



SOUTH CAROLINA FAMILY AND COMMUNITY LEADERS

Affiliated with National Volunteer Outreach Network, Country Women's Council, U.S.A.,
Associated Country Women of the World and in partnership with Clemson University Cooperative
Extension Service

SCFCL WEBSITE: <http://clemson.edu/fyd/fcl.htm>

Leader Training Guide

Current Day Canning

Objectives:

1. Participants will comprehend the need for proper heat treatment in pressure canning.
2. Participants will identify which foods require pressure canning and which foods require boiling water bath canning.
3. Participants will identify the necessary equipment for proper canning.

Lesson Overview/Introduction:

Home canning is increasingly common in American households. Utilizing safe and scientifically researched canning procedures is necessary to avoid food borne illness as well as food spoilage.

Properly home canned foods can save the family money and provide nourishing, wholesome food.

Lesson:

Canning is based on the concept of heating food then placing that hot food in a hot jar and sealing it. The food will form a vacuum inside the jar as it cools and holds the jar lid closed. This method of canning (called open kettle) was conducted for years.

Recipe testing procedures conducted in a scientific setting have produced the most current recommendations for home canners. These recommendations are reliable and safe when followed as written. These recommendations always include either a boiling water bath for high acid foods or pressure canning for low acid foods.

Current recommendations do NOT include open kettle, steam canning, canning powders, dishwasher canning, oven canning, or microwave canning.

For high acid foods such as fruits, the heat of processing in a boiling water bath and the natural acid in the food keep food safe (heat kills most spoilage bacteria and acid prevents growth of Clostridium Botulinum).

For low acid foods such as meats and vegetables the heat treatment must be more intense. Clostridium Botulinum bacteria have potential for growing rapidly in low acid foods if they are not pressure canned.

Analysis of disease trends associated with home canning reveal that, in terms of life and death, the single most important microorganism is Clostridium Botulinum. Years ago, botulism was more common in the U.S. population due to poorly processed meats and vegetables. Death

rates from botulism have decreased with education focused toward home canners and scientific research focused on safe canning methods.

What equipment do I need to can at home?

To can most fruits:

Boiling water bath canner with rack, jar lifter or tongs, canning jars with 2 piece lids

To can most vegetables and meats:

Pressure canner with rack, jar lifter or tongs, canning jars with 2 piece lids

Other useful items for canning: jar funnel, plastic spatula, lid wand, kitchen towel, oven mitts.

While preparing food for the jars, a person might also need: bowls, colander, cutting board and sharp knife, non-reactive pots or pans.

I've never used a boiling water bath or a pressure canner when I can at home. Why should I start now?

Heat kills microorganisms. Microorganisms can cause the food in the jar to spoil or make you sick (possibly to the point of death if untreated) or both.

Spoilage microorganisms (the main concern for high acid foods) are killed at boiling water temperatures. Boiling water bath canners are recommended for high acid foods such as apples, peaches, pears, plums, berries and pickled or fermented products. Figs and tomatoes are borderline acid level and must have bottled lemon juice added to increase the acid level in order to ensure safety.

*******Boiling water bath canners are used when you can high acid foods such as plain fruits, fruit juice, jam, jelly, pickles, sauerkraut, chow-chow, relish, or chutney*******

Clostridium Botulinum bacteria are the main concern for low acid foods. They reproduce by spores. The spores cannot be killed at boiling temperatures (212°F). When the spores germinate, they change into vegetative cells. The vegetative cells produce a toxin that will cause illness (botulism) if eaten followed by possible death if the person does not soon receive medical treatment. The spores germinate when given these conditions: low acid surroundings and no oxygen. (These are the same characteristics of low acid canned foods.) The only way to kill the spores is by heating the food to 240°F and maintaining that temperature for a prescribed amount of time. This temperature can easily be achieved with a pressure canner.

