gently but steadily for the time required. Remove the containers from the canner immediately when the processing time is up.

Pressure Canner: Place 2-3 inches of hot water in canner (use amount recommended by manufacturer) Fasten the canner cover securely. Allow steam to vent steadily for 10 minutes to drive all air from the canner. Bring to appropriate pressure and start counting processing time when pressure is reached.

- 8) When jars are fully cooled, remove screw bands and check the seal. The center of the lid should have been pulled down by vacuum and will be slightly concave. Wash outside jar surface and store properly in a cool, dark, dry place.

## Fruits (acid foods) – Boiling water Bath

Many fruits tend to darken while being prepared. To prevent darkening, use ascorbic acid. Drop the fruit into the solution as it is pared, cored, peeled or pitted. Do not leave the fruit in solution longer than 20 minutes.

The skin on peaches can be loosened by dipping into boiling water ½ to 1 minutes. Dip peaches in cool water afterward and drain.

Fruits are canned with a syrup made ahead of time. Measure sugar and liquid into a saucepan. Cook until sugar dissolves. Keep syrup hot until needed, but do not let it boil down. Usually 1 ½ cups of syrup are needed for each quart of fruit. *(Time saving tip: Place one cup syrup in jar before filling with fruit. The syrup will prevent the fruits from darkening, thus eliminating the need to place in ascorbic acid solution. Add remaining syrup after jar has been filled with fruit.)*

### **Syrups for Canning**

Extra Light	1 cup sugar per quart of liquid
Light	2 cups sugar per quart of liquid
Medium	3 cups sugar per quart of liquid
Heavy	4 ¾ cup per quart of liquid

ALWAYS FOLLOW AN APPROVED RECIPE WHEN CANNING. HOME MADE RECIPES HAVE NOT BEEN TESTED FOR pH AND PROCESSING TIMES MAY NOT BE SUFFICIENT TO AVOID SPOILAGE.