Avoiding Common (Major and Minor) Canning Mistakes

Kathleen Riggs, Family and Consumer Sciences Agent, Iron County

Major Canning Mistakes – Potentially Deadly

*Making up your own canning recipe. Without scientific testing, you will not know how long the product needs to be processed to be safe.

*Adding EXTRA starch, flour or other thickener to recipe. This will slow the rate of heat penetration into the product and can result in undercooking.

*Adding EXTRA onions, chilies, bell peppers, or other vegetables to salsas. The extra vegetables dilute the acidity and can result in botulism poisoning.

*Using an oven instead of water bath for processing. The product will be under-processed since air is not as good a conductor of heat as water or steam. The jars also may break or explode.

*Not making altitude adjustments. Since boiling temperatures are lower at higher altitudes, the products will be under-processed. Pressure canning requires adding more pounds of pressure while water-bath canning requires more processing time.

*Not venting pressure canner. Lack of venting can result in air pockets (cold spots) which will not reach as high a temperature as is needed.

*Not having dial-type pressure canner gauges tested annually. If the gauge is inaccurate, the food may be under-processed and therefore unsafe.

*Failure to acidify canned tomatoes. Not all tomatoes have an adequate acid level (pH), especially if the vine is dead when tomatoes are harvested. This can result in botulism poisoning.

*Cooling pressure canner under running water. Calculations as to processing time include the residual heat during the normal cool-down period as part of the canning process. Hurrying this process will result in under-processed food; siphoning of liquid from the jars and jar breakage may also occur.

*Letting food prepared for “hot pack” processing cool in the jars before placing them in the canner for processing. The heat curves are based on the food being hot at the beginning of the processing. The product could be under-processed.

NOTE: Canned meat, vegetables, or salsa which is under-processed can cause botulism.

Minor Canning Mistakes – Economic Loss, But Results Not Deadly

*Use of mayonnaise jars. The thinner walls of the glass may break, especially if used in a pressure canner, and it may be more difficult to obtain a good seal. However, if it seals, it is safe to use.

*Use of paraffin on jams & jellies. Small air holes in the paraffin may allow mold to grow. Also, paraffin can catch on fire if overheated during preparation. If preserves do have mold growth, the recommendation is not to eat the product, but discard it.

*Cooling too slowly after removing from canner. (Example: stacked jars close together.) There is a group of harmless organisms called thermophiles that can survive canning. If bottles are held hot for long periods, they can produce acid (fermentation). This results in the defect known as “flat-
This is harmless, but produces an undesirable flavor.

*Storing food longer than recommended.*

Keeping foods longer than recommended or storing them at temperatures above 70°F for an extended period of time will decrease the quality and the value of some nutrients, but the product will be safe to eat. A darkening of fruits and change in texture is often a result as well.

The general guidelines for safe food preservation really are not difficult to follow. Just make certain to always use an up-to-date, scientifically-tested recipe, follow it exactly and make the altitude adjustments for time or pressure. If you have specific questions, contact your local USU Extension office. If you cannot find your local office listed in the phone directory under USU, look under the county government listings.

**Cautions Issued for Specific Foods**

- **Butter** — For now, canning butter using any method is not recommended. Some methods are dangerous at best; others are not backed by science.
- **Hydrated wheat kernels (berries)** — Starch in wheat may interfere with the heat penetration during canning. Insufficient processing can result in botulism food poisoning. Wheat should be stored dry until use or refrigerated up to several days if hydrated for use in the near future.
- **Quick Breads (e.g., banana, zucchini, pumpkin)** — Baking quick breads in canning jars and then placing a lid and ring on the jar to create a vacuum seal as it cools does not kill botulism-forming organisms that grow in warm, moist, anaerobic conditions. These items should be either baked fresh and served or frozen.
- **Dried Beans (pinto, kidney, etc.)** — To safely can dried beans, they must be hydrated first (usually 12 to 18 hours) and then brought to a boil for 30 min. Hot beans are then placed into hot jars for processing.

**General Rules**

1. Always use up-to-date, scientifically tested canning recipes.
2. Only use approved, up-to-date canning methods (boiling water-bath or pressure).
3. Follow canning directions exactly.
4. Make altitude adjustments by adding more time to water bath canning or increasing pressure for pressure canned products.

5. Make certain canned products have a proper lid seal.

**Exceptions to the General Rules**

- **Changing salt level in anything except pickles.** Salt acts as a preservative and adds flavor and crispness to pickles. In other foods, it is mainly used as a flavoring agent and is added as a personal preference.
- **Changing sugar level in syrup used for canned fruit.** Sugar helps fruit retain a bright color and firm texture, but is not necessary for safety.
- **Add EXTRA vinegar or lemon juice.** Bottled acids help obtain required pH (acid levels) in tomatoes and pickles. If a more tart or sour flavor is desired, more vinegar, lemon or lime juice may be added.
- **Decrease any vegetable except tomatoes in salsas.** Salsa recipes have been tested to ensure that they contain enough acid to be safely processed in a boiling water-bath canner. This acid is provided by the correct amount of tomatoes. The addition of vegetables has also been calibrated to balance the acid level. While it is dangerous to add more vegetables to salsa recipes, fewer may be used for a milder flavor.
- **Substitute bell peppers, long green peppers or jalapeño peppers for each other in salsa recipes.** So long as the total amount of peppers remains the same (or fewer) as what is listed in the tested recipe, peppers may be interchanged.

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Principles of Boiling Water Canning

Kathy Riggs, FCS Agent
Brian A. Nummer, Ph.D., Food Safety Specialist

The USDA Cooperative Extension system has been providing safe canning recommendations for over 100 years. It has been known since those early days that heat at the temperature of boiling water can destroy “almost” all microorganisms. Yeast, molds, and most bacteria are easily killed at this temperature. The only microorganisms that survive are the bacteria that form protective spores, such as *Clostridium botulinum*.

