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Canning vegetables at home

Pat Kendall¹

Quick Facts

- Select fresh, young tender vegetables for canning.
- Use the jar size, processing methods and time called for in reliable, up-to-date canning instructions.
- Can only in a pressure canner at the pressure required to reach 240° F at your altitude (10 pounds psi plus ½ pound per 1000 feet).
- Vent all pressure canners 10 minutes before pressurizing to drive out trapped air.
- Boil all home-canned, low-acid vegetables 10 minutes plus 1 minute per 100 feet before tasting.

thoroughly cleaned only before using. Dial gauges should be checked for accuracy before the canning season and during the season if used often. Ask your county extension agent, dealer or manufacturer where to have your gauge checked in your area.

Small pressure canners that hold 4 quart jars or large ones holding 7 quarts may be used. Pressure saucepans with smaller volume capacities are not recommended for home canning. The processing schedules specified in this fact sheet will not assure adequate heat treatment in pressure saucepans.

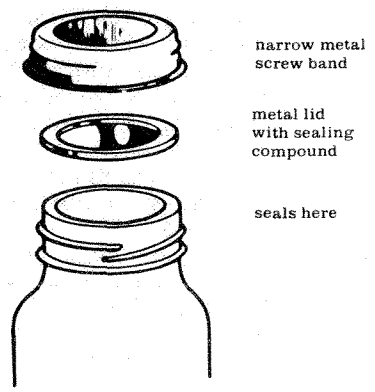
Canning Jars and Lids. Be sure all jars and closures are perfect. Discard any with cracks, chips, dents or rust; defects prevent airtight seals. Use jars designed specifically for home canning. Commercial food jars (mayonnaise, coffee, etc.) break easily, especially in pressure canners, and may not seal. Use only the half-pint, pint and quart sizes.

Wash jars in hot, soapy water and rinse well before using. Prepare metal lids as manufacturer directs.

Vegetables are low in acid and must be processed in a steam pressure canner at the number of pounds needed to achieve 240° F. The pressure required at sea level is 10 pounds. For higher elevations, add ½ pound of pressure for each 1000 feet above sea level. For example, at 5000 feet 12½ pounds of pressure are required to reach 240° F. This method is necessary to supply enough heat to destroy bacteria that cause botulism. Do not take short cuts in recommended preparation or processing procedures. Failure to properly process low-acid foods in a pressure canner can result in botulism, which, if not treated, can be fatal.

Get Equipment Ready

Pressure Canner. Make sure your pressure canner has a tight-fitting cover, clean exhaust vent (or petcock) and safety valve, and an accurate pressure gauge. Weighted gauges need to be



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Prepare Vegetables

Select only fresh, young, tender vegetables for canning. The sooner you can get them from the garden to the jar, the better.

For ease of packing and even cooking, sort vegetables for size and ripeness. Wash all vegetables thoroughly, whether or not they will be pared. Dirt contains some of the bacteria hardest to kill. Don't let vegetables soak, they may lose flavor and nutrients. Handle gently to avoid bruising.

Fill Jars

The hot-pack is recommended for all low-acid foods including vegetables. Some vegetables may also be packed raw. See individual directions to determine which method may be used.

To raw pack—Put cold, raw vegetables into jars and cover with boiling water. Most raw vegetables (except for starchy ones) should be packed firmly into the jars. Starchy vegetables such as corn, peas and lima beans should be packed loosely because they expand during processing.

To hot pack—Heat vegetables in water or steam before packing. Then cover with the boiling cooking liquid or water. Pack the hot food loosely.

For either pack, use enough liquid to fill around and cover the food. Read the directions for each vegetable for the amount of space to leave between the top of the food and the top of the jar. This headspace is important to obtain a good seal.

Salt may be added to each jar, if desired. The salt is only for seasoning and does not help preserve the food. If salt is used, canning salt is recommended to prevent the liquid from turning cloudy. Use $\frac{1}{2}$ teaspoon salt per pint.

