Tips for a Successful Year of Food Preservation

Lunch & Learn

12 noon to 1 pm

May 12, 2014

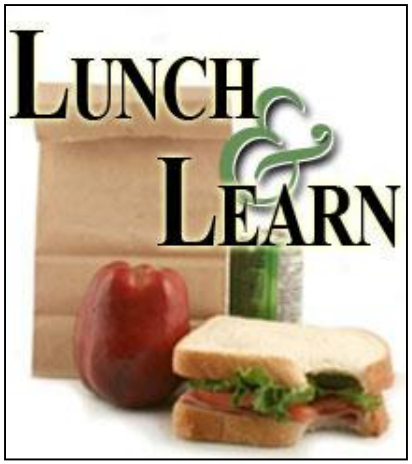
UW Extension
Cooperative Extension

Tips for a Successful Year

- Stay informed
- Use up –to- date, tested recipes
- Try something new
- Ask for expert advise
- Have fun!

A New Year: A New Look

(and plenty of ways to stay informed)



- Blog posts
- Recipes
- Video workshops
- Lunch & Learns

Safe & Healthy: Preserving Food at Home
http://fyi.uwex.edu/safepreserving/

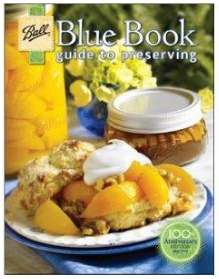
Tips for a Successful Canning Season

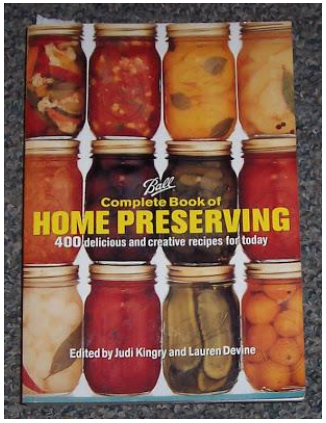
1) Start with a research-tested recipe. Just because a recipe is in print, doesn't mean it's safe for you and your family.
2) Use up-to-date recipes. We all want to continue with those tried-and-true recipes, but canning recommendations can, and do, change!
3) Start with equipment in good working order. Test equipment before use. Be sure to test dial canners!
4) Assemble jars, lids and other equipment. Use jars, lids and other equipment designed for home food preservation.
5) Leave your creativity behind. Follow an up-to-date, tested recipe.

Resources for You!

Extension recipes are designed to help you prepare safe, high quality foods for family and friends.

- UW-Extension http://fyi.uwex.edu/safepreserving/
- National Center for Home Food Preservation www.uga.edu/nchfp
  - How do I….Can? Freeze? Pickle?
- University of Georgia publications
  - So Easy to Preserve (Book and Video)
  - www.setp.uga.edu
- Ball Canning www.freshpreserving.com





Getting Started…Recipes

- **Use ONLY up-to-date, research-tested recipes!** Current canning instructions date from 1994, with minor modifications in 2009
- Don't (necessarily) do what Mom said (or did)!
  - Add ACID to tomato products when canning
  - Avoid using ALUM in pickling
  - Use LIME with care when making pickles
  - Be sure to include a heat-processing step as part of each home canning recipe.
- No tested recipe….no problem. Prepare the recipe and store refrigerated or frozen.

Safe Adaptations - Canning

- Canning **vegetables**, **tomato products**, **meat** or **quick-process pickles** – salt can be **reduced or eliminated** without compromising safety.
- Canning **fruits**, **tomato products**, or **quick-process pickles** - **sugar may be reduced or eliminated**. Follow tested recipes when using **sugar substitutes in jams and jellies.**
- Canning **vegetables** or **meat -** a small amount of low-acid ingredients (garlic, herbs) can be added to each jar.
- Canning **tomatoes** - you may substitute yellow tomatoes, always adding acid to ensure a safe product.

