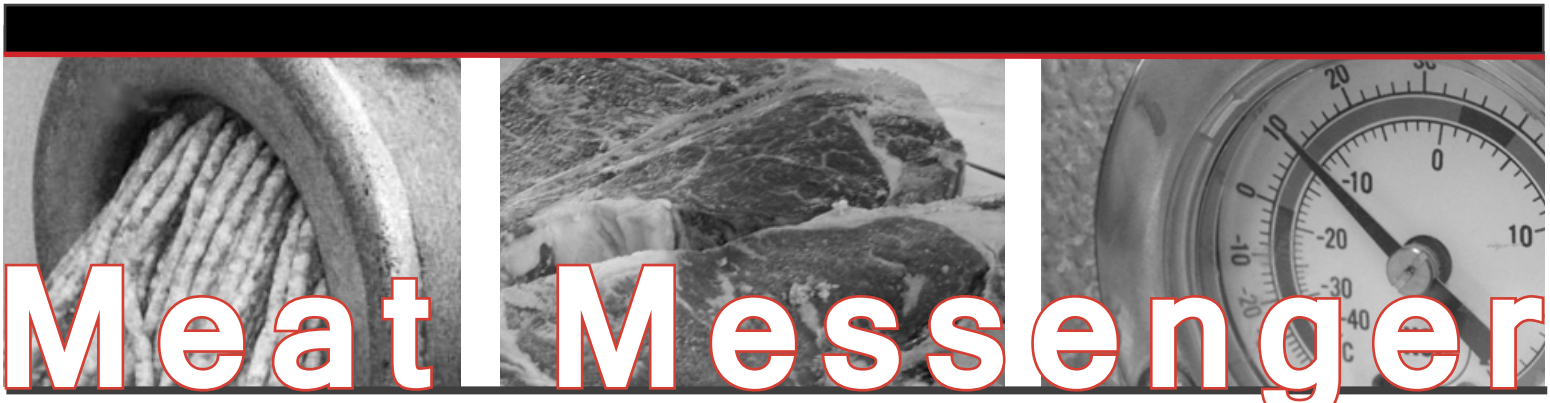

Meat Messenger

North Dakota State Meat and Poultry Inspection Program 2012 Quarter 3

Understanding the Role of State Meat and Poultry Inspection Programs

State meat and poultry inspection (MPI) programs are an important part of the nation's food safety system. They work in cooperation with FSIS and verify that meat and poultry products produced and sold within their state are safe, wholesome, and properly labeled.

Under a cooperative agreement with FSIS, these programs allow states to operate their own meat and poultry inspection programs as long as they impose mandatory inspection and sanitation requirements that are "at least equal to" those in the Federal Meat Inspection Act (FMIA), Poultry Products Inspection Act (PPIA), Humane Methods of Slaughter Act and the regulations that FSIS has created to carry out these laws.

Products produced under these programs cannot cross state lines and can only be shipped or sold within that state. There are currently 27 state MPI programs that employ approximately 1,400 state personnel to inspect approximately 1,700 small and very small establishments, as defined by the Small Business Administration.

To ensure that the 27 states are providing inspection "at least equal to" the federal program, FSIS, led by the OPEER's Federal State Audit Branch, conducts annual reviews of state self-assessments and on-site reviews of state programs every three years. These programs are then eligible to receive federal reimbursements of up to 50 percent of their inspection costs, totaling approximately $50 million annually for the 27 eligible states.

OOEET's Outreach and Partnership Division provides guidance to state programs regarding documentation of the cooperative agreements, training for state inspection personnel and other state concerns.

Did You Know?

State inspected establishments produce a wide variety of products in small or very small establishments. Some State MPI programs may provide inspection to additional species that are not amenable to the FMIA or PPIA such as buffalo, elk, or deer, which would require reimbursement under federal inspection. For these non-amenable species, the State covers 100 percent of the inspection costs.

Source:
www.fsis.usda.gov/PDF/Const_Update_050412.pdf

The Value of Sanitation

By Jerry Sauter

Good sanitation is the foundation for producing safe, wholesome, high quality products. Owners, managers and employees must recognize the value of proper sanitation and make it a daily priority.

A written sanitation plan is valuable but it must be effectively communicated to and followed by all employees, especially new employees assigned sanitation tasks.

