PRE-HARVEST AND HARVEST SEASON REVIEW OF NSW ROCKMELON PRODUCTION 2018-19

NSW GOVERNMENT Food Authority

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Background

Rockmelons have been implicated as the source of foodborne illness outbreak in Australia in 2016 and 2018. In 2016 an outbreak of *Salmonella* Hvittingfoss affected approximately 150 people. In 2018 there were a total of 22 listeriosis cases, including 7 deaths. The 2018 outbreak had a major impact on all rockmelon growers nationally, resulting in significant loss of domestic and export markets.

As a result of these outbreaks, a Horticulture Innovation Australia Limited project, delivered by NSW DPI Agriculture, was established to provide individual training and a tailored food safety program for all rockmelon growers nationally, and assist with market recovery.

The NSW Department of Primary Industries (DPI) conducted a training workshop and review of pre-harvest preparation (including food safety programs) for growers in the Riverina area from November – December 2018. The training was based on content that was later published in 'Melon food safety: A best practice guide for rockmelons and specialty melons'[1].

The was followed up by a review of practices and post-harvest sampling of melons from January – April 2019, to validate the improved practices and increased food safety knowledge of rockmelon growers in NSW.

Approach

Pre-harvest activity

A food safety training workshop for rockmelon growers in the Riverina area was conducted in November 2018, prior to harvest season. This was attended by all growers in the area and addressed key food safety risks during rockmelon growing, harvest, and packing.

From November-December 2018, the food safety programs of all growers were reviewed and assessed by NSW DPI Biosecurity & Food Safety staff.

In addition to this, pre-harvest samples of rockmelons growing in the field (unwashed) were obtained and tested for *Salmonella*, *Listeria monocytogenes*, and *Campylobacter*. Rockmelons growing in the field were sampled based on those that likely to be first harvested for the 2018-19 season (approximately 2 weeks prior to harvest).

A cattle feedlot in the general vicinity (30km) of growing operations was also visited and sampled for the presence of *Listeria monocytogenes*. Cattle and feedlots have previously been identified as a potential source of *Listeria monocytogenes*.

Harvest season activity

During the harvest season, packing sheds and equipment were inspected and swabbed for the presence of *Listeria monocytogenes*. Inputs, such as water, were also tested for *Salmonella*, *Listeria monocytogenes*, and *Campylobacter*. Sample sites included untreated irrigation water, water used in packing sheds, and wash water.

In addition to onsite testing at farm level, several melons from NSW growers were also obtained from wholesalers further down the distribution chain and analysed for the presence of *Listeria monocytogenes*. Melons were tested using a whole wash method, which was validated to detect to a level of <5 cells *L. monocytogenes* /whole melon.

[1] http://www.foodauthority.nsw.gov.au/_Documents/industry/melon_best_practice_guide.pdf

Findings

Pre-harvest sampling results

Melon testing

A total of **252** melons were sampled from 3 farms in the Riverina area of NSW, with the following tests:

- 125 *L. monocytogenes*
- 64 *Salmonella*
- 63 *Campylobacter*

No pathogens were detected on any melons tested.

Feedlot testing

At a nearby feedlot, **21** samples were obtained for testing (5 silage pit, 4 water samples, boot & environmental swabs, feed ingredients).

No *L. monocytogenes* was detected in any samples.

Harvest sampling results

Melon testing

From 5 NSW rockmelon growers a total of **276** melons were tested. No *L. monocytogenes* was detected in any of the melons tested.

Water sampling

Of **17** water samples obtained, 2 were positive for *Salmonella* Chester. These were both from untreated irrigation channel water. This water is treated prior to use during production.

Salmonella Chester is not commonly associated with human illness in NSW (41 cases notified to NSW in 2018; 12 cases during January-June 2019). There have been no outbreaks of *Salmonella* Chester in Australia that have been linked to rockmelons.

No water samples were positive for *L. monocytogenes* or *Campylobacter*.

Environmental and boot swabs

There were **67** environmental swabs obtained from areas such as conveyor belts, rollers, walls, packing tables, cleaning equipment, and drains. None of these samples were positive for *L. monocytogenes*.

A further **12** boot swabs were obtained from various areas within packing sheds. One boot swab from a store room was positive for *L. monocytogenes*.

Outcomes

This review found that all growers had improved knowledge of food safety and production practices.

From 528 individual melon samples, there were no pathogens detected.

From 117 other environmental samples, there was a single *L. monocytogenes* positive sample and two samples positive for *Salmonella*.

These findings indicate that pathogens are found in the general farm and production environment as expected, but proper management can reduce the risk of these causing illness.

While not directly attributable to this work, human listeriosis notifications for NSW in 2019 were the lowest on record for 16 years, with 16 cases reported. No listeriosis cases were genetically linked to the 2018 outbreak strain of *L. monocytogenes*.

These results support the work undertaken by NSW DPI Agriculture to produce specific rockmelon safety guidelines, and the work of the industry more broadly to recover from previous foodborne illness outbreaks and produce a safe product for consumers.

NSW GOVERNMENT Food Authority

6 Avenue of the Americas, Newington NSW 2127
PO Box 6682, Silverwater NSW 1811
T 1300 552 406
E food.contact@dpi.nsw.gov.au

foodauthority.nsw.gov.au nswfoodauthority nswfoodauth

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