More Safe Adaptations

- Canning **salsa** or **pickles** - products that are mixtures of low-acid ingredients like peppers and onions, and acidic ingredients like tomatoes or acid, you may safely **reduce** the amount of low-acid ingredients, but the amount of acid, or acidic ingredients, should not be changed.
- Canning **salsa -** you can freely substitute cup-for-cup hot peppers for sweet peppers and vice versa. Do not substitute corn or black beans for other ingredients in an approved salsa recipe, an unsafe product may result.

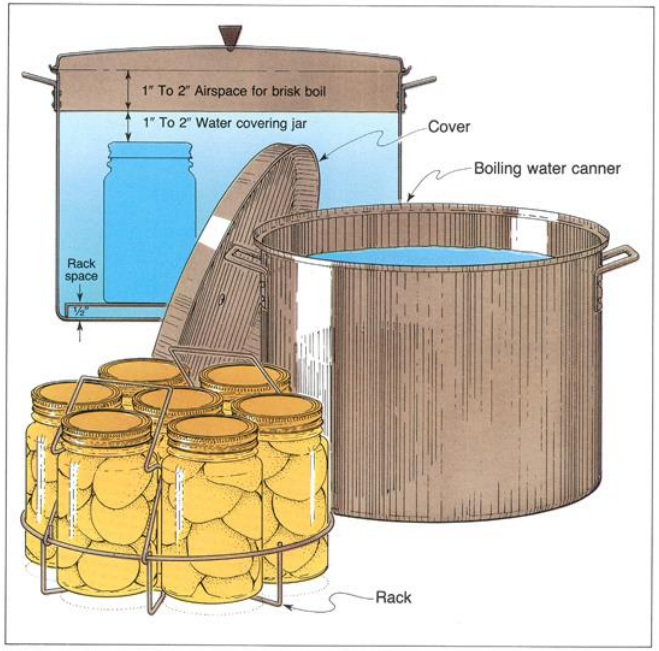
Don’t Make these Changes

- Don’t change the proportion of salt in a tested in a sauerkraut or genuine dill pickle recipe. The exact proportion and type of salt are critical for safety.
- When making **pickles or salsa**, do not change the proportion of vinegar to other ingredients in the recipe – add sugar, if the product is too sour.
- Do not attempt to can low-acid foods such as cabbage, summer squash, or wild mushrooms where there are no tested recipes.
- Do not **substitute** low-acid vegetables such as carrots or peppers for acidic fruits in jam or jelly recipes.

Getting Started…Canners

Boiling Water Canners

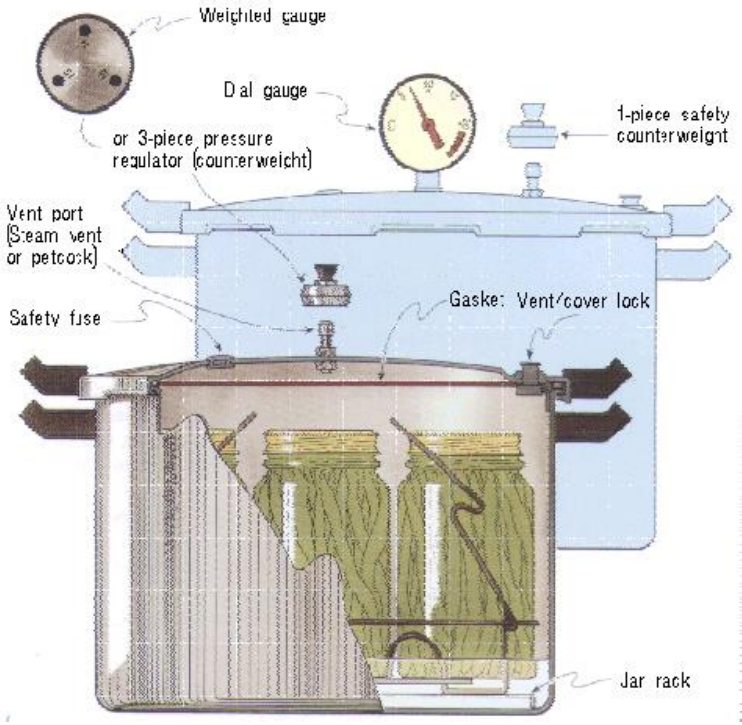
- Use for naturally high acid foods (most fruits) or acidified foods (pickles, salsa)
- A rack is needed to lift jars off the bottom
- Use with a tight-fitting lid
- Processes food at 212°F



