

## How To Can

by [TimAnderson](#) on April 16, 2009

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Tim's philosophy involves building minimum-consumption personal infrastructure from recycled scavenged materials. Redirecting the waste stream. Doing much with little. A reverse peace-corps to learn from poor people all over the world.

## Intro: How To Can

Canning is a quick way to preserve large quantities of food.

"We eat what we can and freeze what we can, and what we can't, we can" is a saying in my family.

The [USDA Complete Guide to Home Canning](#) is the bible of safe canning. If it's done right, canned food can still be safe to eat [after 100 years](#).

It demonstrates at "Fort Awesome" in Berkeley CA. Other illustrations are from the [USDA](#)



## Step 1: Why Canning?

"Keep it hot, keep it cold, or don't keep it" is another saying in my family.

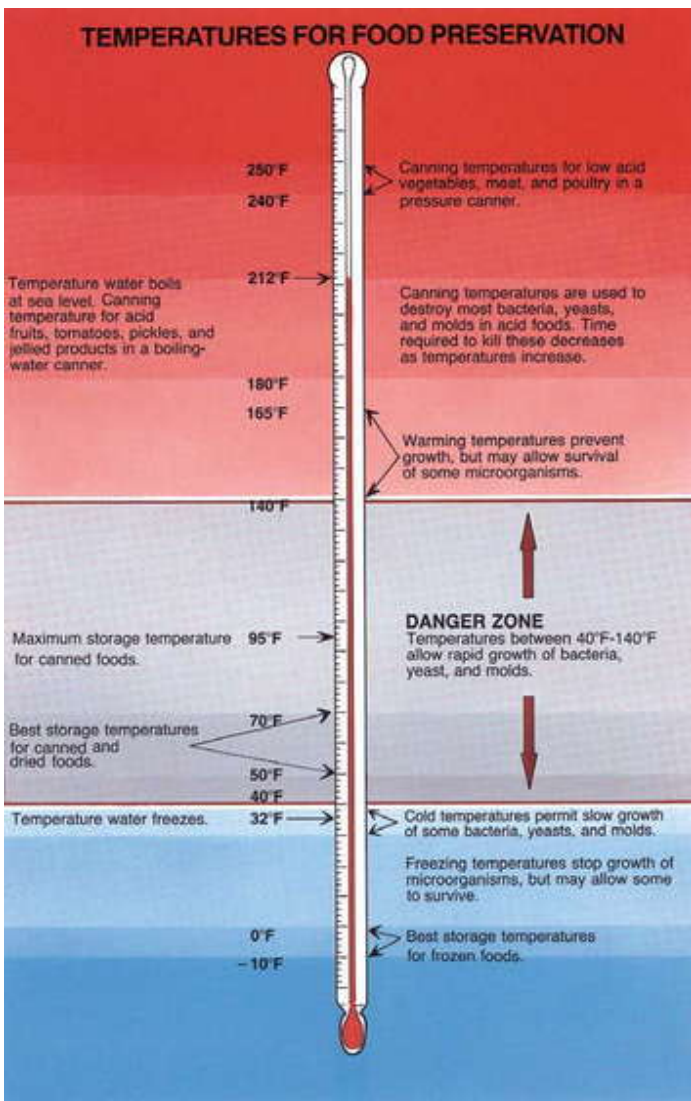
This chart from the [USDA](#) shows why this is good advice. The microorganisms that cause food to spoil don't live well at high and low temperatures.

Canning is a way to preserve food at room temperature. It works by cooking the food and containers at high temperatures to kill micro-organisms and sealing the jar so no new ones can enter.

Properly canned food is safe. Improperly canned food can cause Botulism poisoning from *Clostridium Botulinum* bacteria. The name comes from the Latin word for "sausage", "botula". ([wikipedia](#))

The spores of this bacterium are present nearly everywhere. They can survive some boiling. They thrive in an anaerobic environment such as a sealed can, producing a nerve toxin. They can't handle acidity below pH 4.6, oxygen, or a wet temperature above 250f.

The keys to safe canning of food are PH, moisture content, cooking temperature, pressure, time, sterile procedures and proper sealing.



## Step 2: Get Too Much Food

Io's making kiwi fruit jam.

That's a good choice because kiwi fruit is acidic. Sour = acidity = low pH. Clostridium Botulinum bacteria spores can't survive in sour food. Here's the approximate pH of a variety of foods.