Why is sanitation so important? Consider the following:

Public Health Factors

- Meat is a known reservoir for pathogens such as *E. coli O157:H7* and *Salmonella*, improper sanitation can allow cross contamination.
- Some bacteria, such as *Listeria monocytogenes,* thrive in cool moist environments, such as meat slaughter and processing operations, and can inadvertently contaminate product.
- Allergen residue from seasonings and ingredients can be unintentionally added to products.
- Poor sanitation attracts rodents and pests, which can introduce additional pathogens.

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Regulation Reminder

North Dakota Administrative Code Chapter 7-13-06: Facility Requirements

7-13-06-03. Facility review requirement: New establishment construction plans or alterations to an existing establishment must be submitted to the department for review prior to construction. Plans must contain sufficient detail for the department to review all additions or modifications to slaughtering or processing areas on the establishment premises.

What this regulation means:
Any business that plans to build a new facility or add on to their existing facility that slaughters animals, processes animals under custom exemption or official inspection, or any combination of these practices, must submit construction plans to the North Dakota Meat and Poultry Inspection Program prior to beginning construction.

Construction plans must include blueprints drawn to scale, materials to be used to complete construction, and any other relevant information. Businesses must receive approval prior to beginning construction.

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- Meat residue from another species that is not removed before making another product can cause the product to be misbranded. For example, if pork residue is in the mixer and a batch of product labeled as "All Beef Hot Dogs" is put into the mixer for processing, the resulting product will be misbranded.
- All of the above have been causes of recalls in the past.

Food Quality Factors:

- Meat residue from dirty equipment that gets into fresh product such as ground beef will negatively affect quality and shelf life.
- Poor sanitation allows mold growth, which reduces product shelf life.
- Poor sanitation reduces consistency of batches (seasoning residue on equipment, etc.)

Most importantly, improper sanitation can lead to serious illness and to lost production. Cleaning and sanitizing is tedious, repetitive work, but putting it at the top of your to-do list will benefit your business.

Grading, Verification and Certification

After meat and poultry are inspected for wholesomeness, producers and processors may request that they have products graded for quality by a licensed federal grader. The USDA's Agricultural Marketing Service (www.ams.usda.gov) is the agency responsible for grading meat and poultry, and those who request grading must pay for the service. Grading for quality means the evaluation of traits related to tenderness, juiciness, and flavor of meat. For poultry, a normal shape that is fully fleshed and meaty and free of defects.

The Grading Verification Division uses university-researched, USDA-developed, and industry recognized standards. Using these grading standards determines the quality and yield of carcasses. Furthermore, quality grades vary depending on the species as listed below.

Species	Quality Grades	Yield Grades
Beef	Prime, Choice, Select, Standard, Commercial, Utility, Cutter, and Canner	1-5
Lamb and Yearling Mutton	Prime, Choice, Good, Utility, and Cull	1-5
Mutton	Choice, Good, Utility, and Cull	1-5
Veal and Calf	Prime, Choice, Good, Standard, and Utility	Not applicable
Barrows and Gilts	U.S. No. 1, 2, 3, 4, and Utility	Not applicable
Sows	U.S. No. 1, 2, 3, Medium, and Cull	Not applicable

USDA grades are based on nationally uniform federal standards of quality. No matter where or when a consumer purchases graded meat or poultry, it must have met the same grade criteria. The grade is stamped on the carcass or side of beef and is usually not visible on retail cuts. However, retail packages of beef and poultry will show the U.S. grade mark if they have been officially graded.

The grade symbol and wording are no longer copyrighted; however, according to the Truth in Labeling Law, it is illegal to mislead or misrepresent the shield or wording.

Beef is graded as whole carcasses in two ways: quality grades for tenderness, juiciness, and flavor; and yield grades for the amount of usable lean meat on the carcass.

There are eight quality grades for beef based on the amount of marbling (flecks of fat within the lean), color, and maturity.

Prime grade is produced from young, well-fed beef cattle. It has abundant marbling and is generally sold in restaurants and hotels. Prime roasts and steaks are excellent for dry-heat cooking (broiling, roasting or grilling).

Choice grade is high quality, but has less marbling than Prime. Choice roasts and steaks from the loin and rib will be very tender, juicy, and flavorful and are also suited to dry-heat cooking. Many of the less tender cuts, such as those from the rump, round, and blade chuck, can also be cooked with dry heat if not overcooked. Such cuts will be most tender if "braised" — roasted or simmered with a small amount of liquid in a tightly covered pan.

