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CANNING MEATS

By Genevieve Burgan Meybohm
Division of Agricultural Extension

This bulletin is prepared to furnish directions for canning meats, poultry, and fish for canning club members and others interested in home canning. The following government bulletins have been used for reference:

Home Canning by the One-Period Cold Pack Method. Farmers' Bulletin 839, U. S. Dept. of Agr.

Home Canning of Meats and Sea Foods with the Steam Pressure Canner, by Frants P. Lund. S. R. S. Doc. 80, A 92.

Pork on the Farm—Killing, Curing, and Canning. Farmers' Bulletin 1186, U. S. Dept. of Agr.

Home Canning of Fruits and Vegetables. Farmers' Bulletin 1211, U. S. Dept. of Agr.



Fig. 1. Palma Norby and Lucile Larson, Stevens County Champion Canning Team, State Fair, 1922.

REASONS FOR CANNING MEATS IN THE HOME

Canning is a practical method of meat preservation for both the farm and the city home and is a means of saving time, health, and money.

In the farm home it saves waste at butchering time by immediately taking care of the large quantities of meat. This is especially important if the weather turns warm suddenly and there is no method of refrigeration on the farm. It does away with the temptation to use too much meat at one time, which is both unhealthful and extravagant. It makes it possible to serve fresh meat produced on the farm throughout the year.

For those who raise poultry it is profitable to can cockerels and unproductive hens in the fall. This preserves the meat when it is best for eating and also saves the expense of feeding unprofitable birds during the winter.

METHOD OF CANNING

The one-period cold-pack method is used exclusively in the home canning of meats. While meats may be canned successfully by this method if directions are followed carefully, it is advisable for those canning to be very familiar with the process and to have canned successfully vegetables and fruits.

PRECAUTIONS NECESSARY IN CANNING MEATS

Certain precautions are essential in canning meat. Only meats known to be fresh, clean, and from healthy animals should be canned.

Sanitary methods should be employed in handling the meat after slaughter, as it is easily infected. It is essential that the meat be properly handled, cooled, and stored. The carcass should hang at least twenty-four hours before cutting and be kept at a temperature from 32 to 36 degrees F. This temperature is not low enough to freeze the meat but is low enough to stop any action which in time would cause spoilage. It is important that the storage temperature be kept even.

EQUIPMENT FOR SUCCESSFUL CANNING

In canning meats special care should be given to the cooker, jars, and rubbers that are to be used.

Steam Pressure Cooker

The use of the small steam pressure cooker has greatly promoted the successful canning of meat. By using the pressure cooker it is possible to secure the high temperature required to sterilize meats properly and to prevent spoilage.

Steam pressure cookers are made to carry from 1 to 30 pounds of steam pressure, and should be tested for considerably higher temperature in order to insure safety to the operator. These canners are equipped with a steam-tight sterilizer, lifting crate, thermometer, pressure gage, safety valve, and petcock.

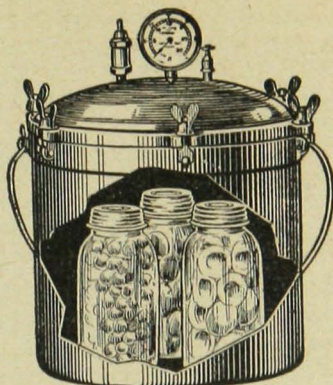


Fig. 2. One Type of Aluminum Pressure Cooker

Water-Bath Canner

Altho the canning of meats and fish has been found to be safest and most successful with the steam pressure cooker, such a processor is not always obtainable, and in such a case the meat may be successfully canned in a hot water bath if proper care is taken.

The simplest hot water outfit is one that may be placed on a kitchen stove. It may be a covered boiler, fitted with a false bottom which holds the jars away from the bottom, allowing circulation of water under the jars. The false bottom should be raised about an inch above the bottom of the boiler and can be made of wire netting or of wooden slats weighed down with metal strips.

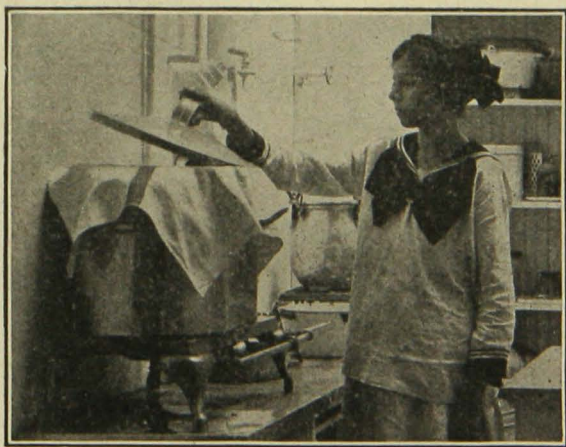


Fig. 3. Common Wash Boiler with False Bottom

The cover cloth makes the cover tighter and conserves heat.

CONTAINERS

There are three types of glass jars in common use, the glass-top wire-clamped jar, the screw-top Mason jar, and the automatic seal jar.

