STATE COLLEGE OF WASHINGTON
PULLMAN, WASHINGTON

DEPARTMENT OF EXTENSION
W. S. Thornber, Director

The Products of the Farm Slaughter House, Sausage Kitchen and Smoke House

By
ALBERT HARING and WILLIAM HISLOP

Animal Husbandry Division
State College of Washington

The State College of Washington
and
U. S. Department of Agriculture
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W. B. Cooper, Director

The Products of the Farm Shrub and House Garden Kitchen and Smoke House

By

KENT HENRY and WILLIAM HILTON

Agricultural Experiment Station

State College of Washington

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By
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PREFACE

This publication treats of a branch of the livestock industry to which comparatively little attention has hitherto been given.

During past winters so many inquiries have reached this office for information upon the various phases of meat work that it was decided to incorporate in bulletin form the best methods for its profitable disposal on the farm.

Several years ago an abbatoir was constructed on the College farm wherein students of Animal Husbandry are instructed in the economic handling of meats.

During the present year this work has been conducted by Mr. Albert Haring, who is a practical butcher, ham and bacon cured, and sausage maker. He has had practical experience in Switzerland, Canada, and in the big packing houses of the United States.

It is not possible, within the space at our disposal, to touch on everything in this department, but it is hoped that enough prominence has been given to each branch of it to indicate what has already been accomplished by the students and the lines on which farmers should work in handling their beef, pork and mutton.

WM. HISLOP.
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THE PRODUCTS OF THE FARM SLAUGHTER HOUSE, SAUSAGE KITCHEN AND SMOKE HOUSE

In issuing this bulletin we desire to set forth practical and proved ways of handling meat on the farm. Everything stated herein is from the farmer's point of view, and is the result of practice and experience gained in the slaughter house on the College farm.

The scope of this treatise covers:
1. Killing the animals.
2. Curing and smoking of meats.
4. Slaughter house tools.

I. KILLING

We are taking it for granted that the majority of farmers have some knowledge of the killing of cattle, sheep and hogs, therefore we shall discuss their slaughter only in a general way.

1. Beef Cattle

It is essential to starve the animal for 24 hours previous to killing, meanwhile allowing it to have all the water that it will drink. The reason for this starving process is to make certain that the maximum quantity of blood will drain out of the animal's system during bleeding, thereby enabling the meat to be kept longer. This must be rigorously followed during the summer months.

The animal to be killed must not be excited because the meat of excited animals is feverish and will not keep for any length of time.

There are several methods of killing, but of these felling with an axe or shooting is the best. In shooting aim at the center of the forehead, just a little above the eyes. If felling be preferred tie the animal securely and then hit him equi-distant between the eyes.

After the animal is stunned stick it below the breastbone. Aim at the heart and cut the blood vessel. Skin the head first, then roll the animal on its back and skin its feet and legs.
Then slit the hide from neck to tail. Afterwards proceed by skinning the sides down. Next saw open the breast and the hip bones. (We advise the farmer to use a butcher's saw for all the splitting work. It is far easier and is productive of much better results than when an ax or a cleaver is used.) Then the carcass is ready to be raised from the floor. This is done by attaching block and tackle to the gambrel stick, which has previously been inserted above the hind shank. Raise the carcass high enough to take out the big gut and saw the beef in halves from the tail through to the hip bone. Then skin the hide down as far as possible and split the beef. Take out the stomach, liver, heart and lungs. Then raise the carcass high enough to finish. When you come to the neck use an ax instead of a saw as it would dull the saw too quickly.

Finish taking off the hide. Then take the fore shank in one hand, lift it up and with the other hand, at the same time, scrape all the blood out of the neck. This is called "pumping out" the shoulder.

