



# Intro to Canning

# This workshop will provide a basic introduction to canning:

- Explain what types of foods may be safely preserved with the water bath or pressure canning method, what equipment is required, which recipes may be used, and other important information about the process of canning itself.
- Offer a brief explanation about the principles behind food preservation to help preservers understand why procedures must be followed and which processes are used for different foods.
- This slide show is a description of basic principles and typical steps in home canning. It is not intended to be the only canning instruction and reading you need to do in order to can food safely at home. These guidelines are not intended to be used with canning recipes and procedures that have not been tested and determined to be safe for home canning. More information about canning and specific recommended procedures for canning food at home can be found at: <http://extension.wsu.edu/skagit/fam/food-preservation/>

How do I know which type of canning process to use for different recipes or types of food?



**The canning method that is approved for a food depends on the type of food.**

**Foods are divided into two main categories:**

- ❖ those that contain acid (called high acid or acidified)
- ❖ those that have very little or no acid (called “low acid” foods)



# High Acid Foods

pH less than 4.6 (measure of acidity)

- Generally all fruits
- Tomatoes and figs are borderline – (specific amounts of citric acid or lemon juice must be added before canning to acidify)
- Sauerkraut
- Foods to which large amounts of acid are added (pickles)



*Boiling Water Canning (212°F at sea level)*



# Low Acid Foods

pH more than 4.6

- Generally all vegetables
- Meats
- Poultry
- Seafood
- Soups
- Mixtures of acid and low acid foods (spaghetti sauce – meat, vegetables and tomatoes)



*Pressure Canning (at least 240°F)*

# Why Do Low Acid Foods Have to be Pressure Canned to be Safe?

## Clostridium botulinum!

- C. botulinum forms protective, heat-resistant spores.
- Spores require higher temperatures for destruction in a reasonable period of time (usually 240°F or above at sea level)
- You cannot see, smell, or taste botulism.

When conditions become favorable:

