

"Cabin Fever Country Ham" Dry-Cured Country Ham

and

"Bowlegged Bullshipper's Smoked Ham" (Injected-Rubbed-Smoked "Country" Ham)

-----< + >-----

"Cabin Fever Country Ham" Dry-Cured Country Ham

Country hams are unique. The USDA has quite a bit to say about them, so if you are going to make one of these tasty guys, you should be acquainted with some of the rules. (Right off the bat, the FSIS says you can't even call it a "country" ham unless it meets certain specifications.) Of course, unless you intend to sell the thing, you can call it anything you wish!

To Be Called A "Country" Ham, It Must:

1. remain uncooked
2. be from the rear leg of the hog unless otherwise specified in the law §317.8(b)13 (single piece of meat).
3. be cured using salt and a specified amount of sodium nitrate/nitrite or potassium nitrite, finishing with an internal salt content of at least 4% OR...
when no sodium nitrate, sodium nitrite, potassium nitrate, or potassium nitrite is used, the finished product must have a brine concentration of not less than 10 percent or a water activity of not more than Aw 0.92.
4. not utilize a combined curing and equalization period of less than 45 days. (Does not apply to pork shoulders)
5. not utilize a combined salt equalization and drying period of less than 70 days. (Does not apply to pork shoulders)
6. not exceed the internal meat temperature of 95°F. (35°C.) during the drying and smoking period
7. be treated for any possible live trichinæ per USDA regulations
8. weigh at least 18% less finished, than when it was fresh

Things to know before you start:

You may wish to understand the concept of reduced "water activity".

"Battling Bugs By Restricting Their Available Water"

How are we going to protect raw, uncooked ham from pathogenic bacterial microorganisms while it dries? Can you think of the cheapest effective means to snuff 'em out? You could starve 'em out couldn't you? If you dried up their food, they would expire... right? But how about limiting their water supply? You know that bacteria cannot survive in an environment without moisture, so might it be possible to limit the amount of water available to bacteria in order to destroy them? And, what about salt? What does it do and how much should you use? All good questions!

Maybe the first thing you should know is that contrary to popular belief, salt does not destroy bacteria. It doesn't even force water to evaporate. It does, however, immediately immobilize or bind a specific, large amount of free water, preventing it from interacting with bacteria (or anything else). The measurement of "bound" water (not available to bacteria) is called "water activity", and is abbreviated Aw. Water Activity is measured on a scale from 0.00 (called "bone dry") to 1.00 - the measurement of pure water. So, how about serving a bacterium a dose of salt to bind its "available water"? We can deprive it of moisture. It works. For thousands of years it has worked! Bacon, hams, sausages, and all sorts of meat have been cured with salt,

smoked, and dried safely for centuries. Your grandparents certainly knew that salting, drying, and par-cooking meats were positive steps adverse to microorganism survival! They just didn't know the reasons why it worked. They were also aware that if they smoked meat, it not only tasted better but it was not likely to develop mold on its surface.

If the ham is to be sold, you must be aware of other applicable regulations regarding additives, smoking, honey application, spices, labeling etc. Also, knowledge of the processes of "equalization" (following the recipes below) and "packing" is essential when making a dry-cured country ham. Packing is a simple procedure to prevent "bone sour" – the result of pathogenic and spoilage bacteria entering areas along the bones in the hog leg.

These bacteria thrive where there are connective tissue and blood vessels and where knife cuts have been made especially at the joints. If these deeper parts of the ham have not had sufficient time to acquire salt and there has been an introduction of spoilage bacteria, a condition known as "bone sour" will take place. Packing is accomplished by simply making narrow incisions along the bones with a slender knife and packing salt and nitrate cure into the openings.

"Dry-Cured Country Hams" are the oldest historically and the most simple to prepare. Because this ham is not cooked at all, the USDA in America has placed rules upon its preparation to protect the consumer from any possible trichinella spiralis - a parasitic roundworm whose larval form may be present in the flesh of pork or wild game. Its painful infection is known as trichinosis.