Thus your beef is finished. Next comes the preservation of the hide. Salting is better than drying. Take 50 pounds of coarse stock salt and scatter it evenly on the well spread-out hide. Then roll it up. At the present time hides bring high prices (20 cents per pound) so take good care of them.
A 1, 2, 3. Round 1. Hind shank 1, 2, 3, 4, 5, 6, 9. Hind quarter
10, 11. Plate 5, 6. Flatbone loin 8, 10, 11, 12. Triangle
12. Shank 10. Navel

B 1, 2, 3, 4, 5, 6, 9. Hind quarter
7, 8, 10, 11, 12. Fore quarter
7, 8. Back
7, 10. Piece
8, 11, 12. Kosher chuck
8, 10, 11, 12. Triangle

a. Aitch-bone c. Crotch e. Chine-bones
d. Cod f. 'Buttons' g. Skirt
b. Rump-bone h. Breast-bone
VEAL CUTS

A
1. 2. Saddle (or 2 hind quarters)
3. 4. Rack (or 2 fore quarters)

B
1. Leg
2. Loin
3. Ribs
4. Stew
2. Veal

Calves are killed by felling. Proceed by cutting their throats, then hang up and take out their intestines, etc. Skin them after hanging up, either at the time of killing or from two to five days afterward. When shipping to market be sure to leave the skin on. It keeps the meat clean.

3. Sheep and Goats

The killing of sheep and goats requires extreme watchfulness. The greatest care should be observed that the carcass may not become bloody or dirty because of the great difficulty in cleaning. Furthermore, much diligence must be exercised to prevent the tearing of the meat while skinning. Begin by cutting the throat and breaking the neck. Bleed thoroughly, but do not get the fleece bloody. Then start "legging". Begin with the fore legs. Cut open the breast and neck. Then loosen the pelt from the breast. This can be done by pushing the skin away from the meat with the fist. This done, take the hind legs and open up in the same way as a beef or a calf. Then hang up and take out the intestines, heart, liver, lungs, etc. If one intends to sell the meat the breast must not be split open. Butchers prefer it unsplit. After taking out the insides finish taking off the pelt. Leave the head on the carcass until cooled because it helps to straighten the neck, which otherwise would draw up. Pelts are preserved best by hanging up to dry.

4. Hogs

It is hardly necessary to say much about the butchering of hogs. There are a few points, however, which we wish to emphasize. It is very important not to excite the animal. Often times, it happens that hams or other meats when cured do not turn out as expected. This can be traced back to the exciting of the animal before killing. Furthermore, watch carefully so as not to have the water too hot. If the "scalding" water is too hot the hair sets in and makes much extra work. Besides, in warm weather the meat will become slimy. The proper tem-
A MUTTON CUTS

A
1. 2. Saddle
3, 4, 5. Rack
1. 2. 3. Long saddle
2, 3, 4, 5. Body

B
1. Leg
2. Loin
3. Short rack
2, 3. Back

4. Breast
5. Chuck
4, 5. Stew

(Illinois Exp. Sta.)
English Cuts
A. Long-cut ham       B. Long side or middle

Domestic Cuts

A
1. Short-cut ham
2. Loin
3. Belly
4. Picnic butt
5. Boston butt

B
6. Jowl
7. Hock
8. Fat back
9. Clear plate
2, 8. Back

2, 3, 8. Side
4, 7. Picnic shoulder
5, 9. Shoulder butt
8, 9. Long fat back
4, 5, 7, 9. Rough shoulder
perature is 165 degrees Fahrenheit. Heavy sows are best scalded by covering them with two or three thicknesses of gunny sacks and then pouring the hot water over the sacks until the hair comes off. Still another way is to skin the pig. We call your attention to the fact that the meat of a skinned pig will keep longer in warm weather. It is also to be recommended in case one should kill only one hog. There is hardly any more waste by skinning than by the ordinary scalding method and it takes less time. It is practically the same as skinning a calf. The chief caution to be observed, however, is to remove all possible fat from the skin. The latter is worthless, but it must be remembered that lard is whiter when the skin is taken off. The last mentioned method is well worth a trial.

II. CURING AND SMOKING OF MEATS

There are two methods of curing meats. (1) The sugar cure and (2) the dry salt. We recommend the first for curing meat during the winter months. Dry salting is better in the summer months and for the preservation of small pieces of meat without their being smoked. We are not disclosing any "secrets" or "patent compounds". We use brown or white sugar or molasses and salt. Saltpeter may be added if desired, but it is not essential. It merely gives the meat a red color.

