

Meat Processing News

Department of Animal Sciences and Industry
Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Controlling Listeria in your facility

This article is the first in a two-part series.

Listeria are bacteria found in the environment—in soil, water, plants and dust. They can be isolated from humans, domestic and wild animals, raw agricultural commodities, food processing environments and in the home. Humans, especially pregnant women, the elderly and immunosuppressed individuals, can become seriously ill with a disease called listeriosis from eating food, particularly ready-to-eat (RTE) products, contaminated with *Listeria monocytogenes*, one species of *Listeria*. To minimize the risk of contaminating RTE meat and poultry products with *Listeria*, it is important to implement procedures to control *Listeria* in your facility.

Listeria does not enter the processing environment through any one source. It can be introduced from employees, equipment, animals or ingredients. Prerequisite programs, including Good Manufacturing Practices (GMP's) and Sanitation Standard Operating Procedures (SSOP's) are necessary to prevent the establishment and growth of *Listeria* in the plant environment. *Listeria* can grow and spread in cool, damp environments like those found in slaughter coolers, processing rooms, and cold storage rooms. *Listeria* can also form biofilms, or small pockets of bacteria having a protective wall around them that cannot be easily removed by cleaners or destroyed by sanitizers. All of these factors make *Listeria* a challenging organism to control.

The best point to control *Listeria* is in the environment. Although *Listeria* is destroyed by cooking, it is important to validate the thermal process and to control subsequent contamination during post-processing procedures such as peeling, slicing or packaging. Many outbreaks and recalls caused by *Listeria* were due to post-processing contamination of RTE products. Proper sanitation and GMP's are imperative for *Listeria* control. Limited handling of the product by employees, proper maintenance, cleaning and sanitizing of cooling units and post-process surfaces, elimination of cross-contamination between raw/finished product areas, rotation of sanitizers, control of air movement, and control of humidity within the plant are all steps that can be taken to control *Listeria*. However, these are not the only measures to control this organism.

Some key spots to watch for *Listeria* are in hollow conveyor rollers, within belting made of fabric, hydraulic

seals, casing removal systems, rubber seals on doors to brine chillers, hand tools, metal-to-metal or plastic-to-metal intersections, and insulation around equipment. Here are some suggestions to control *Listeria* in your plant:

- Eliminate condensation in the RTE cooler.
- Minimize construction or plant modifications in the RTE area.
- Eliminate traffic flow between RTE and raw areas.
- Remove overhead fixtures from areas where exposed product will be present. Otherwise, clean fixtures regularly.
- Remove standing water as soon as possible.
- Maintain clean, dry floors in RTE area.
- Repair or replace damaged, pitted, corroded, or cracked equipment.
- Adopt regular equipment maintenance schedules.
- Dedicate tools to RTE equipment only. Sanitize them before and after use.
- Equip RTE areas with dehumidifying cooling units. Direct condensate in drip pans away with care, and sanitize regularly.
- Clean and maintain floor drains to prevent drain backup. If backup occurs, clean extensively.
- Clean floor drains in a way to prevent contamination of other equipment.
- Ceilings, walls, and floors should be smooth, sealed, and moisture-free. Drains should be clean and operative. Air supply should be dry and filtered.
- Establish traffic patterns to eliminate traffic between RTE and raw areas.
- Keep hallways to RTE area clean and dry.
- Clean and sanitize refrigeration units regularly.
- Be careful that heavy production does not reduce time spent on cleaning.
- Do not clean equipment parts on the floor.
- Make sure waste bins in RTE area are properly cleaned and maintained.
- Use rework and trash barrels for RTE area only. Clean and sanitize regularly, before operation.
- Remove hoses from RTE area when product is exposed.
- Install equipment so it is easy-to-clean, eliminating sites where bacteria could collect.
- Disassemble, clean and sanitize previously used equipment thoroughly.

Additional suggestions for controlling Listeria in your facility will be included in the next issue.

Two new assistants for 2000

Kansas State welcomes two new staff members. Mark Murphy and Mark Schafer will assist with a joint HACCP education and assistance program initiated by faculty from K-State and the University of Nebraska.

Murphy is an Extension assistant specializing in HACCP education. He works with meat and food processors on food safety and HACCP.

Murphy is completing a master's degree in the department of Animal Sciences and Industry at K-State. Before accepting this position, he worked with small meat processing businesses in Missouri to develop HACCP plans. He has practical plant experience in slaughter, fabrication, processed meats and packaging, and has functioned as lead member of a sanitation crew.

Processors may call Murphy with questions or for scheduling information at (785) 532-0191, or toll free at (877) 205-8345.

Schafer has joined K-State as HACCP program manager, a position previously held by Kelly Karr Getty. Schafer cooperates with the Kansas Department of Agriculture Meat and Poultry Inspection Service to provide support and training on sanitation and HACCP to KDA inspectors and to help Kansas meat processors with HACCP reassessment and general food safety issues.

Schafer's experience with meats and visiting processors began about age six, as he traveled with his father to meat processors around Kansas for FFA and 4-H meats judging contests. Schafer graduated in Dec. 1997 with a B.S. in food science. As an undergraduate, he worked in the K-State Meat Lab, Great Bend Packing Co. in quality control, Cryovac in research and development, and in a food microbiology lab at K-State. Schafer received his

HACCP training at K-State and is working on a master's degree in food microbiology. Schafer's research focuses on the microbiological effectiveness of HACCP in small and very small meat plants. In a nutshell, he is trying to figure out if HACCP is truly effective. Schafer looks forward to assisting you. You can reach him at (785) 532-3783 or toll free at (877) 205-8345.

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