

# Managing *Listeria* in Drains

## What is *Listeria*?

- *Listeria* is a group of bacteria that includes *Listeria monocytogenes*, the foodborne pathogen which causes listeriosis.
- *Listeria monocytogenes* can be found in many areas in the food chain. It occurs naturally in the environment and can be isolated from water soil, and feces<sup>1-2</sup>. Outbreaks with *Listeria monocytogenes* are commonly traced back to indoor packinghouses or food processing facilities<sup>3-5</sup>.
- *Listeria* thrives in damp conditions and can grow in refrigerator temperatures with or without oxygen<sup>6-8</sup>. Once established, *Listeria* can persist in post-harvest areas for long periods of time<sup>9</sup>.

## Why is *Listeria* a problem in drains?

- Constantly wet areas, especially **drains** in the packinghouse can provide a good environment for *Listeria* to grow. Unsafe produce handling and packing practices can cross-contaminate *Listeria* from these areas onto your product.
- Proper cleaning, sanitizing, and maintenance of these areas can reduce colonies of *Listeria*<sup>10-11</sup>.
- Follow these tips below to minimize dispersal of *Listeria* and other microbes from drains to other packinghouse surfaces during cleaning and sanitizing.

### DO

- Remove produce from the area and use a splash guard to prevent contamination due to splashing.
- Train personnel who clean the drains to change clothes and gloves, and wash and sanitize hands before subsequently touching any food contact surfaces.
- Use brushes that are at least ¼ inch (0.64 cm) smaller than the diameter of the drain opening to prevent splattering during cleaning.

### DO NOT

- Clean drains when food products or packaging are nearby.
- Use high-pressure hoses to clear or clean a drain. The use of such hoses could create aerosols that could spread contamination throughout the room.
- Use the same tools to clean the drain and then clean food contact surfaces. Color code to distinguish drain cleaning tools from tools used for other purposes.

## References

1. Weller, D., Wiedmann, M., and Strawn, L. (2015a). "Spatial and temporal factors associated with an increased prevalence of *L. monocytogenes* in spinach fields in New York State." *Appl. Environ. Microbiol.* 81, 6059–6069.
2. Weller, D., Wiedmann, M., and Strawn, L. K. (2015b). "Irrigation is significantly associated with an increased prevalence of *Listeria monocytogenes* in produce production environments in New York State." *J. Food Prot.* 78, 1132–1141.
3. Angelo, K. M. Conrad, A. R., Saupe, A., Dragoo, H., West, N., Sorenson, A., Barnes, A., Doyle, M., Beal, J., Jackson, K. A., Stroika, S., Tarr, C., Kucerova, Z., Lance, S., Gould, L. H., Wise, M., & Jackson, B. R. et al. (2017). "Multistate outbreak of *Listeria monocytogenes* infections linked to whole apples used in commercially produced, prepackaged caramel apples: United States, 2014-2015." *Epidemiology and Infection.* 145,5 848-856.
4. United States Food and Drug Administration. "Notice of Opportunity for Hearing (NOOH) - Roos Foods Inc. 3/11/14." Available at: <https://www.fda.gov/regulatory-information/electronic-reading-room/notice-opportunity-hearing-nooh-roos-foods-inc-31114> [Accessed June 10, 2020].
5. United States Food and Drug Administration. "Information on the Recalled Jensen Farms Whole Cantaloupes." Available at: <http://wayback.archive-it.org/7993/20171114155043/https://www.fda.gov/Food/RecallsOutbreaksEmergencies/Outbreaks/ucm272372.htm> [Accessed June 10, 2020].
6. Pietrysiak, E., Smith, S., and Ganjyal, G. M. (2019). "Food safety interventions to control *Listeria monocytogenes* in the fresh apple packing industry: a review." *Comprehensive Reviews in Food Science and Food Safety* 18,6: 1705-1726.
7. Farber, J. M., and P. I. Peterkin. (1991). "*Listeria monocytogenes*, a food-borne pathogen." *Microbiology and Molecular Biology Reviews* 55,3: 476-511.
8. Carpentier, B., and Cerf, O. (2011). Persistence of *Listeria monocytogenes* in food industry equipment and premises. *International Journal of Food Microbiology*, 145, 1–8.
9. Harrand, A. S., Jagadeesan, B., Baert, L., Wiedmann, M., & Orsi, R. H. (2020). "Evolution of *Listeria monocytogenes* in a food-processing plant involves limited single nucleotide substitutions, but considerable diversification by gain and loss of prophages." *Applied and Environmental Microbiology*.
10. United Fresh Food Safety and Technology Council. (2018). "Guidance on Environmental Monitoring and Control of *Listeria* for the Fresh Produce Industry." Available at: <https://www.unitedfresh.org/content/uploads/2019/03/FINAL-UFPA-Listeria-Guidance.pdf>.
11. United States Food and Drug Administration (2017). "Control of *Listeria monocytogenes* in Ready-To-Eat Foods: Guidance for Industry Draft Guidance." Available at: <https://www.fda.gov/files/food/published/Draft-Guidance-for-Industry--Control-of-Listeria-monocytogenes-in-Ready-To-Eat-Foods-%28PDF%29.pdf>.

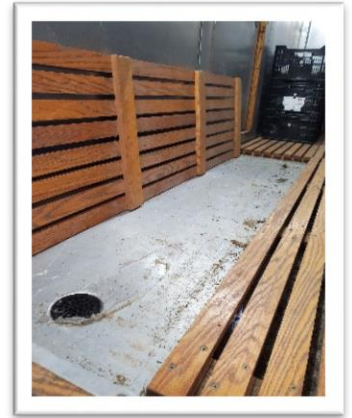


Figure 1: Drain set up in a cold room. (Photo credit A. Ferelli).