Sugar Cure

Cut up the hog carcasses on the day following the killing; spread out the meat and let it cool thoroughly for another day. Then run a mixture of brown sugar and salt (one part sugar to four parts of salt) into the meat on both the rind and meat sides and let it lie until next day. Next pack it into a barrel—hams and shoulders first, then bacon and the small pieces on top. Weight the meat down with a heavy stone. Then pour brine over it until covered. The brine is made of sixteen pounds of fine dairy salt, four pounds of sugar or molasses and, if you wish, (not essential) six ounces of saltpeter per 100 pounds of meat. Put enough water on this mixture to float an egg or potato. Prepare this brine 24 hours before using and stir it often to insure a perfect dissolving of the salt and sugar.
After the meat has been in the brine for one week reverse it, side for side in the barrel. In two weeks the bacon and other thin pieces will be ready for smoking. Take them out and soak in fresh water over night, then hang up to let the water drip off, and begin smoking. Leave the hams and shoulders in the brine for five or six weeks, according to size. Twenty-pound hams take six weeks; fifteen-pound hams and shoulders five weeks. Turn over all the hams in brine every week until ready. Then take them out and soak in the same way as the bacon and then smoke. Apple wood, juniper and corn cobs are very good for smoking. Should none of these be available, use some other kind of wood that does not contain resin.

**Liquid Smoke**

Frequently we receive inquiries about liquid smoke. It may be used if one has but a few pieces of meat to smoke. However, it is not natural and one can never get the same flavor as when smoked in a smoke house.

**Smoke House**

A cheap and very serviceable smoke house can be constructed from the very cheapest lumber obtainable. Make it eight feet high and four feet square. Hang the meat up as high as possible and build the fire under it. When starting to smoke it is better to have a good fire until the meat begins to take on color. Then smoke slowly until finished. In about a week flies cannot reach it. Should your meat get moldy wipe it out of the smoke house and hang up in a free, airy place where flies can not reach it. Should your meat get moldy wipe it off with a dry rag but never let water touch it.

**Dried Beef**

Dried beef is excellent for cold lunches during the summer season. It is made from the round of beef. Take the bones out of the round and cut the meat into the shape of a ham. Rub in salt and let it lie over night. Then place it in the same kind of brine as is used for curing pork. Leave it in this brine
for four or five weeks; soak it in fresh water over night and smoke it slightly, just enough to give it a little color. Then let it dry for about four weeks, when it will be ready for use. Slice it very thin. This helps to give it a good taste.

**Corned Beef**

Corned beef is splendid with cabbage or sauerkraut. It is an excellent way of using up some of the coarser and cheaper cuts of meat and thereby obtaining a fine meat product. Cut the meat into small pieces and put them in the same kind of brine as is used for hams and bacon. Leave in this brine from two to three weeks, but before cooking this sort of meat, always soak it in fresh water. Meat prepared in this fashion will require a little more time to cook than fresh meat. To improve the flavor put some whole cloves, pepper and bay leaves in the brine.

**Dry Salting Method**

As we said before, we recommend this method for preserving meat in hot weather. Use the same proportion of salt and sugar: sixteen pounds salt, four pounds sugar and six ounces saltpeter per 100 pounds of meat. Mix this well, then put your meat in a box that is tight; rub this mixture into the meat every other day for one whole week. Afterwards, once every week will be sufficient. After each rubbing cover the meat entirely with the salt mixture, so that no air can penetrate. Two weeks should be time enough for bacon and five or six weeks for ham and shoulders to cure. Do not try to smoke your meat in summer unless you have a very good smoke house. Flies are too hard to keep away from the meat. Furthermore, it is not necessary to smoke your meat at this season because it will keep as long as you wish to keep it in this salt mixture. Only, if left in for more than eight weeks, it will be very salty and will require two days soaking in fresh water before being cooked.
III. BY-PRODUCTS

Sausage making is a trade in itself. In this section we desire to describe methods whereby the trimmings, which always arise in cutting meat, may be utilized. Sausage has been regarded in this country merely as a by-product. For this reason it has not received the attention it should command. It is just as important for every farmer to know how to make good sausage as it is to know how to make good hams and bacon.

When cutting up pork and beef, either for curing or for fresh use in the house, there will be some cuts in both which can be used to good advantage as sausage meat. We mean by this pigs' heads and feet, the neck of beef and other small pieces which are too small for individual use. First, we shall give recipes for pork sausage.

