Department of Primary Industries

Biosecurity & Food Safety Compliance

Foodborne illness case study: Listeria monocytogenes in smallgoods

In February 2021, the Biosecurity & Food Safety Compliance team investigated a NSW smallgoods manufacturer after ham produced by the business resulted in Listeria monocytogenes food poisoning in an interstate hospital out-patient.

The investigation identified Listeria monocytogenes in the processing environment and in ham produced by the business. A prohibition order was issued on the production and sale of all product until cleared of Listeria monocytogenes. This took four weeks, which was a significant cost to the business.

The issue with *Listeria*

Listeria monocytogenes is a commonly recognised foodborne pathogen found in the food processing environment, particularly in the manufacture and packaging of ready-to-eat (RTE) meats and smallgoods.

It is of concern to vulnerable people with a lowered immunity. In these people, listeriosis can result in severe illnesses, with mortality rates as high as 35%.

L. monocytogenes presents a problem for chilled RTE foods as it can grow at temperatures as low as - 1°C. It is also a facultative anerobic bacteria and can grow in both the presence and absence of oxygen.

Vacuum packaged RTE meats and smallgoods are susceptible to post-cook contamination if the correct controls are not in place to reduce the presence of *L. monocytogenes* in the food processing environment.

There have been several RTE meat-related listeriosis outbreaks in Australia, and *t*he presence of *L. monocytogenes* in RTE meat products has led to product recalls, destruction of contaminated product, short term plant closures and extensive clean up procedures. These incidents can cause substantial losses for the businesses involved and can result in a loss of consumer confidence in the safety of meat products.

What happened

In February 2021, Biosecurity & Food Safety (BFS) Compliance received a complaint from an interstate jurisdiction that a hospital out-patient contracted *L. monocytogenes* food poisoning from a ham sandwich. The sandwich was given to the patient at an outpatient clinic and was

supplied by the public café located on the hospital grounds.

Investigation by the interstate jurisdiction identified via whole genome sequencing that the ham used at the café contained the same *Listeria* as the patient. The investigation revealed that the ham had been supplied to the café from a NSW smallgoods manufacturer.

What we did

An inspection of the smallgoods manufacturer was conducted by compliance officers. The facility's processing areas were inspected for compliance with the FSANZ Food Standards Code, the NSW Food Regulation 2015 and Australian Standard *AS 4696-2007, Hygienic Production and Transportation of Meat and Meat Products for Human Consumption*.

An extensive number of food samples and environmental swabs were collected. Processing records for the contaminated batch, and operational processing and cleaning procedures were examined.

What we found

The initial environmental sampling showed that *L. monocytogenes* was present in the food processing environment. Positive swab samples were returned from trolley wheels, the floor in the RTE room, drains, door seals, bin wheels, tables, conveyors, plastic curtains in the RTE room and the RTE cool room door. A sample of ham produced at the facility was also positive for *L. monocytogenes*. These positive samples were linked by whole genome sequencing to the sample from the interstate jurisdiction.

Processing records for the contaminated batch indicted that the ham met the cook requirements of AS 4696-2007. Therefore, it was determined that contamination was occurring in the post-cook RTE slicing and packaging room environment.

Inspection of the facility identified several maintenance, cleaning and cross contamination issues that could have contributed to the survival and growth of *L. monocytogenes* in the food processing environment. For example:

- A significant number of "small" maintenance issues such as damaged coving, small cracks in floors and wall and exposed wall insulation which can provide multiple harbourage points for listeria.
- Foot baths had been removed from the facility and replaced with a floor foaming unit. The floor foaming unit had not been verified as achieving a proven log reduction and appeared to not provide adequate coverage of the floor to be able to properly sanitise trolley wheels and boots in a corridor that was used for raw product, cooked product and movement of staff. *(see photo A below)*

Photo A: *floor foamer*

The grates on the trough drains were seized into place so proper cleaning of the

drains was difficult and had not been performed. *L. monocytogenes* was detected in the trough drains during the clearance process. *(see photo B below)*

Photo B: *trough drain grates were seized in place*

- A significant number of "small" cleaning issues indicate a larger problem with attention to detail with cleaning. E.g. floor squeegees that were damaged and unclean *(Photo C below)*, mould growth around hand wash basin.

Photo C: *floor squeegees damaged and unclean*

- There was cross over between raw and RTE product in a common use corridor which leads to the potential for contamination of trolley wheels entering the high care area.

Outcome

The facility was immediately placed under a prohibition order which prohibited the production and sale of all product until the facility was confirmed cleared of *L. monocytogenes* via further swabbing by BFS Compliance. The facility was under prohibition for four weeks which was a significant cost to the business.

Key learnings for industry

Facilities that are processing high risk RTE products need to be more aware of the post-cook contamination risk of *Listeria* and have processes in place to identify harbourage sites and potential sites for cross contamination. This includes "minor" maintenance issues such as cracks and crevices and "small" cleaning issues such as mould and mildew.

Owners of older facilities need to keep up their maintenance of these issues and newer facilities need to not be complacent about maintenance and cleaning because their facility is "new".

Traffic flow at facilities needs to be reviewed to eliminate cross over points between raw and RTE product.

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