High acid levels are used to prevent the sporeformers, especially *Clostridium botulinum*, from growing. The measurement of how acid a food is called pH. When the pH is below 4.6 growth of sporeformers is inhibited.

Foods such as fruits, pickles, sauerkraut, jams, jellies, marmalades, and fruit butters/spreads fit into the high acid group since they have an acidity, or pH level, of 4.6 or lower. Most tomatoes and tomato products also fit into this category. However, some new varieties of tomatoes are borderline acid and the Cooperative Extension System now recommends adding a little extra acid as a safety measure.

*Tomato Acidification*: Current recommendations for acidification of whole, crushed, or juiced tomatoes, are to add 2 tablespoons of bottled lemon juice or ½ teaspoon of citric acid per quart of tomatoes. For pints, use 1 tablespoon bottled lemon juice or ¼ teaspoon citric acid. Four (4) tablespoons of 5 percent acidity vinegar per quart may be used instead of lemon juice or citric acid.

Boiling Water Canner

Most boiling water canners are made of aluminum or porcelain-covered steel. They have fitted lids and removable racks that are either perforated or shaped wire racks. The canner must be deep enough so that at least one inch of briskly boiling water will be over the tops of jars during processing. A flat bottom must be used on an electric range. Either a flat or ridged bottom may be used on a gas burner. To ensure uniform processing of all jars with an electric range, the canner should be no more than 2 inches wider than the burner on any side.

*Note*: Some newer ceramic or glass top stoves prohibit the use of pots with a diameter larger than the burner and some prohibit the use of large stock pots due to the excessive weight. Check your manufacturer’s recommendations before canning on these stoves.

Selecting the Correct Processing Time

To ensure the safety of food processed the boiling water bath method, use scientifically-tested recipes (dated 1988 or later) to prepare the produce and adjust the processing time for altitude using the chart below. Keep in mind that failing to properly *lengthen* processing
times may result in short-term shelf-life or spoiled food due to the growth of mold, bacteria, and other microorganisms not detected by sight or smell. Food poisoning may result if the spoiled food is eaten.

**Boiling Water Canner Altitude Chart**

Normally, the processing times given for acid foods in recipes and canning guides are based on an altitude at or below 1,000 feet above sea level using the boiling-water method. At altitudes above 1,000 feet, adjust the processing time according to the chart below.

<table>
<thead>
<tr>
<th>Altitude (feet)</th>
<th>Increase Processing Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,001 - 3,000</td>
<td>5 Minutes</td>
</tr>
<tr>
<td>3,001 - 6,000</td>
<td>10 Minutes</td>
</tr>
<tr>
<td>6,001 - 8,000</td>
<td>15 Minutes</td>
</tr>
<tr>
<td>8,001 - 10,000</td>
<td>20 Minutes</td>
</tr>
</tbody>
</table>

**Steps for Successful Boiling Water Canning**

1. Fill the canner halfway with water.

2. Preheat water to 140 degrees F. for raw-packed foods and to 180 degrees F. for hot packed foods. Raw- or cold-packed foods are placed directly into hot jars and covered with hot syrup; hot packed foods are partially cooked or heated through and placed hot into hot jars, and covered with hot syrup. See tested recipes for detailed instructions for various types of produce.

3. Load filled jars, fitted with lids, into the canner rack and use the handles to lower the rack into the water; or fill the canner, one jar at a time, with a jar lifter.

4. Add more boiling water, if needed, so the water level is at least 1 inch above jar tops.

5. Cover with the canner lid and turn heat to its highest position until water boils vigorously.

6. Set a timer for the number of minutes required for processing the food. (Check tested recipes for specific instructions for jams/jellies and pickles.)

7. Lower the heat setting to maintain a gentle boil throughout the process schedule.

8. Add more boiling water, if needed, to keep the water level to above one inch of the jar lids.

9. When jars have been boiled for the recommended time, turn off the heat and remove the canner lid.

10. Using a jar lifter, remove the jars and place them on a protected surface, leaving at least 1-inch spaces between the jars during cooling. Keep away from air drafts and let the jars cool at room temperature.

**Sources:** Adapted from information in the USDA Complete Guide to Home Canning and National Center for Home Food Preservation.

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Getting Crisp Home Pickled Vegetables

*Brian A. Nummer*, Extension Food Safety Specialist

Crispness is a hallmark of a good pickled vegetable. That crispness comes from the vegetable’s natural pectin—the same pectin that we extract from apples and citrus to make jams and jellies.

**Use only just-picked vegetables for pickling**

The most important factor in getting crisp pickled vegetables is to start with fresh, just-picked vegetables. Vegetables become soft as their pectin structure changes due to microbial activity, excess heat or improper handling. As each day passes, vegetables lose crispness. *Once a vegetable is soft it cannot be made firm again.*

**Use only top quality vegetables for pickling**

For cucumber pickles, use cucumbers intended for pickling that are no more than 2 inches in diameter. Remove the blossom end. The blossom harbors microbes that can cause softening. Start with crisp raw vegetable varieties to get crisp pickled vegetables.

**Use only safe, research-based recipes to pickle foods**

It is important to have the proper acidity level to produce safe pickles. Only research–based recipes such as those found in the USDA Complete Guide to Canning, the National Center for Home Food Preservation Web site www.homefoodsafety.com, or the Utah State University Extension Web site should be used.

**Use low-temperature pasteurization**

Cucumber pickles may be processed for 30 minutes at 180-185°F. Check with a thermometer to be certain that the water temperature remains above 180° during the entire 30 minutes. Keep the temperature
below 185° to avoid breaking down the pectin, which will cause softening of the pickle.

Making refrigerator pickles
Instead of heat treating pickled foods, some recipes call for keeping them at refrigeration temperatures. For many years this method was thought to be safe. However, recent evidence that Listeria monocytogenes can survive in these foods has led to a recommendation against this method until further studies are performed on its safety. Until those studies are completed, it is recommended to use the low-temperature pasteurization method above, even if the foods are placed in the refrigerator.

