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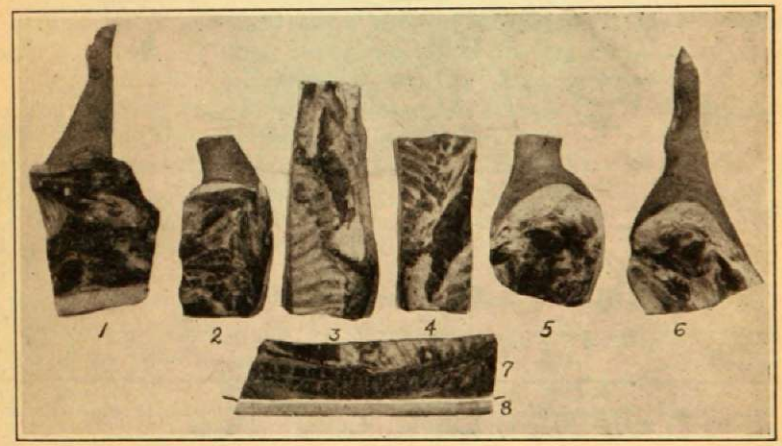
CURING MEAT ON THE FARM

By H. H. SMITH



CUTS OF PORK — 1—shoulder, untrimmed; 2—shoulder, trimmed; 3—bacon strip, untrimmed; 4—bacon strip, trimmed; 5—ham, trimmed; 6—ham, untrimmed; 7—pork loin; 8—fat back.

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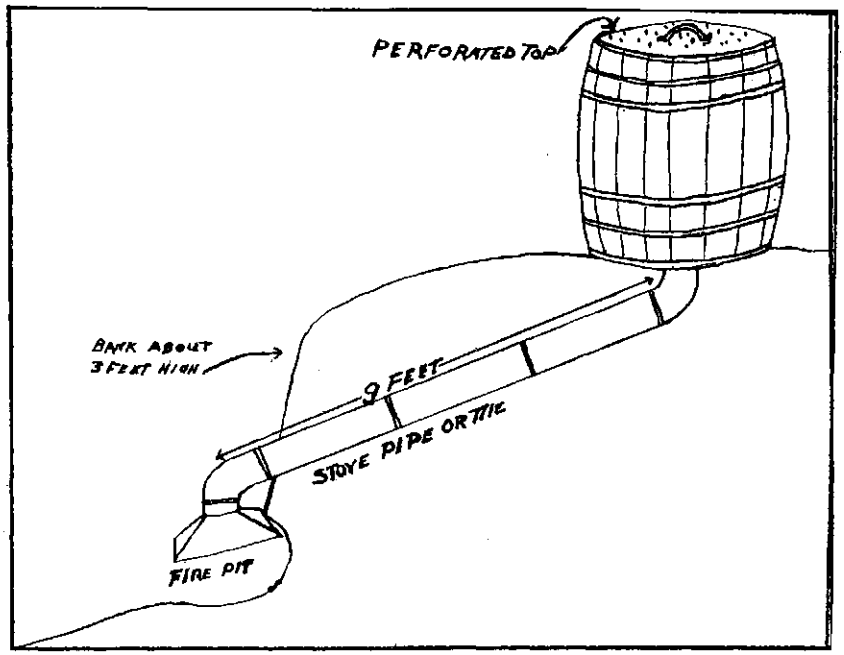


A cheap easily constructed type of smokehouse. If the barrel is not sufficient in size, a box of larger capacity may be substituted

CURING MEAT ON THE FARM

By H. H. SMITH

On Colorado farms the proportion of meat cured is very small compared with the amount eaten. Too many sell the high-grade meat they produce, often below cost of production, and buy the meat they eat at local markets, usually at a very high price. It would be better for each farmer to cure his own meat on his own farm, thus securing a better product at a much cheaper price, and having a continuous supply available at all times. Certainly the home curing of meats should receive attention on all Colorado farms. Two days' time during the slack part of the year will take care of the whole year's meat and lard requirements.

In curing meat several things must be taken into consideration in order that a first-class product may be turned out.

