

Just Because It Seals, Doesn't Mean It's Safe!

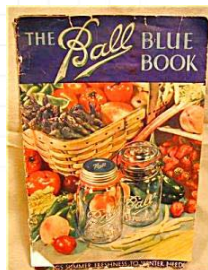


Food Safety for Fair
Exhibits and Home

Karen Blakeslee, M.S.

It is the 21st Century!

- Just because Grandma did it her way, doesn't mean it's safe today!!



- It is important to use current food preservation practices

Why Get Up to Date?

- Food preservation is a **science** and things have **changed!**
 - pH < 4.6 = high acid foods
 - pH > 4.6 = low acid foods
 - Supports growth of botulism!
 - Water activity
 - Heat penetration through the jar
 - Thickness of the food mixture
 - Size of food pieces
 - Size of jar
 - Raw pack or Hot pack
 - Altitude of residence
 - Time and temperature
 - Headspace



Creative Canning → Foodborne Illness!

- Improperly home canned vegetables are the most common cause of botulism outbreaks in the U.S.
 - Did not pressure can
 - Ignored spoilage signs
 - Improper instructions
 - Unaware of the risks



Canned peppers with botulism

CDC – Public Health Imaging Library

<http://www.cdc.gov/features/homecanning/>

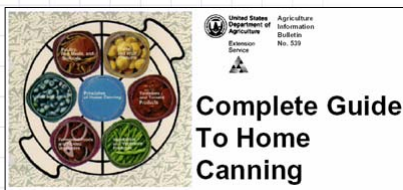
The Basics

- Use USDA processing methods with tested recipes
- Clear, standard canning jars
- High acid foods **MUST** be water bath processed
 - Jams, jellies, fruits, pickles
- Low acid foods **MUST** be pressure canned
 - Vegetables, meats
- Tomatoes, with added acid, may be processed either way



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Trusted Recipe Sources



6th edition



Ⓞ Not recommended to can homemade recipes



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Packaged mixes

- For quick and easy canning
- Pickles
- Salsa
- Sauces
- Many more!



Follow instructions exactly!!!!



Jarden Home Brands

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Boys and Girls Club Work, canning demonstration, 1920. Minnesota Historical Society Photography Collection • SA1.31 r30, 81684

- Recipes older than 1994 may be unsafe



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Unsafe Recipes Sources

Just because a food is canned commercially doesn't mean it can be canned safely at home!!

- Blogs
- Pinterest
- Old recipe books
- Recipe magazines
 - May not be adequately tested
- Many others...



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Unsafe Processing



Dishwasher



Oven or Microwave



Open Kettle Canning



Pressure Cooker



Sun Canning



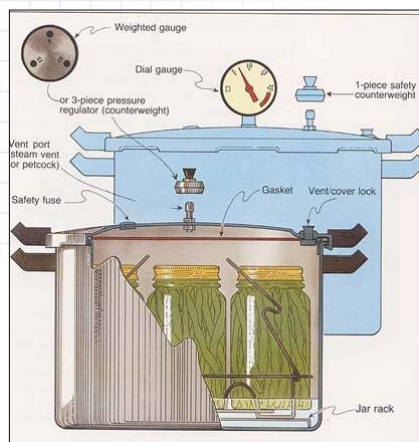
Slow Cooker



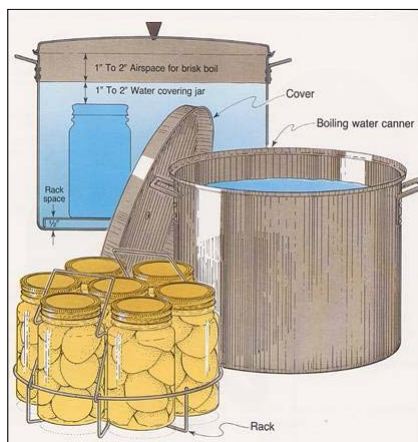
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Canning Equipment