Getting Started…Canners

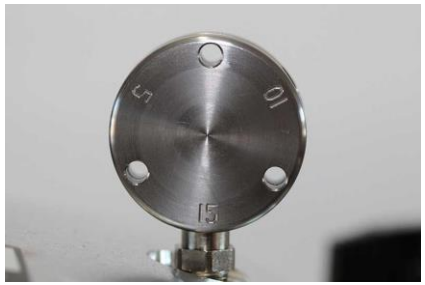
Pressure Canners

- Use for low acid foods (meat, vegetables)
- Dial gauge – checked every year for accuracy!
- Weighted gauge are not checked
- Fitted with a rack
- Gasket should be replaced when worn. **Do not store the gasket in the lid! Do not oil the gasket!**
- Processes food at 240°-250°F



2 Types of Pressure Canners

Weighted Gauge Canner & Gauge. These are NOT tested.



Dial Gauge Canner & Tester

How do we know which canning method to use?

What is the pH (acidity) of the food?

below ← **pH 4.6** → **above**

HIGH Acid

LOW Acid

Boiling Water Canning
Fruits, Pickles, Salsa

Pressure Canning
Meat, Vegetables

What if…..

For **high acid foods** you didn't have to:

- Wait for all that water to boil?
- Use so much water?
- Take so much time to process food?

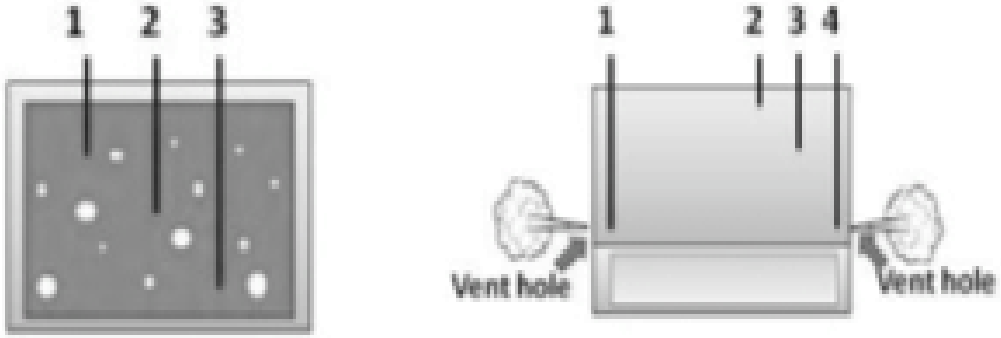
Introducing….The Atmospheric Steam Canner

Lack of research means that Extension does not currently support the use of atmospheric steam canners.

New Research on Steam Canning

- How does the steam canner work?
- How does the steam canner compare to the boiling water canner?
- Can consumers safely can products in an atmospheric steam canner?

How Does a Steam Canner Work?



Heat distribution in a boiling water canner (BWC) and in an atmospheric steam canner (ASC).

- 3 thermocouples in the BWC water column.
- 4 thermocouples in the ASC, including at the vents.

The BWC and the ASC Work...Differently (but not by much)

