

PRESSURE COOKER CANNING:

An easy way to have great meals when the shops are few and far between

I stand back and survey the table with satisfaction - turkey and gravy with homemade biscuits, mashed potatoes, corn and beet relish. I've come close to a perfect Thanksgiving dinner though we are some five thousand miles from the States, tied up between four small islands in one of the Chilean channels midway between Cape Horn and the Straits of Magellan. There is no one within several hundred miles with whom to share it so it is up to Evans and I to do justice to our holiday feast. The meat is tasty and well seasoned, the gravy rich and flavorful. Yet our last supermarket visit was almost two months ago, and our 47-foot aluminum Van de Stadt sloop *Hawk* has no refrigerator or freezer. Cold as the water is in southern Chile, even vacuum-packed meat stowed in the bilge doesn't keep for more than a few weeks. So how have I managed to put turkey on the table? This Thanksgiving meal comes courtesy of some Canadian friends who introduced us to the secrets of pressure cooker canning.

Home canning (or jarring as it is more correctly called) can be used to preserve an incredible variety of foods but has become unfashionable due to the cases of botulism poisoning attributed to home-canned foods in previous decades. The acidity of most fruits and some vegetables prevents the growth of the botulism bacteria, which means these foods can be safely canned by raising the temperature above boiling (212°F) for an extended period of time. Meat, poultry and fish, as well as vegetables like corn and mushrooms, lack acidity, and these must be canned at much higher temperatures to ensure the complete destruction of botulism spores. These foods can only be safely processed in a pressure canner or pressure cooker, where the pressure differential allows the temperature to be raised to autoclave levels (240°F-250°F), fully sterilizing both the jar and its contents. If processed correctly, home-canned foods are perfectly safe and last almost indefinitely. We have found that pressure cooker canning offers a healthy, tasty and convenient way of preserving meats and meat-based meals on board a cruising boat.

CANNING WHYS AND WHEREFORES

Like most cruisers, we have always carried an extensive array of store-bought canned meals aboard including stews, chili, soups and canned meats. On offshore passages, these provide easy, one-pot meals for rough weather and serve as a fallback when everything fresh has been consumed. When cruising in remote areas without settlements or shops, canned foods help to stretch our fresh provisions and offer some variety in our diet. Canned foods last virtually indefinitely and their preservation is not dependent on the functioning of batteries, motors or refrigeration systems, ensuring them a place aboard every long-distance cruising boat no matter how luxuriously equipped. In the last six months, we have discovered that being able to can meals and meats ourselves rather than buying them from stores offers several major advantages.

1. Control of ingredients. The quality of meat and produce used in canned meals around the world varies considerably and can only be determined by buying and trying. Even the best canned foods often contain a variety of unhealthy ingredients. When I needed to reduce my salt intake for health reasons, we started reading labels and were appalled at the amount of salt, fat, sugar and chemicals most of these products contain. Even supposedly "healthy" versions of soups and stews available in the States and Europe had double the amount of salt in one serving that I can consume in a day. By canning our own meat and meat-based meals, we can select the highest quality ingredients and eliminate salt, fat and preservatives.

2. Palatability of food. Commercially canned food varies tremendously in taste and texture but is almost always less flavorful and mushier than fresh. We have found that pressure cooker canned meats, stews and soups lose nothing in flavor and often taste better than fresh because they have fully absorbed the juices and spices with which they were prepared. Though they tend to shred more easily than fresh meat, properly canned meats don't become mushy, maintaining a pleasant, firm texture.

3. Options for handling "windfalls." Being able to can meats and fish offers an option for preserving good food that comes in windfall quantities. A small crew can rarely eat all of a large tuna or mahi-mahi caught offshore or all of a whole chicken or turkey brought in a third world market. In an hour or two, the extra can be canned using the pressure cooker and it will keep indefinitely and lose almost nothing in flavor or texture. Further, a breakdown in the refrigeration system doesn't have to mean throwing away pounds of food on passage or giving it away in port – much of it can be canned before it goes bad.

4. Increased provisioning options and flexibility. We have also found that canning allows us to use stowage space more efficiently. A great deal of space in store-brought canned meals is wasted on items that keep perfectly well like potatoes, beans, onions and spices. By canning chunks of meat or fish instead of prepared meals, we can quickly and easily make whatever most appeals at the moment from spaghetti bolognese to chicken cacciatore. However, we still can and carry a variety of prepared meals and soups for use when the sea is too rough to do more than empty the contents of a jar into a pot and heat it up.

5. Availability. In some parts of the world, canned meats and prepared meals are not available. In Chile and Argentina, we could purchase canned fish, fruits and vegetables, but nothing in the way of soups, stews or canned meat including corned beef. Throughout the Pacific islands, on the other hand, corned beef was almost always available, but we could not find other canned meats or prepared meals. By being able to do our own canning, we are no longer limited to what the local supermarkets stock.