Select grade is very uniform in quality and normally leaner than the higher grades. It is fairly tender, but because it has less marbling, it may lack some of the juiciness and flavor of the higher grades. Only the tender cuts (loin, rib, sirloin) should be cooked with dry heat. Other cuts should be marinated before cooking or braised to obtain maximum tenderness and flavor.

Standard and Commercial grades are frequently sold as ungraded or as "store brand" meat. *Utility, Cutter*, and *Canner* grades are seldom, if ever, sold at retail but are used instead to make ground beef and processed products.

Note: Grades such as Prime, Choice and Select are not acceptable terms for raw cuts of pork or poultry.

Yield grades range from "1" to "5" and indicate the amount of usable meat from a carcass. Yield grade 1 is the highest grade and denotes the greatest ratio of lean to fat. Yield grade 5 is the lowest yield ratio. Though yield grades are not something consumers normally see, they are most useful when purchasing a side or carcass of beef for the freezer.

Pork is not graded with USDA quality grades as it is generally produced from young animals that have been bred and fed to produce more uniformly tender meat. Appearance is an important guide in buying fresh pork. Look for cuts with a relatively small amount of fat over the outside and with meat that is firm and grayish pink in color. For best flavor and tenderness, meat should have a small amount of marbling.

There are five grades for veal/calf: prime, choice, good, standard, and utility.

There are five grades for lamb. Normally, only two grades are found at the retail level:

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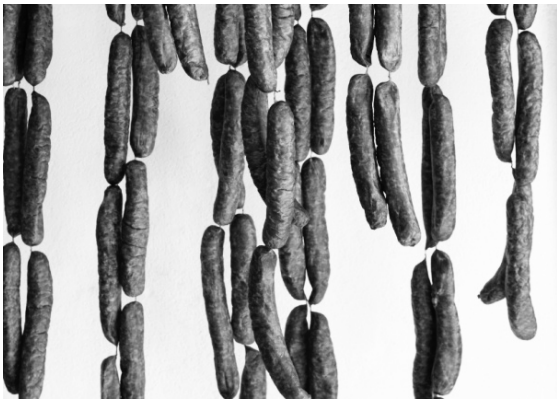
Selecting the Right Casing for Your Product

By Joseph Sebranek, Ph.D. on 08/20/2012

There are several choices to consider for casings, including natural, manufactured collagen, co-extruded collagen and alginate, cellulose, fibrous and moisture-impermeable casing materials.

Each of these has its own unique characteristics and will impact product properties in different ways.

Natural casings



Natural casings are more expensive than many other casing types, but there is increased interest in them because of their association with premium products. Natural casings are derived from the gastrointestinal tract of meat animals (sheep, hogs, beef) with sheep casings smallest (16-28 mm), most tender and best used for fresh sausage and small-diameter smoked and cooked sausage.

Hog casings are somewhat larger (30-42 mm) and less tender, whereas beef casings are the largest (35-125 mm), toughest and best suited for larger-diameter products in which more strength is needed. These large-diameter casings are sometimes tied with string loops or netting to provide added strength needed to permit hanging the stuffed product in the smokehouse.

Natural casings are essentially all collagen because the inner mucosa and outer fat/muscle layer of unprocessed casings are removed, leaving the middle collagen layer to be used as a casing. An important property of collagen that is applicable during processing is that wet collagen is permeable but becomes very soft and weak, whereas dry collagen becomes hard and less permeable to moisture and smoke.

Consequently, natural casings must be handled correctly during processing to achieve the desired tenderness and permeability needed for a specific product. Initial smokehouse steps should include a mild drying environment to retain strength yet still allow smoke penetration. After smoking, further drying can be used to render the casing almost completed and irreversibly impermeable to moisture. The casing can then tolerate a variety of final cooking treatments, even as extreme as steam cooking, without excessive moisture loss from the product.

Manufactured collagen

Manufactured collagen is animal collagen (usually from beef hides) that is first solubilized. It is then reformed into a uniform collagen tube of various sizes. These casings have the same properties as natural casings in terms of a need for proper processing treatments for tenderness and permeability but have an advantage in terms of greater uniformity and consistency than the natural casings.

Manufactured collagen casings also avoid the issues of potential microbial loads and occasional rancid surface fat residues that sometimes occur with natural casings. Manufactured collagen casings also have an advantage in that they can be designed for specific product applications. For example, fresh sausage casings can be kept tender since there is no high-humidity cooking process involved.