Use of alum
If good-quality ingredients are used and up-to-date methods are followed, firming agents are not needed for crisp pickles. If you choose to use firming agents, alum (aluminum potassium sulfate) may be used to firm fermented pickles, but has little crispness effect on quick-process pickles. Alum will increase firmness when used at levels up to 1/4 teaspoon per pint. Addition of greater than 1/4 teaspoon alum per pint will decrease firmness.

Use calcium to firm pickles
Lime (calcium hydroxide) can improve pickle firmness. Food-grade lime may be used as a lime-water solution for soaking fresh cucumbers 12 to 24 hours before pickling them. Excess lime absorbed by the cucumbers must be removed to make safe pickles. To remove excess lime, drain the lime-water solution, rinse, and then re-soak the cucumbers in fresh water for 1 hour. Drain and rinse again.

Ball Calcium Chloride Pickle Crisp. This product is a food grade calcium chloride salt. It provides the calcium to help firm pectin, but does not have the hydroxide component that can lower the acidity of pickled foods. Follow the manufacturer’s directions.

Use of ice to firm pickles
Soak cucumbers or other vegetables in ice water for 4 to 5 hours before pickling.

Use of grape leaves to firm pickles
Historically, grape leaves are sometimes added to pickle products. The tannins in grape leaves were found to inhibit the pectinase enzyme (a chemical that would break down and soften the pectin structure). However, this enzyme is located at the blossom end of the cucumber and if that is removed this process is redundant.

References


Here are some of the original research publications that became the foundation for the USDA Cooperative Extension System recommendations mentioned in this publication.


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Principles of Pressure Canning

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Why Choose Pressure Canning to Preserve Food?

Pressure canning is a safe and economical method of preserving low acid foods which has been used for decades—especially by home gardeners and others interested in providing food storage for their families where quality control of the food is in ones’ own hands. Home food preservation also promotes a sense of personal satisfaction and accomplishment. Further, the guess-work is taken out of being able to provide a safe food supply at home when guidelines for operating a pressure canner are followed exactly, scientifically tested/approved recipes are utilized, and high quality equipment, supplies and produce are used. Bacteria (such as those associated with botulism) use of pressure canning ensures the safety of the preserved produce. Foods such as red meats, seafood, poultry, milk, and all fresh vegetables, with the exception of most tomatoes, fit into the low acid group since they have an acidity, or pH level, of 4.6 or higher. The temperature which must be reached and maintained (for a specified amount of time) to kill the bacteria is 240°F. This temperature can be reached only by creating steam under pressure.

What Foods Are Typically Processed/Preserved Using a Pressure Canner—and Why?

Low acid foods require a higher temperature when processing than can be reached by placing them in jars immersed by boiling water. To kill harmful bacteria (such as those associated with botulism) use of pressure canning ensures the safety of the preserved produce. Foods such as red meats, seafood, poultry, milk, and all fresh vegetables, with the exception of most tomatoes, fit into the low acid group since they have an acidity, or pH level, of 4.6 or higher. The temperature which must be reached and maintained (for a specified amount of time) to kill the bacteria is 240°F. This temperature can be reached only by creating steam under pressure.

Becoming Familiar with the Parts of a Pressure Canner

(See illustration, last page)

Older model pressure canners (made before 1970) were heavy-walled kettles with clamp-on or turn-on lids fitted with dial-type gauges. A vent port, in the form of a petcock or counterweight, and a safety fuse were also present. Modern pressure canners are lightweight, thin-walled kettles and most have turn-on lids. They usually have a perforated metal rack or basket with handles, rubber gasket, a dial or weighted gauge, an automatic vent/cover lock, a vent port (steam vent) to be closed with a counterweight or weighted gauge, and a safety fuse.

Note: When purchasing a used pressure canner, make certain all parts are accounted for and in good condition. It is nearly impossible to find replacement parts for older models.
Selecting the Correct Processing Time and Pressure

To ensure the safety of food processed in the pressure canner, use processing times listed for scientifically-tested recipes (dated 1988 or later) and adjust for altitude using the chart below. Keep in mind that failing to follow proper processing times and pressure recommendations may result in spoiled food (mold, bacteria, and other microorganisms) and possibly fatal food poisoning.

Pressure Canner and Altitude

The steam-pressure method is used for low-acid foods. Normally, the pressure given for low acid foods in canning guides is for weighted-gauge canners at altitudes at or below 1,000 feet above sea level. At altitudes of 1,001 feet of above, adjust the processing pressure according to the STEAM-PRESSURE CANNER chart for the type of steam-pressure canner being used.

Table 1. Pressure Required for Home Canning at Different Altitudes

<table>
<thead>
<tr>
<th>Altitude (ft)</th>
<th>Pressure Required (lbs)</th>
<th>Weighted Gauge</th>
<th>Dial Gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1000</td>
<td>10</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>1001-2000</td>
<td>15</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>2001-4000</td>
<td>15</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>4001-6000</td>
<td>15</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>6001-8000</td>
<td>15</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>8001-10,000</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

Basic Steps in Pressure Canning

1. Center the canner over the burner. When you have your jars of food ready for canning, put the rack and hot water into the canner. If the amount of water is not specified with a given food, use 2 to 3 inches of water. Longer processes required more water. Some specific products (for example, smoked fish) require that you start with even more water in the canner. Always follow the directions with USDA processes for specific foods if they require more water be added to the canner.

   For hot packed foods, you can bring the water to 180°F. ahead of time, but be careful not to boil the water or heat it long enough for the depth to decrease. For raw packed foods, the water should only be brought to 140°F.

2. Place filled jars, fitted with lids, on the jar rack in the canner, using a jar lifter. When moving jars with a jar lifter, make sure the jar lifter is securely positioned below the neck of the jar (below the screw band of the lid). Keep the jar upright at all times. Tilting the jar could cause food to spill into the sealing area of the lid.