SOUND MEAT

At the time of killing, the animal must be well bled, as blood is one of the best mediums for the growth of bacteria, and is very liable to cause the meat to spoil. If one has on hand meat which is not well bled, it should be the first to be used. Any meat which is beginning to spoil or has become rather old, should not be used for curing.

Since meat takes on odors of foreign substances rather easily, it should not be stored in a room with gasoline, coal oil or other volatile drugs. Meat from animals suffering from any disease, such as tuberculosis, measles, etc., should not be used. Even if it were possible to keep it, it would not be desirable for human food.

Meat from animals which were exhausted at time of killing is unfit for curing, as it usually does not bleed well, is dark in color and spoils easily. Animals that are exhausted or overheated should be rested for a day or so before killing.

THOROUGH COOLING

In the early history of the meat-packing industry, before the time of artificial refrigeration, packers recognized the winter as the packing season and it was during this time of year that they did most of their killing and all of their curing because carcasses must be cooled, out if they are to keep.

The ideal temperature at which to cool meat is between 32 degrees and 35 degrees. It should remain there for at least twenty-four hours. Meat which is not cooled entirely through, begins to spoil at the warm place in the center. The gasses working outward prevent the brine from working in. Meat which has been frozen does not take the cure as readily or as well as meat which has not been frozen.

It is hard to do a good job of cutting up unless the carcass is thoroughly cooled out. Never try to cut up meat while it is still warm. For the reason that a large carcass is hard to cool out, it is more advisable of kill a medium-sized hog. About a 225-lb. animal makes a nice size for farm butchering.

KINDS OF MEAT FIT FOR CURING

Meat best suited to curing is that which contains a reasonable amount of soft fat, which tends to overcome the hardening effect of the preservatives in which it is cured. Meat which is young, soft or watery should not be used, because during the curing process the salt will draw out the water and meat juices and leave a rather dry, unpalatable product.

METHODS OF PRESERVATION

The preservation of meat depends on the condition of the meat and on external influences. Meat spoils because of bacteria growth. Bacteria reach the meat through the air, but soiling and moisture also assist in their growth. Anything which hinders the growth of bacteria, assists in preserving the meat.

METHODS

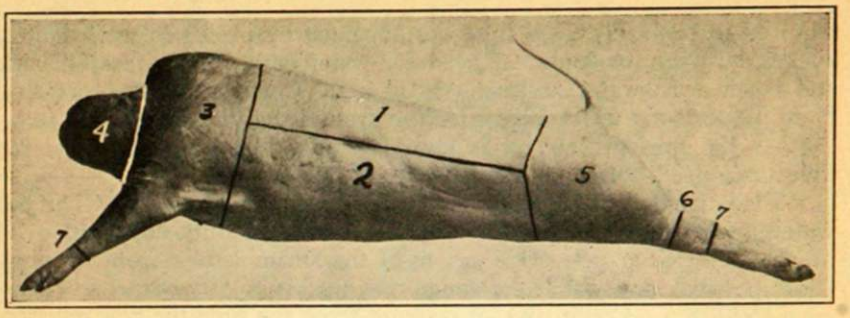
There are many methods of preserving meat, however, the following are the ones which are most applicable and most generally used under farm conditions.

CANNING MEAT

There are various methods of preserving pork, however, canning with the water bath or pressure cooker is the most frequently used and practical method to employ on the farm. The greatest advantage of canning meat is that the portion of pork most frequently consumed immediately upon butchering can be canned for fresh pork throughout the remainder of the year when fresh pork is seldom obtained upon the farm. Ordinarily fresh pork is eaten only through a short period of the winter.

Preparation For Canning.—Pork can be prepared for canning as soon as the animal heat has disappeared. Only fresh pork should be canned that has been handled with every sanitary precaution. Separate the meat intended for roasts, tenderloin, chops, etc., and that not suitable for large pieces of pork may be ground for sausage. Extra fat should be trimmed from the meat for lard. Bits of meat trimmed from bones may be added to scrap meat for sausage. The meat may be cooked previous to canning to give the roasted, fried, boiled or baked flavor, or it may be placed in the jars raw. The time required for processing the partly cooked meat is lessened slightly over the time required to cook raw meat. The chief advantage of browning the meat before canning is that upon opening the can the meat is ready to serve after heating. Brown gravy stock may be present, or a small portion of fat with which to make gravy.

