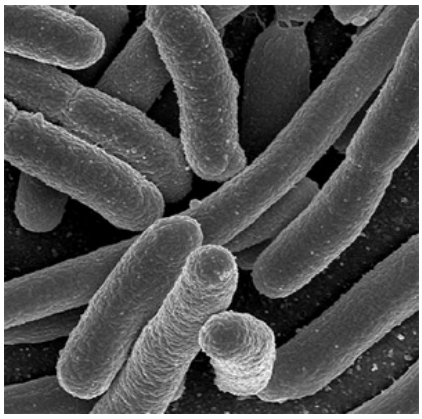
Meat Messenger

North Dakota State Meat and Poultry Inspection Program 2011 Quarter 4

Non 0157 STEC's Declared Adulterants by USDA

The U.S. Department of Agriculture's (USDA) Food Safety and Inspection Service (FSIS) held a public meeting on Dec 1, 2011, to discuss the implementation plans and methods for controlling non-0157 Shiga Toxin-producing E.coli (STEC) in raw beef products. The Agency announced Dec. 21, 2011 as the scheduled end date for the extended formal comment period.



On Sept. 13, 2011, FSIS announced it was taking action to prohibit from entering commerce ground beef, or its precursors, found to contain the E. coli serogroups O26, O103, O45, O111, O121 and O145. The Centers for Disease Control and Prevention identifies these six particular serogroups of non-O157:H7 Shiga-toxin producing E. coli, or non-O157 STEC, as those responsible for the greatest numbers of non-O157 STEC illnesses, hospitalizations, and deaths in the United States.

Over the past two years, FSIS has announced several new measures to safeguard the food supply, prevent foodborne illness, and improve consumers' knowledge about the food they eat. These initiatives support the three core principles developed by the President's Food Safety Working Group (FSWG): prioritizing prevention; strengthening surveillance and enforcement; and improving response and recovery.

Some of these actions include:

- Performance standards for poultry establishments for continued reductions in the occurrence of pathogens. Including tougher performance standards for Salmonella and the first ever performance standard for Campylobacter.

- Zero tolerance policy for six Shiga toxin-producing E. coli (STEC) serogroups. Raw ground beef, its components, and tenderized steaks found to contain E. coli O26, O103, O45, O111, O121 or O145 will be prohibited from sale to consumers. USDA will launch a testing program under the new policy on March 5, 2012, to verify for the presence of the new non-0157 Shiga-toxin producing E.coli.

- Test and hold policy that will notably reduce consumer exposure to unsafe meat products because products cannot be released into commerce until Agency test results for dangerous contaminants are known.

- Labeling proposals that provide better information to consumers about their food by simplifying labeling language.

- Public Health Information System, a modernized, comprehensive database about public health trends and food safety violations at the nearly 6,100 plants FSIS regulates.

FSIS will announce this notice online through the FSIS website located at www.fsis.usda.gov/regulations_&_policies/Federal_Register_Notices/index.asp.

Meat Messenger

is published by the
The North Dakota Department of Agriculture

Commissioner
Doug Goehring

Livestock Services Program Manager
Wayne Carlson

Director of Meat Inspection
Andrea Grondahl, DVM

Administrative Assistant
Becky Rienstra

Senior Meat Inspectors
Cody Kreft
Shaun Quissell

Compliance Officer/Meat Inspector
Dave Slack

Scientific Information Coordinator
Jerry Sauter

Meat Inspectors
Shawn Steffen
Heather Andersen
Cami Metzger *Certified Grader
Doug Tobkin
Joshua Epperly
Whitney Vogel
Josyln Roadstrom

Assistant/Relief Inspector
Julie Nilges *Certified Grader

Please address all correspondence to:

State Meat Inspection
North DakotaDept. of Agriculture
600 E. Boulevard Ave., Dept. 602
Bismarck, ND 58505-0020
(701) 328-2231
(800) 242-7535
FAX: (701) 328-4567

www.agdepartment.com
ndda@nd.gov

Regulation Reminder

North Dakota Administrative Code
Chapter 7-13-04:
Custom Slaughtering and Processing

7-13-04-01 Marking of products – All custom-exempt plants are required to mark all custom-exempt meat and meat food products, other than poultry, with the words "NOT FOR SALE", stamped in block letters. The letters must be at least three-eighths of one inch [0.95 centimeter] in height. Custom slaughtered poultry must be marked with the owner's or processor's name and address and the statement "Exempted - P.L. 90-492." Stamps, brands, and marks for custom-exempt meat and meat food product identification must be preapproved by the department.