Casings for cooked or dry and semidry products are manufactured to accommodate the cooking/smoking/drying processes involved with these products. Because of the specificity of applications for manufactured collagen casings, it is a good idea to work closely with casing suppliers to assure that the casing performance is appropriate for the product under consideration.

Co-extruded casings

Collagen also may be used as dough that is co-extruded on the surface of a sausage mixture simultaneously as the sausage is stuffed through a stuffing horn. Subsequent treatment hardens the coating around the sausage to form a casing very similar to manufactured collagen casings.

A major advantage of this approach is that the process of formulation, blending, mixing and stuffing becomes a continuous, inline process. This approach also minimizes human contact with the products and facilitates improved sanitary control.
Recently, an alginate slurry has been developed that can

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be applied as a coating to the surface of a sausage mixture as it is stuffed. The alginate is then hardened and forms a casing around the product.

Cellulose casings

One form of cellulose casings that is widely used is the small-diameter, peel able casings such as those used for skinless frankfurters. These casings are precisely sized and highly uniform to facilitate use of high-speed stuffing and linking equipment.

During subsequent smoking and cooking of the product, a meat protein "skin" is formed that permits removal of the casing and production of "skinless" sausage. Obviously, the protein surface skin formation is a critical step and some form of acid, either in natural smoke or liquid smoke, is important to this. It is also important that these casings are stuffed to their recommended diameter because overstuffing can result in poor peelability.

Casing moisture is also important to facilitating peelability and a final cooking step with steam or high humidity may be helpful for improving peelability.

Fibrous casings

Another form of cellulose casing for large-diameter products is the fibrous casing. These consist of cellulose with paper fibers that increase the strength of the casing. As with cellulose, fibrous casings are very uniform and compatible with high-speed machine stuffing. These casings are typically soaked in water prior to use to improve flexibility and provide a small degree of expansion during stuffing.

There are also some specialized applications provided for use of fibrous casings. For example, sausage makers may use fibrous casings with an internal coating that adheres to the product as it dries for both dry and semidry products. However, if the product, such as pepperoni, is to be sliced, than a peel able fibrous casing is preferable.

Fibrous casings are also available as pre-stuck or drilled casings in which tiny holes in the surface or larger holes in the end are added to allow air to escape during stuffing. These fibrous casings are designed for use with chunked or whole muscle products such as sectioned and formed hams or boneless hams.

Moisture-impermeable casings

Several different kinds of materials including polyethylene, nylon and several others are used to manufacture moisture-proof casing that is frequently used for water-cooked or steam-cooked products.

These casings are typically impermeable to both moisture and smoke, so smoke flavoring such as liquid smoke must be incorporated into the meat mixture. Color is incorporated into many of these casings such as those frequently used for
Braunschweiger.

Advantages to these casings include minimal cooking shrink for the product and a finished product that is very well protected from external contamination as long as the casing is intact.

Advances in Carcass Washing at the Small Plant Level

By Arion Thiboumery on 06/04/2012

Many smaller processors often feel overwhelmed by the idea of adding a chemical intervention to their slaughter process. Whatever the concern, adding a chemical intervention to your slaughter floor can be done both easily and affordably. And with FSIS classifying six new strains of pathogenic E. coli as adulterants in ground beef, now is a good time to revisit your slaughter process interventions.

If you currently operate only as a custom-exempt plant and are considering transitioning to state or federal inspection, your inspectors will want to see a chemical intervention step during your slaughter process.

What to apply

There are a lot of chemicals out there. FSIS Directive 7120 lists many different acceptable antimicrobials, what they can be used on and their maximum concentrations. For small

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plants, it's best to keep it simple and go with a concentrated liquid that can easily be batch mixed and tested. For this reason, lactic acid is an easy choice. And no one company owns it, so it is commonly available. You should be able to easily buy a few gallons at a strong concentration, such as more than eight percent acid, from a local chemical supplier.

You must handle lactic acid – like every chemical – carefully: Use gloves and eye protection, and be close to a sink in case you spill some and need to wash it off (do so quickly, by the way). You must also measure it carefully. Per HACCP recommendations, you will need to test every batch you make as a Critical Control Point (CCP).

Directive 7120 allows lactic acid to be used at up to five percent. In the case of lactic acid, stronger is better, so use a range of 4-5 percent as your CCP. Test by titration, using a titration kit. This involves small dropper bottles of chemicals that are added in specific amounts to the diluted lactic acid until the solution changes colors in a specified way. The number of drops required for this change gives you your acidity measurement. Do not use paper pH strips, as they are not accurate enough. The chemical supplier may be able to get you a titration kit.