40 – 140 degrees F  
High moisture  
No air in jar

Spores germinate  
and form toxin-  
producing cells

BOTULISM





**Water Bath Canning  
is only safe for High Acid Foods!**

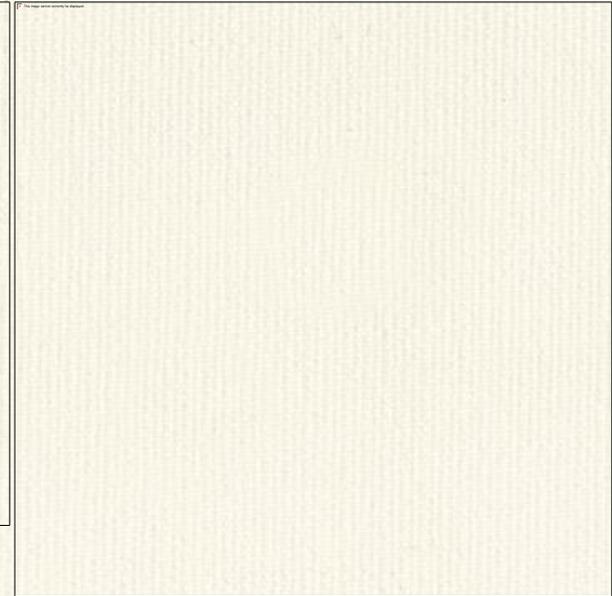
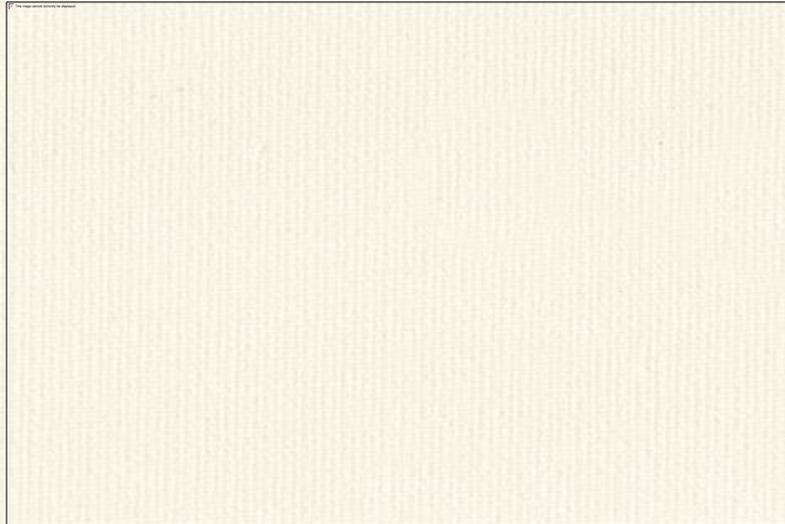
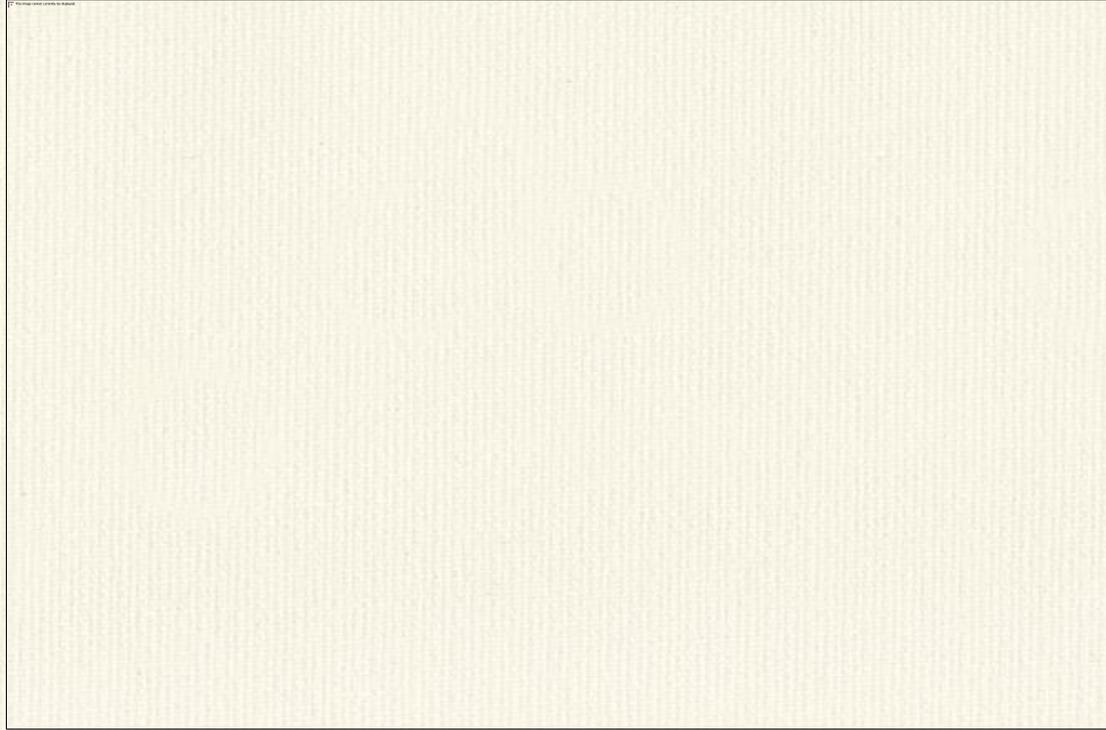


# Pressure Canning MUST be used for low acid foods!

*C. botulinum* forms spores that require higher temperatures for destruction in a reasonable period of time (usually 240°F or above at sea level).

# Required Equipment

## Water Bath



# Required Equipment Pressure Canning





### All American

No gasket, uses weights and gauge, virtually indestructible, heavy \$250+



### Presto

Dial Gauge, must be checked each year, uses rubber gasket, lightweight, more affordable at \$75



