

PRESERVING AND COOKING FOOD WITHOUT POWER

Without power, keep the refrigerator and freezer closed, cook only outdoors on grills and camp stoves, and throw out perishable food that has warmed above 40°F. For home canning, follow a tested USDA recipe and use a pressure canner for low-acid foods like vegetables and meat, because a boiling-water canner does not protect against botulism.

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In a long outage, food becomes a safety problem as much as a supply problem: cold food warms up, and the usual ways to cook it may be gone. Over weeks or a growing season, canning and drying let a household keep food without a refrigerator. The skills below come from CDC and from the USDA-funded National Center for Home Food Preservation (NCHFP) at the University of Georgia. They are basics: for canning, always work from a tested recipe, not from this page. For what to stock in the first place, see emergency food storage.

KEEP FOOD COLD IN AN OUTAGE

Use this the moment the power goes out.

1. Keep the refrigerator and freezer doors closed (CDC).
2. Put an appliance thermometer in the refrigerator and the freezer and watch them (Ready.gov). The refrigerator should be at 40°F or below and the freezer at 0°F or below (CDC).
3. Know your clock. CDC says a closed refrigerator keeps food safe for about 4 hours, a full freezer about 48 hours, and a half-full freezer about 24 hours.
4. After 4 hours without power, move refrigerated perishable food to a cooler with ice or frozen gel packs (CDC).
5. When power returns, check temperatures. Throw out perishable food that is above 40°F. Thawed frozen food that still has ice crystals or is at 40°F or below can be safely refrozen or cooked (CDC).

Check: you know the temperature inside the refrigerator and freezer, not just how long the power has been out.

■ WARNING

Never taste food to find out if it is safe to eat. Throw out food with an unusual smell, color, or texture, and when in doubt, throw it out (CDC).

COOK WITHOUT POWER SAFELY

Use this when the stove is out and you need to heat food.

1. Cook outdoors on a charcoal grill or camp stove (FEMA). Keep camp stoves and charcoal grills at least 20 feet from windows (Ready.gov).
2. Indoors, FEMA says a fireplace can be used for emergency cooking. Do not bring a grill or camp stove inside.
3. Eat canned food straight from the can if you need to. If you heat food in the can, open it and remove the label first (FEMA).
4. Keep cooked food hot only with devices approved for warming food, such as chafing dishes or fondue pots (FEMA).
5. Put out every open flame before you leave the room (FEMA).

Check: nothing that burns charcoal, propane, or camp stove fuel is running inside the house, the garage, or near an open window.

■ WARNING

Never burn charcoal indoors, never use a portable gas camp stove indoors, and never heat your house with a gas oven (CDC). Carbon monoxide has no smell or color. Keep battery-operated or battery backup CO alarms near every sleeping area, and test them (how to test CO alarms).

COOK FOOD TO A SAFE TEMPERATURE

Use this whenever you cook meat, poultry, or leftovers, and especially when you cannot keep food cold.

1. Wash your hands for at least 20 seconds with soap and water before, during, and after preparing food (CDC).
2. Keep raw meat, poultry, seafood, and eggs away from other food, and use a separate cutting board or plate for them.
3. Cook with a food thermometer. CDC says it is the only way to tell if food is safely cooked.
4. Cook to these internal temperatures (CDC):

- Whole cuts of beef, veal, lamb, and pork, including fresh ham: 145°F, then rest 3 minutes.
 - Ground meats, such as beef and pork: 160°F.
 - All poultry, including ground chicken and turkey: 165°F.
 - Leftovers and casseroles: 165°F.
5. Do not leave perishable food out for more than 2 hours, or 1 hour if it is above 90°F. CDC says bacteria multiply rapidly between 40°F and 140°F.

Check: the thermometer, placed in the thickest part of the food, reads the temperature above.

CHOOSE A SAFE CANNING METHOD

Use this before you can anything. Home canning keeps food for months without power, but only when the method matches the food.

