Web Resources

- National Center for Home Food Preservation [https://nchfp.uga.edu/]
- North Carolina State University Extension Food Safety [https://foodsafety.ces.ncsu.edu/home-food-preservation/]
- University of Georgia Extension - Food Preservation [https://www.fcs.uga.edu/extension/food-preservation]
- University of Minnesota Extension Food Preservation Youtube Channel [https://www.youtube.com/playlist?list=PL-JlTntjANHITypH-f0lBibIMKIV8wp]

Text Resources

- Mike & Nancy Bubel, *Root cellaring: natural cold storage of fruits & vegetables*
- Janet Chadwick, *The Beginner’s Guide to Preserving Food at Home*
- The Gardeners and Farmers of Terre Vivante, *Preserving food without freezing or canning*
- USDA, *USDA’s New Complete Guide to Home Canning*
- University of Georgia, *So Easy to Preserve*
- Ben Falk, *The resilient and homestead: an Innovative Permaculture and Whole Systems Design Approach*
- Sandor Ellix Katz, *The Art of Fermentation*
- Sherri Brooks Vinton, *Put ‘Em Up!*
- DeNeice C. Guest and Nan K. Chase, *Drink the Harvest*
Illness caused by ingestion of foods containing the neurotoxin produced by *C. botulinum*. Most often associated with improperly processed home canned foods. Symptoms include:
- Weakness and vertigo
- Blurred, double vision
- Difficulty swallowing, speaking and breathing
- Digestive upset
- Possible death from suffocation

Adapted from FDA Bad Bug Book and National Center for Home Food Preservation

**Fast Facts**
- Pressure canning is the only safe method for canning meat, poultry, seafood and low acid vegetables.
- The bacteria, *Clostridium botulinum*, is only destroyed in low-acid foods when properly processed in a pressure canner.
- *C. botulinum* spores survive hours at boiling water temperatures in low acid foods.

**What is foodborne botulism?**
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**Food Acidity**
- The pH of a food indicates how much acid is present and is measured on a scale of 0 - 14; the lower the pH the more acid is present.
- Low-acid canned foods are not acidic enough to prevent *C. botulinum* growth.
- Foods may be naturally acidic or acidified by pickling, fermenting or directing adding acid.
- Adding lemon juice citric acid or vinegar increases foods’ acidity by lowering pH.

**Low-acid foods:**
- pH of 4.6 or higher
  - Fresh vegetables (except most tomatoes)
  - Meats
  - Seafood
  - Poultry

**Acid foods:**
- pH of 4.6 or lower
  - Sauerkraut
  - Pickles
  - Jams
  - Jellies
  - Marmalades
**Recommendations**

**Jars and Lids**
- Regular and wide-mouth Mason type, threaded, home canning jars with self-sealing lids are the best choice.
- With careful use and handling, Mason jars may be reused but require new lids each time.
- Before use, wash empty jars in hot water and rinse well, or wash in a dishwasher.
- All jams, jellies, and pickled products processed less than 10 minutes should be filled into sterile empty jars.
- Do not use lids that are
  - old,
  - dented,
  - deformed, or
  - contain sealing gasket defects.

**Pressure Canners**
- Modern pressure canners:
  - lightweight
  - thin-walled kettles
  - turn-on lids
  - Equipped with:
    - jar rack
    - gasket
    - dial or weighted gauge
    - automatic vent/cover lock
    - vent or steam port with counterweight or weighted gauge
    - safety fuse.

**Tips and Tricks**
After filling jars:
- Release air bubbles by inserting a flat plastic (not metal) spatula between food and jar. Slowly turn jar and move spatula up and down allowing bubbles to escape.
- Adjust headspace if needed.
- Clean jar rim (sealing surface) with dampened paper towel.
- Place lid, gasket down, onto cleaned jar-sealing surface.
- Do not retighten lids after processing.

**Unsafe Canning Methods**
- Open-kettle canning
- Process freshly filled jars in conventional ovens, microwave ovens, and dishwashers,
- Using steam canners
- Using canning powders
- Using jars with wire bails and glass caps
- Using one piece zinc porcelain-lined caps

**Remember**
All pressure canners must be vented for 10 minutes before they are pressurized.

Adapted from the National Center for Home Food Preservation website at: nchfp.uga.edu

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