

Canning Meat in the Home



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ON THE COVER

A group of Montgomery County Home Demonstration Club women are shown canning a beef. One woman is taking the cans out of the steaming kettle; one is pressing the meat down; another is cleaning the rim of the can. The can is sealed and then it is placed in the pressure cooker to process. By each person having a certain job and working together in relay fashion, more meat can be put up and a better quality can be obtained.

Canning Meat in the Home

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Meat is one of the essential foods for good health. Because it is perishable it must be canned, frozen, or cured in order to lengthen our use and enjoyment of it. Canning is one of the most satisfactory methods of preserving meat for rural people who are not near market centers or freezer lockers. In canning, all bacteria are destroyed by heat, and contamination caused by other bacteria from the outside is prevented since the food is sealed in air-tight containers. Use of the steam pressure cooker is recommended as the safest, quickest, and best way to kill the bacteria in meat.

PREPARE FOR MEAT CANNING THIS WAY

Can Small Quantities at a Time

Since it takes more time and care in canning meat than other foods it is better to can only a part of the animal at a time. A family could can all the roast and steak one day, the hamburger the next day, the sandwich loaf and stew meat the third day, and chili,

hash, and broth or other recipes the last day. In this way more care can be given and a better quality will be obtained.

If weather conditions or other factors prohibit the family taking their time in canning a beef, the family should borrow several cookers, have plenty of stove space and sufficient help to do the work in one day.

Be Clean and Careful

Cleanliness is important in all methods of preservation, especially in meat canning. All equipment should be thoroughly cleaned with soapy water and rinsed with boiling water. Table tops also should be cleaned.

Select Proper Utensils

If possible use enamel, aluminum, retinned metal or stainless steel kettles and pans in preparing meat. Copper and iron may discolor meat. If galvanized tubs or buckets are used, they should be lined with clean wrapping paper or cloth. If meat is left in contact with galvanized metal

too long, it may take up harmful amounts of zinc.

Have Equipment in Good Condition

Meat is too valuable a food and is too scarce to risk wasting it by improper canning methods or using poor equipment, which is not in good condition. Pressure cookers and sealers should be checked in advance and all repairs and adjustments should be made. Detail instructions on using, checking, and caring for a cooker may be found on page 10 in this bulletin.

SELECT SUITABLE CONTAINERS

Tin cans:

Plain tin can be used for all meats. Poultry sometimes becomes dark if canned in plain tin, but this does not affect the food value. C enamel may be used for poultry. Cans should be clean and free from dents. Never wash can lids which have paper gaskets. Wipe them off with a dry, clean cloth.

Glass jars:

Although tin cans are better for canning meat because they can be handled more quickly, jars may be used also. The rims should be clean and free of nicks and chips. Good rubbers should be used when canning meat. If you are using jars which never before have been used in a pressure cooker, they should be tempered to prevent breaking when subjected to high

pressure. To do this place the jars in warm water on a rack in a large container and bring to boiling point.

IN PREPARING MEAT, STRIVE FOR QUALITY

To obtain good quality in canned meat you must have good meat in the beginning. A mature, fattened beef provides more flavor and quality than a young calf. The flavor and tenderness of beef may be improved by proper chilling, aging, and cutting. Details of this procedure may be found in "Killing and Cutting Beef on the Farm," B-79, Texas Extension Service.

Certain parts of the beef are better for roast or steak, while other parts are better used as stew. For **roast**, the loin, rump, and round from the hindquarter are good; and the forequarter furnishes rib, chuck rolls, and the clear cut, as suitable for roast. For **steak**, use some of the loin, round rib, and clear-cut. For **stew-meat** the navel brisket, neck, portions of flank and hind shank may be used. All the trimmings should be ground for **hamburger, sandwich loaf, or chili**.

STEPS IN CANNING BEEF

Roast and Steak

1. Season to taste.

Put salt and pepper in the can first. Mix the two if desired, using one part pepper to three parts of salt. Use $\frac{1}{2}$ teaspoon of this mixture

for No. 1 cans, 1 teaspoon for No. 2 cans and pints, and $1\frac{1}{2}$ teaspoon for No. 3 cans and quart jars.