### Mirro

Weighted gauge, no need for annual testing, rubber gasket, affordable at \$50

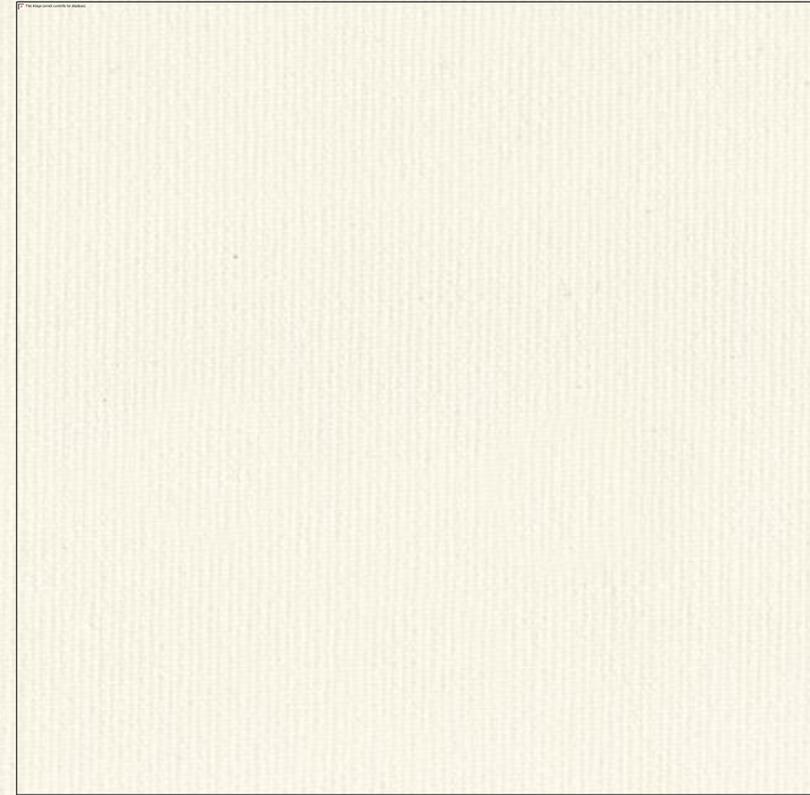
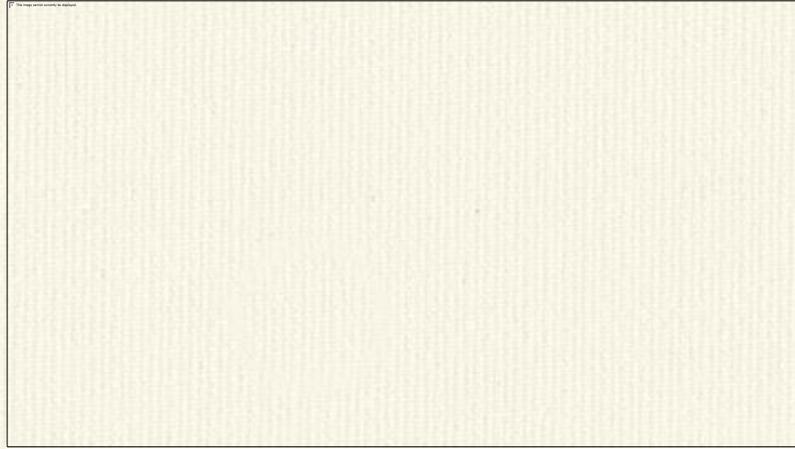
