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Technical information note

Listeria monocytogenes – management in dairy factories

This technical information note explains why *Listeria monocytogenes* is a concern for dairy manufacturers, and offers practical measures to prevent product contaminations, or manage them should they occur.

What is the risk?

There are six known *Listeria* species, however, only *Listeria monocytogenes* has been confirmed as pathogenic (disease-causing). The detection of any *Listeria* species in either the processing environment or a dairy product may be considered a warning, as *L. monocytogenes* is often found following earlier detections of other *Listeria* species.

Consumers of product containing *L. monocytogenes* may contract listeriosis which is a disease that can have varying effects, depending on the level of bacteria present, the quantity of product consumed and the susceptibility of the consumer. Listeriosis is rare, but the consequences of infection can be severe. For individuals categorised as 'high risk', (infants, pregnant women, the elderly, and the immuno-compromised), it is estimated that up to 30% will die if they contract the illness.[1]

In Australia in 2009, 14 *Listeria* infections identified in pregnant women resulted in two fatal materno-foetal cases, and 74 *Listeria* infections in elderly or immuno-compromised individuals resulted in 10 deaths.[2] Although these illnesses were not linked to dairy foods, it demonstrates the serious effects the disease can have on susceptible consumers.

How can contamination be prevented?

Although regular product testing results may show an excellent history with respect to indicator organisms such as coliforms, Enterobacteriaceae or staphylococci, testing for these organisms will usually provide no indication that *Listeria* may be present in the plant or product. *Listeria* species often live and breed in different environments to these other contaminants. They are widespread in the general environment in soil and water, and can be carried by animals. They are most commonly found in moist damp environments, and are hardy survivors.

There are various strategies that can be adopted to help prevent *Listeria* contaminations occurring. These include: implementing an environmental monitoring program, designing the manufacturing plant to reduce the risk of contamination and improving operational aspects or processes within production.

An environmental monitoring program

Evidence shows that a basic environmental monitoring program can be cost-effective when compared to the costs incurred due to an *L. monocytogenes* detection in product.[3]

Environmental monitoring will usually provide a forewarning as to whether *Listeria* is present within the manufacturing site before it can contaminate product.

The *National Guidelines – Pathogen Management* document contains useful information on how to implement an environmental monitoring program.[4]

Premises design

Flaws in the design or construction of a dairy premise may favour the growth of *Listeria*. In such cases, where it is impractical to fix these faults, extra vigilance will be required to monitor 'hot spots' and maintain these areas in a sanitary condition.

The following references provide practical detail in design and construction aspects:

- *The Australian Code of Practice for Dairy Factories*[5]
- *Operational Guideline: Design and Construction of Dairy Premises and Equipment.*[6]

Plans for any new premises must be reviewed by DFSV.[7]

Operational aspects

Staff training is an important aspect of managing the risks associated with *L. monocytogenes* contamination. Each staff member must be adequately trained in hygienic practice related to their job.

Having the best of systems and equipment in place does not eliminate the risk of contamination if there is inadequate understanding of how contamination can occur. Resources such as external training bodies or information from DFSV can be utilised. In-house training sessions, or mentoring of inexperienced staff should also be considered.