2. Pack raw.

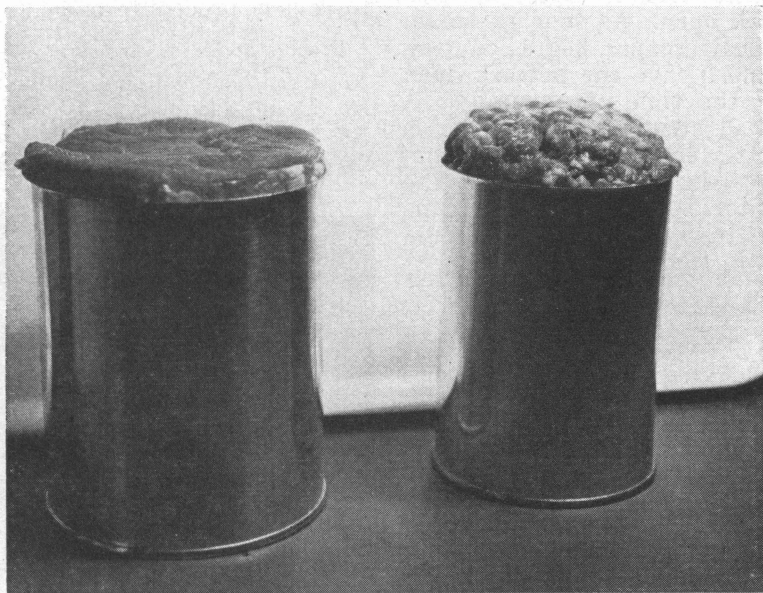
Cut roast large enough to fit the container to be used. Muscle fibers should run lengthwise of the piece of meat (up and down of the can). The roast should be about $\frac{1}{4}$ inch longer than the can when it is packed raw. Steaks may be cut about $\frac{1}{2}$ inch thick or 1 to $1\frac{1}{2}$ inches thick for swiss steak. Fit the steaks in the container in layers. It may be packed $\frac{1}{2}$ inch above the rim of the can. After steaming it can be pressed down.

Do Not Sear Meat

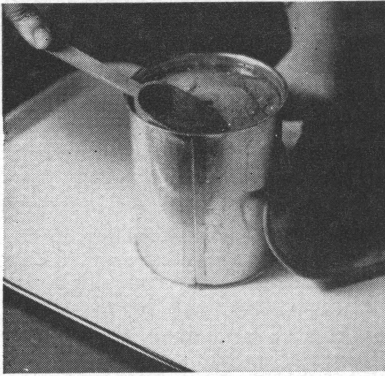
Frying or searing makes beef or lamb hard and dry. Fat when heated at such high temperatures breaks down and becomes rancid more easily. It may cause a somewhat bitter flavor in the meat.

3. Steam before sealing.

Steaming may be done in either water bath or pressure cooker. The water should be about 2 inches below the top of the cans, and it should not be allowed to boil so rapidly as to bubble into the container. The water may be boiling hot if steaming is done in cans, but for jars containing cold meat the water should be only warm at first. A lid should be used on the water



On the left a roast is packed raw in a No. 3 can. It is about $\frac{1}{4}$ inch longer than the can. The No. 2 can on the right is packed with raw hamburger meat. It is rounded up about $\frac{3}{4}$ to 1 inch above the can.



After steaming the roast has shrunk. It is pressed down and the meat juice covers the meat. There is $\frac{1}{4}$ to $\frac{1}{2}$ inch headspace.

bath container to retain the steam. If you use the pressure cooker the cans or small glass jars may be stacked. Fasten two opposite lugs or the ring on the cooker. Leave the **petcock open**. As soon as steam barely escapes, begin counting time. Leave the **petcock open** all the time of steaming. A small steady jet of steam is better than a forceful stream, because it might cause the water to boil into the cans or draw out too much liquid from the meat.

Steam:

- No. 1 cans and half pints 30 min.
- No. 2 cans and pints - - 60 min.
- No. 3 cans - - - - - 90 min.
- Quart jars - - - - - 80 min.