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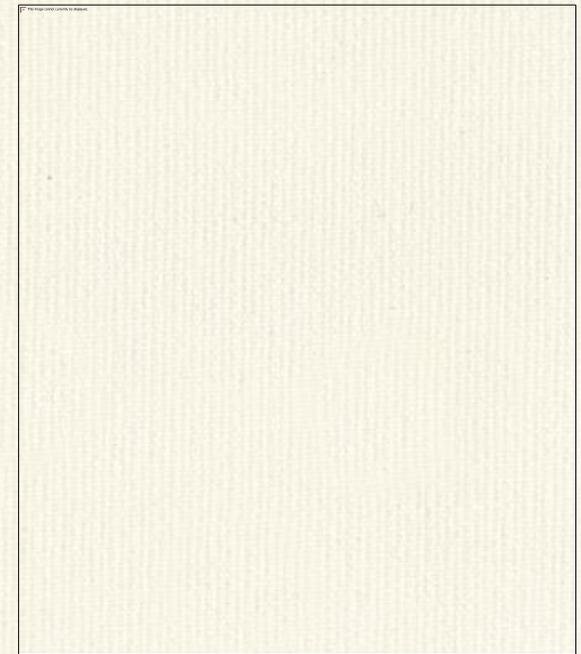
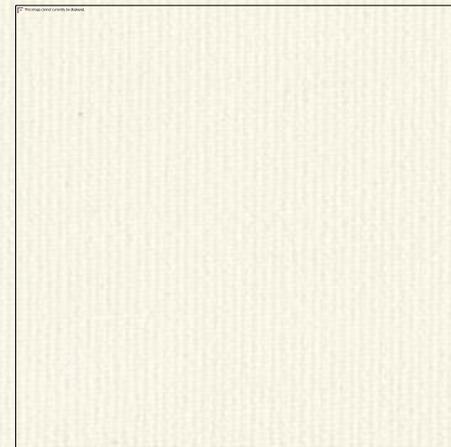
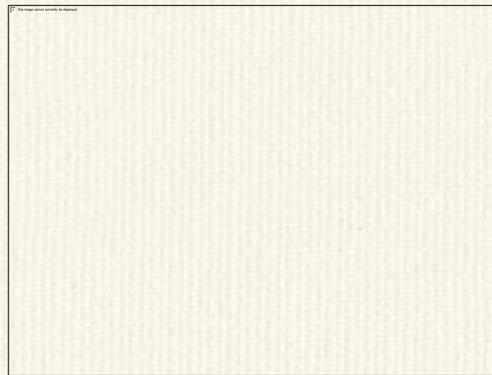
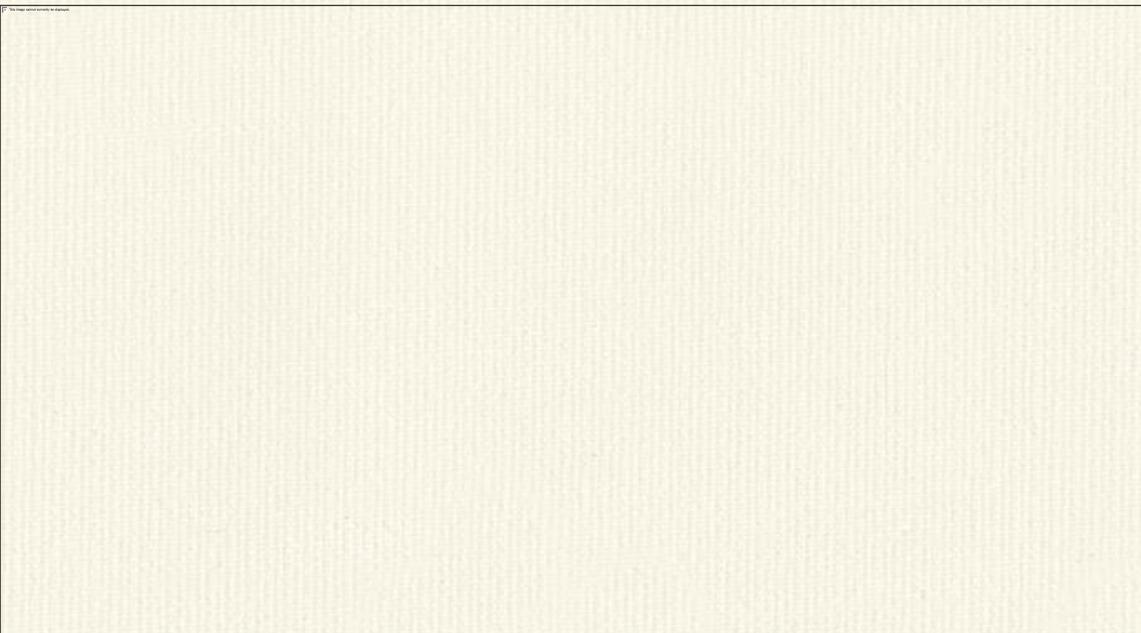