Close Jars

To remove any trapped air bubbles, insert a non-metallic spatula between the food and the jar. Slowly turn the jar and move the spatula up and down to allow air bubbles to escape. Add more liquid if necessary to obtain the proper headspace. Wipe the jar rim with a clean damp paper towel to remove any food particles. Place pre-treated lid on the jar. Screw on the screwband fingertip tight.

Process in Pressure Canner

Read the manufacturer's instructions for your pressure canner. General directions for using steam pressure canners are as follows:

Put 2 to 3 inches of hot water in the canner. Place filled jars on the rack, using a jar lifter. Fasten canner lid securely. Leave weight off vent port or open petcock. Heat at the highest setting until steam flows from the petcock or vent port.

Maintaining a high heat setting, exhaust steam 10 minutes; then place weight on vent port or close

petcock. The canner will pressurize in the next 3 to 5 minutes.

Start timing the process when the pressure reading on the dial gauge indicates the recommended pressure for your altitude has been reached, or when the weighted gauge begins to jiggle or rock. Regulate heat under the canner to maintain a steady pressure at or slightly above the correct gauge pressure. Quick and large pressure variations during processing may cause unnecessary liquid losses from jars. Weighted gauges should jiggle or rock slowly throughout the process.

When the timed process is completed, turn off the heat, remove the canner from the heat if possible, and let the canner depressurize. Do not force-cool the canner by pouring cold water over it. When pressure registers zero, wait a minute or two, then slowly open the petcock or remove weighted gauge. Unfasten the cover and tilt the far side up so steam can escape away from you.

Carefully remove jars from canner and place on rack, dry towel or newspaper. Allow jars to cool untouched, away from drafts, for 12 to 24 hours before testing seals.

Day-After Canning Jobs

Test the seal on jar lids. Press flat metal lids at the center of the lid. It should be slightly concave and not move. Remove screwbands. Label sealed jars with contents, canning method and date. Store in a clean, cool, dry dark place.

Unsealed jars of food need to be treated as fresh. The food can be eaten immediately, refrigerated, frozen or reprocessed. If you reprocess the food, the entire process must be repeated.

On Guard Against Spoilage

Don't taste or use canned food that shows any sign of spoilage! Look closely at any jar before opening it. A bulging lid or leaking jar are signs of spoilage. When you open the jar, look for other signs such as spurting liquid, an off odor or mold.

Low-acid canned vegetables and meats can contain botulism toxin without showing signs of spoilage. Boil all home canned vegetables in a saucepan, at a full rolling boil, for 10 minutes plus 1 minute for each 1000 feet above sea level (15 minutes at 5000 feet). Home-canned spinach or corn should be boiled for 20 minutes. If the food then looks spoiled, foams or has an off odor during heat, discard it.

Dispose of all spoiled food in a place where it will not be eaten by children or pets. Be sure to boil all spoiled low-acid canned foods for 30 minutes before disposing of them. This will destroy any toxin present and prevent its spread.

Reference

The Complete Guide to Home Canning. Home and Garden Bulletin, U.S. Department of Agriculture, 1988.

Table 1: Preparation methods and processing times for canning in a pressure canner at 240° F.

| Pressure Required to Reach 240° F. | | | | | |
|------------------------------------|-----------------|-------------------|---------------------|-----------------|-------------------|
| Elevation (feet) | Pounds Pressure | | Elevation (feet) | Pounds Pressure | |
| | Dial gauge | Weighted gauge | | Dial gauge | Weighted gauge |
| Sea Level | 10 | 10 | 6,000 | 13 | 15 |
| 1,000 | 10½ | 10 | 7,000 | 13½ | 15 |
| 2,000 | 11 | 15 | 8,000 | 14 | 15 |
| 3,000 | 11½ | 15 | 9,000 | 14½ | 15 |
| 4,000 | 12 | 15 | 10,000 | 15 | 15 |
| 5,000 | 12½ | 15 | | | |

