

Curing and Smoking Poultry

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Cured and smoked poultry has a distinct aroma and flavor. Poultry that is cured and smoked can be served immediately. The curing process, however, preserves the meat, which can then be stored in the refrigerator for as long as 2 weeks. Poultry that is smoked, but not cured, should not be refrigerated longer than any other cooked meats.

It is the combined action of salt, sugar and nitrite (sodium nitrite or saltpeter) that cures the meat. The salt and sugar flavor the meat and also help to preserve it. Specifically, salting reduces water activity in muscle tissue and inhibits certain bacteria.

The nitrite used in the curing process gives the cured meat its characteristic flavor and reddish-pink color. Nitrite also helps to extend the shelf life of cured meats by inhibiting the growth of aerobic as well as anaerobic bacteria, such as *Clostridium botulinum*. It is this property that makes possible the vacuum-packaged meats that are sold in supermarket sandwich and deli meat sections.

Procedures for Curing and Smoking

There are several procedures that can be used for curing and smoking poultry. The following method was developed by Texas AgriLife Extension Service poultry specialists.

STEP 1 – Selecting Poultry

Select good quality poultry for curing and smoking. Grade A poultry from your local supermarket is usually the best choice. If you use home-grown poultry, the bird should be well-fleshed, well-finished and properly processed. Before they are cured, freshly slaughtered birds must be chilled to below 40 degrees F as soon as possible, usually within 30 minutes to an hour. If you wish to slaughter your own poultry, methods for this activity can be found in Texas AgriLife Extension publication B-1383. Beginning with a high quality bird will result in a high quality end product.

STEP 2 – Preparing the Brine

The brine can be made from scratch or purchased as a commercially prepared mixture:

1. Measuring the water and brine ingredients individually allows you to modify the amount of salt and sugar to suit your preferences. However, you need to have an accurate scale for weighing ingredients. Individual ingredients may be also be inconvenient if they are sold only in larger quantities than you need. The formulations for preparing 10-, 5- and 1-gallon mixtures of brine are in the following table. It is important to note that part of the water should be added in the form of ice to chill the brine to 34 to 36 degrees F. For example, for a 10-gallon mixture, use 9 gallons of water and 1 gallon of ice.

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Brine Mixture for Curing

These mixtures will give a reading of 45 to 50 degrees when measured with a sodium chloride salometer. Mixtures must be stirred thoroughly so that all ingredients are completely dissolved.

Ingredients	10 gallons	5 gallons	1 gallon
Gallons of water	10	5	1
Ounces of saltpeter	16	8	1.6
Pounds of salt (noniodized)	9	4.5	0.9
Ounces of sugar (brown or white)	24	12	2.4

- Another way to prepare the brine is to purchase a commercial mixture. These contain salt, sugar and nitrite in the appropriate proportions. This method is much faster. Prepared cures can be found in some grocery stores, but are more often found in co-ops, locker plants, specialty meat markets and other establishments that cure and smoke their own meats. These prepared mixtures, or curing salts, may contain either white or brown sugar. The brown sugar will give the meat a distinctive flavor that many people prefer. To prepare brine from commercial mixtures, dissolve 1 pound of cure per gallon of water or follow the preparation instructions on the package.

Brine prepared by either method described above can be used for the injection and soaking phases of the curing process.

STEP 3 – Injecting the Curing Brine

Except for small broilers and quail, the next step in the curing process is to inject the brine into the carcass. The brine mixture is injected in an amount equivalent to 10 percent of the bird's weight. For example, a 10-pound turkey should receive 1 pound of brine. The brine should be uniformly distributed through all of the muscles. Those who routinely cure a large number of birds, such as a commercial cur-

ing operation, use a pressure pump with small to medium-size needles. For a small number of birds a 50 cc syringe or larger works well. Syringes can be obtained from a producer's co-op, veterinary supply store or a veterinarian. The needle should be 14 gauge or larger to make injection easier.

For each pound of poultry, inject 45 cc of brine. Inject at three sites in each breast half, two sites in each thigh and one site in each drumstick for broilers, capons, pheasants and other birds weighing 3 to 9 pounds. For turkeys and other birds that weigh 10 pounds or more, use the same injection sites as for broilers, but add one injection site in each wing and one injection site in each half of the back. Quail and other birds that weigh less than 3 pounds can be cured without injection by soaking them in the brine solution. Brine should be distributed through the bird at the same percentage as the meat is distributed through the bird.

