

Small Plant NEWS

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Small Plant NEWS

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Controlling *Listeria* in Processing and Retail Environments Part I: Sanitation

By Beth McKew

Listeria monocytogenes is a very troublesome bacterium for consumers, industry, and government regulators alike. It's found in the air, soil, and water and can easily get on food and grow under conditions that would be nearly impossible for other foodborne pathogens. To help address your concerns with this pathogen, *Small Plant News* is publishing this two-part series on controlling *Listeria* in the processing and retail environments. This part discusses the role that effective sanitation can serve in combating *Listeria*.

If you're involved in the production of ready-to-eat (RTE) meat or poultry products, you're all too familiar with *Listeria monocytogenes*. But did you know that if your plant slices RTE deli meats, then you're producing a category of product that the U.S. Department of Agriculture's (USDA) Food Safety and Inspection Service (FSIS) has determined to be among the most "at risk" for *Listeria monocytogenes* in post-lethality exposed RTE products?

Other categories of high-risk meat and poultry products include hot dogs, deli salads, pates, and meat spreads. However, it's the deli meats exposed to the environment after the lethality step that are of greatest concern to small plants and retail establishments due to the nature of the equipment and the processing environment in which they're handled.

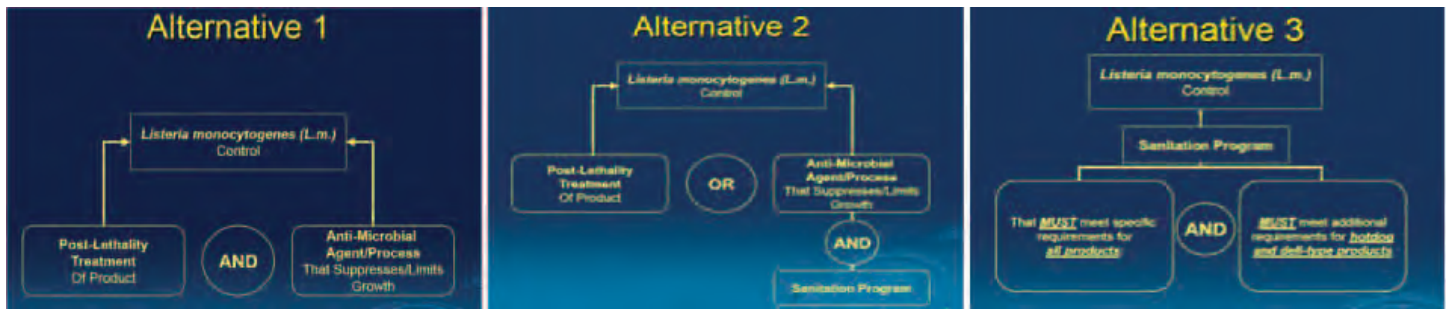
In addition to compliance with 9 Code of Federal Regulations (CFR) 430.4, "Control of *Listeria*

monocytogenes in post-lethality exposed ready-to-eat products," there are precautions that you can take that will reduce the likelihood that your products will contribute to this serious public health risk. Insanitation, cross contamination, and inadequate temperature control have been identified as the most frequent contributors to the contamination, spread, and growth of foodborne pathogens in processing or retail establishments.

In order to evaluate your sanitation program and procedures critically, you must consider the variety of ways that *Listeria monocytogenes* makes its way into the processing environment and the ways that it's spread throughout that same environment. A thorough understanding of this will help you as you evaluate your plant's sanitation program.