**Electric Pressure Canners are not approved** and have not been tested by the USDA or Extension: *“Even if there are referrals to the National Center for HFP in the instructions for canning in the manufacturer’s directions, we do not currently support the use of the USDA canning processes in electric, multi-cooker appliances.”*

**Pressure Cookers are not the same as Pressure Canners!**

# Optional Equipment



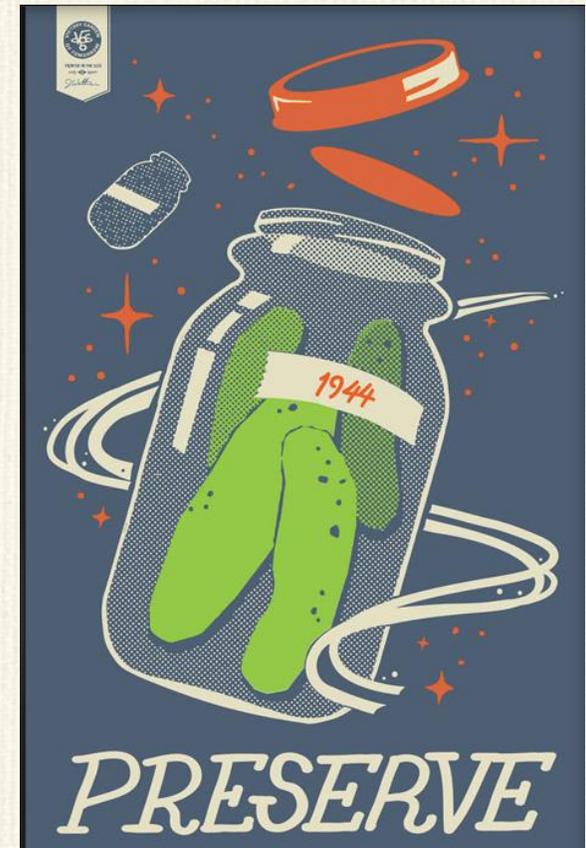


The University of Minnesota says,  
(Q:) Can I use one piece canning lids for home canning? (A:) No. One piece screw type canning lids are not designed or approved for home canning use. This type of lid is used in food processing as a hot-fill-hold process under very strict time and temperature controls. In home-canning a two-piece lid is needed to let the air escape during the boiling water or pressure canning process. A one-piece lid doesn't allow the air to escape resulting in blowing out the bottom of the jar or the lid to buckle. [2](#)

# Basic Process of Canning

- High quality food is selected and prepared according to specific directions following a USDA tested recommendation.
- Food is placed in a canning or MASON-type jar with a 2-piece lid and is heated to a temperature that destroys microorganisms.
- Heat also inactivates enzymes that can cause changes in color, flavor and texture.
- Air is driven from the jar during heating. As the jar cools, a vacuum seal is formed.

- Food must be properly prepared and processed the correct amount of time.
- Canner must be accurate and operated correctly.
- You may need to make altitude adjustments, depending on your altitude.
- Directions from a reputable source must be followed (USDA, Cooperative Extension, National Center for Home Food Preservation, Ball Blue Book, *So Easy To Preserve*, pectin manufacturer.
- Up-to-date methods and information should be used; beware of “granny’s method.”



- ✓ Foods are prepared by a specific procedure.
- ✓ The length of time it takes to adequately heat the coldest spot in the jar is determined.
- ✓ Size of the jar, size of the food, consistency of the canning liquid, etc. all have an effect on how heat penetrates through the product.

# New protocols!



## Sterilizing Jars

Used to be required, now step may be safely skipped if processing time in water bath canner is 10 minutes or more.



## Pre-heating Lids

From Ball: “We recommend prepping lids by washing with warm, soapy water and keeping them at room temperature until you’re ready to can. WHEN WAS THIS CHANGE MADE? Believe it or not, in 1969! At that time, we switched our sealing gasket from a latex base to one of Plastisol. Latex required pre-heating to soften the material before canning to create an effective seal. The Plastisol does not require preheating, but doing so will not damage it.”