Everything ready to start



Cans being filled

In the last year, canning has become an increasingly important part of *Hawk's* provisioning regimen, providing us with much more variety and quality in our diet when we are on passage or cruising an area without settlements and stores.

WHAT YOU'LL NEED

To get started pressure cooker canning requires a few simple pieces of equipment. First and most important is the pressure cooker. While dedicated pressure canners capable of handling large quantities of jars can be purchased, these take a great deal of storage space and cannot be used for pressure cooking as well. A high quality pressure cooker justifies the stowage space aboard because it can be used not just for canning but also for making soups, stews and meats quickly using a minimum of propane with an increased margin of safety in heavy weather by containing the heat and steam of cooking.

Any heavy duty, high quality stainless steel or aluminum pressure cooker capable of generating 10-15 pounds per square inch of pressure can be used for canning, however size does make a difference in canning efficiency. To can quart-sized jars requires a large, eight- to ten-quart pressure cooker. My ten-liter pressure cooker can process four quart-sized jars or up to eight pint-sized jars in two tiers at one time – the equivalent of a large soup pot of food. The pressure cookers that use a weight to regulate the pressure are also more convenient for canning than those that have a gauge. The weight self-regulates the pressure inside the cooker, maintaining an even cooking temperature for long periods without constant adjustments to the stove's burner. A pressure cooker with a weight rated at between ten and fifteen pounds per square inch is ideal.

The jars need to be kept separated and lifted slightly off the bottom of the pot to ensure even processing of the contents and prevent breakage. Special racks designed to hold pint- or quart-sized jars can be purchased to fit many pressure cookers. While useful, these are not essential. A heat-proof trivet or perforated piece of stainless steel or aluminum sized to fit the bottom of the pressure cooker with less than a quarter inch or so around the edge works just as well. If nothing else is available, a dishtowel folded in half and placed in the bottom of the pressure cooker offers adequate protection to the jars during processing.

High-quality jars come next on the list. Mason-type, highly-tempered, threaded, home-canning jars with the two-part, self-sealing lids – the classic “Ball” jars being one example – provide the safest and most hygienic seals and the least breakage and most uses per jar. Pint-sized jars hold enough for two servings of soup or stew, or enough meat to make a meal for four, while quart-sized jars serve four to eight. The wide-mouthed versions make filling much easier and can be obtained in both the quart and pint sizes. Jars can be purchased in many hardware stores and supermarkets in the States. The website at www.homecanning.com can help you locate a dealer in your area. Outside the States, good jars can be hard to come by, so stock up before you leave or have someone ship a dozen or two to your next port of call. Make sure to obtain several sets of extra lids for reusing the jars.

Before you actually begin canning, you will need to assemble three or four clean dishtowels, an appropriately sized pot to boil water for sterilizing the jars and a heavy duty set of kitchen tongs. Specialized “food funnels” fit in the neck of the jar and make filling significantly easier while limiting spillage; these can be purchased from home canning stores or from the website above. Otherwise, you will want some sort of large spoon, scoop or ladle for transferring the hot food into the jars. Finally, the U.S. Department of Agriculture's *Complete Guide to Home Canning and Preserving*, available in most major bookstores and through Amazon.com, provides

information on processing times for various types of foods as well as general advice on all types of canning. The only other thing you need to begin canning is some type of prepared food you wish to preserve, freshly prepared and still hot. As to how much food to prepare, a quart-sized jar can hold a small de-boned chicken; a pint-sized jar will hold about a half a pound of well-packed hamburger or stew meat.

PRESSURE COOKER CANNING IN EIGHT EASY STEPS

To illustrate the canning process, I will show the steps necessary to can hamburger for use in spaghetti bolognese, chili, sloppy joes, Spanish rice or a half dozen other dishes.

1. Preparing to sterilize. I cook the hamburger with some pepper, garlic and Italian spices until it is about two-thirds cooked. I set the pan on the counter near where I will fill my jars, then I fill my sterilizing pan with water, pour about four inches of water in the bottom of the pressure cooker, and put both on the stove to heat. While I'm waiting for the water to boil, I wash the jars, lids and screw bands in hot water and dish soap, and then set them on one of the clean dishtowels to await sterilization.

2. Sterilizing jars. Using the tongs, I put each jar in the boiling water, immersing it for several minutes before placing it on another clean towel next to the food I want to can. I then place all of the lids and screw bands into the boiling water and leave them while I fill the jars. The gummy material on the lip of the lid needs to be warm and flexible when it goes on the jar to ensure a good seal.