Steps In Canning.—1. Collect all equipment needed and group conveniently.
2. Have a steady fire and boiling water.
3. Wash and test jars, place in boiling water fifteen minutes or longer.



THE CUTS OF A HOG CARCASS—1—back and loin; 2—side or bacon strip; 3—shoulder; 4—jowl or dixie square; 5—ham; 6 and 7—foot may be cut off at either 6 or 7.

4. Test rubbers by pulling them twice the original size to see that rubbers will rebound to original size with no broken or cracked spot.
5. Select only clean, fresh and sound meat to can.
6. Grade and sort meat as to cuts.
7. Cut meat into size pieces that will go in jar easily and if desired cook meat to obtain flavor of roast, steak, etc. Cut meat before cooking.
8. If meat is to be placed in jar uncooked, mold sausage into shape, or cut meat into size pieces desired. The Interstate Commerce law requires all bones to be removed. For home use the bones may be left in meat but the time required for processing must be lengthened about fifteen minutes.
9. Pack meat at once into hot, clean jars.
10. Add from one to two teaspoons of salt to each quart jar of meat. One teaspoon is the amount pleasing to the taste of a large number of people.
11. The jar may be filled with water but more frequently none is usually added for gravy. In addition to the small portion of fat, a little water may be added to the skillet to obtain the browned flavor of the meat and several teaspoons of this added to the jar.
12. Place scalded rubber and lid in position at once.
13. Partially tighten lid on jar. Tin cans need to be sealed completely.
14. Place jars in a water bath on rack, steamer or pressure cooker.
15. If jars are placed in water bath, the water should come at least two inches over the top of the jars.
16. If placed in the pressure cooker, the water comes to the wire rack.
17. Process jars the required time (see processing in following paragraph) and upon completion of cooking remove jars from container in which cooked, and seal immediately.
18. Set jars out of draft, cool, label and store in dark place.

Processing.—A *hot water bath* may be used satisfactorily if directions for canning are followed implicity. Do not guess at time

required to cook meat. A false bottom must be placed in wash boiler, bucket, lard can, or container used for water bath. Place jars on back and cover with water at least two inches. Count time of processing from the *time the water begins boiling* around the jars.

As the pressure cooker is not affected by change in altitude the time table need not be changed when altitude varies.

Place partly sealed jars on the rack of pressure cooker. The hot water must come up to base of rack. Screw the nuts down upon lid of cooker, leaving pet-cock open until the steam issues from opening. Close pet-cock and watch the gauge rise quickly to fifteen pounds pressure (520°F.). Count time of cooking from the time the dial registers fifteen pounds until the period for cooking is up. Remove cooker from stove, or to back of stove. As soon as the dial registers zero, open the pet-cock to allow all steam to escape then remove cooker lid, screw lids on jars immediately and set aside to cool. When cold, label and store in a cool, dark place.

The steam-pressure canner is of great value in canning meat at a high altitude because the pressure is greaer and thereby is a safer method to employ to insure the preservation of meat, as the high temperature helps to sterilize the meat and prevents spoilage—when meat is packed closely in a jar the heat is less likely to penetrate to the center of the jar as quickly as in a loosely packed jar. Hence in order to insure thorough processing sufficient to cook the meat, a temperature of 250°F. is usually employed, this being equivalent to steam pressure of fifteen pounds to the square inch.

Produce	Pressure Cooker All altitudes At 10 to 15 pounds pressure	Processed in boiler with false bottom. Various Altitude ..... 4000 ft., 5000 ft., 7,000 ft. 10,000 ft.
Pork		
Uncooked or blanched	1 hour	4¼ hrs. 4½ hrs. 5¼ hrs. 6 hrs.
Fried pork and Sausage (well done)	30 minutes	2 hrs. 2½ hrs. 2¾ hrs. 5 hrs.
Roast Pork (quite rare)	45 minutes	3½ hrs. 3¾ hrs. 4½ hrs. 5 hrs.