Fresh Pork Sausage

For pork sausage use equal quantities of lean and fat. Put it through a meat grinder once, then add salt, pepper and sage at the rate of two pounds salt and six to eight ounces each of pepper and sage to each 100 pounds of meat. Mix well, then taste it and if it seems that either of the spices is not sufficient add more to suit personal tastes. Then run this meat through the grinder once more, when your sausage will be ready.

Another kind of sausage is made in practically the same way, but with this variation—that tomatoes are added to the extent of ten pounds of tomatoes per 100 pounds of meat. For all varieties of sausage use the same amount of salt and spices as mentioned above.

The New England style of pork sausage is made of two parts of lean and one part of fat meat. Run this through the chopper once, then add some red pepper, sage and salt. Add an egg for every ten pounds of meat and mix thoroughly.

The above kinds of sausage may be fried as they are or put into hog casings or stuffed into muslin bags. They will keep far longer when put up in casings or bags. Make the muslin bags about four inches in diameter. One can also smoke this
sausage in a cold slow smoke. Your attention is called to the fact that sage has a tendency to sour the meat, so use very little of it unless the weather is cold enough to prevent this souring.

**Hamburger**

Hamburger meat is simply beef run through the meat chopper. One can use the neck of beef with a little suet or other fat meat added. Salt and pepper and an onion are added, then mixed and chopped over once more. This is a fine dish and very nice for hot sandwiches.

**Liver Sausage**

Liver sausage is made from the heart, lungs and liver with a hog’s head or two added. Cook all these, except the liver, for three or four hours, then take them out of the vessel and let cool. The liver must cook for one hour only. When cooled, take the meat from the head, heart, lungs and liver, chop fine and add salt and pepper at the same rate as mentioned above, but instead of sage use eight ounces of marjoram per 100 pounds of meat. Stuff this sausage in wide casings and cook them for fifteen minutes. Keep the water at 170 degrees Fahrenheit. If one is fond of onions one or two may be added to the meat before chopping.

Another kind of liver sausage is made of one whole hog’s liver and about ten pounds of fat meat. Shoulder of pork and cheeks are best to use for this. Chop the meat and the liver very fine, in fact, one cannot make it too fine with an ordinary meat chopper. Add salt, pepper and marjoram and mix well, then stuff it in wide hog casings. Cook them from 30 to 45 minutes. One can test if they are cooked by sticking a clean nail into them. Should any blood from the liver show, then it is not cooked enough. This kind of liver sausage can be smoked in a cold smoke.

Do not try to make liver sausage in summer unless you have a good refrigerator. The same holds good for blood sausage.

**Blood Sausage**

Fresh blood sausage is made from the blood of a calf, sheep
or pig. Beef blood can also be used, but the blood of the first three mentioned is better. When killing an animal do not cut its throat until arrangements are made to catch the blood. Catch the blood in a clean pail and stir this with your hand or a clean stick. Stir it as long as the blood separates itself. A sort of sponge-like mass in the blood will be observed to separate out. Throw this away and add a tablespoonful of salt to the residue.

In making blood sausage use one part blood, one part boiled milk and two parts cooked meat. Take about two hogs' heads; leave the cheeks on and boil until the meat comes off the bone. Then chop this fine; warm the blood and the milk, add the chopped meat to it and season with salt and pepper. Stir well and taste to see if enough salt and pepper have been added. Some onions may be added if desired. Chop them raw and brown them in lard before putting into the sausage. Fill this sausage into wide casings and cook them for 30 to 45 minutes, according to size. Test in the same way as in liver sausage to find out if thoroughly cooked or not. Eat warm.

Another kind of blood sausage is made by using some fat (back fat) cut into squares and some hog rind cooked and chopped fine. Warm some blood and mix all three. Add enough blood to give it color. About equal parts of blood, rind and fat will give best results. Then add salt and pepper to suit the taste. Stuff into beef casings, and cook about 30 minutes with water at 170 degrees Fahrenheit and smoke in a slow, cold smoke. This blood sausage will keep a long time and may be eaten cold or warm.