Canning a big quantity takes just as much time as canning a little bit. So make a lot.

Correction: Io says her recipe says not to double the recipe or make larger batches, or it won't set up properly. In that case make multiple batches!



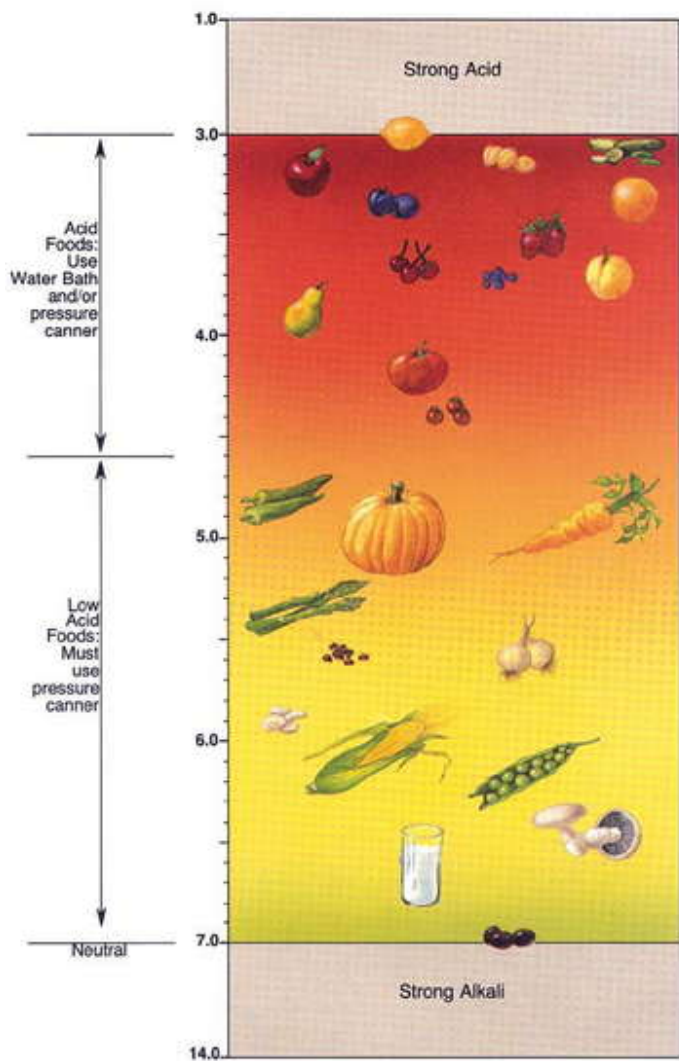
### Step 3: The importance of "PH"

This chart from the USDA Shows the ph of common foods. Botulism is prevented at a ph of 4.7 or below (acidic).

Acidic foods can be canned at boiling water temperatures.

Low-acid foods must either be pressure-canned, or acid must be added to lower the ph. Citric acid

(lemon juice), ascorbic acid (vitamin C), acetic acid or lactic acid vinegars are good choices of food acids that can lower the ph of the food.



### Step 4: Cook It

Boil the stuff for 3 to 5 minutes.

Chant "Boil that dust speck! Boil that dust speck!" just like in the book "Horton Hears a Who" by Dr. Seuss, 1954.



### Step 5: You'll Have Company

Now everyone will come and start cooking stuff, just to join in the fun. Nathan's making cookies for his co-workers at a major corporation. It takes a lot of butter to make that many cookies.



### Step 6: Sterilize the Jars and Lids

Get like Butterfly McQueen and boil water in the biggest pots you have. You're going to sterilize everything. Start with the jars and lids. When you get them they're clean but not sterile. Make sure they're fully submerged under the water. Boil them for 10 minutes if you're at sea level, and one minute for each 1000 feet of elevation above sea level.