PARTIALLY COOK AND PACK IN LARD

This method is good where there is an oversupply of fresh meat and it is desired to keep it only a short time—a month or six weeks. Fry the meat a little more than half done, pack in a small stone jar and cover with melted lard, let cool and store in a cool place. The meat may be taken out and used as desired, the surplus lard being scraped off and left in the jar or melted and put in another vessel.

PRESERVING IN CHEMICALS

The effect of most chemicals is to remove water and meat juices and arrest bacterial growth. The most commonly used chemicals are

salt, sugar, salt-peter and sometimes soda. Salt-peter is said to be harmful when used in large quantities. Other chemicals such as borax, sulphuric acid, salicilic acid, ammonium acetate, etc., have been used in preserving meat but on account of their injurious effects on the health their use is prohibited by federal law.

TWO METHODS OF CURING

There are two general methods of using chemicals, one called the "dry method" and the other the "pickling or brine method." In the use of the "dry method" one should have cool cellars where fairly low, even temperatures can be maintained. The pickling method is to

A shoulder with the dry-cure mixture well rubbed on
Courtesy of U. S. D. A.

be more recommended under Colorado conditions because meat cured by the "dry method" is liable to become too dry. However, dry-cured meat, since it is dryer and, for the most part, more delicate, possesses better keeping qualities. It also has a nicer and neater appearance as a finished product.

PICKLING

Most recipes for curing meat are composed of the following chemicals: salt, sugar and saltpeter. Salt is astringent in character; it contracts the muscles, withdraws the water and meat juices, enters the meat and prevents further working of bacteria. It shuts out the air and tends to change the meat to a grayish color. Saltpeter has about the same effect as salt, except that it retains the natural, reddish color of the meat.

The sugar has only mild curative properties, but it has a softening or mellowing effect which tends to overcome the hardening effect

caused by the salt. The principal use of saltpeter is to retain the natural red color of the meat.

RECIPES

PLAIN SALT

For 100 lbs. meat
4 gallons of water
10 pounds of salt
4 ounces of salt peter

SUGAR CURE

For 100 lbs. meat
4 gallons of water
10 pounds of salt
3½ lbs. sugar
4 ounces of salt peter

Be sure that salt used is pure. Salt sold as table salt is often adulterated with corn starch and other things to keep it dry.

There are other recipes which are good. Most of them are simply variations of the above, and after some experience one can make such changes as suit his individual taste.

MAKING THE BRINE

Mix the ingredients and add the water; boil until everything is dissolved; skim off any foreign material which comes to the top. Let the brine cool down to a temperature of 40 to 45 degrees before putting on meat.

VESSELS IN WHICH TO PACK

The best vessels to pack meat in are stone jars. If these are not available, use hard-wood barrels. Alcohol, molasses or vinegar barrels are good if thoroughly cleaned. It is doubtful if it is advisable to use gasoline or kerosene barrels, as it is almost impossible to thoroughly clean them. No matter how clean a vessel may look to be, it should be thoroughly washed out with scalding hot water and let cool out, before putting in meat.

PACKING THE MEAT

Sprinkle salt over the bottom of the vessel, rub each piece with salt and pack as snugly as possible. Over each layer sprinkle a little salt and so on until the vessel is full. Pack the larger pieces in the bottom and pack all pieces with skin side down, except the top piece which should be packed with skin side up. Let the meat set for twenty-four hours and then drain off the bloody liquid which has collected in the bottom. Weigh the meat down with a clean stone and pour in the brine. Pour down one side instead of directly in the center. In this way the brine flows down between the meat and the vessel, thus eliminating any chance of entrapping any air. If there is not enough brine to cover the meat, make up some more of the same strength. The meat should then be stored in a cool, dry place.