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CFR 430.4(b) sets out three alternatives that establishments producing post-lethality exposed RTE product are to choose from in order to meet the requirements of 9 CFR 430.4(a). (USDA photo)

Here are some basic facts to keep in mind when dealing with this bacterium:

- Raw food products may be contaminated with *Listeria monocytogenes*, which is considered an adulterant only on RTE products that are post-lethality exposed, before they arrive at your plant or processing area.
- The environment is loaded with microorganisms, including *Listeria monocytogenes*, which is found in soil, water, and air.
- Customers, vendors, or anyone entering your establishment may bring *Listeria monocytogenes* inside with them, or may further distribute it within the plant environment and onto food.
- Equipment, if improperly cleaned, may contaminate otherwise safe food products every time the food comes in contact with the equipment surface.
- Employees can be vectors for transference of *Listeria monocytogenes* from product to product as well as throughout the plant environment and onto food.

The importance of sanitation in controlling *Listeria monocytogenes* cannot be overstated. Inadequate cleaning and sanitizing of food contact surfaces, including equipment, as well as non-food contact surfaces may allow the bacterium to grow and thrive inside your plant. Also of concern are bacteria allowed to grow in the presence of food particles and other debris, forming a "biofilm," an invisible slime-like layer which may prevent sanitizers from reaching bacteria, and may also break off and transfer *Listeria monocytogenes* to other food or food contact surfaces.

A thorough cleaning and sanitizing schedule should be developed and implemented. A sanitation program is of no use if it does not run as developed. And no sanitation system will work without proper training of the employees who are expected to follow the sanitation program. Additionally, keeping detailed records will help you to assess if the program is being implemented as designed and identify areas of the program needing additional improvement.

Scratched or damaged equipment provides a very favorable environment for bacteria and biofilms. Once the equipment surface is no longer smooth, it provides harborage sites for bacteria, shielding them from sanitizers. Damaged equipment parts should be replaced. And when you purchase new equipment, consider how easy it will be to clean.

Additionally, a properly trained employee cannot clean areas that he or she cannot access. When setting up equipment, make sure that employees can access all the areas of the plant that they need in order to clean properly and thoroughly.

Listeria monocytogenes is quite a hearty bacterium and will survive and grow if left untouched. Your sanitation plan should take into account common "hiding spots," such as drains, fans in display cases, slicers, hollow rollers, utensils, and packaging equipment.

Both food contact and non-food contact surfaces may harbor *Listeria monocytogenes*. Be familiar with the manufacturer's specifications on any and all cleaners and sanitizers that you use. Also, be aware that a cleaner may or may not be suited for all equipment or residue types, and that sanitizers are only effective on visibly clean surfaces. Sanitizing a dirty surface is not effective. Follow directions that come with your cleaning compound regarding concentration and application time, proper storage, and/or temperatures in which to use the product.

Well designed and implemented sanitation controls will decrease the likelihood that *Listeria monocytogenes* will enter, grow, and spread within your retail or processing environment. A successful sanitation strategy, combined with attention to cross contamination issues and temperature controls will help protect consumers as well as your business.

(Part II of Controlling Listeria in Processing and Retail Establishments, which focuses on preventing cross contamination, will be in the next issue of Small Plant News.)

Learn the Public Health Facts About *Listeria monocytogenes*

Listeria monocytogenes is an important public health problem in the United States. Older adults, pregnant women, newborns, and adults with weakened immune systems are those most commonly affected. Individuals become infected with *Listeria monocytogenes* by ingesting the bacterium, which is prevalent in the environment in air, soil, and water and can contaminate both vegetables and animals.

Although listeriosis is not the most common foodborne illness, it has the highest death rate. In the United States, an estimated 2,500 persons become seriously ill with listeriosis each year. Of these, 500 die.

Listeria monocytogenes is killed by pasteurization and cooking; however, in certain ready-to-eat foods, such as hot dogs and deli meats, contamination may occur after cooking, but before packaging. These products are classified as ready-to-eat because consumers usually do not reheat the products to a high enough temperature to kill *Listeria monocytogenes*, putting them at risk for *Listeria* infection, or listeriosis, if the pathogen is present.