USDA Complete Guide
To Home Canning



Pressure Canner – Dial or Weighted Gauge



Water Bath Canner

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Pressure Gauge Testing



- Dial pressure gauges need yearly testing
- If more than 1 pound off, replace
- Weighted gauges do not need testing
- 1 pound error in a 20-minute process causes over 10% decrease in sterilizing value
 - 2 pound error a 30% decrease

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Types of Jars

- Use regular or wide-mouth canning jars
 - 4 oz – ½ gallon sizes
 - ½ gallons for fruit juice only
 - 1 gallon not for canning!
- Clean, not damaged
- No colored jars at fairs!
- Mayonnaise jars for water-bath use only



Types of Lids

- Use two-piece lid
- Always use new lids
- Newer lids don't need pretreating
 - Wash with soapy water, rinse

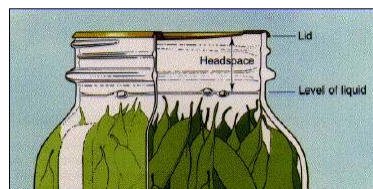


Headspace



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- ⦿ Space in jar between bottom of lid and top of food/liquid
- ⦿ Varies by type of food
- ⦿ Proper headspace creates vacuum seal
- ⦿ Usually:
 - 1/4" jellied fruit products
 - 1/2" fruits, tomatoes and pickles
 - 1" to 1-1/4" low acid foods



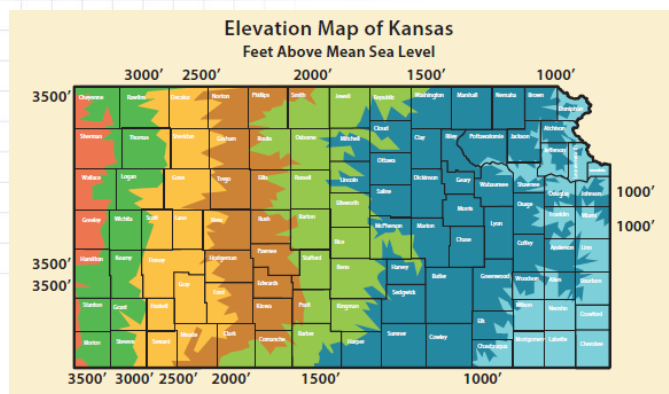
USDA Complete Guide To Home Canning



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Adjusting for Altitude

This is the number one reason for disqualification!!



How to Adjust

- Boiling Water Bath
 - ↑ time
- Pressure Canning
 - ↑ pressure

Search Kansas Elevation Data at <http://geonames.usgs.gov/pls/gnispublic>

<http://www.ksre.ksu.edu/bookstore/pubs/MF3172.pdf>



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Processing Time

- Each food and preparation style has its own processing time
- Time differs with size of jar
- Too Little (Underprocessing)
 - Spoilage
- Too Much (Overprocessing)
 - Overcooked
- After removing canner lid...
 - Let jars sit in canner for minimum of 5 minutes



Sensational Salsa!

Please do not experiment with canning your own recipe that mixes low-acid vegetables together, even with “some” acid like vinegar or lime juice. If done improperly, you put yourself at risk for botulism, a potentially fatal food poisoning.



<http://nchfp.uga.edu/publications/nchfp/factsheets/salsa.html>

<http://www.ksre.ksu.edu/bookstore/pubs/MF3171.pdf>

Tomatoes Need Acid

- All Tomatoes have pH between 4 - 4.6
 - Borderline for safe boiling water canning
 - This includes all colors of tomatoes!
- For Pints
 - 1 Tablespoon bottled lemon juice
 - ¼ teaspoon citric acid
- For Quarts
 - 2 Tablespoons bottled lemon juice
 - ½ teaspoon citric acid



Learn more at:
<http://www.bookstore.k-state.edu/pubs/MF185.PDF>

More on Tomatoes

- Vinegar may be used, but....
 - 4 Tablespoons vinegar per quart or 2 Tablespoons per pint
 - Flavor may be objectionable
- Add acids directly to jar before filling
- If too acidic, add sugar to taste
 - Example: 1 tablespoon per quart



Fermenting tomatoes

Pie Filling

- Must use Clear Jel® as thickener
 - This will not break down during processing, which would cause a runny filling
- Regular corn starch or flour will get clumpy or separate due to repeated heating.
 - Think clumpy gravy!