4. Seal while hot.

If cans are steamed in the pressure cooker, leave the cooker on the fire to keep the water hot while the cans are being sealed. Take one or two cans of meat out of the cooker or water bath at one time.

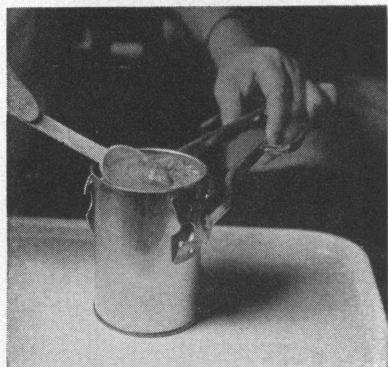
Press the meat down so that meat juice will cover pieces of meat. If pack is not full, take out some meat from one can to fill each of the others. If too full, remove excess broth or meat. There should be about $\frac{1}{4}$ inch headspace in cans and about $\frac{1}{2}$ inch headspace in jars. Wipe off carefully the rims of containers and seal air tight. Continue until all cans are sealed. Place the containers in the cooker as soon as possible after sealing. Lids may be marked before sealing to avoid wrong labeling of containers of meat.

5. Process in pressure cooker.

Directions for using pressure cooker are on page 10. Beginners should study these directions carefully, and it is well for experienced canners to review procedure often.

Process at 15 lbs. pressure:

- No. 1 cans and half pints 40 min.
- No. 2 cans and pints - 50 min.
- No. 3 cans - - - - - 75 min.
- Quart jars - - - - - 65 min.



The hamburger shrinks more than the solid roast. After steaming the meat is pressed down so that the meat juice will cover the meat.

6. Cool immediately.

Follow directions for cooling tin cans and glass jars on page 11.

7. Store properly.

After containers are thoroughly cool they should be labeled and stored in a cool, dry, dark place.

Hamburger

Mix 25 lbs. of meat with 3 tablespoons of pepper and 1 cup of salt. Grind fine. This amount makes about 20 No. 2 cans. Pack raw meat firmly in the cans. "Round" the meat up about $\frac{1}{2}$ to 1 inch above the container. Follow steps in steaming, sealing, processing, cooling, and storing as given for roast.

Sandwich Loaf

12 lbs. ground meat
6 tablespoons salt
4 tablespoons sugar
6 teaspoons pepper
 $\frac{1}{2}$ teaspoon (scant) sodium nitrite—see note below
3 cups flour
 $1\frac{1}{2}$ teaspoons comino seed
12 cups chopped onions
(less may be used)

This recipe makes about 12 No. 2 cans.

Note: Sodium nitrite is very much like saltpeter and is used to add color. In this small amount it has a harmless preservative effect on the food. It is not absolutely necessary, but it is inexpensive; and it makes a much more attractive product. Since sodium nitrite melts easily, purchase it only in small quantities and

keep it dry until ready to use. Most drug stores keep sodium nitrite in stock.

Mix dry ingredients together well. Add to meat and onions. Knead the mixture with hands. Press into cans. Leave $\frac{1}{2}$ inch headspace before steaming. The flour causes the mixture to swell; therefore, it must be pressed down well after steaming. Follow steps in steaming, sealing, processing, cooling, and storing as given for roast.

Chili

15 lbs. coarsely ground meat
2 or 3 cups chopped onion
2 tablespoons chopped garlic
2 to 4 cups suet or 2 cups fat
2 cups chili powder (makes a mild chili)
 $\frac{1}{2}$ cup salt
3 teaspoons comino seed

Add water for desired consistency.

Melt fat, add meat, and sear until white. Mix chili powder in well. Add salt, comino seed, onions, and garlic. Cook together 15 minutes, stirring constantly. Add water and cook about 15 minutes longer. Fill containers with boiling hot chili. Seal and process immediately.

Chili does not have to be steamed, but follow steps in sealing, processing, cooling, and storing as given for roast. This recipe makes about 14 to 16 No. 2 cans.