*******Pressure canners are used when you can foods such as vegetables, meats, soup, or peanuts in the shell*******

Special note about tomatoes: Tomatoes are one of the most common vegetables canned at home. Several varieties of tomatoes now naturally contain inadequate quantities of acid and

it is recommended that an acid be added prior to processing to increase safety. The current recommendations call for bottled lemon juice (a more reliable acid level than fresh lemons) to be added to each jar. Each recipe calls for either boiling water bath OR pressure canning depending on the recipe. Some recipes only have the option for one type of processing because additional ingredients have been added to the recipe. It is essential for safety sake that the recipe and the processing times for any tomato recipe be followed when using current recommendations.

Basic Steps for Proper Canning:

Boiling Water Bath (use for high acid foods):

1. Fill canner ½ full of hot water and bring to 140°F for raw pack foods or 180°F for hot pack foods.
2. Load prepared jars onto rack in canner and add enough boiling water to cover jar tops 1”.
3. Turn heat on high to bring water to boil. Place lid on canner. Start timing when water boils steady. Add water as needed to keep jars covered by 1 inch.
4. After processing is complete, turn heat off, remove canner lid, and wait 5 minutes before removing jars.
5. Remove jars from canner, placing them upright and leave undisturbed for 12 to 24 hours.
6. Cool jars may be stored without rings after the center lid has sealed.

Pressure Canner (use for low acid foods):

1. Place 2-3” hot water in canner.
2. Load prepared jars onto rack in canner, leaving some space between jars. Secure canner lid in place. Leave weight off vent or open petcock.
3. Turn heat on high until steam flows freely for 10 minutes.
4. After 10 minutes, place weighted gauge on the vent or close the petcock, depending on canner type.
5. Adjust heat until proper pressure required in recipe is reached.
6. Start timing when dial gauge readout is correct or weight is rocking at correct speed.
7. Adjust heat as needed to maintain proper pressure.
8. When process time is completed, turn heat off and remove canner from stove’s heating element to cool down naturally. Do not rush cooling processes (cooling time is considered part of the processing time.) Also, forced cooling can possibly warp canner lids.
9. When pressure reaches zero wait 10 minutes and remove canner lid.
10. Remove jars from canner, placing them upright and leave undisturbed for 12 to 24 hours.
11. Cool jars may be stored without rings after the center lid has sealed.

Lesson Summary:

Canning is an excellent way to save money while creating delicious and tasty food at home. Due to various types of naturally occurring bacteria, care must be taken to ensure that canning is done in a safe manner. When proper canning procedures are followed, safe economical food is the result.

Suggested Activities:

1. Check pressure canners for accuracy. Each Food Safety and Nutrition Agent can help make arrangements for this at \$6 per canner.
2. Can together! Select an easy, quick, up-to-date recipe and plan for the club to spend an afternoon canning a recipe you might not have chosen alone. Everyone contributes ingredients and supplies, everyone helps can, everyone takes home some of the goodies. A great way to try a new canning recipe!

Here are some of the fun recipes you might consider from So Easy to Preserve, 5th Edition:

Okra Dill Pickles
Peach Conserve
Pickled Baby Carrots
Blueberry Spice Jam

Or you decide....there are lots of unusual and interesting recipes just waiting for you and your FCL club!

Where do I get scientifically tested and reliable recipes and even more up to date canning information?

Suggested Materials:

Recommended Texts for reference: Use only scientifically researched and reliable recipes!

So Easy to Preserve, 5th Edition, University of Georgia
USDA Complete Guide to Home Canning, 2009
Ball Blue Book, 2009, Jarden Home Brands

Websites for reference:

www.clemson.edu/hgic for online food safety and preservation
www.homefoodpreservation.com for online food preservation
www.freshpreserving.com for Ball & Kerr website. *Fantastic online tutorials!*
Just click "How to Can"

Pressure canner replacement parts:

www.gopresto.com for Presto pressure canners
www.wearever.com for Mirro pressure canners

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Sources/References: So Easy to Preserve, 5th Edition, University of Georgia
Pressure Canner Inspection Record, 2009, Clemson University Extension Service
<http://www.freshpreserving.com>
<http://ohioline.osu.edu/hyg-fact/5000/pdf/5338.pdf>
Home Canning Products (Fact Sheet), April 2009, Sue Hovey