1. Start from a research-tested recipe. NCHFP says the key controls are the canning method and the research-based process times in the USDA *Complete Guide to Home Canning* (NCHFP).
2. Decide whether the food is low-acid. Low-acid foods have a pH above 4.6 and include all fresh vegetables, figs, meats, poultry, fish, seafood, and some tomatoes (CDC). NCHFP adds milk.
3. Can low-acid foods in a pressure canner. CDC says pressure canning is the only recommended method for low-acid foods, and a boiling-water canner will not protect against botulism.
4. Acid foods, such as fruits, pickles, sauerkraut, jams, and jellies, can be processed in a boiling-water canner. Tomatoes and figs must first be acidified with lemon juice or citric acid, as the recipe directs (NCHFP).
5. Adjust for elevation. NCHFP says sea-level process times may result in spoilage at 1,000 feet or more, so use the time or pressure for your elevation.
6. Make sure the pressure canner's gauge is accurate. CDC says many county extension offices will check gauges.

Check: you can name your recipe's source, its canner type, and its process time for your elevation.

■ WARNING

Do not use open-kettle canning, and do not process jars in an oven, microwave, or dishwasher; NCHFP says these do not prevent all risks of spoilage, and so-called canning powders do not replace heat processing (NCHFP). CDC says not to use an electric multi-cooker, even one with a "canning" or "steam canning" button (CDC).

TEST JAR SEALS AND STORE CANNED FOOD

Use this after every batch comes out of the canner. These steps are for two-piece lids (a flat lid and a ring band); for other lids, follow the maker's directions (NCHFP).

1. Do not retighten lids on hot jars. NCHFP says it can cut through the gasket and cause seal failures (NCHFP).
2. Cool the jars at room temperature for 12 to 24 hours, on a rack or towel.
3. Remove the ring bands and test each seal one of three ways:
 - Press the middle of the lid. If it springs up when you let go, it is not sealed.
 - Tap the lid with the bottom of a teaspoon. A sealed lid makes a ringing, high-pitched sound; a dull sound means it may not be sealed.
 - Look across the lid at eye level. It should curve down slightly in the center. A flat or bulging lid may not be sealed.
4. Wash and dry sealed jars without disturbing the lids, then label and date them (NCHFP).
5. Store them without ring bands in a clean, cool, dark, dry place, best between 50°F and 70°F. Do not store jars above 95°F, near hot pipes, a range, or a furnace, in an uninsulated attic, or in direct sunlight.
6. Can no more than you will use within a year, unless a specific recipe says otherwise.

Check: every jar on the shelf passed a seal test and carries a label and date.

If a jar did not seal, NCHFP says to refrigerate it and eat the contents within one week, or reprocess within 24 hours following its reprocessing steps. If you did not follow a tested recipe, NCHFP says all the jars, sealed or not, may be unsafe and should be discarded.

SPOT SPOILED CANNED FOOD

Use this every time you open a home-canned jar or a damaged store-bought can.

1. Check the lid. It should be tight and curved down in the center (NCHFP).
2. Hold the jar upright at eye level and turn it. Look for streaks of dried food from the top of the jar, rising air bubbles, and unnatural color.
3. As you open it, smell for unnatural odors and look for spurting liquid and cotton-like mold (white, blue, black, or green) on the food or the underside of the lid.
4. Treat any of CDC's warning signs as a reason to discard the food: a container that is leaking, bulging, or swollen; one that looks damaged, cracked, or abnormal; one that spurts liquid or foam when opened; or food that is discolored, moldy, or smells bad (CDC).
5. Before eating home-canned tomatoes, foods containing them, and all low-acid home-canned foods, boil them in a saucepan for 10 minutes at altitudes below 1,000 feet, adding 1 minute for each additional 1,000 feet (CDC).