Stew

Cut meat into cubes 1 to $1\frac{1}{2}$ inches thick. Use 1 tablespoon salt for each 2 lbs. of

meat. Cover with boiling water or broth and simmer until meat is shrunken and heated through. This requires 10 to 15 minutes. The color of the raw meat practically will have disappeared from the center of the pieces. Pack the drained meat firmly into containers, and cover with boiling broth. This does not have to be steamed, but follow steps in sealing, processing, cooling, and storing as given for roast. It is better to add fresh or canned vegetables to the stew meat when you are ready to prepare for serving rather than to can the vegetables with the meat.

What to Do With the Bones

Fill a pressure cooker with bones. Add 2 quarts of hot water. Process at 10 lbs. pressure for 40 minutes. If cooker is not available, cook in a pot or large container until meat slips from the bone.

HASH MEAT

Remove the meat from the gristle and bone. Bring to a boil and pack hot into container. Cover with boiling broth and seal. Process same time as given for roast. Hash meat may be ground and used for chili or mincemeat.

MINCEMEAT

The meat that is cooked off the bones, the cheeks from the beef head, and the tongue and heart may be used in this recipe.

- 5 cups ground beef
- 5 cups brown sugar or molasses
- 1/2 cup vinegar

- 6 medium sized oranges
- 6 large lemons
- 2 1/2 cups raisins
- 2 1/2 cups currants
- 2 tablespoons salt
- 2 teaspoons mace
- 1 tablespoon allspice
- 1 tablespoon nut meg
- 1 tablespoon cinnamon
- Peel of 2 lemons and 2 oranges
- 1 tablespoon ground cloves

Wash currants, raisins, oranges, and lemons and let them drain. Mix sugar and spices. Peel lemons and oranges. Cut pulp into small uniform pieces, and run the peel through a food chopper using a medium knife. Mix all ingredients together. Heat to boiling. Pack in R enamel cans or glass. Seal while hot. Process same time as given for roast.

BROTH OR SOUP STOCK

Skim excess fat from bone broth. Heat broth to boiling and pour into containers. If bones are cooked in the pressure cooker broth need not be concentrated. If covered with water and boiled in open kettle, the broth should be boiled down until it will congeal when cold. Process at 15 lbs. pressure:

- No. 1 cans - - - 20 min.
- No. 2 cans - - - 25 min.
- No. 3 cans - - - 30 min.
- Pint glass jars - - 30 min.

Variety Meats

Eat the brains, liver, tongue, heart, sweetbreads, and kidneys fresh rather than can them. Tongue and heart may be used in the mincemeat if desired. If there are larger

quantities than can be used fresh, recipes for liver paste, canned tongue and heart may be secured at the County Extension Agents' office.

CAN PORK THIS WAY

Details for preparing pork may be found in "Killing and Curing Pork," B-94, Texas Extension Service.

In preparation of pork for canning, trim off all fat. The fat causes greater shrinkage and may interfere with destruction of bacteria which causes spoilage.

Pork chops from the loin or shoulder butt of the hog may be canned the same as beef steaks. Pork roast from the boneless loin or shoulder butt may be canned the same as beef roast.

Sausage

(Pork or Pork and Beef Mixed)

25 lbs. meat (4 parts lean, 1 part fat)
1 cup salt and 3 tablespoons black or red pepper
 $\frac{1}{4}$ to $\frac{3}{4}$ cup sage (if desired, according to taste)

Mix seasonings well with meat before it is ground. It may be made into cakes, stuffed in casings, or packed in bulk. Sausage in casings may be cured and smoked before canning if desired. Follow steps in steaming, sealing, processing, cooling, and storing as given for roast, page 6.

Head Cheese or "Souze"

Trim all meats from the head. If meat is bloody it can be soaked over night or several hours in salty water.

Then cook with heart, tail, tongue, and feet or any of the other trimmings. When tender remove any bones. Take meat out of liquid, grind or chop it fine, and return to the liquid in which it was cooked. Add salt and pepper to taste. Some like a little ground cloves in seasoning. Boil 15 minutes. If it is to be used fresh pour into molds and cover with cheese cloth and weight. If it is to be canned pack into cans hot and seal. Process same length of time as given for roast on page 6.