OVERHAULING

The meat should be watched continuously, especially if the weather is warm, as there is a tendency for the sugar to ferment, causing the brine to spoil. Test the brine by sticking the finger in it. If it fails to drip off freely, or there is any tendency to ropiness, the meat should

Mixing the ingredients for dry-curing
Courtesy of U. S. D. A.

be overhauled immediately. This is done by taking out the meat, washing off in warm water and applying new brine. Also be sure to wash and scald out the vessel before putting the meat back in it.

TIME TO REMOVE

Twelve to fourteen-pound hams or shoulders should be left in the cure about three days to the pound; sixteen to eighteen-pound hams or shoulders about three and one-half days to the pound, and ordinary pieces of bacon about two and one-half days to the pound.

WASHING, STRINGING AND DRAINING

After the meat has been in the cure the right length of time, it should be taken out, washed with warm water and a brush, strung and hung up to dry for twenty-four hours.

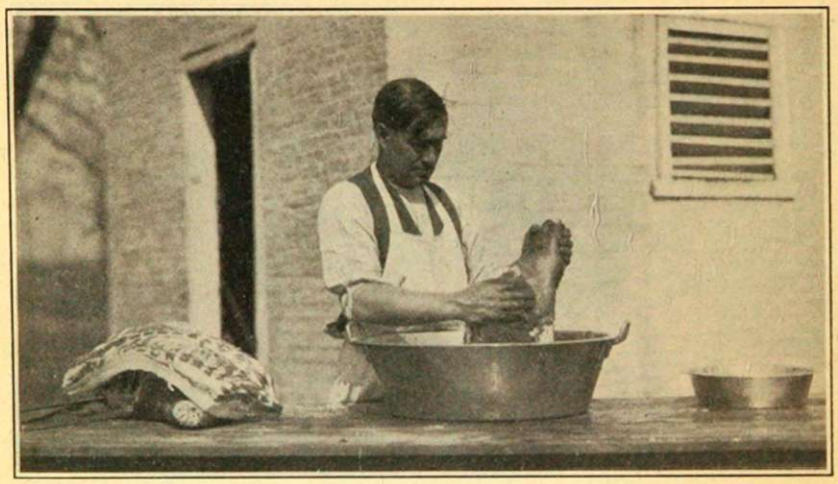
DRY SALTING

In dry salting the same recipes are used as for pickling, except the water is left out and the ingredients rubbed on dry. Divide the mixture of salt, saltpeter, sugar, etc., into three parts. Rub on one-third the first day, pack the meat on a table or shelf for three days and then rub on another third. On the sixth day, put on the last portion. The meat may be packed on a clean floor, bench table, or box, providing any bloody material drawn out of the meat can escape.

SMOKING

The object of smoking meat is to improve the flavor and to deposit certain preservatives contained in the smoke, on the meat.

To properly smoke the meat, a low, smouldering fire should be maintained at all times. Never allow the fire to blaze up as it may



The dry-cure should be thoroughly rubbed on the meat
Courtesy of U. S. D. A.

get the meat too warm and partially cook it. The best wood to use is hickory, but any of the hard woods which are free from resins and oils are good. Maple and oak are usually ranked next to hickory. However, cottonwood, aspen, willow and corn cobs are excellent. Pine and any of the resinous woods should not be used because of the bad flavor given to the meat.

Meat should be smoked until it gets a good straw color. At least thirty to thirty-five hours will be required to do this and better results will be obtained if the smoking is carried over four or five weeks' time, only smoking for an hour or two each day.

SMOKE HOUSE AND SMOKING CONTRIVANCES

The smoke house should be high enough to get the meat at least 9 feet above fire. The ventilation should be above the meat so there will not be a collection of warm air around the meat. It is a good idea to have wire netting under the meat to prevent any pieces from falling down on the fire.

The size to build a smoke house depends on the amount of meat to be smoked. A building 6 by 6 feet and 12 feet high will usually be found ample in size.

If one does not care to build a permanent structure, there are many devices which may be used. A box four feet square can be set on poles eight or nine feet high and the smoke led up by a stove pipe. If one has a small stove this will be excellent to put the fire in.

Another method sometimes used, when a high bank is available, is to put the box with the meat in it on top of the bank and build the fire down below and conduct the smoke up through a stove pipe or tile.