1. Each side, quarter, or other part of a carcass, including detached organs or custom slaughtered or custom processed animals, not including poultry, must be legibly marked immediately after slaughter or, if the animal is not slaughtered at the plant, at the time the meat enters the plant for processing.

2. All boxes, cartons, packages, or containers of custom processed meat or meat food products, not including poultry, must be marked at the time of packaging with the name of the facility, or the registration number assigned by the department, with the words "NOT FOR SALE" at least three-eighths of one inch [0.95 centimeter] in height set forth in block letters.

3. All boxes, cartons, packages, or containers of custom slaughtered poultry or poultry food products must be marked at the time of packaging with the name and address of the owner or processor and the statement "Exempted - P.L. 90-492."

What this regulation means:

Non-Poultry: All custom-exempt products in the plant must be marked "NOT FOR SALE." All packages that hold custom-exempt product, including immediate packaging, boxes, bags, etc., must read "NOT FOR SALE" and the name of the establishment or the establishment's custom exempt number. "NOT FOR SALE" cannot be abbreviated or changed.
Poultry: All custom slaughtered poultry in the establishment and all packages that hold custom exempt poultry, including immediate packaging, boxes and bags, must be marked with the establishment owner/processor's name and address and "Exempted – P.L. 40-492."

Meat Mythcrushers

You may have heard of the Discovery Channel show "Mythbusters"- where scientists put well known, and some not so well known, myths to the test to see if they are plausible or if they can be busted. Now this concept has made its way to the meat industry. Experts of meat and animal science, food safety, and nutrition have teamed up with the American Meat Institute and members of the American Meat Science Association to create Meat Mythcrushers.

According to the Meat Mythcrushers website, www.meatmythcrushers.org, "Today, fewer than five percent of Americans live on farms. The majority are separated from farming by multiple generations." Combine this with the numerous ways that information, and not always the correct information, is available to the consumer, and you have the potential for a "meat myth" to be formed.

Mythcrushers has created a series of 16 short videos in which experts address myths that have formed about the meat industry. Some myths addressed include:

- Hormone use in poultry, pig, and beef production is a risk to human health.
  - FACT: In the poultry and pig industry, hormone use is prohibited. Increase in animal size has been attributed to improvements in animal breeding and nutrition.
  - FACT: In the beef industry hormones, such as estrogen, are used to increase the amount of product we can get from one animal. In comparison, implanted beef has very little added hormone activity. According to the research paper, "Implanting Beef Cattle," by Lawton Stewart, soybean oil contains 908,000 nanograms of estrogen per pound, versus 10 nanograms per pound in implanted beef, versus 7 nanograms per pound in beef without implanted hormones.

- Meat is less safe today than in the past.
  - FACT: The USDA has documented a sizeable decrease in bacteria found on meat and poultry. Factors include tracking programs for food borne illness and better technologies to diagnose harmful bacteria.

- Americans get the most nitrite from cured meats.
  - FACT: Nitrite is used to prevent Clostridium botulinum in cured meat products. According to the Meat MythCrushers handout, Setting the Record Straight, "Ninety-three percent comes from vegetables like lettuce, spinach, celery, cabbage, beets and from human saliva."

- Nitrite being linked to diseases such as cancer.
  - FACT: The U.S. National Toxicology Program created a list of chemicals found to be carcinogenic; how ever Sodium nitrite is not on the list. Actually, nitrite has been found to have several health benefits such as blood pressure regulation, gastric ulcer prevention, and promoting wound healing.

- Human health risk associated with increased antibiotic use in livestock.
  - FACT: Agencies such as the Food and Drug Administration (FDA) and United States Department of Agriculture (USDA) work together to regulate antibiotic use in the livestock industry and to prevent affected product from entering the food chain.