Pickled Pig Feet

Clean pigs' feet carefully. Place in pressure cooker. Add water and process under 10 lbs. pressure 40 minutes. Remove from cooker and place in stone jar; weight down and cover with spiced vinegar made as follows:

$\frac{1}{2}$ gallon vinegar (pure apple cider)
1 $\frac{1}{2}$ tablespoons celery seed
 $\frac{1}{2}$ cupful grated horseradish
1 cup sugar
1 $\frac{1}{2}$ tablespoons mustard seed
1 tablespoon of salt
1 onion ground fine
1 teaspoon whole cloves
 $\frac{1}{2}$ stick cinnamon

Mix all dry ingredients, tie in a bag, add to vinegar and bring to the boiling point. Cover and let spice infuse for one or two hours. Remove the bag of spices, heat and pour the vinegar over the feet.

For canning, heat feet and mixture to boiling. Pack hot in jars or standard enamel-

lined cans. Seal and process same time as given for roast on page 6.

CANNING LAMB

Lamb chops made from loin rib and leg may be canned the same as steaks. Roast from leg or rolled shoulder should be canned same as beef roast. All trimming may be ground and canned as "lamb-burger" or chili.

Details on preparation may be found in "Killing and Cutting Lamb," B-106, Texas Extension Service.

OTHER MEATS

Venison, rabbit, or other non-domestic animals may be canned the same as beef. Rib, loin, and round may be canned as roast or steak. The less tender cuts should be ground and made into hamburger, chili, or sandwich loaf.

POULTRY

Chicken and turkey may be cleaned and cut as for cooking. The meat may be cut off the bone and canned by the same procedure as for beef.

Details for preparing poultry may be found in "Preparation of Fowls for Home and Market," B-88, Texas Extension Service.

HOW TO USE A PRESSURE COOKER

In using a pressure cooker always follow directions of the manufacturer. Certain points need special attention. General procedure is as follows:

1. Place a rack or false bottom in the cooker.

2. Have at least 1½ to 2 inches of water in cooker.
3. When the processing is begun, water in the cooker should be boiling hot.
4. Place containers in cooker—cans may be stacked, but should be arranged to permit circulation of steam. It is best not to stack jars. However, pint or half pint jars can be stacked, provided a standing rack is placed between the layers to prevent the top jars from touching the lids on the bottom layer of jars. All jars should be sealed as tightly as possible when placed in the cooker for processing.
5. Place cover on cooker and fasten securely. If cover is fastened by clamps, tighten opposite clamps moderately at first. Then go back over whole set to tighten each pair as much as possible.
6. Leave petcock open until steam escapes 5 to 7 minutes or until pressure comes up ½ to 1 lb., indicating that no air remains inside the cooker. Close the petcock.
7. Allow the pressure to rise until the gauge registers the pressure indicated in the recipe you are following. Then begin to count processing time.
8. Adjust processing temperatures to altitude as follows:

Feet elevation above sea level	Extra lbs. pressure added when using these recipes
1000-2000	- - 1
3000-4000	- - 2
5000-6000	- - 3
over 7000	- - 4

9. Keep a uniform pressure by adjusting the fire or moving cooker carefully. If the pressure goes up and down, it causes **loss of liquid** and sometimes **breakage** of glass jars or **bulging** seams of tin cans. If liquid is drawn out of jars do not open them to add more.

10. Cooling is important! At the end of the processing time, remove the cooker from the fire. Do not hasten cooling of the cooker by applying cold water or wet cloths or by placing the cooker on a cold surface. This treatment may warp or crack the cooker.

a. For No. 2 cans or smaller, open the petcock slowly until all steam is released and the dial registers zero. Open the cooker and remove the cans at once and plunge them into cold water.

b. When using glass or No. 3 cans allow the cooker to cool until the gauge registers zero, open the petcock gradually, and then remove cover. Cool tin cans in water immediately. Leave glass jars in cooker from 15 to 20 minutes. Then remove the jars carefully. Do not tighten lids while hot, because when rubber has been subjected to high temperatures it is weakened and easily ruined.