Food Safety Resources

By Sally Fernandez

F SIS offers some very helpful resources on *Listeria monocytogenes* to aid you in your efforts to control this bacterium in your operations. Although other Agency resources may have some information on *Listeria*, these five publications are devoted especially to the topic:

1. "Implementation of a Post-Packaging Heat Treatment to Reduce *Listeria monocytogenes* on Ready-to-Eat Meat Products for Very Small and Small Establishments" – booklet and DVD;
2. "FSIS *Listeria monocytogenes* Workshop" – workbook and DVD;
3. "Control of *Listeria monocytogenes* in Retail Establishments" – booklet and DVD;
4. "Control of *Listeria monocytogenes* in Small Meat and Poultry Establishments" – booklet and DVD; and

5. "Listeria Guidelines for Industry."

These resources contain a wealth of information on dealing with *Listeria*, including controlling it in ready-to-eat (RTE) products, checklists for performing a risk assessment of *Listeria* contamination in your facility, and examples of practices that have been used successfully by other meat and poultry-producing establishments to prevent the occurrence of this pathogen in their RTE products.

To request these free resources or any other FSIS food safety resource, contact the Small Plant Help Desk at (877) 374-7435, or fax the order form on our Food Safety Resource brochure to (202) 690-6519. You may also complete the online order form on our Web site www.fsis.usda.gov/Science/HACCP_Resources_order_Form/index.asp.

Commonly Asked Questions & Answers

Q. What commonly used ingredient may be designated as "flavors," "flavorings," "flavoring," or "flavor"?

A. Spices, spice extractives, essential oils, oleoresins, onion powder, garlic powder, celery powder, onion juice, and garlic juice. Spices, oleoresin, essential oils, and spice extractives are listed in 21 CFR 172.510, 182.10, 182.20, 182.40, 182.50, and 184.

FSIS and Oklahoma State Team Up to Provide Assistance to a Start-Up Establishment

By Ardith Alford, FSIS Frontline Supervisor, Tulsa, Oklahoma

Nestled in Cherokee County near Tahlequah, OK, is a very unique federally inspected, small poultry slaughter/processing plant that gives much of the credit for their existence to the assistance provided to them through FSIS' small plant outreach activities.

DARP, Inc., (Drug and Alcohol Recovery Program) performs traditional poultry slaughter techniques to produce hand-processed, all-natural, locally grown, free-range poultry products that provide the necessary revenue to support the recovery program. All employees staffing the plant are participants in the program.

Having no prior experience in either poultry slaughter/processing or in the regulatory requirements governing these activities, DARP, Inc., required extensive assistance in developing everything from the ground up. They received this assistance through Jacob Nelson at Oklahoma State University's Robert M. Kerr Food and Agricultural Products Center (FAPC).

Nelson willingly took on the challenge of assisting DARP, Inc. He helped them navigate the maze of regulatory challenges, from the application for the grant of inspection to developing their food safety systems to include Hazard Analysis and Critical Control Point and Standard Sanitation Operation Procedures plans and recordkeeping systems,



Chickens on the slaughter line prior to evisceration.
(USDA photo)

sampling plans, training programs, labeling requirements, etc.

“Part of the mission of the FAPC is to deliver technical and business information to agricultural processing industries in Oklahoma,” stated Nelson. The FAPC already has established solid working relationships with regulatory agencies, especially when assisting new start-up businesses comply with current policies and regulations.

“The process of bringing DARP into regulatory compliance was very efficient,” said Nelson. As with most start-up processors, the learning curve for DARP personnel to become familiar with all the processes needed to comply with meat processing regulations was understandably steep.

“I think having both USDA-FSIS and FAPC present during the development of their programs made the process less overwhelming for DARP,” said Bryan Hostick, plant manager of DARP, Inc. “To put one word on his help – crucial. I don’t believe we could have done it without him,” added Hostick referring to Nelson’s assistance.

For more information on the various kinds of small plant outreach initiatives and tools FSIS offers, contact the Small Plant Help Desk at 1-877-FSISHelp (877-374-7435).



Chickens on the slaughter line with retained viscera to the left. (USDA photo)