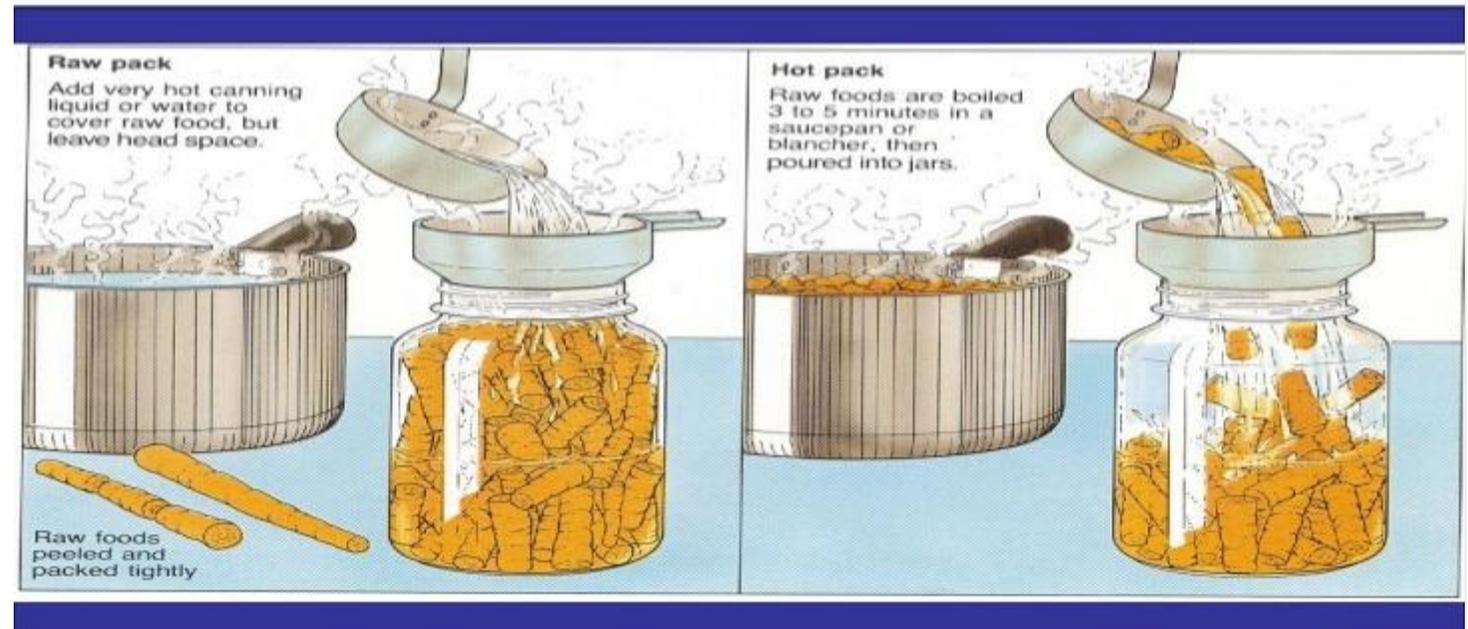
# Raw Pack

- For foods that lose shape when cooked.
- Place raw food directly in jars. Boiling hot liquid is then poured over the food.
- Pack firmly, don't crush.

## Raw Pack & Hot Pack

### Hot Pack

- Preferred method for most foods.
- Food is cooked in liquid before packing. Cooking liquid poured over food in jar.
- Fewer jars needed.
- Less floating.
- Better color and flavor.
- Easier to pack, foods pliable.



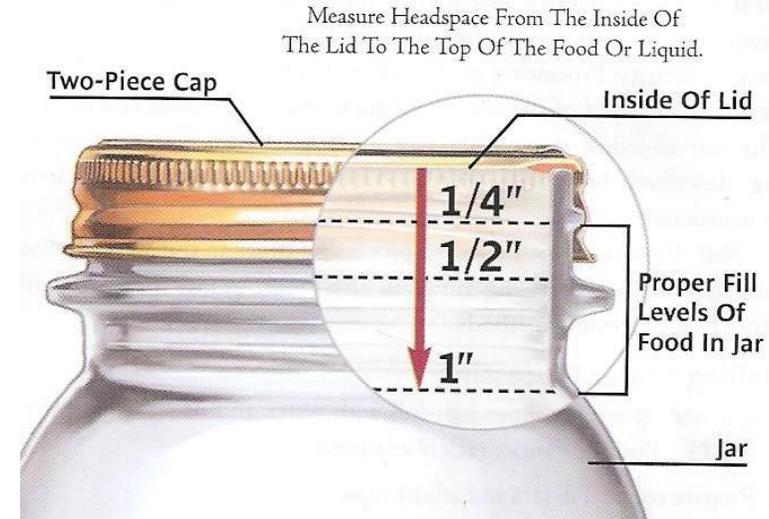
# Head Space

Space in the jar between the inside of the lid and the top of the food or its liquid. Check directions for the correct headspace.