| Vegetable | Pre-preparation | Pack | Processing Time (min.) 240° F | |
|--|---|--|----------------------------------|-----------------|
| | | | Pints | Quarts |
| Asparagus—spears or pieces | Use tender, tight-tipped spears, 4 to 6 inches long. Wash and trim off tough scales. Break off tough stems and wash again. Cut in 1-inch pieces or can whole. | <i>Raw Pack</i> —Fill jars with raw asparagus, packing as tightly as possible without crushing to 1 inch of jar tops. Add boiling water, leaving 1-inch headspace. | 30 | 40 |
| | | <i>Hot Pack</i> —Cover asparagus with boiling water. Boil 2 or 3 minutes. Loosely fill jars with hot asparagus to 1 inch of jar tops. Add boiling water, leaving 1-inch headspace. | 30 | 40 |
| Beans or peas, dry (all varieties) | Sort and wash dry seeds. Cover with cold water and let stand 12 to 18 hours in cool place. Drain. | <i>Hot Pack only</i> —Cover soaked beans with fresh water and boil 30 minutes. Fill jars with beans or peas and cooking water, leaving 1-inch headspace. | 75 | 90 |
| Beans, fresh lima, butter or shell beans | Can only young, tender beans. Shell beans and wash thoroughly. | <i>Raw Pack</i> —Pack raw beans loosely into jars. For small beans, fill 1 inch from top for pints and 1½ inches for quarts. For large beans, fill 1 inch from top for pints and 1¼ inches for quarts. Do not press or shake down. Fill jars with boiling water, leaving same headspace as listed above. | 40 | 50 |
| | | <i>Hot Pack</i> —Cover with boiling water, bring to a boil. Pack hot beans loosely in jars to 1 inch of jar tops. Cover with boiling water, leaving 1-inch headspace. | 40 | 50 |
| Beans, green, snap wax, Italian— pieces | Wash, trim ends. Leave whole or cut or snap into 1-inch pieces | <i>Raw Pack</i> —Pack beans tightly into jars to 1 inch of jar tops. Add boiling water, leaving 1-inch headspace. | 20 | 25 |
| | | <i>Hot Pack</i> —Cover beans with boiling water; boil 5 minutes. Fill jars loosely to 1 inch of jar tops. Add boiling water, leaving 1-inch headspace. | 20 | 25 |
| Beets—whole, cubed or sliced | Sort for size. Cut off tops, leaving tap root and 1 inch of stem. Wash. | <i>Hot Pack Only</i> —Cover with boiling water; boil until skins slip easily—15 to 25 minutes, depending on size. Cool, remove skins, trim off stems and roots. Can baby beets whole. Cut medium and large beets in ½-inch slices or cubes, or halve or quarter. Fill jars with hot beets and fresh hot water, leaving 1-inch headspace. | 30 | 35 |
| Carrots—sliced or diced | Wash, peel and rewash. Baby carrots can be left whole. Slice or dice larger ones. | <i>Raw Pack</i> —Pack carrots tightly into jars to 1 inch of jar tops. Add boiling water, leaving 1-inch headspace. | 25 | 30 |
| | | <i>Hot Pack</i> —Cover carrots with boiling water; simmer 5 minutes. Fill jars to 1 inch of jar tops. Add hot cooking liquid, leaving 1-inch headspace. | 25 | 30 |
| Corn, cream-style | Husk corn, remove silk and wash. Cut corn from cob at about the center of kernel. Scrape cob. | <i>Raw Pack</i> —Pack corn in pint jars to 1 inch of jar tops. Do not shake or press down. Add fresh boiling water, leaving 1-inch headspace. | 95 | Not recommended |
| | | <i>Hot Pack</i> —To each quart of corn and scrapings in saucepan, add 2 cups | 85 | Not recommended |

Table 1: Continued.