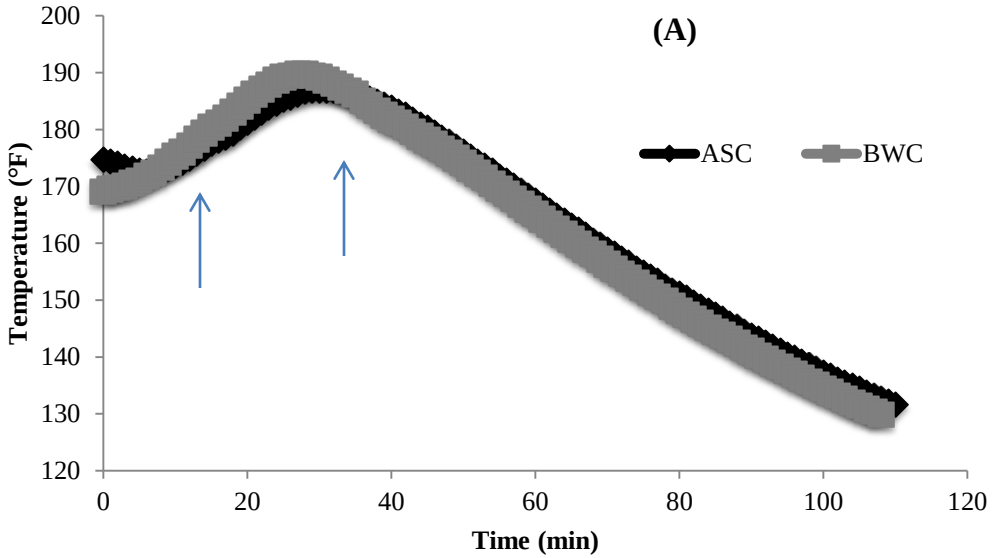
Jar Size	Product Temp at Filling	BWC – Time to Heat to Boiling	ASC – Time to Heat to Boiling
Quart	75° F 180° F	12 min 8 min	6 min 3 min
Pint	75° F 180° F	9 min 8 min	10 min 9 min
Half-Pint	75° F 180° F	9 min 8 min	9 min 8 min

- BWC started at 180°; ASC canner started at 75°
- The time for the ASC to heat to boiling with Quart jars was dramatically **shorter** than in the BWC, regardless of product temperature. But was not different for other jar sizes.
- The longest time overall was when each canner was operated full (complete data set now shown.)

Heat Distribution in the Product

- Cranberries in heavy syrup
- Applesauce
- Tomato juice
- Chocolate raspberry dessert sauce