These are all good if precautions are taken to see that they are air-tight and clean.

The cover of the glass-top wire-clamp jar is a glass disk which fits down on the rubber ring and is held in place by a wire clamp. This lid is easily cleaned, and if carefully handled will last as long as the jar. The jar is easily sealed and easily opened.

The original type of Mason jar seals with a screw top usually made of zinc with the top lined with porcelain. The porcelain sometimes becomes loose and the cap is then hard to clean and sterilize. If the edge-of the cap is bent in opening the jar, it should not be used again. Among the improved types is one which has a glass top fitting down into the rubber with a metal ring which screws down over the glass top, holding it in place. This jar needs no new parts from year to year and is easily sealed and opened.

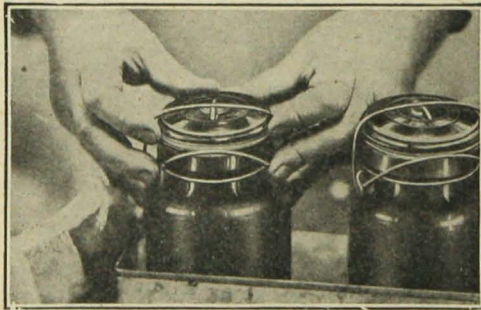


Fig. 4. Tops of Jars in Place, Unsealed, Ready To Be Placed in Cooker

The automatic seal jar has a lacquered metal top. This consists of a disk, around the edge of whose under surface is a small groove filled with a hard, wax-like compound which, when heated, softens and adheres to the glass. During the processing period the top is held in place by a metal spring or clamp. As the jar cools this compound hardens, sealing the jar. These jars require new lids each time they are used.

Testing Glass Jars

Glass jars should be tested carefully for leaks or defects. All jars or glass covers that are cracked or chipped must be discarded. Any roughness or raised places can be filed down.

If the bail or clamp is too loose, remove and tighten so that it will hold the lid more closely against the rubber. These clamps should be tested each year.

The lid of the screw-top jar should also be smooth and even. To test, place the lid upon the jar without a rubber, and screw it down tight. The top should fit so tightly that the thumb nail can not be inserted between the lid and the jar. Never use a defective cap.

The tops of automatic seal jars should be examined carefully to see that they are smooth and even. If the rubber composition is cut or broken, discard them.

After the jars are washed, place in a pan of cold water and bring the water to the boiling point. Boil until thoroly scalded, and allow them to stand in this hot water until wanted. They will then be hot and ready for use when the products are ready to be packed.

Rubbers

A great deal of spoilage in home canning is due to the use of poor rubbers.

Always use new rubber rings. The boiling of rubbers or their subjection to live steam in the canning process is a very severe test. Therefore the rubbers must be of good quality. Test the rubbers by stretching over forefingers. If they crack, or do not readily return to their former size and shape, discard them. Rubbers should stretch considerably and return quickly to place without changing the inside diameter. Good rubbers are tough, fibrous, firm, and able to stand bending without cracking. They should be one-twelfth of an inch thick.

PREPARATION OF MEAT FOR CANNING

All meat for canning must be handled in a cleanly manner. As soon as it is thoroly cooled it may be prepared. It may be canned partially cooked or raw. Partial cooking gives it a better flavor. The meat is cut into pieces of convenient size for canning and is roasted, fried, broiled, baked, or stewed. It need not be cooked until it is tender but until it is no longer red in the center.

If the meat is canned raw it is cut into small pieces and all bones and gristle and excess fat are removed. It is then blanched in boiling water for five minutes and then dipped quickly in cold water. This blanching and cold dipping helps to cleanse the surface.

Packing

All products are packed as soon as possible after their preparation is finished. The jar is removed from the hot water and placed in a pan of boiling water to keep it hot while filling it. The meat is packed solidly in the jars to within half an inch of the top. Hot liquid or soup stock may be poured in to fill all spaces and to cover the meat. If meat is canned raw, no water or liquid is added. One teaspoonful of salt is added to each quart, then the rubber and cover are adjusted.

Adjusting Rubber Ring and Cap

Before the rubbers are used they are cleansed by keeping them in boiling water at least five minutes or in a soda bath (1 teaspoonful of soda to 1 quart boiling water). In addition to cleansing, this soda bath is supposed to help remove any undesirable odor of rubber. The rubber and cap are then placed in position, and the jar is partially sealed.

When a screw-top jar is used, the lid is screwed on as far as possible with thumb and forefinger. This should not be tight. With a wire-clamp glass-top jar the glass top is placed on evenly and the upper clamp is raised to hold the lid in place. The lower clamp is left loose until after the processing period. The cap of an automatic seal jar is fastened on with the metal spring or clamp. This jar is self-sealing as it cools.