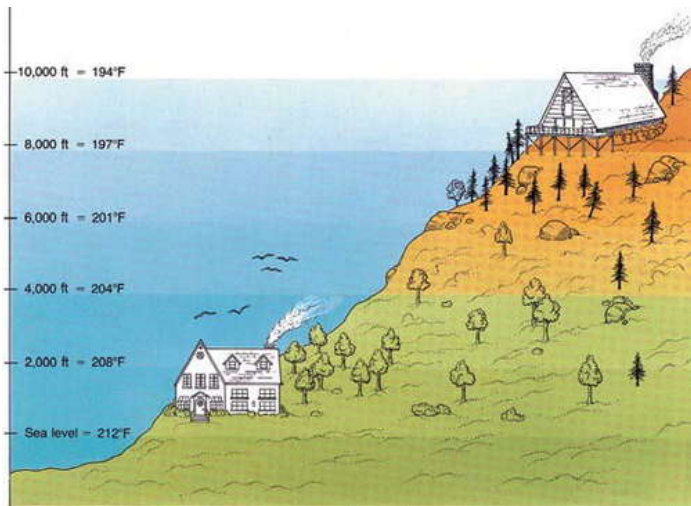


### Step 7: Fun with Boyfriend

Tell your boyfriend about a fight you had with him while he was asleep.

Hold his face over the fire until he confesses that he loves you.

But don't let the steam or the boiling water touch him. Even if you're at the top of Mt. Everest. Water will be boiling at 156 F there (wpedia) which is too hot for people. But you'll definitely need a pressure canner.



### Step 8: Fill The Jars

Ladle the hot goodness into the jars.

If any gets on the lip of the jar wipe it off carefully so the lid will seal well.

Leave a little bit of an air gap at the top.

When the air cools off later, it will contract making a vacuum.

That will make the lid go "ping" and suck inward.

Later on when you open the jar, you'll check that the lid is still sucked down. When you open the lid, hear the air suck in as the lid pings up. That's the sound safe canned food makes.

If that doesn't happen it means it wasn't sealed properly. Be afraid.

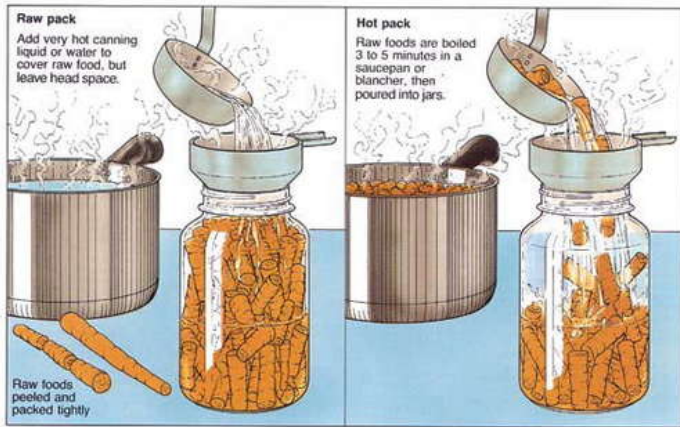
If the lid is bulged up, you're in trouble.

You've maybe got a witch's brew of festering botulism in there. Throw it away.



### Step 9: Ladles and Funnels

If you have one of these swank funnels that fits your jars, your life just got easier. It makes it a lot harder to spill food on the lip of the jar. "Head space" is the air gap at the top of the jar. The USDA says the "hot packing" method shown here is better because it removes more air from the food.



### Step 10: Boil the Filled Jars

Use the tongs to put the jars into the boiling water. Make sure they are covered by water. The water will stop boiling. Wait for it to boil again. Boil them for the right number of minutes.

What is the right number of minutes? Refer to the USDA manual or a trustworthy recipe. Usually it's 15 or 30 minutes.

VA ag extension recommends these boil times:

Processing Times For High-Acid Foods Using A Boiling Water Bath Canner (212° F):

Fruits & Vegetables Pints Quarts

Apples (hot pack)\*\*\* 20 minutes 20 minutes

Apricots (raw pack)\*\*\* 25 30

Berries (raw pack) 15 20

Cherries (raw pack) 20 25

Dill Pickles (raw pack) 10 15

Sweet Pickles (raw pack) 10 15

Fruit Juices (hot pack) 15 15

Fruit Jams and Jellies 10 10

Peaches (hot pack) 20 25

Pears (hot pack) 20 25

Plums (hot pack) 20 25

Pickle Relish (hot pack) 10 --

Rhubarb (hot pack) 10 10

Tomatoes (hot pack)\*\*\*\* 35 45

Tomato Juice (hot pack)\*\*\*\* 35 40



**Step 11: Canned!**

Tong the boiled jars out of the pot and put them in your basement along with the guns, shovels, and rice. You're ready for the next disaster.

For more details about canning technique, read the rest of the USDA Manual

