



Extension

# TIPS FOR SAFE & SUCCESSFUL CANNING AT WYOMING'S HIGH ALTITUDES

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## SPECIAL CONSIDERATIONS FOR CANNING IN WYOMING

### ALTITUDE

Canning food in Wyoming differs from canning in many other locations because of the high altitudes found in our state. There is lower atmospheric pressure at high altitudes, which causes water to boil at lower temperatures. Consequently, altitude adjustments must be made when home canning.

### KNOW YOUR ALTITUDE OR ELEVATION

Elevations vary in each county depending on each specific location. Please refer to the Altitude Chart found at the website below to find the altitude for the specific location you will be canning at to determine accurate canning recommendations.

<https://uwyoextension.org/uwnutrition/wp-content/uploads/2023/11/Altitude-Chart.pdf>

If your location is not included on the chart you can still find your specific altitude or elevation. Usually you can find your altitude at your local planning and zoning office, on a webpage about your town or county or by contacting your local Extension Office. There are also many online tools that will search for your specific altitude. When searching use the term "elevation" instead of "altitude". Here is one online site suggestion: <https://whatismyelevation.com/> Type in your street address, city and state in the "Enter Your Location" box. Select feet (ft.) as the unit of measure to use the processing tables.



*The following guidelines have been established by the University of Wyoming Extension (UWE) and are recommended for all home canning in Wyoming.*

### HIGH ALTITUDE ADJUSTMENTS

Canning processes require altitude adjustments for all Wyoming locations. Processing times for boiling water canning must be increased, while pressure canning requires higher pressure. The United State Department of Agriculture (USDA) changed the processing times for many foods in 1988 with the publication of the Complete Guide to Home Canning. Additional revisions were made in 1994, 2009 and 2015. To ensure safe home canning it is critical to follow recipes with the most current processing times established by the USDA.

Recipes included in the Preserving Food in Wyoming canning book and the USDA Complete Guide to Home Canning include processing times with altitude adjustments for each of the specific products. Canning recipes from other approved sources are based on elevations at or below 1,000 feet above sea level. Make adjustments to those recipes

based on the specific altitude you are canning at. Utilize the following charts to adjust the approved recipe you are using.

**Chart 1:** Boiling water canner altitude adjustments for high-acid foods

Altitude in Feet	Increase in Processing Time
1,001-3,000	5 minutes
3,001-6,000	10 minutes
6,001-8,000	15 minutes
8,001-10,000	20 minutes

**Chart 2:** Pressure canner altitude adjustments for low-acid foods

Altitude in Feet	Weighted Gauge	Dial Gauge
0-1,000	10	11
1,001-2,000	15	11
2,001-4,000	15	12
4,001-6,000	15	13
6,001-8,000	15	14
8,001-10,000	15	15

Source of charts: *Ball Blue Book (2020). Fresh preserving: Recipes and techniques for today's home canning (37<sup>th</sup> edition)*

**Only process foods for which you have an approved research-based recipe and processing time!**

## APPROVED FOOD PRESERVATION RECIPE SOURCES

- Preserving Food in Wyoming, 2024
- Complete Guide to Home Canning, USDA revised 2015
- Ball Blue Book Guide to Preserving, 37th edition, 2020
- Ball Complete Book of Home Preserving, 2020 edition
- Ball Canning Back to Basics, 2017
- The All-New Ball Book of Canning and Preserving, 2016
- So Easy to Preserve, 6<sup>th</sup> edition, 2020
- Commercial pectin recipes and manufacturer's directions
- and other up-to date Extension publications

## Canning directions for preparation of food, pack and processing must be followed exactly!

- All canning should be done in standard mason canning jars and of the correct size for the recipe
- Measure headspace accurately- check each recipe for the correct headspace
- Only use approved lids to seal jars

## INGREDIENTS

Do not personally create your own home-canning recipes. Do not add or change the ingredients or proportions in tested home-canning recipes unless using safe, tested and approved changes and substitutions allowed from an approved and reliable source. Doing so could compromise the safety of the product.

