

## Very Small Plant *Listeria* Audits

### Audit of Post-Lethality Environment of Very Small Processing Plants for *Listeria* Species

Dennis R. Buege and Steven C. Ingham

Extension Meat Science and Extension Food Safety Program – University of Wisconsin-Madison

**Purpose of Audit:** Prevention of post-lethality contamination of RTE meat and poultry products by the environmental pathogen, *Listeria monocytogenes*, has become a high priority for the industry and those agencies which regulate it. In October 2004 a USDA FSIS rule went into affect directing plants to sample food contact surfaces in their post-lethality environment at a frequency dependent on how RTE products are formulated and handled. From 2004 in-state training sessions for “very small” plants focusing on prevention of *Listeria* contamination of products and implementation of the *Listeria* rule, it was readily apparent that the vast majority of such plants had never conducted any environmental monitoring for this pathogen in their operations. The purpose of this audit was to sample food contact and non-food contact surfaces in the post-lethality environment to determine if and where *Listeria* contamination was a problem in smaller-scale plants.

**Benefit of Audit to Smaller-Scale Plants:** The results of this audit of smaller-scale plants provides operators with a snapshot of the *Listeria* status of the post-lethality environment over a wide range of plants. Knowing where this pathogen is likely to be found in operations similar to their own will aid processors in addressing the challenge of controlling *Listeria* in the post-lethality environment. As this information was being collected it was shared with the participating plants and our state industry in general to provide just this type of assistance.

**How Audit Was Conducted:** Between January and September, 2004, 31 State-Inspected and FSIS-Inspected Wisconsin smaller-scale plants were sampled for the presence of *Listeria* species in their post-lethality environments (438 food contact and non-food contact surface samples collected). Plants were invited to participate and arrangements were made to sample when the handling and packaging of RTE product was taking place. In a few instances production was not going on at the time of sampling, but samples were still collected from key locations. Where possible, as large a surface sample as possible was collected with commercially available pre-moistened sterile sponges to detect the possible presence of the pathogen. Usually the surface area sampled far exceeded the one square foot sampling area recommended in the FSIS *Listeria* rule. Collected samples were held under refrigeration and delivered to a commercial microbiological testing laboratory within 24 hours, for determination of *Listeria* species only. Results were shared with participating plants after they became available.

**Findings of the Audit:** An accompanying table summarizes the findings of the this audit. Three and one half percent of food contact surfaces were positive for *Listeria* species. Positive samples were found on slicers used for wholesale products (2/23), surfaces of packaging tables/carts (2/36), the internal cavity of chamber vacuum packaging equipment (1/17) and tubs or lugs which held RTE product (1 of 29). Because *Listeria* is so widely distributed in the environment, it is very unlikely that it would never be found in even very sanitary environments. The relatively low incidence found on food contact surfaces suggests these plants are doing reasonably well in sanitation and employee practices which directly affect the RTE product. The two positive samples found on wholesale product slicer were both from clean slicers not in use at the time of sampling. This points to the difficulty in cleaning that piece of equipment. In addition to thorough breakdown and cleaning of slicers, it is recommended that slicers and other post-lethality food contact surfaces be re-sanitized directly before use when such equipment is not used every day (frequently the case with small establishments).

The audit results on non-food contact surfaces reveals a particularly high rate of incidence on floors and drains. This has been reported before for larger plants, but serves as a strong admonishment for smaller plants to pay close attention to these areas. Floor and drains will always have a higher rate of incidence than food contact surfaces, and fortunately floor and drains are somewhat removed from direct product contact. However, the frequent presence of *Listeria* organisms in floors and drains does create an ever-present potential threat of cross contamination to food contact surfaces in the post-lethality environment. It is recommended that processors work with sanitation suppliers to develop a sound floor and drain sanitation program if they don't already have one in place. Such a program may include more routine scrubbing of floors and drains, application of high levels quat sanitizers (800+ ppm – leaves an active residue), limiting use of high pressure hoses (which create aerosols which transport bacteria) and altering/limiting employee foot traffic where possible.

## 2004 Audit for *Listeria* Species in Very Small Plants in Wisconsin

Number of Plants Sampled = 31 (January 14 to September 2, 2004)

Sampling Site	No. Samples Collected	No. Positive Samples	% Postive
<b>Food Contact Surfaces</b>			
Wholesale Slicer	23	2	8.7
Packaging tables/carts	36	2	5.6
Product cavity of vacuum packager	17	1	5.9
Tubs, lugs, carts which hold RTE product	29	1	3.4
Bare or gloved hands of person doing packaging	22	0	0.0
Retail Slicer	19	0	0.0
Knives/scissors used on RTE product	12	0	0.0
Shelves in cooler which hold RTE product	5	0	0.0
Small link casing peeler	4	0	0.0
Chain link or belt conveyors	4	0	0.0
<b>Non-food Contact Surfaces</b>			
Drain by Smokehouse	31	13	41.9
Floor in front of smokehouse	32	9	28.1
Floor in or adjacent to packaging room	18	4	22.2
Floor in RTE cooler	14	3	21.4
Drain in packaging room	20	3	15.0
Door frames/handles in RTE product area	36	2	5.6
Lower frame of smokehouse cart	28	1	3.6
Control panel of vacuum packager	31	0	0.0
Walls of RTE cooler	28	0	0.0
Side frame of equipment in packaging area	25	0	0.0
Brushes, mops, squeegees in RTE	4	0	0.0

**Food contact surface = 171 samples = 6 positives = 3.5%**

**Non-food contact surfaces = 267 samples = 35 positives = 13.1%**

**Floors and drains = 115 samples = 32 positives = 27.8%**