Head Cheese

Take the hogs' heads and feet, clean them thoroughly, then put them in brine for about a week. Then cook them in the same way as for liver sausage. Also cook a few hog rinds about three hours, after which remove from the water; cool a little, then chop very fine and add a chopped onion. The meat of the head and feet is then cut into long, thin slices, mixed with the rinds and salt and pepper added to suit the taste, after having poured into the meat some of the water in
which the meat has been cooked. Fill into big beef casings or pour it into a form. Let it stand over night. Then it is ready to use.

Small pieces of corned beef can be made into head cheese. Cook the beef a little longer than the pork.

**Blood Head Cheese**

Blood head cheese is made in the same way as ordinary head cheese, but some blood is added and after the same has been cooked it is smoked in cold smoke.

**Cured or Pickled Pigs' Feet**

Shave and clean the pigs' feet, then put them into brine for five or six days. Cook them, but not too much, then put them into a vinegar pickle. Vinegar pickle is made of cooked vinegar and bay leaves, with red pepper and whole cloves added. They are very good for cold lunch in summer. Pig snouts are made in the same way.

**Bologna Sausage**

Take the rough meat of a beef, such as the neck, cheeks and shanks, and cut into small pieces. Put some sugar, salt and a little saltpeter on this meat and lay it away for two days. Then chop it fine, add about one part of fat pork to three parts of beef and season with pepper and coriander to suit taste. Mix thoroughly and taste to determine if enough spices have been added. Then put this through the chopper again and again to mix it. Put a little water on it and work it into the meat. Then stuff it either in beef straights or beef rounds. Smoke this sausage in a hot fire and cook for about one-half hour. After it has cooked cool it in cold water.

**Vienna Sausage or Wieners**

To make good wiener use half veal and half beef, or, if you prefer, all veal. Cut into small pieces and rub a mixture of salt, sugar and saltpeter into it thoroughly. Then put it into a wooden pail to cure for two days. After curing chop it fine. Next take about one part of fresh shoulder of pork to two
parts of the cured veal, chop fine and mix with the veal thoroughly. Season with pepper and caraway seeds, adding salt, if necessary. Chop it all once more, then mix some water into it. Stuff this into sheep casings or if they should not be available, into hog casings. Smoke them in a hot fire and cook about 15 to 25 minutes, according to whether sheep or hog casings are used. Cool off in cold water.

Frankforters

The genuine frankforters are made of pure pork. Shoulders are best. Cut into small pieces, rub salt and sugar and salt-peter into them and place in a wooden pail for two days. Then chop very fine, add some pepper, mace and a little sage. Mix some water into it and chop again. Taste before stuffing into hog casings. Smoke them in a slow fire until they become a light yellow color. Cook them for about 25 minutes as you use them. They will keep fresh for a long time.

Bockwurst

Bockwurst is made in the same way as wieners. Add some chives (Schnitt-Lauch) and smoke in a cold smoke. Cook as you need them.

For all curing and seasoning we recommend white pepper and brown sugar, if obtainable. If you cannot procure chives substitute the leaves of green onions. This finishes fresh and smoked sausages.

Summer Sausage

Summer sausage is made for use as a cold dish in summer and is especially adapted for sandwiches. It is either made of pure pork or half lean beef and half rather fat pork. Cut up this meat and cure it for about three days by putting salt, sugar and a little saltpeter well mixed on it. Lay the meat where all the water can run off. After curing add spices to the meat before chopping it. Add some more salt if necessary. Use about four ounces each of mace and white pepper to fifty pounds of meat and, if you wish, add a little garlic. Run this meat through the chopper, add some whole black pepper.
and then put it into a wooden pail. Let this meat stand for about a week before stuffing it into straight beef casings. Hang up the sausage and smoke slowly for about two days, then hang up in a draughty place. It takes at least two months before the sausage is ready for use. This sausage is not cooked, but just sliced very thin before serving. It will keep a long time. Usually it will lose about one-third of its original weight.

Different kinds of summer sausage are made, but this recipe will give excellent satisfaction.

**Fats and Greases**

There are very many different fats and greases on the market possessing fancy names, but whose composition is unknown to the general public. Without question the farmer should use home-made lard for his own cooking purposes. There is nothing more healthy and wholesome on the market. Many of the fats are made with cottonseed oil as a basis, plus some vegetable oil or fat. Furthermore, the price of these products is higher than the price of lard, hence the futility of buying a substitute for lard.