6. Dispose of suspect food carefully. NCHFP says to put still-sealed suspect jars or swollen cans in a heavy garbage bag and into the trash. Leaking or open containers need to be detoxified by boiling first; follow NCHFP's detoxification and cleanup steps, wearing rubber or heavy plastic gloves.

Check: you did not taste anything to decide. CDC says never taste food to see if it is safe, and do not eat food if you do not know whether safe canning guidelines were followed.

■ WARNING

NCHFP says spoiled low-acid foods may show very little sign of spoilage, so treat every suspect jar as if it holds botulinum toxin. CDC lists the common symptoms of botulism as difficulty swallowing, muscle weakness, double vision, drooping eyelids, blurry vision, slurred speech, difficulty breathing, and difficulty moving the eyes. Foodborne botulism may also cause vomiting, nausea, stomach pain, or diarrhea. CDC says botulism is a medical emergency: see a doctor or go to the emergency room right away, and do not wait (CDC).

SUN-DRY FRUIT

Use this to preserve fruit on hot, dry days with no power at all. NCHFP says the high sugar and acid in fruit make it safe to dry outdoors when conditions are right, but vegetables (except vine-dried beans) and meats are not recommended for outdoor drying (NCHFP).

1. Pick the weather: hot, dry, breezy days, at least 85°F (higher is better), with humidity below 60 percent. It takes several days.
2. Lay the fruit on food-safe screens: stainless steel, Teflon-coated fiberglass, or plastic. Do not use "hardware cloth" (galvanized metal), copper, or aluminum screening.
3. Set the screens on blocks so air moves underneath, on a concrete driveway or over a sheet of aluminum or tin if possible.
4. Cover the fruit with a second screen or cheesecloth to keep birds and insects off.
5. Cover the fruit or bring it under shelter every night, because cool night air adds moisture back.
6. When it is dry, let it cool completely, then condition it: pack it loosely in sealed glass or plastic jars for 7 to 10 days, shaking daily. If moisture condenses in a jar, dry that fruit longer (NCHFP).
7. Pack it tightly into clean, dry, insect-proof containers, in amounts you will use at one time, and store it in a cool, dry, dark place.

Check: no condensation forms in the jars during conditioning. NCHFP says most dried fruit keeps about 1 year at 60°F and 6 months at 80°F. Check stored fruit often: use or redry food that has picked up moisture, and throw out anything moldy.

PRACTICE LIST

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- ☐ Put thermometers in the refrigerator and freezer and know the 4, 24, and 48 hour limits
- ☐ Set up and lit the grill or camp stove outdoors, at least 20 feet from windows
- ☐ Cooked a meal and checked it with a food thermometer
- ☐ Found a tested USDA recipe and identified the right canner for it
- ☐ Cooled a batch of jars and tested every seal three ways
- ☐ Practiced the spoilage checks on a stored jar, without tasting
- ☐ Sun-dried and conditioned a small batch of fruit

TRACK

Survival skills

SHEET

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REVIEWED

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COMPILED FROM THESE SOURCES

1. CDC, Keep Food Safe After a Disaster or Emergency
2. Ready.gov, Power Outages
3. FEMA and American Red Cross, Food and Water in an Emergency
4. CDC, Carbon Monoxide (CO) Poisoning Basics
5. CDC, Four Steps to Food Safety
6. CDC, Preventing Botulism from Home-Canned Foods
7. CDC, Symptoms of Botulism
8. National Center for Home Food Preservation (USDA, University of Georgia), Ensuring Safe Canned Foods
9. National Center for Home Food Preservation, Equipment and Methods Not Recommended
10. National Center for Home Food Preservation, Cooling Jars and Testing Jar Seals
11. National Center for Home Food Preservation, Storing Home Canned Foods
12. National Center for Home Food Preservation, Identifying and Handling Spoiled Canned Food
13. National Center for Home Food Preservation, Sun Drying
14. National Center for Home Food Preservation, Packaging and Storing Dried Foods

Every safety claim on this sheet links to its primary source.