

# Canning Concerns

Jan Waldon, Food and Nutrition Specialist

What a wonderful feeling of pride and accomplishment you get, looking at shelves filled with your own home canning. Cherries, apricots, peaches, plums, pears, tomatoes glow through the glass with jel-like colors . . . the sunshine flavors of summer are captured to brighten winter meals. All the work seems worthwhile – IF your canning was successful.



Sometimes, things go wrong, though. Liquid may ooze from the jars, mold can develop, syrup may turn cloudy, foods can go mushy, take on a strange smell or spurt from the container when it's opened. These are just some of the trouble signs.

The main aims in canning are to sterilize food and containers, killing any spoilage-causing microorganisms (bacteria, molds or yeasts) that may be present and to drive air out of the container so the food is stored in a germ-free vacuum. To achieve these goals, use only top quality food. Have it and any equipment used, scrupulously clean. Follow up-to-date recipes. Grandmother's preserving "receipts" may be treasured for nostalgia's sake, but please don't use them. Research has shown that many of the old ways just aren't good enough.

Look at "open kettle" canning. With this method, fully cooked, boiling hot food is put into freshly sterilized jars and the lids are quickly put in place. There's no further processing. Although this is a fairly easy procedure, it's not really safe! Heating food to the boiling point may not destroy microorganisms present. Even if they are killed, as food is being ladled into jars, it can be easily recontaminated by bacteria in the air. Canned food must be processed AFTER the containers are filled and sealed.

Steam canning is another old, unsafe method. A steamer (not to be confused with a pressure canner) is a one or two shelf metal cabinet that sits on a stove element. Water is added to the tank at the bottom and – theoretically, as the water boils, steam at 100 C (212 F) swirls around the jars, sterilizing the food. In actual fact – this doesn't happen. The steam quickly cools so the temperature is too low and uneven. Amazingly, steam canners have reappeared on the market, but they're still not safe!

Some of the more modern ideas aren't successful either. Electric dishwashers don't reach high enough temperatures to work. Microwave ovens are too uneven in heat, and you can't put the metal rings and lids in them. With the unequal heating and resulting pressure build-up, the jars may explode. Canning with aspirin is another dangerous method. It doesn't increase the acidity of the food enough to replace or reduce the need to sterilize.

The methods of processing have been re-examined, too. Oven canning has several possible pitfalls. Heat in an oven normally fluctuates above and below the set temperature. A steady flow of high heat is necessary for proper processing. The thermostat itself may be inaccurate and there's always the danger of jars exploding when you open the oven door and cooler air from the kitchen hits them. The biggest difficulty is, dry heat can't penetrate as thoroughly as that from boiling water. Food in the center of the jars may not be sterilized.

The length of processing time depends on the density of the food. That's why a good canning guide lists different times for various fruits and vegetables. Because of this density factor, squash and pumpkin should be cubed for pressure canning, not mashed.

The method of processing depends on the amount of natural acid in the food. Those low in acid, such as all vegetables except tomatoes, meats, fish, and poultry require temperatures higher than boiling. This means a pressure canner set at 70 kPa (10 lbs.) MUST be used for safety's sake. Boiling a longer time without pressure won't do the job. Don't use a pressure cooker/saucepan for canning unless it has an adjustable weight gauge. Pressure canners are quite expensive. If you won't can enough to justify the cost, consider freezing these low acid foods. Remember, too, any low acid canned food should be boiled rapidly for 10 minutes before it's even tasted.

Fruits and tomatoes contain enough natural acid to be safely canned in a boiling water bath. In the last few years, though, many varieties of lower acid tomatoes have been developed. Since it's impossible to tell which is which, it's better to be on the safe side. Add citric acid or bottled (not fresh) lemon juice to each jar.

	Citric Acid	bottled lemon juice
pints	1 mL (¼ tsp.)	15 mL (1 tbsp.)
quarts	2 mL (½ tsp.)	30 mL (2 tbsp.)

Boiling water bath processing is straight forward but there are a few points to keep in mind. The water must remain at the full, rolling boil for the entire processing time. To prevent liquid from cooking out of the jars, to ensure sterilization, and to help get a good seal, you need 5 cm (2 in) of water OVER TOP of the jar lids. Today, it's difficult to find canners deep enough to hold a rack on the bottom, quart jars, 5 cm of extra water, and still have room for the water to actively boil. If you have an old canner that's tall enough to do the job, treasure it. Remember to leave at least 2.5 cm (1 in) between the jars so the water can reach all surfaces.