- Feeding cattle corn is unnatural.
  - FACT: Feeding corn to cattle is natural and can play a crucial role in maintaining the animal's diet.

(continued on page 4)

(continued from page 3)

- Grass-fed beef is more nutritious than corn-fed beef.
  - FACT: Several studies have been conducted comparing grass-fed and corn-fed beef, and while minor differences have been found between the two, no negative effects have been found from either one.

All of these videos can be found on www.youtube.com by typing in "MeatMythCrushers", or at the Meat Myth-Crushers website: www.meatmythcrushers.com. Additional resources, such as a consumer brochure, can also be found on the website.

References

Meat Mythcrushers: Setting the Record Straight. http://www.meatmythcrushers.com/documents/Meatmyth-crushersbrochure_final_lowres.pdf
Stewart, Lawton, "Implanting Beef Cattle", http://www.caes.uga.edu/applications/publications/files/pdf/B%20 1302_2.PDF
www.meatmythcrushers.com

Pest Control Part II: Mice

By Jerry Sauter

First, let's get to know a little about mice. Mice only need to eat two to three grams (0.07 to 0.10 ounces) of food daily, but do not need to eat every day to survive. Their daily water requirement is 0.12 ounces, which some species can get in large part from their foods.

Female mice can give birth when they are two months old. With a gestation period of less than one month (exact length depends on species'), they can have litters averaging six babies, six to 10 times per year. The babies, known as pups, are born with no hair and with their eyes and ears closed. Pups are dependent on their mother for five to six weeks. Because mice are relatively easy prey, their average life span is only a few months.

Mice can carry Salmonella, E. coli and other disease-causing organisms, either directly or through fleas and other parasites. Mice communicate by sound and smell; they secrete pheromones in their urine and in fluid from their tear ducts. In addition, their constant gnawing damages equipment and other property. Mice look for places that make them feel safe. They like darkness, warmth, tight space and silence. Mice prefer to forage in the dark and typically travel the same paths (lines) to feed every night. These lines include floor-wall junctures, table-wall junctures, pipes, exposed conduit, etc.

The U.S. Code of Federal Regulations (CFR) Title 9 416.2(a) Establishments must have in place a pest management program to prevent the harborage and breeding of pests on the grounds and within establishment facilities. Pest control substances used must be safe and effective under the conditions of use and not be applied or stored in a manner that will result in the adulteration of product or the creation of insanitary conditions. 9 CFR 416.2(b)(3) states "walls, floors, ceilings, doors, windows, and other outside openings must be constructed and maintained to prevent the entrance of vermin such as flies, rats, and mice." Furthermore, 9 CFR part 355.16 states "flies, rats, mice, and other vermin shall be excluded from inspected plants and premises."

Prevention: Proper sanitation is the most effective tool against mice.

(continued on page 5)

(continued from page 4)

Control/management

- Eliminate all possible hiding places.
- Put outdoor dumpsters as far away from the building as possible.
- Place outdoor dumpsters on concrete pads. Mice will burrow into dirt and even blacktop.
- Keep outdoor dumpsters tightly closed with no gaps.
- Regularly clean outdoor dumpsters and the area around them.
- Remove any clutter in the building.
- Minimize areas that are dark all the time (shadows, areas under shelving, etc.).
- Thoroughly clean the facility every night, remove all crumbs.
- Seal all entries into walls and ceilings.
- Fill larger openings with steel wool and then spray foam, because mice can remove foam alone.
- Remove all standing water immediately.
- Eliminate gaps in doors and windows. Warm air currents draw pests into
- Install and maintain screens on all openings.
- Install self-closing doors.
- Install and maintain anti-pest, tension brushes on doors.
- Never leave doors open.
- Reduce traffic to doors on the dumpster side of the building.

Trap Placement

- Place traps along lines mice use to forage.
- Bait traps with several food items, including a food they are finding consistently.
- Whiskers and guard hairs act as sensory organs and can detect changes on the floor (such as sticky traps).
- All trap types can be effective if used correctly, however if an infestation occurs, to maintain effectiveness, trap types may need to be alternated periodically.

