



United Fresh
Technical Advisory Group

United Fresh Food Safety Update Climate Change Impacting Food Safety

December 2019

Food Safety Update

Anne-Marie Arts attended the New Zealand Food Safety Summit, which was held on December 10 in Auckland. This Summit was organised by New Zealand Food Safety / Haumaru Kai Aotearoa. The Summit served as the platform for launching MPI's food safety strategy. The strategy sets out the five priorities the organisation intends to work on from now until 2024, and is available at <https://www.mpi.govt.nz/dmsdocument/38951-new-zealand-food-safety-strategy>.

At the same time, New Zealand Food Safety / Haumaru Kai Aotearoa launched the Action Plan that it developed based on the strategy. The Action Plan is also available online, at <https://www.mpi.govt.nz/dmsdocument/38948-2019-food-safety-action-plan>.

Emerging Food Risks due to Climate Change

Climate Change increasingly affects food production. The changes to temperatures and rainfall patterns from climate change are being predicted to lead to a 2-6% decline crop yields every decade, as droughts, fires, floods, shifting seasons, and increased insect populations impact on our ability to grow crops.

The impact of climate change also extends to foodborne illnesses. The number of infections is likely to grow, as increasing temperatures allow for greater survival and infection rates of bacteria. New Zealand is expected to have temperature changes of up to 4° C in average monthly temperatures by the end of the century. Therefore, more of New Zealand's agricultural land is likely to become a desirable habitat year-round for bacteria that cause foodborne illness, while milder and shorter winters are less likely to slow or stop bacterial reproduction. It is important to understand the major foodborne illness threats and the conditions that encourage their growth, as well as the impacts they have on human health.

Learn more as we focus on *Listeria* as a foodborne illness that might find New Zealand to be a more desirable habitat in years to come, courtesy of climate change.

L. monocytogenes (*Listeria*) is found everywhere. It is typically responsible for *Listeria* based foodborne illnesses, such as general gastroenteritis (food poisoning) and Listeriosis - a serious disease that has a 20% fatality rate and can cause sepsis and meningitis. *Listeria* is a notifiable disease in New Zealand.

Since 2015, there have been numerous foodborne outbreaks of *Listeria*. A recent outbreak in America began in August 2019, resulting in 22 hospitalisations and 2 deaths. Within Europe, there has been a noticeable increase in cases of *Listeria* over the last six years. An August 2019 outbreak in Spain ended in September with 224 confirmed cases, 6 miscarriages and 3 deaths. The June outbreak in Britain that affected several British hospitals, was confirmed to have infected 9 people and caused 6 deaths.

The bacterium occurs widely in agricultural and food processing environments. Raw vegetables can become contaminated with *Listeria* either through contact with soil or through contact with animal manure that is used as fertilizer. It has a higher incidence in soils recently cultivated, irrigated or rained upon, and soils close to animal pastures. *Listeria* can survive and reproduce at temperatures as low as 1.1° C, which currently allows *Listeria* to inhabit agricultural soils as far south as Canterbury. However, the increasing temperatures ranges that will be seen as the impacts of climate change take hold, will enable *Listeria* to spread further South, as well as increase the amount of *Listeria* in areas already populated with the bacterium.

An additional issue is the ability of healthy individuals to be asymptomatic carriers of *Listeria*. It is estimated that 5 to 10% of people carry the bacterium without being sick. The potential for growth of the number of outbreaks is high. The Fresh Produce industry is less mature, and more complacent regarding food safety than other sectors. This contributes to:

- A lack of knowledge and awareness of microbial Food Safety. *Listeria* sources and risks are not well understood.
- Poor understanding of the need for hand washing and sanitising.
- Poor equipment design and hygiene practices in the packhouse environment.

Once *Listeria* enters a food processing environment, there is potential for the bacterium to live for years on the equipment, including in the colder temperatures of refrigerators and freezers.

It is important that the Fresh Produce industry gains a better understanding about this bacterium. A good starting point would be the following questions:

- Where is infectious *Listeria monocytogenes* found? And where does it come from?
- What practices should be adopted to reduce the risks of *L. monocytogenes*?
- Which fruits and vegetables, and which farming locations are at high risk?
- Are there improved approaches to investigating real causes of outbreaks?

The referenced articles in the footnotes are a good starting point for anyone interested in understanding this disease better, including MPI's information on Listeria, available at <https://www.mpi.govt.nz/food-safety/food-safety-and-suitability-research/listeria/>.

Reference list:

1. <https://time.com/5663621/climate-change-food-supply/>
2. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0217148>
3. <https://www.mfe.govt.nz/climate-change/likely-impacts-of-climate-change/likely-climate-change-impacts-new-zealand>
4. <https://www.cdc.gov/listeria/outbreaks/monocytogenes-08-19/index.html>
5. <https://www.who.int/csr/don/16-september-2019-listeriosis-spain/en/>
6. <https://www.gov.uk/government/news/listeria-cases-being-investigated>
7. <https://www.livescience.com/55922-precut-vegetables-recall-listeria.html>
8. <http://researcharchive.lincoln.ac.nz/handle/10182/6671>