3. Fasten the canner lid securely. Leave the weight off the vent port or open the petcock.

4. Turn the heat setting to its highest position. Heat until the water boils and steam flows freely in a funnel-shape from the open vent port or petcock. While maintaining the high heat setting, let the steam flow (exhaust) continuously for 10 minutes.

5. After this venting, or exhausting, of the canner, place the counterweight or weighted gauge on the vent port, or close the petcock. The canner will pressurize during the next 3 to 10 minutes.

6. Start timing the process when the pressure reading on the dial gauge indicates that the recommended pressure has been reached, or, for canners without dial gauges, when the weighted gauge begins to jiggle or rock as the manufacturer describes.
7. Regulate the heat under the canner to maintain a steady pressure at, or slightly above, the correct gauge pressure. One type of weighted gauge should jiggle a certain number of times per minute, while another type should rock slowly throughout the process – check the manufacturer's directions.

8. Loss of pressure at any time can result in under-processing, or unsafe food.

9. Quick and large pressure variations during processing may cause unnecessary liquid losses from jars.

10. **IMPORTANT:** If at any time pressure goes below the recommended amount, bring the canner back to pressure and begin the timing of the process over, from the beginning (using the total original process time). This is important for the safety of the food.

11. When the timed process is completed, turn off the heat, remove the canner from the heat (electric burner) if possible, and let the canner cool down naturally. (It is okay to leave the canner in place after you have turned off the burner.) While it is cooling, it is also depressurizing. **Do not force cool the canner.** Forced cooling may result in food spoilage. Cooling the canner with cold running water or opening the vent port before the canner is fully depressurized are types of forced cooling. They will also cause loss of liquid from jars and seal failures. Force cooling may also warp the canner lid.

12. Depressurization of older canner models without dial gauges should be timed. Standard size heavy-walled canners require about 30 minutes when loaded with pints and 45 minutes when loaded with quarts. Newer thin-walled canners cool more rapidly and are equipped with vent locks that are designed to open when the pressure is gone. These canners are depressurized when the piston in the vent lock drops to a normal position. Some of these locks are hidden in handles and cannot be seen; however, the lid will not turn open until the lock is released.

13. After the canner is completely depressurized, remove the weight from the vent port or open the petcock. Wait 10 minutes; then unfasten the lid and remove it carefully. Lift the lid with the underside away from you so that the steam coming out of the canner does not burn your face.

14. Using a jar lifter, remove the jars one at a time, being careful not to tilt the jars. Carefully place them directly onto a towel or cake cooling rack, leaving at least one inch of space between the jars during cooling. Avoid placing the jars on a cold surface or in a cold draft.

15. Let the jars sit undisturbed while they cool, from 12 to 24 hours. Do **not** tighten ring bands on the lids or push down on the center of the flat metal lid until the jar is completely cooled.

16. Remove ring bands from sealed jars. Ring bands can be washed and dried and put away for using another time. Put any unsealed jars in the refrigerator and use first.

17. Wash jars and lids to remove all residues.
18. Label jars and store in a cool, dry place out of direct light.

19. Dry the canner, lid and gasket. Take off removable petcocks and safety valves; wash and dry thoroughly.

### Additional Safety/Operating Tips

**Gauges:** Check dial gauges for accuracy before use each year and replace if they read high by more than 1-2 pound pressure. Gauges may be checked at most county Cooperative Extension offices. Replacement gauges and other parts for canners are often available at stores offering canning equipment or from canner manufacturers. When ordering parts, it will be helpful to know the model number of your canner.

**Gaskets:** Handle canner lid gaskets carefully and clean them according to the manufacturer’s directions. Nicked or dried gaskets will allow steam leaks during pressurization of canners and should be replaced. Keep gaskets clean between uses. A lid which is difficult to remove after cooling may indicate a gummy, or dry gasket and is reason to replace it.

Photo: Getting ready to Pressure Can at the USU Home Food Preservation Workshop May 2008.

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**Source**

USDA Complete Guide to Canning 1994
Preserving Food: Using Pressure Canners (National Center for Home Food Preservation)

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Parts of a Pressure Canner

1. PRESSURE DIAL GAUGE
The pressure dial gauge registers pressure in both pounds (outer scale) and metric measure (inner scale). The pointer moves around the dial indicating the pressure within the unit. Pressure can be controlled and maintained by adjusting the heat setting.

2. PRESSURE REGULATOR
The pressure regulator acts as a safety device to prevent pressure in excess of 15 pounds from building in the canner. Pressure readings on the pressure canner are registered only on the pressure dial gauge.

3. VENT PIPE
The pressure regulator fits over the vent pipe and allows excess pressure to be released.

4. AIR VENT/COVER LOCK
The air vent/cover lock automatically "vents" or exhausts air from the canner and acts as a visual indication of pressure in the canner. The small gasket must be in place for the air vent/cover lock to seal completely.

5. LOCKING BRACKET
The locking bracket on the inside of the canner body engages with the air vent/cover lock to prevent the cover from being opened when there is pressure in the unit.

6. SEALING RING
The sealing ring fits into the canner cover and forms a pressure-tight seal between the cover and body during canning and cooking.

7. OVERPRESSURE PLUG
The overpressure plug is located in the canner cover. It will automatically pop out and release steam in case the vent pipe becomes blocked and/or clogged and pressure cannot be released normally through the vent pipe.

8. CANNING-COOKING RACK
The canning-cooking rack is placed in the bottom of the canner to hold jars off the bottom of the unit while canning. When cooking, the rack is used for steaming foods. It can also be used to hold foods such as vegetables out of the cooking liquid which allows several foods to be cooked at the same time without an intermingling of flavors. When it is desirable to blend flavors, do not use the canning-cooking rack. The canning-cooking rack must always be used when canning.
Aside from menu planning, freeze ahead meals, and the slow cooker, here are some ideas for saving time in the kitchen when it comes to preparing food.

