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Canning Low Acid Foods: Vegetables & Meat

by Roxie Rodgers Dinstel

Selection Of Vegetables

Vegetables for canning should be young, tender and freshly gathered. Any delay in canning gives the bacteria in the food an opportunity to multiply and make the food more difficult to process. Tough, overmature vegetables will result in a finished product that is very poor in quality and flavor. The sweet flavor of vegetables such as corn and peas changes rapidly after gathering. Any delay in canning results in considerable loss of flavor and nutritive value.

After vegetables have been sorted by size and degree of maturity, they should be thoroughly washed. Soil clinging to the vegetable may carry bacteria that will not be destroyed in the processing, and may cause spoilage of the food or an infection from foodborne pathogens.



Pressure Canner

All vegetables (except tomatoes) and all meats have little natural acidity. They must be heated to a temperature 240°F before the bacteria that cause spoilage and food poisoning are killed. You obtain this temperature only with a pressure canner. It takes 10 pounds of steam pressure at sea level to attain 240°F. At higher altitudes, more pressure is needed. For every 2,000 feet above sea level, add 1 pound of pressure. In addition to the danger of losing foods from spoilage, there is also danger of poisoning by botulism unless foods are properly canned. Botulism is caused by a bacterium that may exist in spore form in food. The spores must be destroyed during processing or they can grow and produce one of the most powerful poisons known.

It is possible for canned vegetables and meat to contain the poison-causing botulism without showing signs of spoilage. To be certain there is no danger of botulism poisoning, make sure your processing equipment is in good condition, your pressure gauge is accurate and the food is processed for the recommended time.

A pressure canner must be fitted with a rack in the bottom, a steam-tight cover, a dead weight or petcock, a safety valve and an accurate pres-

sure gauge or weight that measures definite pressure. The jars of food processed in a pressure canner reach temperatures many degrees above the boiling point of water. Read carefully the instructions for operating the type of pressure canner being used. The general steps that apply to all types of cookers are as follows:

1. Prepare jars and food depending on whether you want raw or hot pack.
2. When food is ready to be packed in jars, set canner on heat. Place rack in bottom of canner and add boiling water to cover bottom of canner to a depth of 2 to 3 inches.
3. As each jar is filled and the cap firmly tightened, set it on the rack in the canner to keep hot. Pack only enough jars at one time to fill the canner. Jars should not touch in canner. Set apart so steam can circulate freely.
4. Adjust the cover of canner and fasten securely. If cover is fastened by clamps or band, tighten opposite clamps.
5. Canners must be exhausted (vented). For the canner with a gauge, leave the vent (petcock) open and allow steam to escape freely for 10 minutes. Close petcock or drop on dead weight. As soon as the required amount of pressure is shown on gauge, start counting processing time. Adjust the heat to keep the pressure uniform throughout the processing period. If the canner has a weight control, leave it off the vent pipe until steam is coming from the vent in a steady stream for 10 minutes. Select desired pressure and place weight over the vent pipe. When control jiggles or rocks gently, start counting processing time. Adjust heat so control will jiggle or rock according to manufacturer's directions.
6. Process for required length of time.
7. As soon as processing time is up, remove canner from heat carefully. Do not force cool, but let canner sit and cool until needle on pressure gauge returns to zero. Open petcock or remove dead weight gradually. For canner with weight control, nudge it. If no steam escapes, pressure is down. For canners with lid locks, wait until the lock drops back into lid. Nudge weight to see if all the steam is gone. After the canner is depressurized, wait 10 minutes before unfastening the lid and removing it. Tilt the lid away from you to reduce the chance of burning.
8. Food in jars may be boiling vigorously; if so, allow it to remain in the canner for a few minutes, then remove. Do not tighten screw bands on caps. Set jars 2 or 3 inches apart on a rack or several thicknesses of cloth and allow to cool in an upright position. Do not set hot jars in a draft or on a cold, wet surface. Do not cover them. Allow jars to cool from 12 to 24 hours.
9. When jars are cold, test for seal and remove screw bands. Wash and dry bands. Bands are unnecessary once jars are sealed.

Adjusting For Elevation

Recipes are designed for sea level. Higher elevations need more pounds pressure to reach the 240°F necessary for killing spores. In general, add 1 pound pressure for each 2,000 feet above sea level. Check with your local Cooperative Extension Service for recommended pressures for processing at higher elevations.



Processing Time Under Pressure for Low-Acid Vegetables, Meats and Poultry (10 lbs. weighted gauge or 11 lbs. dial gauge)

Food	Minutes to Process		
	Pint	Quart	
Vegetables			
Asparagus	Raw or hot pack	30	40
Beans	Dry with tomato or molasses sauce	65	75
Beans	Dry, baked	65	75
Beans	Fresh lima, raw or hot pack	40	50
Beans	Snap, raw or hot pack	20	25
Beets	Hot pack	30	35
Carrots	Raw or hot pack	25	30
Corn	Cream style, hot pack	85	—
Corn	Whole kernel, raw or hot pack	55	85
Greens	Including Spinach, hot pack	70	90
Hominy	Hot pack	60	70
Mushrooms	Hot pack (½-pint jars need same processing time as pint jars)	45	—
Okra	Hot pack	25	40
Peas	Fresh blackeye (cowpeas, blackeye beans), raw or hot pack	40	50
Peas	Fresh green, raw or hot pack	40	40
Potatoes	Cubed, hot pack	35	40
Pumpkin	Cubed, hot pack*	55	90
Squash	Winter, cubed, hot pack*	55	90
Meats			
Beef, veal, pork, lamb, mutton, wild game	Raw or hot pack	75	90
Ground meat	Hot pack	75	90
Soup stock (beef, chicken)	Hot pack	20	25
Poultry	Cut up, with bone, raw or hot pack	65	75
Poultry	Cut up, without bone, raw or hot pack	75	90
Moose, caribou	Cubed, hot pack	75	90
Fish	Raw pack	100	160
Fish, smoked	Raw pack	110	—

*Do not can puree. Density of the product interferes with adequate heat penetration.

References

USDA Complete Guide to Home Canning. Online version: www.uga.edu/nchfp/publications/publications_usda.html. Print version (\$18): https://mdc.itap.purdue.edu/item.asp?item_number=AIG-539#.VWTLiZRdWrY.

So Easy to Preserve (\$18). University of Georgia Cooperative Extension Service: www.uga.edu/setp.

Ball Blue Book. Ball Corporation, Consumer Products Division, Consumer Affairs, 345 S. High, Muncie, IN 47305-2326.

Canning the Fish Catch, FNH-00128. University of Alaska Cooperative Extension Service.

Canning Moose and Caribou, FNH-00226. University of Alaska Cooperative Extension Service.

www.uaf.edu/ces or 1-877-520-5211

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