## \* Usually:

- 1/4" jellied fruit products
- 1/2" fruits, tomatoes and pickles
- 1" to 1-1/4" low acid foods

figure 6 | Measuring Headspace (Diagram is not to scale)



## \* Too little

- Food may bubble out during processing.
- Deposit on rim may prevent proper sealing.

## \* Too much

- Food at the top is likely to discolor.
- Jar may not seal properly, because not all air may be forced from jar during process.

# Process jars using water bath canning method

1. Use jar lifter to place jars in boiling water bath. Water should cover jars by 1-2 inches (add more hot water if needed). Cover with lid and bring to boil.
2. Begin timing the process when a full boil is reached.
3. Adjust for altitude if over 1000 ft.
4. After processing time is complete, turn off canner, remove lid and wait 5 minutes before removing jars.
5. Remove jars straight up out of canner and place on padded surface away from drafts.
6. Cool 12 to 24 hours, undisturbed.
7. Check seals.
8. Remove rings.
9. Wipe off jars before storing in a cool, dry, dark place.





# Using Your Pressure Canner



- Vent your canner-Also called “exhausting” the canner. As the water boils in the canner, the “empty” space becomes a mixture of steam and air which is lower temp than pure steam.
- Venting eliminates (“exhausts”) the air so processing takes place in a pure steam environment (higher temp).
- Process times are intended only for a pure steam environment.
- USDA instructs to vent ALL pressure canners.

# Using Your Pressure Canner (continued)

- Put 2-3 inches of water in the canner and bring to a simmer.
- Next put filled jars in the pressure canner on rack, and fasten the lid in place.
- Leave the ventport open and turn heat on high .
- When water boils, steam will start to come out of open vent.
- Wait until there is a constant, strong funnel of steam, then start timing 10 minutes.
- At the end of the 10 minutes, place weight in place to start pressurizing the canner.