**Fruit and Vegetable Tips**

**Zesting a lemon:** Before using a lemon, lime or orange, zest it with a micro grater and freeze it for future use. Citrus zests better when cool. If only using a small amount of lemon, poke a hole with a skewer and squeeze. Use your citrus at room temperature or microwave it for 10 to 15 seconds then roll for maximum juice. No juicer or juice reamer? Use the back of a spoon to juice the half.

**Zipping leaves off kale or Swiss chard:** Holding stem and pinch leaves between index and thumb, then pull.

**Keep potatoes from budding:** Place an apple in the bag with the potatoes.

**Easy potato peeling:** Clean and wash potato, then lightly score with a knife around the middle of the potato. Boil as needed. Once cooked, place in a bowl of ice water. Wait a few seconds, then taking the potato in both hands, twist gently in opposite directions at the score line. The skin will come right off and the potato will be ready to use.

**Slicing a potato or a round fruit or vegetable:** Cut a small slice off one side to give a flat side for safer cutting.

**Keep raw cut potatoes from going gray:** Cover them in cold water. They will last until the next day, but will lose some of their water-soluble vitamins. However, this is great for Thanksgiving preparation.

**Warm mashed potatoes in a slow cooker:** It helps save on stove and oven space. It can also be used for stuffing/dressing.

**Save over-salted soup or sauces:** Put a raw potato in over-salted soup or sauces to soak up some of the extra salt.

**Revive wilted produce:** Don’t throw it away. Put it in ice water for 15 to 20 minutes. It will stiffen it up again. To keep your veggie tray crisp before an event, cover with a damp paper towel and wrap with plastic. It can be stored that way for up to 12 hours.

**Keep slime away in refrigerator produce drawer:** Place several layers of paper towels in the bottom of the produce drawer of your refrigerator.

**Keep bananas from spoiling so quickly:** Bananas spoil less quickly if they are kept in a bunch. Also, do not store bananas with any other fruit. The gasses they emit will ripen the other fruit faster than normal.

**Need a soft fruit or vegetable sliced quickly?** Use your pastry cutter. It works well with avocados, strawberries and bananas.

**Tired of too many gadgets?** Here is an easy way to core an apple. Sit it on its bottom and slice off a piece close to the core, then place on flat side. Slice off the other two sides; then turn on side and slice last section off. No core and great pieces for slicing smaller or dicing.

**Peel a garlic clove:** Try one of these methods:

- Put the clove in the **microwave** on HIGH for 10-12 seconds. Skins peel right off.
- Use a **rubber jar opener**. Lay clove in the middle of rubber jar opener and fold it over the clove. Rub clove vigorously and skin comes right off.
- Use a **large knife** and lay the blade horizontally across the clove. Place one hand carefully on the blade and **push down** with your hand cracking open the clove. The skin comes right off.

**How to chop garlic:** No more struggling with sticky, paper-thin peels. With these three steps—trim, crush, chop—you can prep a clove in no time.

1. **Trim:** Use the tip of the chef’s knife to slice off the hard root of each clove. This will allow the skin to peel away more easily.
2. Crush: Place a clove under the flat side of the knife, with the blade facing away from you. Press the heel of your palm or your fist down on the knife until you feel the clove give way. Slip off and discard the skin.

3. Chop: Gather together the peeled cloves, hold your knife by the handle, and place your other, nondominant hand on top of the blade. Rock, the knife up and down through the cloves (the tip stays on the cutting board). Chop until the garlic is the size you desire.

Storing leftover tomato paste: Most recipes for pasta sauce and chili call for only a couple of tablespoons of tomato paste. If your paste comes in a tube, leftovers aren’t a problem. But, if it’s in a can, don’t toss the remainder or let it dry out in the refrigerator. Instead, freeze it in tablespoon-size portions in an ice cube tray. Once they’re solid, transfer the cubes to a plastic freezer bag. Later add them directly to recipes—no need to thaw. Try this with chipotles in adobo and pesto, too.

Prevent mushrooms from getting slimy by wrapping them in paper towels before refrigerating or store them in brown paper bags.

Cutting corn from the cob: Minimize waste and mess when cutting corn from the cob by mounting the cob in the hollow center of a Bundt cake pan, where it will be secure. When you run a knife down the cob, kernels will collect in the pan.

Turn leftover mashed potatoes into croquettes: Form cold mashed potatoes into little balls, dip in beaten egg, coat in bread crumbs, and sauté or bake. You can also mix in other veggies or cooked meat.

Leftover guacamole: If you have leftover guacamole, spray it with just a bit of cooking spray before you refrigerate it. The oils from the cooking spray will help to keep your guacamole from turning brown. You can also keep the pit from the avocado in the guacamole because the pit contains natural oils that will also help to preserve it and keep it from turning brown.

Keep berries longer: Soaking berries in a vinegar and water solution before you store them in the refrigerator will make them last for several days longer than simply putting them in the fridge. Just add one part vinegar to 10 parts water and swirl the berries around for just a few seconds. Rinse and store.

Keep bananas from ripening too fast: Wrap the crown of a banana bunch with plastic wrap to keep the bunch from ripening too fast.

Mashing potatoes: When making mashed potatoes, after you drain the potatoes, return them to the hot pan, cover tightly and let steam for 5 minutes. This allows the potatoes to dry out so they’ll mash to a beautiful texture and soak up the butter and cream more easily.

Baking Tips

If your cake recipe calls for nuts, heat them first in the oven, then dust with flour before adding to the batter to keep them from settling to the bottom of the pan.

Freeze butter to make it easier when cutting into dry ingredients.

Hold stuffed peppers upright in a greased muffin tin.

Grease muffin tins, cookie sheets or cake and bread pans easily: Use a 1-1/2 inch natural bristle paintbrush dipped in melted margarine or oil to grease muffin tins, cookie sheets or cake and bread pans. It’s much faster than using a skimpy pastry brush.