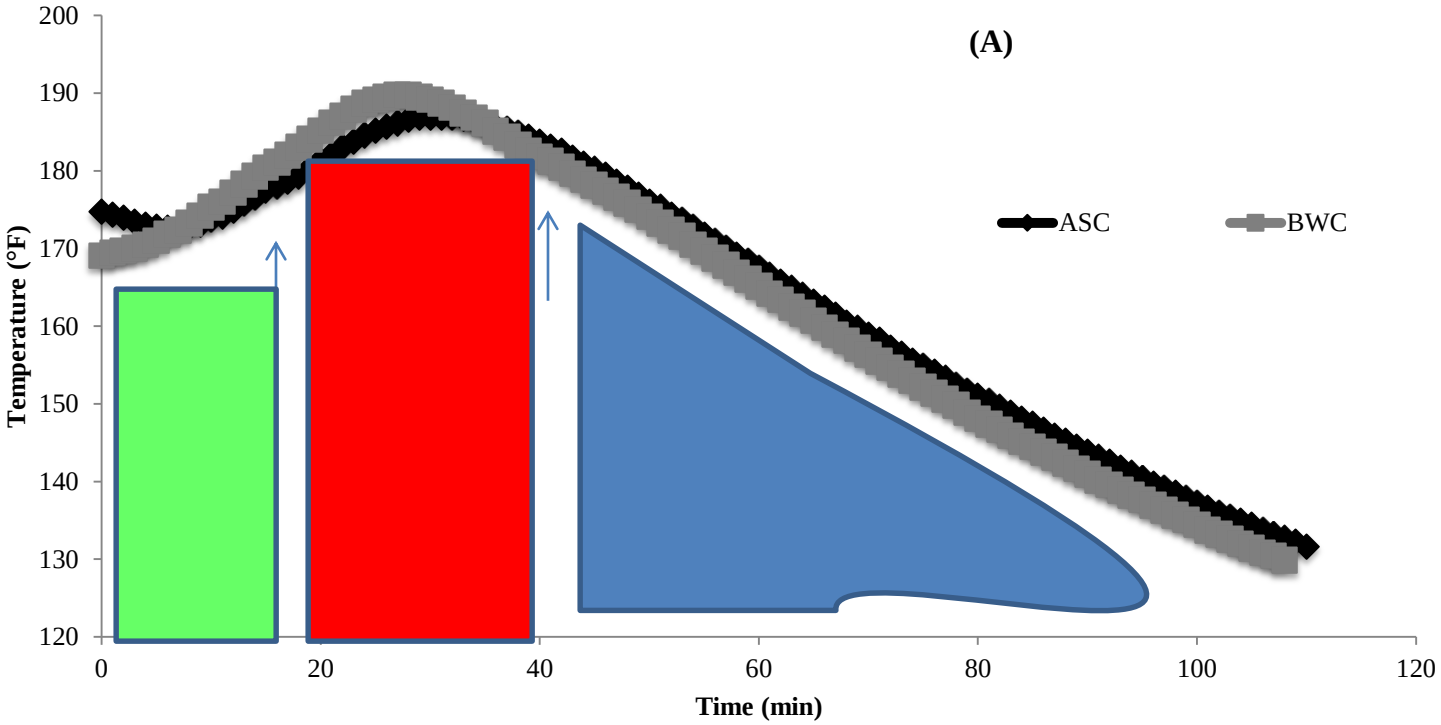
How Temperature is Measured



- 8 pint jars per canner
- Each with a recording thermocouple at the cold spot

- Applesauce – 1 trial
- 1st arrow – process starts
- 2nd arrow – jars removed from canner

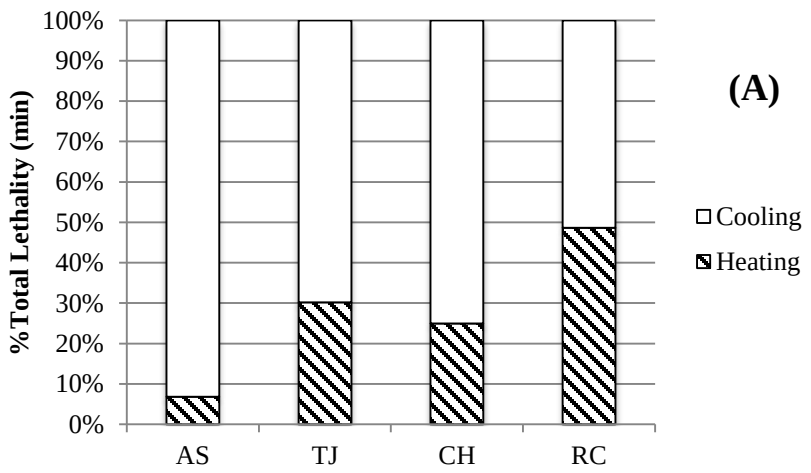
Calculated Lethality



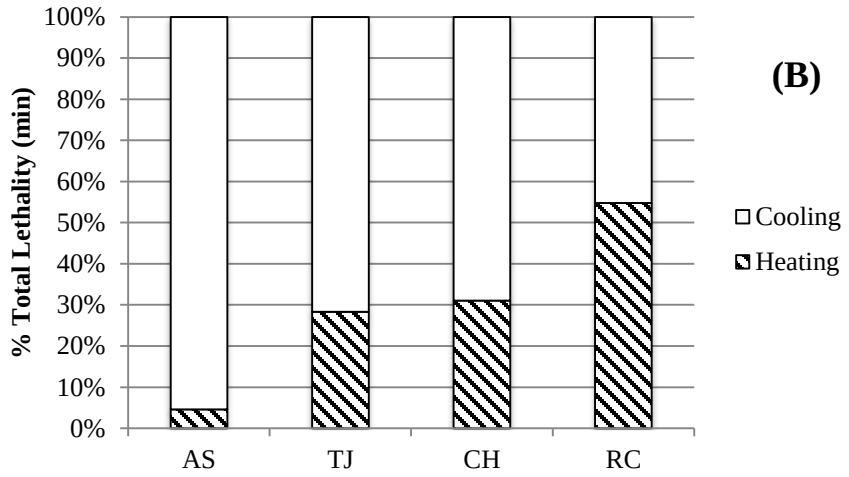
- Time until process beings (come-up time) (green)
- Processing time (red)
- Cooling time on the counter (blue)

What Contributes to Lethality?