This type of ham is simply rubbed with a cure containing Prague Powder #2, containing both sodium nitrite and sodium nitrate. Having been cured, salted, and dried for months, or even years, the ham may or may not be smoked.

The following ham cure meets the USDA specifications in the United States. Most people mix a large amount of the formula, then utilize only $\frac{1}{2}$ pound for a 12 lb. ham, one pound for 25 pounds of ham, two pounds for 50 pounds of ham, or four pounds of the curing salt formula for each hundred pounds of pork leg (as the law indicates). Here's the formula:

Dry-Cured Country Ham Cure (For 100 lbs of ham)

- 1-1/2 cups Prague Powder Cure #2 (Do NOT use Cure #1)
- 2-1/2 cups powdered dextrose
- 3-1/2 lbs. (pounds - not cups) salt

IMPORTANT NOTE: (*Use only $\frac{1}{2}$ lb. of this formula per 12 lbs. of ham)

-----< + >-----

"Bowlegged Bullshipper's Smoked Ham" (Injected-Rubbed-Smoked "Country" Ham)

Further federal rules apply to this product. Fully dry-cured hams must not only be treated with the above formula for a period of not less than 40 days, it must not drop below the temperature of 36°F. (2° C.). On the other hand, if the temperature exceeds 40°F. (4°C.), the ham may begin to spoil and sour from the inside. It becomes essential to carefully maintain the curing temperature as close to 38°F. as possible. The law specifies that the cure must contain at least four pounds of this formula for each hundred pounds of ham being "applied in a thorough manner" (rubbed) then laid in the remainder. In other words, having been well-rubbed over its entire surface, the ham is placed upon a "layer" of cure inside a clean, food-grade plastic lug or other suitable

container, stored at 38°F. (3° C.) for the next month and ten days! Every two or three days, the ham is again rubbed with a bit more cure for at least forty days duration.

By law, the ham must be overhauled (turned over and rubbed with more cure) at least once during the curing time. Following the curing, the ham is soaked in water just below room temperature for no longer than 15 hours to remove some of the salt. FSIS rules state that the soaking water may only be changed once. Having been cured and dried, it may or may not be smoked. Often this type of ham is cold smoked over ten days before being stored for further drying. Dry cured hams are most often sliced paper thin and served to complement other foods. They are best kept at 45-50° F. (7-10° C.) in 70% to 80% relative humidity and may develop mold on their skins. Simply wash it off with vinegar. Just one more note: I kept the cure as simple as possible without adding a lot of spicy flavors. Good ham will develop its own unique and tasty flavor without using a lot of spices. Why not keep it simple?

Note: A home hobbyist may utilize two proven curing techniques in the same product by first injecting a ham with salt pickling solution and then by hand-rubbing salt-cure into the meat. Injected-Rubbed-Smoked Country Hams are brine pumped (but not brine soaked) AND dry-cured rather than being cooked. Note Prague Powder Cure #2 is used in the "rub" as well as in the injected brining cure. Although this particular ham is not cured in brine, it still may not technically be classified a "country" ham as the USDA disqualifies any use of brine or wet solution at all in making a "country" ham. Still, this "dry-cured" ham has mistakenly come to be known by many as a "country ham".

Brining Cure (Injection) For 12 lbs. of Bowlegged Bullshipper's Smoked "Country" Ham.

- 2-1/2 quarts ice water (32°F.)
- 12 ounces kosher salt
- 1/2 cup powdered dextrose
- 1/3 cup Prague Powder #2

Inject only 7% of the ham's weight in brine by weight, and Do Not submerge it in leftover brine following the pumping. Be sure to weigh the brining cure carefully and distribute it thoroughly by injecting small amounts in several places. For 25 lbs. of ham, simply double the ingredients. Next, prepare a "master rub" made of the following ingredients, being sure to use only 1/2 lb. of the cure for 12 lbs. of ham:

"Master" Dry Cure Formula (For Smoked Country Ham):