When working with dough, don’t flour your hands; coat them with olive oil to prevent sticking.

Flour a cake pan: Use a bit of the dry mix instead of flour. There won’t be any white mess on the outside of the cake.

Brush beaten egg whites over pie crust before baking to yield a beautiful glossy finish.
**Meatloaf in a hurry**: Form meatloaf mixture into small individual-sized portions and bake the meatballs for 10 minutes on HIGH in the microwave.

**Shape meatballs**: Shaping meatballs is a snap… once meat mixture is well mixed, use a small melon ball scoop or a cookie dough scoop to form the meatballs. Then bake on a cookie sheet in the oven for 20 minutes at 37º F.

**Easy Homemade Bread Crumbs**: Making your own is a great way to use up the heels of old loaves. Stow the pieces in a large plastic bag in the freezer. When the bag is full, cut the bread into large chunks and pulse them in a food processor until you have fine crumbs. Toast the crumbs on a rimmed baking sheet in a 350º F oven, tossing once, until dry, 4 to 6 minutes. Use the crumbs to bread cutlets, make meatballs, or add crunch to casseroles. The crumbs will keep in the freezer for up to 6 months.

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**Miscellaneous Tips**

**Snipped herbs**: Use kitchen shears to cut and snip fresh herbs in a hurry. Simply place rinsed clean herbs in a small deep bowl and snip away.

**Cube a soft cheese (like cream cheese or Brie)**: Freeze it first for 20-30 minutes.

**Freeze cookie dough**: Try preparing a few batches of cookie dough at once and freezing the extra that you won’t be baking that day. You can roll the dough in logs first before freezing (wrap the dough really well) and then just slice off and bake.

**Slicing meat thin**: If you need really thin sliced meat when cooking stir-fry recipes or other dishes, try partially freezing the meat before making your cuts. This will make the meat easier to slice very thin since it will hold firm while slicing.

**Brown ground beef**: Crumble 3-4 pounds of ground beef on a jelly roll pan. Season to your preference. Cover with aluminum foil and bake for 30 minutes. Drain with a turkey baster if meat juices are high.

**Do all cutting at one time**: If you know you’ll be using onion three nights this week, chop enough onion for all three meals, then it’s ready when you need it later in the week.

**Shred cheese yourself all at once**: Since it’s more cost efficient to buy cheese in a block and shred it yourself than buying it preshredded, shred the whole block and put it in a zip storage bag in the refrigerator or freezer.

**Store oils in a squeeze bottle**: Olive oil or other oils stored in a squeeze bottle keep the oils handy for use and the dribbles down the side to a minimum.

**Hamburger patties**: Form a nice-sized roll of ground beef, wrap and freeze. Once frozen, slice for patties. Works like a charm for perfectly formed patties.

**Make your own mixes**: Recipes abound for all kinds of time-saving mixes. Devoting one day a month to making mixes will save you lots of time in meal preparation.

**Chopped bacon**: Freeze bacon to make it chop easier for some recipes. (Or, buy the bags of precooked chopped bacon…not expensive and saves a lot of mess and time.)

**Holding a cutting board in place**: A board that slides around the counter while you’re chopping is an accident waiting to happen. Keep yours anchored with a cut-to-fit piece of rug pad or shelf liner. (The added cushioning also helps stabilize a slightly warmed board.) Wash in the top rack of the dishwasher as necessary.

**Keep herbs tasting fresh**: You can keep herbs tasting fresh for up to a month by storing them in whole bunches washed and sealed in plastic bags in the freezer. When you need them, they’ll be easier to chop, and they’ll defrost the minute they hit a hot pan. You can also freeze fresh cut herbs in ice cube trays in olive oil. They are perfect for adding to sauces, stews, and even sautéing vegetables and meats.
To save a scorched pan, sprinkle the burned bottom with baking soda or cream of tartar, then add four to five tablespoons salt, plus enough water to cover, and let stand overnight. Scrape out charred remains with a rubber spatula.

Keep cheese from molding: Dip a large piece of cheesecloth in vinegar, ring out and wrap blocks of cheese to keep mold from forming.

Seal plastic bags: If you have plastic bottles left over, you can use them to seal up plastic bags. Just cut the top portion off about 2” down the neck, and use it to seal the bag. If you are storing produce, it is important to keep it sealed so that oxygen does not get through. Just place the cut off section inside the bag and replace the lid, ensuring that you have it sealed up nicely.

Keep milk fresh longer: Add a pinch or two of salt to milk or cream to last longer. It will not affect the taste.

Separate bacon easily: Roll your bacon into tube while still in the package. Roll it to both the inside then the outside. This will loosen up the bacon so the strips just peel right off and make it easy to separate them for cooking.

Cleaning

Rub the rust off of your cookware with a half a lemon dipped in salt.

Scrub your kitchen sink: Squeeze the juice out of three lemons and mix with salt until you get a paste. Drop some of the paste into the sink and gently scrub the sink with it. Rinse after scrubbing.

Clean your microwave: Squeeze enough lemons to yield 4 tablespoons of juice. Fill a 4 cup capacity bowl with 1 cup of water and the lemon juice. Place the bowl in a microwave and turn it to a high setting. Let the mixture steam up inside of the microwave. Wipe down the microwave.

Get stains off of countertops: Pour some lemon juice on top of the stain. Wait a few minutes while the lemon juice's acid works to break down the stain. Sprinkle a bit of baking soda on top of the stain and scrub the stain away.

Use baking soda as an effective degreaser: Sprinkle it on the grease and rub with a dry cloth. The baking soda will absorb the grease and you can now simply rinse it away.

Keep drains flowing: Mix equal amounts baking soda and vinegar, at least a 1/2 cup of each. Pour it down your drain, let sit for a few minutes and rinse it down with a kettle of boiling water. You will prevent many common drain problems if you make this a regular part of drain maintenance.