Safe changes or substitutions may be made to tested and approved canning recipes following the rules in the *Play it Safe! Safe Changes and Substitutions to Tested Canning Recipes* publication found at: <https://uwyoextension.org/uwnutrition/wp-content/uploads/2023/11/NDSU-play-it-safe-fn2102.pdf>

## BOTULISM

### Reheating low-acid canned food as a margin of safety against botulism:

Low-acid vegetables and meats may contain botulinum toxin without showing signs of spoilage. The current UW Extension safety recommendation is: Given the challenges of high altitude food preservation and as an additional safety precaution, **boil all home-canned, low acid vegetables and meats in a saucepan without a lid before tasting or serving for 10 minutes plus 1 minute for each 1,000 feet above sea level (15 minutes for 5,000 feet).** If the food looks spoiled, foams or has an off-odor during heating, discard it. For instructions on how to detoxify questionable food jars, consult pages I-26 and I-27 of the 2015 edition of the USDA Complete Guide to Home Canning. <https://nchfp.uga.edu/publications/usda>

### Reheating fish margin of safety recommendations against botulism:

Specific margin of safety recommendations for oven heating have been developed for home-canned fish because boiling adversely affects the appearance and the palatability of this product. The steps for oven-heating fish are:

- Open the jar of fish and examine it for spoilage. If spoilage is evident, detoxify the suspect food and discard. Please refer to the USDA Complete Guide to Home Canning (2015) pages 1-26 and 1-27 for complete instructions on detoxifying suspect food. <https://nchfp.uga.edu/publications/usda>
- If no spoilage is evident, insert a meat thermometer upright into the center of the jar. The tip should be at the approximate center of the fish.
- Cover the jar loosely with foil and place in a preheated oven at 350°F.
- Remove the jar from the oven when the thermometer registers 185°F. Approximately 30-35 minutes will be needed to reach the appropriate temperature.
- Let the jar stand at room temperature for about 30 minutes to allow the temperature to become uniform throughout the jar. By using a thermometer to determine the temperature of the fish, this treatment is equivalent to boiling.
- Serve the fish hot or refrigerate it immediately for later use.
- Seafood used in a casserole dish baked at 350°F may be baked as usual and the temperature checked at the end of the cooking as outlined for reheating the jars.

Microwave heating of canned food is too uneven; therefore, it is not an acceptable substitute for the margin-of-safety heating processes described above.

It is important to note that margin-of-safety reheating is not intended to serve as a recommendation for consuming foods that are incorrectly processed. It is inherently dangerous to handle canned foods that may contain the botulinum toxin and should be avoided.

## Sources of Information:

- Preserving Food In Wyoming 2024
- USDA Complete Guide to Home Canning [www.uga/nchp/publications\\_usda.html](http://www.uga/nchp/publications_usda.html)
- Ball Blue Book Fresh preserving: Recipes and techniques for today's home canning (2020- 37<sup>th</sup> edition)
- "Find Your Altitude" National Center of Home Food Preservation Fact Sheet August 27, 2020 [https://www.google.com/url?client=internal-element-cse&cx=011162308751179463004:iwwhlzmiavg&q=https://nchfp.uga.edu/how/general/find\\_altitude.html&sa=U&ved=2ahUKEwiy9LrzJSEAxUPPkQIHYNiAB4QFnoECAMQAQ&usg=AOvVaw0o3sa-GoY3-rjJn2NpHWHf](https://www.google.com/url?client=internal-element-cse&cx=011162308751179463004:iwwhlzmiavg&q=https://nchfp.uga.edu/how/general/find_altitude.html&sa=U&ved=2ahUKEwiy9LrzJSEAxUPPkQIHYNiAB4QFnoECAMQAQ&usg=AOvVaw0o3sa-GoY3-rjJn2NpHWHf)
- Play it Safe! Safe Changes and Substitutions to Tested Canning Recipes, North Central Food Safety Extension Network, North Dakota State University Extension FN 2102 August 2023
- Fundamentals of Consumer Food Safety and Preservation: Master Handbook, Colorado State University Extension and Washington State University Extension, 2016



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