Steam Canner



Boiling Water Canner



- Contribution of 'come-up' time to lethality is too small to 'count.
- Lethality on cooling is significant, (50-90%) regardless of product and canner type.

Integrated Lethality

Food Product	Canner Type	Total Lethality (min)	Spore Death	E. coli O157:H7 Death
Applesauce (15 min process)	ASC BWC	146 197	2 3	642,000 495,000
Tomato Juice (35 min process)	ASC BWC	3212 2477	41 32	28,400 39,400
Cranberries (15 min process)	ASC BWC	2237 2485	29 32	447,000 497,000
Raspberry Choc Sauce (10 min process)	ASC BWC	452 3593	6 46	90,400 719,000

Integrated total lethality

- BWC ~ ASC when processing applesauce, cranberries, tomato juice
- BWC >> ASC when processing chocolate raspberry dessert sauce

Calculated Lethality vs Reality

Food Product	Canner Type	Spore Death	E. coli O157:H7 Death
Applesauce (15 min process)	ASC BWC	2 3	642,000 495,000
Tomato Juice (35 min process)	ASC BWC	41 32	28,400 39,400
Cranberries (15 min process)	ASC BWC	29 32	447,000 497,000
Raspberry Choc Sauce (10 min process)	ASC BWC	6 46	90,400 719,000

Our targets

- Spore death $\geq$ 5 – important ONLY for tomato products
- *E. coli* O157:H7 death $\geq$ 5

➔ALL process achieved more than enough lethality!

➔Other factors such as seal tightness were not different.

Canner Research Conclusions

- An atmospheric steam canner **heats differently** from a boiling water canner.
- Lethality **BWC ~ ASC** when processing applesauce, cranberries and tomato juice.
- Lethality **BWC >> ASC** when processing chocolate raspberry dessert sauce.
- **Regardless** either process achieved more than enough lethality of the target pathogen, and jars sealed equally well.

➔ We anticipate that we will be able to conclude that consumers can use the ASC in place of a BWC for USDA-tested recipes with no modifications…pending USDA approval.

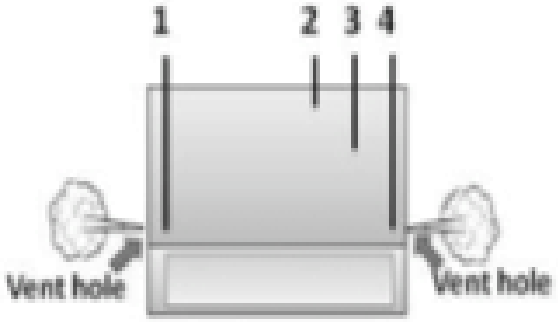
What can we tell consumers?

new slide

We **anticipate** that consumers will be able to use an Atmospheric Steam canner with the following guidelines:

- Canner water should be room temperature at the start
- Processing time begins when a full column of steam is observed from the vent ports
- Processing time must be adjusted

for elevation (as you would a boiling water process)



Try Something New

- Chocolate Raspberry Dessert Topping
- Herb Seasoned Tomatoes
- Zesty Zucchini Relish
- And more….

www.freshpreserving.com

Each of our Lunchtime Learning Programs will highlight new (approved) recipes to try.

Choose a New Method

- **Drying foods at home**. Begin the season by cleaning dehydrators and replacing broken parts.
- **Freezing delicious meals** for you and your family.
- Try **pressure canning** for the first time.
- Your **County Extension office** is the place to turn to for up-to-date information. http://www.uwex.edu/ces/cty/

Have FUN!