Safety of Jerky

- Jerky
 - **Must be heated to 160°F**
 - Heat in marinade prior to drying
 - Heat in 275°F oven for 10 minutes after drying
 - Strips should be ¼-inch thick or less
 - <http://nchfp.uga.edu/how/dry/jerky.html>
 - **Recipe needs to reflect the heating method**



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<http://www.ksre.ksu.edu/bookstore/pubs/MF3173.pdf>

Labels for Jars

Class No. _____ Division _____
 Product _____
 Canning Method: Water Bath or Pressure _____
 Process Time _____ Pressure(psi) _____
 Date processed include month & year _____
 Altitude of residence _____
 Name _____
 County/District _____

<http://www.kansas4-h.org/events-activities/fairs/kansas-state-fair/>

Scroll down to "Food Preservation"



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Judging Standards

<http://www.kansas4-h.org/events-activities/fairs/kansas-state-fair/index.html>



Food Safety Recommendations for Food Preservation Exhibits

Food safety is very important for food preservation exhibits at county fairs and the Kansas State Fair. The following practices, products, methods, and materials are categorized as being either acceptable or not acceptable for fair exhibitions.

Home Canning:
Ensuring Safe Canned Foods
 Growth of the bacterium *Clostridium botulinum* in canned food may cause botulism — a deadly form of foodborne illness. These bacteria exist either as spores or as vegetative cells. The spores, which are comparable to plant seeds, can survive harshly in soil and water for many years.

When ideal conditions for growth exist, the spores produce vegetative cells that multiply rapidly and can produce a deadly toxin within 3 to 4 days of growth in an environment that consists of:

- a moist, low-acid food
- a temperature between 40°F and 120°F
- less than 2 percent oxygen

Botulinum spores are on most fresh food surfaces. Because they grow only in the absence of air, they are harmless on fresh foods.

Food Acidity and Processing Methods
 Whether food should be processed in a pressure cooker or boiling water depends on the acidity of the food. Acid foods contain enough acidity to block their growth, or destroy them more rapidly when heated.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service



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- Judging Scorecards
 - Canned Fruits and Tomatoes
 - Canned Meats
 - Canned Pickled Products
 - Canned Vegetables
 - Dried Fruits and Leathers
 - Dried Vegetables and Herbs
 - Fruit Preserves
 - Meat Jerky



What Judges Consider	
Disqualification	Lowering a Ribbon Placing
<ul style="list-style-type: none"> • Jar unsealed • No label, missing information • Wrong processing method • Underprocessing • Jerky not heated to 160°F • Jar bigger than recipe states • Added thickeners, rice, pasta • Moving bubbles • Not acidifying tomatoes • Mashed or pureed pumpkin/winter squash • Paraffin wax on sweet spreads • Untested recipe source • Contains alcohol 	<ul style="list-style-type: none"> • Not following fair book rules • No recipe • Different color rings/ bands • Messy jars, rusty rings • Not enough liquid • Improper headspace • Wrong color (artificial color added if not in recipe) • Food over mature • Uneven sized food pieces • Using colored jars • Brands of jar/lids not the same • Food above liquid • Fancy pack, if not stated in recipe • Foreign material • Sediment in jars • Using iodized salt

Get Educated!

4-H Foods Project Curriculum and online resources



<http://www.rrc.ksu.edu/p.aspx?tabid=18>

10 Tips for Safe Home-Canned Foods

<http://www.ksre.ksu.edu/bookstore/pubs/MF3170.pdf>



<http://nchfp.uga.edu/putitup.html>

<http://nchfp.uga.edu/>



For the Fair **AND** Home!

- This is not JUST for the Fair!!
- All foods need to be canned safely for any use!
- Be Smart!
- Be Safe!



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Need a judge's training, leader's training?
Food preservation class?
Resources?

How Can I Help?



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