

Barbecue 101 Part IV-B: Seasoning Methods

If you do it right, you don't need sauce

By Dan Gill, Ethno-Gastronomist

Barbecue and smoked meats are normally seasoned *before* they go on the smoker. Most folks use brines and dry-rubs for flavor development, but the practice actually evolved for food-safety reasons and is a holdover from curing techniques. Making traditional barbecue and smoked foods involves keeping meat, poultry or fish in the “danger zone” and in a low-oxygen environment for many hours; ideal conditions for the growth of unfriendly microbes. Dry rubs and brines contain salt, sugar and spices that can retard microbial growth. Cold smoking for prolonged periods at temperatures below 100°F can actually foster growth of the dread and deadly *C. botulinum* bacterium; therefore, “curing salts” containing nitrates and nitrites are often added to brines and dry-rubs for cold smoked (uncooked) sausages, fish, and cured meats but are neither needed nor recommended for barbecue or smoke cooking.

Brines were initially used to “pickle” and preserve meats, fish and vegetables. Salt was added to water until it would float a potato or *fresh* egg, and then the meat was soaked until it absorbed sufficient salt to preserve it. Fresh eggs were specified because stored eggs, such as those available commercially, have larger air pockets and float at lower salinities. Saturated brines were also used to “strike down” fish and meat before they were packed in dry salt to keep. We now use much weaker brines to flavor meats, fish and poultry and to prepare them for slow cooking. It is still salt that does the work and makes it a brine, but we now add other things to develop more flavor such as buttermilk, herbs and spices and sugar or molasses. Some brine recipes call for soft drinks because they contain water-soluble flavorings, which can add an interesting dimension, and sweeteners to balance the saltiness of the brine. Avoid any soft drinks containing high fructose corn syrup. You may have to look around, but there are some brands that still use real cane sugar - notably *Royal Crown*, *NEHI*, and some bottlers of *Dr. Pepper*. Fish sauces, such as Nuok Mam or Worcestershire, also add an interesting dimension. Always taste your brine before adding the meat; it should be salty but pleasant. Turkeys and large cuts of meat are generally brined overnight, whereas smaller pieces and chicken parts can be brined in a few hours.

Dry rubs containing salt work just the same as brines except that there is no additional liquid to dilute meat juices. Herbs and spices applied to the surface stay there and contribute to flavor development during the cooking process. When applied to the moist surfaces of raw meat, salt attracts free moisture from the tissues and dissolves or dissociates into charged atoms of sodium (positive) and chlorine (negative), which can then penetrate tissues taking along water soluble flavorings. This process accelerates as meat warms, therefore meat can either be dry rubbed and refrigerated overnight or left out at room temperature for a few hours.

Slathers composed mostly of plain old yellow mustard may be used to coat meat prior to rubbing or just before cooking. Prepared mustard contributes flavor and acts as an emulsifier to reduce surface oils, thereby allowing rubs to adhere and penetrate better and allowing bastes to coat the meat evenly without beading. Since I baste Kicken Chicken during the final cooking stages, I use a mustard slather just before it goes on the pit.

Marinades may be useful when grilling or braising smaller pieces of meat, but are of little value in barbecue. Marinades are generally composed of oils, herbs and acids (vinegar or fruit juice). Though vinegar and oil mixtures may release some fat-soluble flavor compounds from herbs and spices, they don't carry them into meat tissues and therefore flavor only the outside. Marinades are most effective with thin cuts, such as steaks or sliced meats. Acids and vegetative tenderizers, such as enzymes found in papaya, pineapple and ginger, are often added but must be used with caution. If left on too long they will make meat mushy.

Also, as meat becomes more acidic, salt has less effect on protein, therefore salt should be restricted in acidic marinades.

Injections of salt, water, seasonings and flavor enhancers, which would not normally or readily penetrate into meat, may be inserted deep into muscle tissue with syringes or meat pumps. Several commercial products are available and are used extensively and successfully in competition, though seldom by hobbyists. One product that is popular on the competition circuit contains hydrolyzed soy protein, partially hydrogenated soybean, cottonseed and peanut oils, sodium phosphates, mono sodium glutamate, autolyzed yeast extract, disodium inosinate and guanylate and xanthan gum.

The turkey industry has been selling “flavor enhanced” and “water added” product since the 1960’s when market researchers realized that most consumers tend to overcook poultry, ending up with dry breast meat. The solution was to “quick brine” by injecting a saline solution into the breast so that it would remain relatively moist even if overcooked. Unfortunately, this nefarious practice is now spreading to the red meat industry and consumers have to read the labels on packaged steaks and pork roasts to avoid buying flavored water at meat prices. Caveat emptor!

Vacuum tumbling in brine or marinade is gaining in popularity in some restaurants and meat markets. As the name implies, meat is placed in a drum along with a flavoring liquid. A vacuum is applied as the drum rotates and the meat tumbles. When the vacuum is released, liquid is sucked deep into the tissues. The tumbling action massages the meat breaking down and releasing some protein components and increasing tenderness. As with injection, this is a water-added (up to 20%) product sold to gullible consumers at inflated prices. As a confirmed Neanderthal cook, I prefer to adulterate my meat at home, thank you very much.

Basting is the most misunderstood and misused of all seasoning methods. Bastes have two specific roles during the cooking process. First, water and vinegar add moisture to the surface of meat, thereby cooling and slowing the cooking rate through increased evaporation. Bastes often contain oils, which regulate the rate of evaporation, thus extending the cooling effect. Although bastes may be applied at any time, they are best applied during the second stall or after the meat reaches about 160°F and most of the internal moisture has migrated out and evaporated. Dry surfaces may approach the temperature of the pit or oven. Control of the cooking rate allows more time for collagen to break down before the bark dries too much and overcooks. The second role is to add ingredients that enhance bark formation and flavor through Maillard browning reactions. Therefore, sugar and ketchup are often included. If the meat was dry-rubbed or brined, then very little salt is needed in the basting liquid. Care must be taken during these latter stages as sugar from rubs or bastes can burn easily, resulting in bitter bark. Other seasonings including mustard may be added to obtain a specific flavor profile. Contrary to popular belief, basting does not add moisture to meat; the cooking process expels moisture regardless of the environment. You can boil or steam meat until it is so dry that it tastes like cardboard.

Glazes are used primarily to improve and protect appearance and are usually applied to hot meat just before or after it is removed from the pit. Generally high in some form of sugar, glazes require sufficient heat to melt, or even caramelize, but they burn easily. Used carefully and correctly, glazes coat the surface with a shiny layer, enhancing the appearance of moistness.

If all else fails, reach for a bottle of that thick, sweet, red sauce and disguise any shortcomings.

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