Loosen mineral deposits on sink faucets: Soak a paper towel in undiluted vinegar and place it on sink faucets.

Make an all-purpose cleaner: Mix 1 cup of vinegar with 5 cups of water to make a window, eyeglass lens or surface cleaner. It won't kill bacteria though, so be sure to use a disinfectant on contaminated surfaces.

Treat carpet spills, such as coffee or soda: Dampen a clean cloth with vinegar and dab the spot to remove excess liquid. Dampen another clean cloth with vinegar. Using cold water (never hot) and the vinegar, gently rub the spot until the stain is gone.

Remove stains from porcelain: Rub a porcelain surface (sink, tub, commode) with cream of tartar and watch the stains disappear.

www.extension.usu.edu/weber
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Vegetable Canning Methods in the Pressure Cooker

Georgia Lauritzen, Food and Nutrition Specialist
Edited and Updated by Kristine Saunders, M.S.

The Basics

Canning never improves the quality of the food you are preserving. Follow the general guidelines below for best results when canning vegetables.

ALL VEGETABLES MUST BE PROCESSED IN A PRESSURE CANNER.

- Select the best quality vegetables at the peak of maturity for best results.
- Process as soon as possible after picking.
- Sort vegetables for size, and remove any that are under ripe, over ripe, bruised, or blemished.
- Wash thoroughly.
- Check jars to make sure there are no cracks or chips and check closure bands for dents or rust.
- Wash jars and bands in hot, soapy water and rinse well.
- Follow manufacturer’s directions for correct preparation of lids.

Read and follow manufacturer’s directions for the canner you are using. If your pressure canner uses a dial gauge, have the gauge tested annually for accuracy. Generally, correct pressure canner methods include:

- Add two (2) inches of water to the bottom of cooker.
- Exhaust steam for 10-12 minutes.
- Start to increase pressure by closing petcock or by placing weight on vent pipe and bring pressure to that recommended for your altitude.

- Start processing time as soon as correct pressure is reached.
- Check gauge often to make sure adequate pressure is maintained. If using a weighted gauge canner, listen for the jiggle or rocking of the weight that indicates correct pressure.
- Remove canner from heat at end of processing time.
- Allow canner to cool naturally. A pressure canner may take 30-45 minutes took cool. Do not force cool a pressure canner.
- Wait an additional two minutes before opening your pressure canner after the cooker has cooled sufficiently to decrease the pressure inside. Then, remove the weight or open the petcock to make sure there is no more pressure inside.
- Carefully remove the canner lid by lifting the far side first. Using this method allows any remaining steam to vent away from the user.
- Remove jars and place away from cold drafts on a rack or folded cloth where air can freely circulate.

NOTE: An accurate pressure gauge is necessary to get the processing temperatures needed to make food safe to eat. The accuracy of the pressure gauge should be determined by having the gauge tested before the canning season, or more often if the canner is used a number of times during the season. Ask your county extension agent, dealer or manufacturer about checking the dial gauge on your pressure canner for accuracy.
## Canning Vegetables

When canning vegetables, salt is an optional ingredient that is only used for flavor. If using salt, add 1 teaspoon to each quart or ½ teaspoon to each pint. Less or no salt can be used without affecting the safety or quality of canned vegetables.