- 3-1/2 lbs. salt
- 2-1/4 cups powdered dextrose
- 1-1/2 cups Prague Powder #2

NOTE: *Use only one-half pound ($\frac{1}{2}$ lb.) of cure for 12 lbs. of ham. (Based on 4 lbs. cure per 100 lbs. of ham)

This ham cure has been carefully formulated to meet the USDA specifications in the United States. Good ham will develop its own unique and tasty flavor without using a lot of spices. Most people mix the large amount of the formula give above, then utilize only $\frac{1}{2}$ pound of cure for a 12 lb. ham, one pound of cure for 25 pounds of ham, two pounds of cure for 50 pounds of ham, or four pounds of the curing salt formula for each hundred pounds of pork leg (as the law indicates).

Place the ham into a clean container and rub about $\frac{3}{4}$ of the mixture well into the ham with your hands, saving the remainder for later application. Cover the ham with a clean cloth and store it in a 38° F. cooler or refrigerator. Be sure to use sterile plastic gloves when rubbing the meat as the nitrite/nitrate may be a little tough on your hands. After seven days, turn the meat over and rub the remaining cure onto the meat. You will be amazed how much water is drawn from the meat by the salt. Do not pour the liquid off.

Cover the ham and leave it alone another eight days. Remove the ham and rinse it well but do not soak it. Pat the ham dry with a clean cloth and allow time for equalization to take place (see below) before smoking. Finally, cold smoke the ham 24 hours at 65°F. If you do not have a cold smoker, you may use a preheated smokehouse at 120°F only. It is important that the smokehouse temperature does not increase during the rest of the smoking process. Smoke the ham in hickory smoke for as much as 24 hours. Again, be sure to keep the smokehouse temperature at 120°F. or below.

A country ham will naturally taste a bit salty and will be drier than boiled ham. As the Aw (water activity) drops to .91, the threats of e.coli, Shigella, Clostridium botulinum, Salmonella, and Listera, are eliminated. As the water activity continues to decrease to Aw 0.86, Staphylococcus aureus will not survive. Following this process, the ham may be "dry aged" three months at 65°F.

"Equalization"

Whether dry curing or brine curing, salt travels toward the center of the meat... BUT... moisture travels toward the exterior surface. The only restrictions are fat and silverskin - and both will indeed inhibit the action of either. In formed hams, it is not as much of a problem because there are no muscles encased in silverskin or surrounded by layers of fat. However, in a "whole muscle" ham, you must allow enough TIME to compensate for the penetration of

- (a.) intramuscular fat, and
- (b.) various inner muscles encased by silverskin.

Not all the inner muscles (making up the entire ham) will cure at the same RATE, hence the need for equalization.

Don't confuse the equalization process with that of equilibrium in curing a fermented-type sausage. Equilibrium deals with the extraction of moisture and it is achieved when the rate of "diffusion" (moisture moving from the center of the sausage to the exterior) equals the rate of evaporation (in which the moisture leaves the surface and enters the atmosphere).

"Equalization" is reached when salt has not only fully penetrated the meat, but has dispersed evenly throughout the entire ham as well. It is important to understand that because there are various muscles surrounded by intramuscular fat, as well as different inner muscles encased by silverskin, the RATE of curing in each is dissimilar. Time must be allowed to insure complete dispersal and a specified amount of "pick-up" of the cure.

Imagine cutting a sample "disc" of rings from a tree. The inner rings will always contain more moisture than the outer rings. Comparable, is an imaginary "sample disc" of "whole-muscle meat" - there is more moisture at the center. Following the initial curing process of the meat, there remains approximately ten times less salt at the center than at the first subcutaneous sample. In other words, if the very first indication of salt is 5% (just beneath the surface), then at the center... the salt content will only measure about 0.5%. For this reason, it is important to understand that the continuance of "curing" must occur WITHOUT adding additional salt. At this point, it simply needs more time. In allowing for equalization, it must be understood that the flesh nearest the surface will invariably contain more salt than that nearer the center immediately following the curing step. To