How to apply it

A simple garden sprayer from the hardware store will do. Make sure to get one that holds at least three gallons. You can mix your chemical in the sprayer. Test (using the titration kit) and add more water or acid to get the right concentration. To make acid measurement more "fool-resistant," use permanent marker to mark the right level of acid on a small plastic measuring cup, then only use that cup to measure the acid for your standard-sized batch (e.g. three gallons).

Even if you do this, you should test your concentration every batch and log it (since it's a CCP). The acid will wear out your sprayer components – plastic innards will hold up better than metal – so rinse them after use and check them regularly. (Maybe even keep a back-up. They are cheap.)

Before you apply your antimicrobial rinse, you should:

1) Trim all visible contamination (aka "zero tolerance trim"),

2) Wash with hot water – as hot as you can stand it and

3) Let the carcass drip dry for a few minutes.

Now use your hand pump sprayer and apply the acid solution to the carcass. Cover the carcass from top to bottom, inside and out, until the antimicrobial wash doesn't just drip off the carcass but runs off. Good coverage is essential. If you feel that pumping with a hand sprayer is too slow, you may use a soda dispensing canister hooked up to a compressed air line. It costs a bit more but will spray more solution more quickly.

Remember, your goal is a clean carcass. An antimicrobial spray is not enough by itself: Good trimming is absolutely essential. Your antimicrobial wash is not magic. It helps a bit, but if you've left contamination on the carcass, washing will only make it worse by spreading it around. There is no substitute for a good trimming eye. Look along all the lines where you opened the hide (also known as "pattern lines"), around the bung, along the brisket and inside the arms and rounds. Look for pockets or flaps that might be hiding something. Thorough trimming is more important than anything else.

Three other key points about keeping carcasses clean:

1) Be sure to sterilize your knife often in 180^0 F or hotter water while skinning and trimming;

2) Tie the esophagus – use clips or just tie it in a knot;

3) Bag the bung. Use a long narrow bag, like a bread bag and tie it with either butcher string or a rubber band.

These steps do not take much time, and they go a long way towards keeping carcasses cleaner.

Source:
www.meatingplace.com/Industry/TechnicalArticles/Details/27675

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Prime is very high in tenderness, juiciness, and flavor, and *Choice,* which has slightly less marbling, but still is of very high quality. Lower grades of lamb and mutton (meat from older sheep) - Good, Utility, and Cull — are seldom marked with the grade. Lamb is produced from animals less than a year old.

The USDA grades for poultry are A, B and C. Grade A is the highest quality and the only grade that is likely to be seen at the retail level.

Carcass Grade Data gives quality and yield grade factors to producers and feeders by providing data on carcass value and determining characteristics to producers who were at some point financially interested in the live animal. The information provides producers and feeders a valuable management tool to use in their selection and feeding programs.

Beef Carcass Information Service provides information to feeders and others who buy or sell cattle on a formula or carcass grade and yield basis. This information is provided on a lot rather than an individual basis.

Beef Carcass Evaluation Service is normally used by collegiate and university researchers to evaluate quality factors such as texture, firmness and color of lean, texture of marbling, bone and muscle maturity, and yield grade factors including ribeye tracings. Other data collection programs have been developed for specific customers to assist in genetic selection and value-based marketing systems.

The North Dakota Department of Agriculture has two employees certified through USDA Agriculture Marketing Service (AMS) and is able to provide beef grading service to any state or federally inspected plant that requests this service. Cami Metzger is licensed in grading and product certification, and Julie Nilges is licensed in grading. Establishments and their customers having any questions or interest in certified grading, please contact Cami at (701) 400-4852, Julie at (701) 204-3248 or NDDA Meat & Poultry Inspection Program at (701) 328-2231.

For more information about meat and poultry grading, visit the website, www.ams.usda.gov/.

Classifieds

We are always looking for industry related items to advertise in the Meat Messenger.

We post sale and want ads FREE.

If you would like to put something in the Meat Messenger classifieds, contact Jerry Sauter at (701) 328-4767 or e-mail description with contact information to jdsauter@nd.gov

Offal (gut) Cart: Made of galvanized steel, two wheels, good condition. Please contact Kelly for price and more information at (701) 254-4950. Located in Linton.

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True Brand Cooler: Cooler has two sliding doors and was manufactured in 2001. $1,000. Please contact Calvin or Alex for more information at (701) 743-4451. Located in Parshall.

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