**Lard**

Pure lard is made from the fat of the hog, including the leaf lard and the net around the hog's stomach. Be sure to take all the rind off the fat. Cut the fat into small, thin slices and put it in a pan on the fire. Enamel-ware is very good for cooking out lard as it will not scorch it. Stir the lard frequently. Do not let the fire go out or get too hot. A steady fire is absolutely necessary, otherwise the lard will commence to foam. Do not cover the vessel while rendering lard, or it will run over. When the cracklings begin to brown the lard is ready to take off the fire. Strain it through a fine sieve and put in an earthen jar.

People sometimes wonder why they cannot make as white lard as the packing houses. The whiteness of the packing house lard is gained by agitating while rendering and then cooling almost instantly by running the lard through refriger-
erator rooms in pipes. However, this whiteness is merely to satisfy the eye. Anything that looks nice finds a ready buyer. Let this be a hint.

Tallow is rendered in the same way as lard, and when kept clean is fit to use for cooking.

**Soap Grease**

Soap grease consists of all the waste fat, such as the gut fat of beef and mutton, also the offal from the kitchen. Cut up the fat, render it in the same way as for lard, being sure not to burn it or it will be useless even for soap. Directions for making soap may be found on most lye cans.

**Tripe**

Tripe is the stomach of a beef. It is cleaned, cooked and prepared as a very delicate dish. The French people especially make it a "delicatessen", but all Europeans use it as food.

First empty the stomach, then wash it and soak it in fresh water over night. Next day heat some water to 160 degrees Fahrenheit and put the tripe into it long enough so that the skin will come off. Use a hog scraper to clean it. One may put a tablespoonful of lye in the water to aid in cleaning. Then boil the tripe for four or five hours, until it is very tender. If it is not cooked tender at first, it cannot be made tender at all. Let it cool off in cold, fresh water, then take out and it is ready for use.

We shall give two ways of preparing tripe. First: cut the tripe into long narrow strips to make a salad of it. Add some onions chopped fine, hard boiled eggs cut into thin slices, vinegar and olive oil to suit the taste. Second: cut the tripe into pieces about four or five inches square, then rub them in flour and put them on the fire in an enamel pan. Add some salt, pepper, caraway seeds, one onion and one glass of claret wine. Cook this for about one hour and serve hot. This is "tripe ala mode de Caen."

**Bones**

The bones can be used to very good advantage by grinding.
There are several bone grinders on the market, all of which are good. If you have no bone grinder chop the bones as fine as possible with an ax.

Cleaning Guts (casings)

The cleaning of guts is not a very pleasant task, but if handled with care and if plenty of warm water is used it is not so distasteful. Attend to the guts right after killing and dressing the animal. Be careful not to tear them, because the fat will get dirty. Do not leave any fat on the guts since they will be harder to turn inside out. After separating all the guts from the fat, empty them, then pour warm water on them and turn inside out. This done, pour some hot water, about 150 degrees Fahrenheit, on them and scrape off the slime with a spoon. Put the clean guts in cold water to cool; then take them out and allow the water to drain off. Then sprinkle with fine salt. Before putting them away, be sure that they are dry. Some people blow them up and tie them tightly; this is a first rate way of preserving them.

IV. SLAUGHTER HOUSE TOOLS

The following tools are necessary for the farm slaughter house:

1. 2 skinning knives—6-inch blades.
2. 1 sticking knife—6-inch blade.
3. 1 straight butcher knife—10-inch blade.
4. 1 steak knife—12-14 inch blade.
5. 1 steel—12 inches long.
6. 1 meat saw—24-26 inches long.
7. 1 cleaver (4 lbs. weight)—10-12 inches long.

It pays to buy good tools. There are many excellent makes of knives on the market, such as “Keen Kutter”, “Green River”, “Wilson”, and “Russell”. The steel should have a lead shield near the handle. A one-half or three-quarter ton differential chain hoist is to be desired. It is inexpensive and is superior to any other arrangement for a small farm slaughter
house. In purchasing a smoke house, sheet iron is best for sausage, while a wooden smoke house is best for ham and bacon on account of its height, thereby keeping the meat further away from the fire.

(S. Birkenwald Co.)

Sheet Iron Smoke House