# Pay attention to the details!



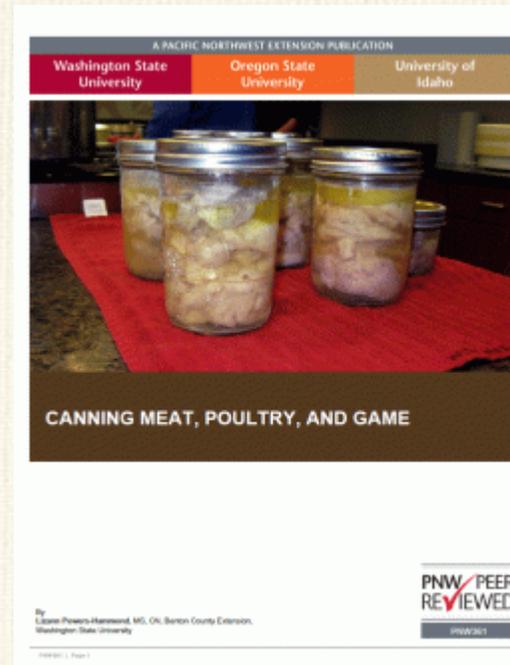
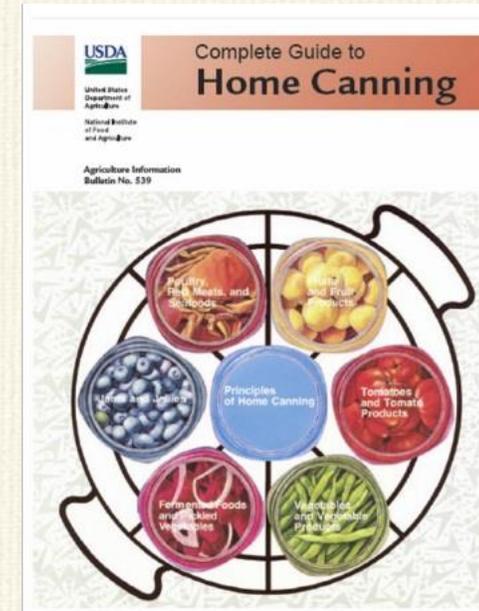
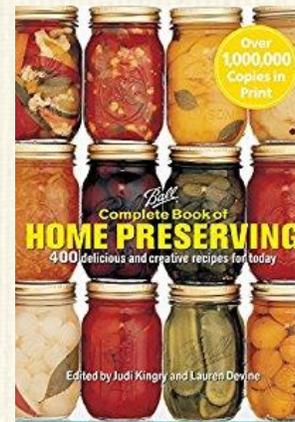
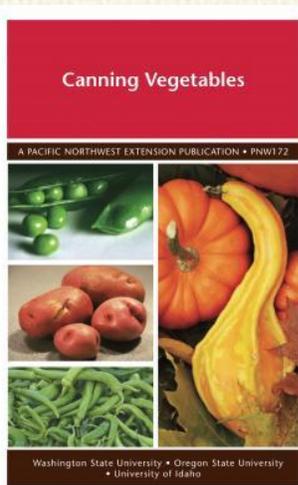
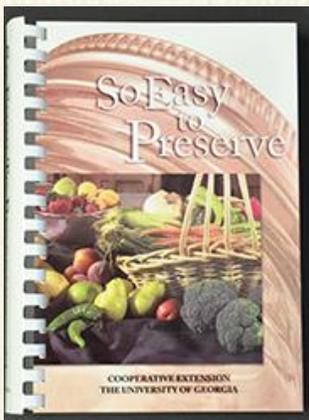
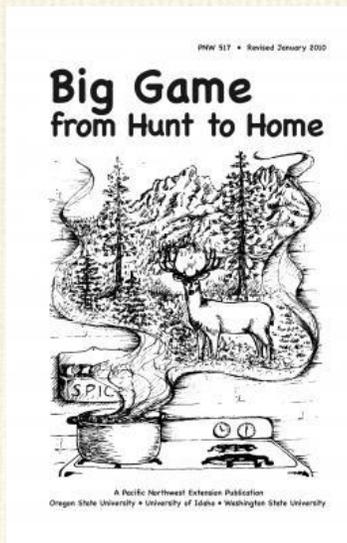
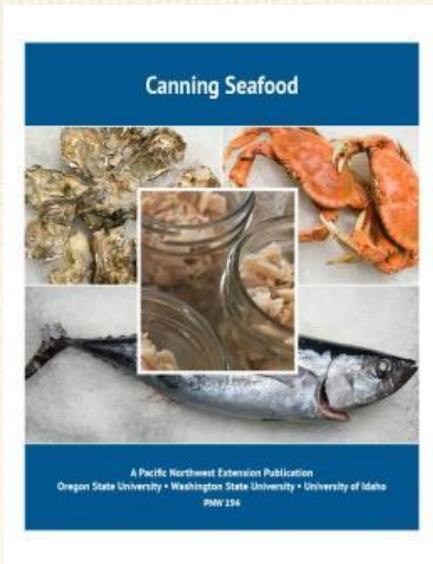
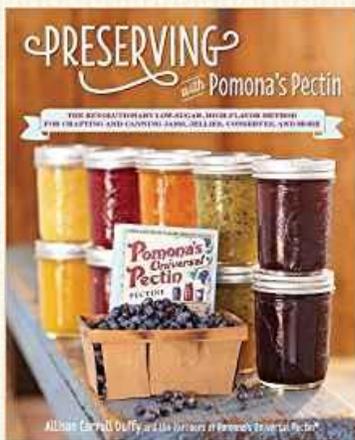
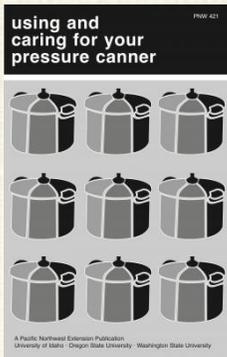
- Low acid food combinations should still follow approved recipes. These recipes have been tested and processing times given follow the longest requirement.
- You cannot make substitutions and create your own recipe because many different characteristics are considered when developing a safe recipe.
- There are some foods which are deemed unsafe even for pressure canning (example, pumpkin pie filling) as well as starches like noodles, and dairy products.
- Make sure to note jar size when identifying processing times. Some foods are limited to certain jar sizes (eg. Tuna in half pints)

# Research-based Resources

National Center for Home Food Preservation

[www.homefoodpreservation.com](http://www.homefoodpreservation.com)

<https://pubs.wsu.edu/>





# Questions about food Preservation?



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