KEEP COOKER IN GOOD CONDITION

Keep the safety valve of the cooker clean. If it is the ball and socket type, wash it after each using. A toothpick may be used to keep the opening of the gauge clean. Never let water stand in cooker. Keep it clean and free from odors at all times. A little lemon juice, vinegar, or potato peel heated with water in the cooker helps to clean it. Always store the cooker where there is no danger of jarring or breaking the gauge. Crumpled paper stored in the cooker helps to absorb excess moisture.

Check gauges on cookers with a maximum thermometer at least once per year, oftener is better. Follow this procedure:

1. Prepare the cooker exactly as if you were going to can (follow procedure given just above, "How to Use a Pressure Cooker.").

2. Test thermometer in boiling water. It should register 212 degrees Fahrenheit at sea level.

3. Shake the mercury down below 228 degrees Fahrenheit each time before using.

4. Suspend the thermometer in the center of cooker if possible. Use a thermometer rack, or place the thermometer in an empty jar on a rack in the cooker.

5. Close cooker to exhaust air the same as for canning.
6. When dial registers 10 lbs. hold for 5 minutes.
7. Remove from fire, and let gauge return to 5 lbs., after which the petcock may be opened slowly.
8. When gauge is at zero open cooker.
9. The thermometer should read 240 degrees Fahrenheit at sea-level.
10. Repeat this procedure at 15 lbs. pressure. The thermometer then should read 250 degrees Fahrenheit.

Why Check Gauges?

If the maximum thermometer inside the cooker registers a higher temperature than the gauge registers, there is danger of overcooking, losing liquid, breaking glass when jars are used or bulging seams when cans are used. In extreme cases the cooker may explode. If the temperature is lower inside the cooker than the gauge registers, there is danger of under-processing the food, which may cause spoilage.

How to Make Adjustment

If the gauge reads lower than the actual temperature, decrease the pressure 1 lb. for each 2 degrees when processing. On the other hand, if the gauge reads high increase the pressure 1 lb. for each 2 degrees.

If the gauge is off more than 2½ lbs. or 5 degrees, either above or below, a new gauge should be put on the cooker, or the gauge returned to the company for repair. It is suggested that when a cooker gauge is off much the test should be made several times. Sometimes mistakes may be made in checking, and it is easy to make an incorrect reading.

A GOOD SEALER FOR CANS IS IMPORTANT

The sealer should be kept clean, oiled, and adjusted to give an air-tight seal. Follow manufacturer's directions when using the sealer. Keep the directions and all parts with the sealer, so that whoever uses it will have the information and materials.

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NEW TIME TABLES FOR CANNING MEAT AND POULTRY* (1947)

(Supplement to B-101 and B-88)

Prepare and Pack	Steam Minutes to Steam				Seal	Process Use 10 lbs. Pressure				Cool
	Pts.	Qts.	No. 2	No. 3		Pts.	Qts.	No. 2	No. 3	
**Beef, Veal, Pork, Lamb: If salt is desired put into clean empty containers; $\frac{1}{2}$ teaspoon in pint jars or No. 2 cans; 1 teaspoon in quart jars or No. 3 cans. Pack containers with raw lean meat. Leave 1 inch headspace in glass jars, fill tin cans $\frac{1}{4}$ inch above rim.	75	75	50	50	Seal	75	90	65	90	Cool
**Ground Meat: If desired add 1 teaspoon salt per pound of ground meat, mixing well. Pack raw meat firmly in the cans level with the top.	no	no	75	75	Seal	no	no	100	135	Cool
**Broth or Soup Stock: Pour hot stock into containers. Leave 1 inch headspace in jars; fill tin cans to top.	no	no	no	no	Seal	20	25	20	25	Cool
Poultry: Follow directions in B-88 for boning and packing raw meat into containers	75	75	50	50	Seal	75	90	65	90	Cool

*Based on research findings released in late 1946.

**For detailed directions on preparation see B-101 "Canning Meat in the Home".

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 AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS AND UNITED
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