3. Filling jars. I fill each sterilized jar with hamburger without touching them and taking care to get as little food as possible on the outside of the jar or on the rim. I fill each jar three-quarters full, put in five or six tablespoons of hamburger grease to keep the contents moist, then add additional hamburger. I use a spatula or knife to pack the contents reasonably tightly and to remove voids and air spaces in order to ensure even processing. An inch and a half of "head space" should be left at the top of each jar to allow for expansion of the contents. Once the jars are filled, I remove all the lids and bands from the sterilizing pan and I am ready to put the tops on the jars.

4. Closing the jars. I clean the rim and threads of each jar with a sterilized rag dipped in the boiling water from the sterilizing pan. I use the tongs to place the center part of the lid on top of the jar, and then I screw down the band until it is just a little tighter than hand tight. During the pressure cooking, the contents of the jar will expand and some of it will escape through the lid, so the band should not be screwed down too tightly.

5. Processing the jars. Since I do not have a rack or a trivet for my pressure cooker, I use the tongs to arrange the folded towel in the bottom and then place the jars on the towel spacing them evenly around the pot. I tighten down the lid on the pot, and start timing according to the directions for the pressure cooker. For my pot, that means I start timing when steam starts the weight spinning in a circle. I process the hamburger for an hour, and then I turn off the burner. Most meats and meat-based stews need to be processed for anywhere from forty-five minutes to an hour at 10-15 pounds of pressure per square inch. Table 1 provides some guidelines for more common meats and meat-based dishes, but the USDA book provides exact details for processing all types of foods.

6. Cooling the jars. The seal is actually created as the jar cools, the contents and the lid contract, and a vacuum forms inside the jar. Getting a proper, sterile seal depends upon the slow, even cooling of the jar and its contents. Most canning problems occur because the jars are cooled too quickly. The best way to ensure that the jars cool slowly enough is to leave them in the pressure cooker overnight. If additional food needs to be processed, the jars can be removed after the pressure has returned to normal on its own and the pressure cooker has cooled to the point where you can touch it with your bare hand. But the jars must be wrapped in several layers of towels or placed in a tea cozy or oven mitt after they are removed from the pressure cooker to keep them from cooling down too quickly.

7. Testing the seal. When the jars have cooled completely, the seal can be tested visually, by feel and by tapping on it with a spoon. On a jar that has sealed properly, the surface will appear concave when holding the jar at eye level and looking across the lid. If the center of the lid is pressed with a finger or thumb it should not give or spring back when released. If tapped with a spoon, the lid should make a high-pitched ringing sound, not a dull, flat sound. If any of the jars fail to pass any of these tests, they should be opened and the contents reprocessed.

8. Labeling and stowing. I label the jars with the type of food and the date for easy reading from above and then protect each jar by placing it in a thick sock. The protected jars are stowed in a plastic crate lined with a heavy-duty garbage bag to contain the mess in the event of breakage.

All that remains is to use the contents of the jars to make nutritious, high-quality meals. Before opening the jar, test the seal once again using all three of the tests above. Then pop off the lid – a bottle opener works best and doesn't damage the lid or the jar – and enjoy!



Putting lids on



Finished product

A FEW TIPS FOR CANNING SPECIFIC FOODS

Chicken/turkey – Half cook before canning. Pour juice over top until meat is just covered; remove voids with spatula or knife. Season with salt, pepper, poultry seasoning or other spices. Process quart jars for an hour at 10-15 pounds of pressure. Juice can be used to make a rich gravy.

Lamb – Any fat will make the meat taste rancid. Make sure to remove all fat before cooking the meat. Half cook and process like chicken.

Stews, chili, soups – Cook until mostly done, but about a quarter less time than for immediate consumption. Process quart jars 45-60 minutes at 10-15 pounds of pressure.

Mackerel, salmon, trout and other fatty fish except tuna – Place $\frac{1}{4}$ to $\frac{1}{2}$ a teaspoon of salt or vinegar in the bottom of the jar. Fillet and skin the fish. Pack raw to the lip of the jar using a spoon or spatula to remove voids and air pockets. Add a tablespoon of olive oil. Process pint jars for 90 minutes at 10-15 pounds of pressure.

Tuna – Pre-cooking tuna removes many of the strong-tasting oils. The dark meat affects the flavor of the more delicate white meat – many people choose to can only the white meat.

Precook fish by baking at 350°F for one hour. Refrigerate cooked fish overnight to firm the meat. Peel of the skin, remove blood vessels or discolored meat. Fillet, quarter and cut to lengths suitable for pint jars. Fill jars until firmly packed and add water or oil to cover. Process pint jars for 90 minutes at 10-15 pounds of pressure.

Clams/mussels – Shuck, retain juice. Scald meat in boiling water with a tablespoon of lemon juice for one minute, remove and repeat. Place meat in jar, pour juice over and add water if necessary to just cover. Process pint jars for an hour at 10-15 pounds of pressure.