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Dial Gauge Pressure Canner*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2001–4000 ft 12 lbs</td>
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<tr>
<td></td>
<td>pints</td>
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<tr>
<td><strong>ASPARAGUS:</strong> Wash asparagus. Remove scales and</td>
<td>30</td>
</tr>
<tr>
<td>tough ends; cut into 1-inch pieces. <strong>Hot Pack:</strong></td>
<td></td>
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<tr>
<td>Cover asparagus with boiling water. Boil 2–3</td>
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<tr>
<td>minutes. Loosely fill jars with asparagus,</td>
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<tr>
<td>leaving 1-inch headspace. Add boiling water,</td>
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<tr>
<td><strong>Raw Pack:</strong> Fill jars with raw asparagus,</td>
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<tr>
<td>packing as tightly as possible without crushing,</td>
<td></td>
</tr>
<tr>
<td>leaving 1inch headspace. Add boiling water,</td>
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</tr>
<tr>
<td><strong>BEANS, GREEN:</strong> Wash beans, trim ends and cut</td>
<td>20</td>
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<tr>
<td>into 1-inch pieces. <strong>Hot Pack:</strong> Cover beans</td>
<td></td>
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<tr>
<td>with boiling water; boil 5 minutes. Fill jars,</td>
<td></td>
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<tr>
<td>leaving 1-inch headspace. Add boiling water,</td>
<td></td>
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<tr>
<td><strong>Raw Pack:</strong> Fill jars tightly with raw beans,</td>
<td></td>
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<tr>
<td>leaving 1-inch headspace. Add boiling water,</td>
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<tr>
<td><strong>BEETS, WHOLE, CUBED OR SLICED:</strong> Wash beets</td>
<td>30</td>
</tr>
<tr>
<td>and trim, leaving on root and 1-inch of the</td>
<td></td>
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<tr>
<td>tops. Cover beets with boiling water and boil</td>
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<tr>
<td>until skins slip off easily, 15–25 minutes,</td>
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<tr>
<td>depending on size. Remove skins and trim. Cut</td>
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<tr>
<td>medium or large beets in cubes or slices,</td>
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<tr>
<td>halves, or quarters. Leave baby beets whole.</td>
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<tr>
<td>Pack hot beets into jars leaving 1-inch</td>
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<tr>
<td>headspace. Cover with boiling water, leaving</td>
<td></td>
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<tr>
<td><strong>CARROTS, SLICED OR DICED:</strong> Wash, peel or</td>
<td>25</td>
</tr>
<tr>
<td>scrape carrots, and re-wash. Slice or dice.</td>
<td></td>
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<tr>
<td><strong>Hot Pack:</strong> Cover carrots with boiling water,</td>
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<tr>
<td>simmer 5 minutes. Pack carrots into jars,</td>
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<tr>
<td>leaving 1-inch headspace. Cover with boiling</td>
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<tr>
<td>water, leaving 1-inch headspace. Adjust lids.</td>
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<tr>
<td>Process. <strong>Raw Pack:</strong> Fill jars tightly with</td>
<td></td>
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<tr>
<td>raw carrots, leaving 1-inch headspace. Cover</td>
<td></td>
</tr>
<tr>
<td>with boiling water, leaving 1-inch headspace.</td>
<td></td>
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<tr>
<td><strong>CORN, WHOLE KERNEL:</strong> Blanch corn 3 minutes</td>
<td>55</td>
</tr>
<tr>
<td>in boiling water and cut from cob at three-</td>
<td></td>
</tr>
<tr>
<td>fourths depth. **CAUTION: Do not scrape cob.</td>
<td></td>
</tr>
<tr>
<td><strong>Hot Pack:</strong> Add 1 cup hot water per quart of</td>
<td></td>
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<tr>
<td>corn, heat to boiling and simmer 5 minutes. Add</td>
<td></td>
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<tr>
<td>1 tsp salt per quart, if desired. Fill jars</td>
<td></td>
</tr>
<tr>
<td>with corn and cooking liquid, leaving 1-inch</td>
<td></td>
</tr>
<tr>
<td>headspace. Adjust lids. Process. <strong>Raw Pack:</strong></td>
<td></td>
</tr>
<tr>
<td>Pack corn loosely into hot jars, leaving 1-inch</td>
<td></td>
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<tr>
<td>headspace. Cover with boiling water, leaving</td>
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<tr>
<td><strong>CORN, CREAM STYLE:</strong> Blanch corn 4 minutes in</td>
<td>85</td>
</tr>
<tr>
<td>boiling water and cut from cob at about the</td>
<td></td>
</tr>
<tr>
<td>center of kernel. Scrape remaining corn from</td>
<td></td>
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<tr>
<td>cobs with a table knife. <strong>Use pint jars, only.</strong></td>
<td></td>
</tr>
<tr>
<td>Add 2 cups boiling water per quart of corn and</td>
<td></td>
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<tr>
<td>scrapings in a saucepan. Heat to boiling. Fill</td>
<td></td>
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<tr>
<td>jars with hot corn mixture, leaving 1-inch</td>
<td></td>
</tr>
<tr>
<td>headspace. Add fresh boiling water, leaving</td>
<td></td>
</tr>
<tr>
<td><strong>PEAS, GREEN OR ENGLISH—SHELLED:</strong> Shell and</td>
<td>40</td>
</tr>
<tr>
<td>wash peas. Add 1 tsp salt per quart, if desired.</td>
<td></td>
</tr>
<tr>
<td><strong>Hot Pack:</strong> Cover peas with boiling water.</td>
<td></td>
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<tr>
<td>Bring to a boil in a saucepan, and boil 2</td>
<td></td>
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<tr>
<td>minutes. Fill jars loosely with hot peas and add</td>
<td></td>
</tr>
<tr>
<td>cooking liquid, leaving 1-inch headspace. Adjust</td>
<td></td>
</tr>
<tr>
<td>lids. Process. <strong>Raw Pack:</strong> Fill jars with</td>
<td></td>
</tr>
<tr>
<td>raw peas, add boiling water, leaving 1-inch</td>
<td></td>
</tr>
<tr>
<td>headspace. Do not shake or press down peas.</td>
<td></td>
</tr>
</tbody>
</table>
Vegetable

<table>
<thead>
<tr>
<th>Vegetable</th>
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<td></td>
<td>2001–4000 ft 12 lbs</td>
</tr>
<tr>
<td></td>
<td>pints</td>
</tr>
<tr>
<td>POTATOES, WHITE—CUBED OR WHOLE: Wash and peel potatoes. Place in solution of 1 teaspoon ascorbic acid per gallon of water to prevent darkening. If desired, cut into ½ inch cubes. Drain. Cook 2 minutes in boiling water and drain again. For whole potatoes, boil 10 minutes and drain. Fill jars with hot potatoes and fresh hot water, leaving 1-inch headspace. Adjust lids. Process.</td>
<td>35</td>
</tr>
<tr>
<td>PUMPKIN AND WINTER SQUASH—CUBED: Wash, remove seeds, cut into 1-inch wide slices, and peel. Cut flesh into 1-inch cubes and boil 2 minutes in water. CAUTION: Do not mash or puree. Fill jars with cubes and cooking liquid, leaving 1-inch headspace. Adjust lids. Process.</td>
<td>55</td>
</tr>
<tr>
<td>SPINACH AND OTHER GREENS: Wash only small amounts of greens at one time. Drain water and continue rinsing until water is clear and free of grit. Cut out tough stems and midribs. Place 1 pound of greens at a time in cheesecloth bag or blancher basket and steam 3 to 5 minutes or until well wilted. Fill jars loosely with greens and add fresh boiling water, leaving 1-inch headspace. Adjust lids. Process.</td>
<td>70</td>
</tr>
<tr>
<td>SOUPS—Vegetable, Dried Bean or Pea, Meat or Poultry: Select, wash, and prepare vegetables and meat as described for the specific foods. Cover meat with water and cook until tender. Cool meat and remove bones. Cook vegetables. For each cup of dried beans or peas, add 3 cups of water, boil 2 minutes, remove from heat, soak 1 hour, and heat to boil. Drain and combine with meat broth, tomatoes, or water to cover. Boil 5 minutes. CAUTION: Do not thicken. Salt to taste, if desired. Fill jars halfway with solid mixture. Add remaining liquid, leaving 1-inch headspace. Adjust lids. Process.</td>
<td>60</td>
</tr>
</tbody>
</table>

Sources

This document was adapted from the following publications:


The National Center for Home Food Preservation, http://www.uga.edu/nchfp/how/can_04/soups.html

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