STORING CURED MEAT

There are several methods of storing cured meat. All of them are aimed at flies and some at bacteria.

One good method is to leave the meat in the smoke house and smoke for an hour or so at intervals of two weeks.

Another method is to rub the meat with a paste made of lard, heavily mixed with black pepper.

A better method than either of the above is the yellow wash method. See that the cured smoked meat is dry; wrap in parchment paper and inclose in heavy muslin or canvas. Wray and tie carefully to keep out flies. Remove the string from the meat or at least do not let it stick out through the wrapping, as it simply makes a place for insects to get in. Then paint with the following yellow wash:

RECIPE FOR YELLOW WASH

For 100 lbs. of meat
- 3 pounds of barytes (barium sulphate)
- 1 ounce glue
- 1¼ ounces chrome yellow (lead chromate)
- 6 ounces flour

Make a smooth, gravy thickening of the flour finally adding enough water to make about a gallon and a half. Dissolve the chrome yellow in a separate vessel, adding this solution and the glue to the flour. Bring the whole to a boil and add the barytes, stirring constantly. Use cold. Stir frequently when using and apply with a brush. Hang the meat so that pieces do not touch. Do not stack in piles. Well-cured meat so packed should keep indefinitely.

RENDERING LARD

When cutting up the carcass, there will be many pieces trimmed off which should be worked either into lard or sausage. For the making of lard, trim off all the lean, as it is liable to stick and cause the lard to scorch. The skin need not be taken off if clean. Cut the fat into small pieces about an inch square, the smaller the better.

An iron kettle is best for lard rendering. Start by putting in a handful of the fat. As the grease fries out, add more, keep it cooking at a fairly lively rate, but don't let it cook too fast or it will foam and boil over. The cracklings should be stirred while cooking to prevent them from sticking. A teaspoonful of soda added to 50 lbs. lard stock while cooking will make a much whiter product. Rendering may be considered done when the cracklings take on a straw brown color and most of them float on top. A large part of the lard can be dipped out, but one should have a lard press for the cracklings so that all the lard can be saved. Put the melted lard in jars or pails. While the lard is cooling it should be stirred occasionally until it solidifies. This will make it finer grained and whiter. Store in any dry, cool place where there are no odors which are easily absorbed.

MAKING SAUSAGE

The meat for making sausage should be about one-fourth or one-third fat, depending on individual taste. Cut the pieces up small enough to go through the mill, put half of it on the table, spread the seasoning over it and then put on the other half, mix it up and grind. In this way a better job of mixing the seasoning will be done. In putting in the seasoning a good rule to follow is not to put in too much, as more can always be added.

A good recipe for seasoning sausage is:—

4 pounds of meat
5 teaspoonfuls salt
4 teaspoonfuls sage
2 teaspoonfuls white pepper
Add other seasonings to taste

CORNED AND DRIED BEEF

Beef is not ordinarily cured, though it may be either corned or dried.

In making corned beef, the front quarters are most generally used. To prepare beef for corning, cut up in pieces of three to five pounds in weight and take out the bones. Prepare the following brine:

For 100 lbs. of corned beef
4 gallons of water
9 pounds of salt
3 pounds of sugar
4 ounces of salt peter

Pack the pieces in a stone jar or clean, hard-wood barrel. Be sure brine is cold, then pour over the meat. The meat will be ready to use in about two weeks and can be used out of the brine. If the meat stays in the brine more than a month, it should be parboiled. A light smoke improves the flavor of corned beef.

DRYING BEEF

In making dried beef the round is usually used. Bone out the round and cut lengthwise into three, equal-sized pieces. These three pieces make what is called a "set of dried beef."

For curing, the same brine is used as was recommended for corning. The meat should be left in the brine for about eleven or twelve days, then take it out and give it a slow smoking for twenty-five to thirty hours, then hang in a warm place to dry. After sufficiently dry, it should be stored in a cool place to prevent the drying being carried too far.

ACKNOWLEDGMENT

Miss Kittie D. Washington, nutrition specialist of the Extension Service, deserves much credit for her valuable assistance in supplying the information concerning the canning of meat.