Other tips

Rigorous sanitation makes baited traps more effective. The more desperate a mouse is for food, the more likely it will go for bait.

Poison in pellet form should only be used if the exact species is identified. Some species store away these pellets and may not eat them for months while continuing to reproduce. These stored pellets also pose a danger to household pets.

If shrubs are planted outside, choose plants that don't cover a lot of ground area, such as vase or pear-shaped plants. Decorative mulch is not recommended near food establishments.

If live mice or evidence of mice are found, put away all food, eliminate mice and the evidence. Wash and sanitize the area, change apron and coat, and wash your hands before continuing work.

References

http://a-z-animals.com/animals/mouse/
www.idph.state.il.us/envhealth/pchousemouse.htm
http://en.wikipedia.org/wiki/House_mouse#Mice_and_humans
http://en.wikipedia.org/wiki/Mouse

Processing Technology: Selecting a starter culture for fermented products

By Joseph Sebranek Ph.D on 11/7/2011

Since it is the one group of products for which growth of microorganisms is actually encouraged rather than viewed as a major problem, fermented products are a unique category of processed meats. Controlled growth of the appropriate microorganisms in fermented products results in distinctive, highly desirable flavors and texture, enhanced color and improved safety. The use of starter cultures ensures that the most desirable microorganisms are predominant in the product and provides for consistent and reproducible fermentation results.

However, the most desirable microorganism for a given product will vary depending on the specific product properties that are considered most important. Further, not all cultures can provide all the functions that may be desired or needed for a given product and often combinations of different species or strains of microorganisms are needed to achieve all the desired product properties.

<u>Microorganisms used for starter cultures</u>

The microorganisms used for meat product fermentations include several species of lactic acid bacteria as well as coagulase-negative (nonpathogenic) Staphylococcus and Kocuria species. One of the most important effects of fermentation is the production of lactic acid, which coagulates proteins for texture, creates tanginess for flavor, inhibits spoilage and pathogenic bacteria and increases water release for faster drying. This is the major role of lactic acid bacteria.

The most common lactic acid organisms are several species of Lactobacillus and Pediococcus genera. In general, the pediococci strains grow well at high fermentation temperatures (30°C–45°C) and are typically used for fast fermentations in which the product pH will be below 5.0 in 12-18 hours. This type of process works well for semi-dry sausage products such as summer sausage.

Lactobacilli strains, on the other hand, are typically used for lower temperature fermentations (21°C–35°C) that are slower (20-40 hours) and will decrease product pH to about 5.0. The slower fermentation usually produces a greater variety of fermentation products and allows more time for other chemical reactions to occur and potentially develop a somewhat different flavor profile such as that of various dry sausage products.

Both the lactobacilli and the pediococci include several species and strains that function well as starter cultures but differ somewhat in their growth characteristics and ability to produce lactic acid.

Although the production of lactic acid and the resultant decrease in product pH is a major reason for the antimicrobial and preservation effect of fermentation, some of the lactic acid bacteria also have the ability to produce bacteriocins during fermentation. These compounds can add additional preservative effects and may improve safety by inhibiting specific pathogenic bacteria. Even though the antimicrobial effectiveness of the bacteriocins is usually less in sausage than in the laboratory, this is an area that has a great deal of potential for future research and development.

<u>Different use for bacteria</u>

In addition to the lactic acid bacteria, a second group of bacteria often included in meat starter cultures are the micrococci. However, these bacteria are not used for acid production but rather for their ability to enhance cured meat color and contribute to flavor.

(continued on page 7)

(continued from page 6)

The micrococci (Kocuria and non-pathogenic staphylococci) are very effective nitrate reducers and actively convert nitrate to nitrite to facilitate meat curing reactions. The nitrate-reducing ability means that these bacteria also provide an essential function in production of natural and organic cured meats made without addition of nitrite. For these products, the only way to achieve cured color is to use a natural source of nitrate such as celery juice or powder and a nitrate-reducing culture. Most of these products (e.g., frankfurters, hams) do not require production of lactic acid so the lactic acid bacteria are not included in the culture with micrococci in this case. However, in the case of dry sausage where nitrate is included for curing, both lactic acid bacteria and micrococci are often combined for cultures to provide both lactic acid production and nitrate reduction.