Birds 3 to 9 pounds

- 60 percent of the brine injected into the breast
- 30 percent of the brine injected into the thighs
- 10 percent of the brine injected into the drumsticks

Birds 10 pounds or more

- 50 percent of the brine injected into the breast
- 25 percent of the brine injected into the thighs
- 10 percent of the brine injected into the drumsticks
- 10 percent of the brine injected into the wings
- 5 percent of the brine injected into the back

After all of the brine has been injected into the bird, the muscles should be worked lightly with the fingers to distribute the brine uniformly through the muscle.

STEP 4 – Soaking the Poultry

After the poultry has been injected, place it in a stainless steel or plastic container manufactured for use with food. Cover the poultry with the remaining brine and keep it at 34 to 36 degrees F. One gallon of brine mixture is enough for one turkey or up to three broilers and will usually fit into the household refrigerator. To cure two or more turkeys or more than three broilers, you will need to use the 5- or 10-gallon brine mixture described above. This amount of poultry usually must be placed in an insulated ice chest with enough ice to maintain the proper temperature. Remember that adding ice decreases the amount of water needed to keep the brine solution in the correct proportion. As you add ice to the solution, add salt, sugar and nitrite to maintain the correct brine proportions.

Be sure that the poultry is completely covered with the brine solution throughout the soaking process. If the temperature outside the ice chest is high, you should check the temperature of the brine a few times during the soaking process. If the temperature of the brine rises above 40 degrees F, add a small amount

of ice to lower the temperature. Small amounts of ice will not change the concentration of salt, sugar and nitrite in the brine much; however, adding large amounts of ice will require adding more salt, sugar and nitrite. Leave the poultry in the brine for the times listed below:

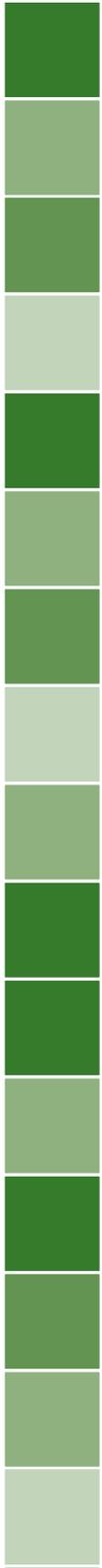
Broilers, pheasants, capons	24 – 36 hours
Turkeys (more than 10 pounds)	48 – 72 hours
Small broilers (no injection)	48 hours
Quail (no injection)	4 – 6 hours

STEP 5 – Draining and Netting the Carcass

After the required curing time has been reached, remove the birds from the brining solution and drain them for at least 15 minutes. It is important that none of the brine is left in the pockets of the body cavity. If you use a conventional smokehouse, place the birds in stockinettes and hang them breast down. Stockinettes are usually available where commercial curing salt is sold. If you use a backyard barbecue cooker or smoker, stockinettes are not necessary, although you should tie the legs of the bird together with string and tuck the wings to the breast for presentation purposes. The poultry will retain the shape in which it is cooked.

STEP 6 – Smoking the Poultry

When the birds are almost dry, place them in the smokehouse or backyard cooker at a temperature of approximately 170 degrees F. When the birds are completely dry, the smoke can be applied. Drying the birds before adding smoke keeps the carcasses from having a streaked appearance. If you are smoking only a few birds, a backyard barbecue pit will work well. It is important to cook the carcasses very slowly and generate plenty of smoke. Use a small fire and place the birds as far away from the heat source as possible. Green hickory is the best wood for a smoke source, although pecan, fruit woods, mesquite and oak work well also.



STEP 7 – Completing the Cooking

When the meat reaches the desired color, increase the temperature in the smokehouse or cooker to 200 to 225 degrees F to finish the cooking. Cook the birds until deep muscle temperature has reached 162 to 165 degrees F. If you do not have access to a meat thermometer, the doneness can be estimated by twisting the leg quarter slightly. If it moves freely, the cooking should be complete. You can expect the birds to shrink about 20 percent during cooking.

STEP 8 – Storing Cured and Smoked Poultry

Cured and smoked poultry does not need any further cooking and will keep in the refrigerator as long as other cured meats, approximately 2 weeks. If the birds are to be stored longer than 2 weeks, they should be packaged and kept in a freezer at 0 degrees F. Properly stored in a freezer, cured and smoked poultry will retain its quality for as long as a year.

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