Processing

If the meat is to be cooked in a steam-pressure cooker, boiling water is poured into the cooker until it rises nearly to the level of the false bottom, but not over it (generally to a depth of from 1 to 1½ inches in the small home pressure cooker. The cooker is placed over the fire and the cans to be sterilized are placed on the false bottom in the cooker. The cover is put in place and the clamps are screwed down so that the cooker is steam-tight. The petcock is left open until steam escapes, then it is closed completely. If the safety valve is adjustable it should be adjusted to "blow off" at the pressure desired. The temperature should be raised to the required point by means of a quick fire before beginning to count time.

During the period of processing a uniform pressure is maintained by a low fire. After processing the required length of time, the cooker is removed from the fire and allowed to cool until the steam gage registers zero. The petcock is then opened and the steam allowed to escape. The clamps can then be unscrewed, the cover to the cooker taken off, and the jars removed. The lids of the jars should be tightened immediately.

Processing in Boiling Water

If the processing is to be done in a boiler or hot water bath, the water in the processor is at boiling point by the time the jars are packed. The jars are placed in this water as soon as they are packed. The water is one inch over the tops of the jars. Time of sterilization is counted from the time the last jar is put into the boiler, the cover placed on it, and the water boiling vigorously. The water boils the entire time that the product remains in the water. When the time designated for processing each product has elapsed, the jars are removed and sealed.

Removal and Subsequent Care

The jars are removed from the pressure cooker or boiler one by one, and the lids tightened at once. After covers have been tightened they should not be screwed down again, as the seal will be broken and air get into the jar. The jars are inverted to test for leaks, and if airtight should be turned immediately and allowed to cool in an upright position. The jars are placed several inches apart to cool quickly. They are then wrapped in paper or placed in boxes, and stored in a cool, dry place.



Fig. 5. Testing Finished Product
The wire lever has been pressed down.

Detection of Spoilage in Canned Goods

Spoilage often results from improper canning, so it is essential that the condition of canned meat always be noted when a can is opened. The meat should have a good color and a good odor, and be of a natural texture. Gas, decomposition, and questionable odors are signs of a spoiled product. Meat that is even suspected of being tainted should never be tasted or used.

RECIPES

The recipes given are merely guides and may be changed to suit the individual taste. The time and temperature given for sterilization should not, however, be changed. It is essential that nothing but absolutely fresh and cleanly handled meats and fish be used.

Roast meat.—Select fresh beef, trim, and wipe with a damp cloth. Heat some fat in a roasting pan and sear the meat quickly to prevent loss of juice. When well seared, salt and pepper to taste. Add small amount of boiling water to fat. Baste frequently and turn meat from time to time to brown well. Cook until meat is partially done (it should not be red in the center). Slice and pack in cans to within $\frac{1}{2}$ inch from top of can. Add liquid from roasting pan with

boiling water added to barely cover the meat. Leave at least one-fourth inch space between liquid and top of can. Adjust rubber and cap on jar, and partially seal. Process in cooker for time given below.

	Hours
Water bath, homemade or commercial.....	3
5 pounds steam pressure.....	2
10 to 15 pounds steam pressure.....	1

This general recipe may be changed to suit individual taste, the meat may be boiled slowly instead of roasted, and may be trimmed and seasoned according to desire. Pork, veal, mutton, and lamb may be treated as beef.

Poultry and game birds.—Recipe No. 1. Kill fowl and draw at once; wash carefully and cook; cut into convenient sections. Place in wire basket or cheese-cloth and boil until meat can be removed from bones; remove from boiling liquid and cut meat from bones; pack closely into glass jars; fill jars with pot liquid after it has been concentrated one-half; add level teaspoonful of salt to each quart of meat, for seasoning; put rubbers and caps of jars into position, not tight. Sterilize for the length of time given for roast meat.

Spring chicken, fried.—After cleaning and preparing spring frys, season and brown as tho for serving directly on the table. Cook until the meat is about three-fourths done. If a whole spring chicken is being canned, break the neck and both legs and fold around body of chicken. Roll up tightly, tie a string around the chicken, and drop this hot, partially cooked product, into a hot quart glass jar. Pour liquid from the pan into the container over the chicken. Adjust and partially seal. Sterilize for the length of time given below.

	Minutes
Water bath, homemade or commercial—boiling temperature.....	90
5 pounds steam pressure.....	40
10 to 15 pounds steam pressure.....	30

Fish.—Do not attempt to can fish unless very sure they are absolutely fresh. As soon as fish are caught kill them with a knife and let the blood run out, then scale them. If the skin is very tough remove it and wash the fish clean. Remove entrails and the dark membranes. The backbone may be left in small fish. Remove the backbone of larger fish and use meat adhering to it for chowder.

To draw out the blood before canning, place the fish in brine made in the proportion of 2 tablespoonfuls of salt to a quart of water. Let soak for 10 minutes to an hour according to thickness of the fish. Do not use brine more than once. Drain well, and cut into can lengths. Pack closely in can to within half an inch of top. Add a small amount of salt ($\frac{1}{3}$ to $\frac{1}{2}$ teaspoonful). Add no liquid to fish in jar. Adjust rubber and cap. Sterilize for length of time for roast meat.

Fish prepared in this way will not be so firm and choice as that fried or partially baked before canning.