The micrococci are also known to produce catalase and to hydrolyze proteins and lipids. This means that these cultures will protect flavor by preventing or reducing rancidity because catalase will destroy peroxides that generate rancid flavors. In addition, the hydrolysis of proteins and lipids produces peptides and free fatty acids that contribute to the flavor and aroma profiles. Again, as with the lactic acid bacteria, several different species and strains of micrococci exist and will differ somewhat in their ability to reduce nitrate and in the mixture of flavor and aroma compounds that they will produce.

For appearance and flavor, a few sausage products may utilize mold and/or yeast cultures. The most classic example is the white surface mold that characterizes some dry sausage products and may be surface-inoculated with either a culture or by natural environmental means (blowing or rubbing mold spores from finished products to unfinished products). In addition to the white surface, which is considered a quality attribute for these products, mold cultures such as Penicillium can contribute catalase activity and nitrate reduction both of which enhance cured color of the meat surface. Yeasts such as Debaryomyces may facilitate color and aroma development during fermentation, but use of yeasts in commercial cultures has been very limited.

Selecting a culture

Given the different properties of various cultures, how does one proceed with choosing a culture for product development or product improvement? First, if flavor and/or aroma change is an objective, there are several options to consider. A single strain of fast-fermenting lactic acid bacteria can be changed to a slower-producing strain to give more time for development of flavor and aroma compounds during fermentation. Modifying the amount of dextrose used with the culture will modify the final product pH and may be used to produce a slightly higher pH. This reduces tanginess and may make other flavor notes more obvious. However, keep in mind that the rate and extent of acid production and pH change is critical to product safety.

Additional flavor change can be accomplished by including micrococci/staphylococci with lactic acid bacteria in a combination culture instead of a single lactic acid culture. These organisms not only can add additional flavor notes but also help to prevent development of off-flavors. Including yeast may be another means of modifying the flavor and aroma, although this is not a very common option for commercial cultures.

For more intense, stable cured color, a combination culture including micrococci/staphylococci with the lactic acid bacteria is an effective option, especially if nitrate is used in combination with nitrite for the cure. The nitrate reducers will provide additional nitrite to effectively increase the cured color reaction and will provide greater amounts of nitrite "in reserve" to maintain cured color during distribution, storage and retail display of the products. A somewhat slower fermentation with a slightly higher final pH, as described for flavor development, is also likely to improve color and color stability.

http://www.meatingplace.com/MembersOnly/technology/details.aspx?item=19855

In this Meat Messenger

Classifieds

Lamoure Locker, Lamoure, ND: Turnkey business, full Slaughter and processing, retail area, well established customer base, large market opportunity, all equipment included, owner willing to train. Contact Richard for price at: 701-883-5256 or 701-883-4375.

Goals Spelled Out in Food Safety Strategic Plan

The Food Safety and Inspection Service (FSIS) of the U.S. Department of Agriculture (USDA) has unveiled a plan the agency says "will serve as the agency's roadmap to ensuring that food produced under FSIS' authority is safe for the American public."

The plan's themes include preventing foodborne illness, understanding and influencing the farm-to-table continuum and empowering people and strengthening infrastructure.

"By measuring the working roadmap between the agency, federal, state and local organizations, consumer and industry groups, and other stakeholders, strategies and tactics to reduce foodborne illness will show chartable progress over the next five years," said Dr. Elizabeth Hagen, USDA Under Secretary for Food Safety. "This strategic plan should allow every single person in FSIS to have a direct line of sight between what they do every day and our objectives, and each of us should see ourselves as accountable to the public for protecting them from foodborne illnesses."

For more information, see www.fsis.usda.gov/About_FSIS/Strategic_Plan_2011-2016_Summary/index.asp or http://blogs.usda.gov.

Meat Messenger
North Dakota Department of Agriculture
600 East Boulevard Avenue, Dept. 602
Bismarck, ND 58505-0020