Pressure Required to Reach 240° F.

| Vegetable | Pre-preparation | Pack | Processing Time (min.) 240° F | |
|--------------------------------|--|---|----------------------------------|-----------------|
| | | | Pints | Quarts |
| Corn, whole-kernel | Husk corn, remove silk & wash. Blanch 3 minutes in boiling water. Cut from cob at about 2/3rds depth of kernel. Do not scrape cob. | boiling water. Heat to boiling. Fill pint jars with hot corn mixture, leaving 1-inch headspace. | | |
| | | <i>Raw Pack</i> —Pack corn in jars, leaving 1-inch headspace. Do not shake or press down. Add fresh boiling water, leaving 1-inch headspace. | 55 | 85 |
| Mushrooms—whole or sliced | Select only high quality, small to medium-sized domestic mushrooms with short stems. DO NOT CAN WILD MUSHROOMS. Trim stems and discolored parts. Soak in cold water for 10 minutes to remove dirt. Wash in clean water. Leave small mushrooms whole; cut large ones. | <i>Hot Pack</i> —To each quart of kernels in saucepan, add 1 cup hot water. Heat to boiling and simmer 5 minutes. Fill jars with corn and cooking liquid, leaving 1-inch headspace. | 55 | 85 |
| | | <i>Hot Pack Only</i> —Cover mushrooms with water in a saucepan and boil 5 minutes. Fill jars with hot mushrooms leaving 1-inch headspace. Add ½ teaspoon of ascorbic acid powder or a 500-milligram tablet of vitamin C to each jar to prevent discoloration. Add fresh hot water, leaving 1-inch headspace. | 45 | Not recommended |
| Greens—including spinach | Sort and wash thoroughly. Cut tough stems and midribs. | <i>Hot Pack Only</i> —Steam greens, 1 pound at a time, for 3 to 5 minutes or until wilted. Fill jars loosely with greens; add fresh boiling water, leaving 1-inch headspace. | 70 | 90 |
| Peas, green or English—shelled | Select filled pods containing young, tender, sweet seeds. Shell and wash peas. | <i>Raw Pack</i> —Fill jars with raw peas, add boiling water, leaving 1-inch headspace. | 40 | 40 |
| | | <i>Hot Pack</i> —Cover peas with boiling water; boil 2 minutes. Fill jars loosely with hot peas, add cooking liquid, leaving 1-inch headspace. | 40 | 40 |
| Peppers, hot or sweet | Select firm yellow, green or red peppers. Wash & drain. (Caution—wear plastic gloves while handling hot peppers or wash hands thoroughly with soap & water before touching face.) Small peppers may be left whole. Large peppers may be quartered. Remove cores and seeds. | <i>Hot Pack Only</i> —Slash 2 or 4 slits in each pepper. Blanch in boiling water or blister skins by placing peppers in hot oven (400° F) or broiler for 6 to 8 minutes. Place blistered peppers in pan and cover with damp cloth. Let cool several minutes, then peel. Flatten whole peppers. Fill jars loosely with peppers to 1 inch of jar tops. Add boiling water, leaving 1-inch headspace. | 35 | Not recommended |
| Potatoes—white, cubed or whole | Wash, pare. Leave whole if 1 to 2 inches in diameter or cut into ½-inch cubes. Dip potatoes into solution of ½ teaspoon ascorbic acid per quart of water to prevent darkening. Drain. | <i>Hot Pack Only</i> —Place potatoes in saucepan and cover with boiling water. Boil cut potatoes for 2 minutes; whole for 10 minutes. Drain. Fill jars with hot potatoes and fresh hot water, leaving 1-inch headspace. | 35 | 40 |
| Pumpkin & winter squash—cubed | Wash; remove seeds & pare. Cut into 1-inch cubes. | <i>Hot Pack Only</i> —Place in saucepan and cover with boiling water. Boil 2 minutes. DO NOT MASH OR PUREE. Fill jars with cubes and cooking liquid, leaving 1-inch headspace. | 55 | 90 |
| Sweet Potatoes—pieces or whole | Choose small to medium-sized potatoes. Wash well. | <i>Hot Pack Only</i> —Boil or steam until partially soft (15 to 20 minutes). Remove skins. Cut medium potatoes, if needed to make pieces uniform in size. DO NOT MASH OR PUREE. Fill jars to 1 inch of jar tops. Cover with fresh boiling water or syrup, leaving 1-inch headspace. | 65 | 90 |