

Communicable Diseases Intelligence

Editorial

New primary production and processing standards developed to reduce foodborne illness risks

Food Standards Australia New Zealand (FSANZ)

Introduction

Fresh fruit and vegetables are an essential part of a balanced and healthy diet. Australians are fortunate to have access to a wide variety of safe and nutritious horticultural produce. The development of national standards in 2022 by FSANZ strengthens efforts to maintain safe primary production and processing of some horticultural commodities in Australia.

The aim of food safety standards for berries, leafy vegetables and melons is to specify uniform requirements during production to reduce the potential for illnesses associated with consumption of these products. In response to multiple outbreaks of foodborne illness in Australia between 2011 and 2019, Food ministers requested FSANZ to review food safety risks associated with several horticultural commodities.¹

Risk assessment

In 2018, FSANZ raised a proposal (P1052 - PPP requirements for horticulture) to consider hazards during primary production and processing. FSANZ's microbiological assessment underpinning the proposal was published in 2020.² The assessment focused on three commodity sectors: leafy vegetables, berries, and melons. The scope excluded seed sprouts and ready-to-eat fruits and vegetables, as they are covered by existing food safety standards.

Given the complexity and variety within the leafy vegetables, berries, and melons sectors, representative products (or proxies) were selected for the assessment. These proxies were lettuce, parsley and spinach for leafy vegetables; blueberries, raspberries and strawberries for berries; and rockmelon and watermelon for melons. This approach provided for assessing a range of cultivation methods, product types and harvesting methods.

The assessment targeted key pathogens for each commodity sector, including *Salmonella* spp., Shiga toxin-producing *Escherichia coli* (STEC), and *Listeria monocytogenes* for leafy vegetables; hepatitis A virus (HAV), norovirus (NoV), and STEC for berries; and *L. monocytogenes* and *Salmonella* spp. for melons.

FSANZ conducted a qualitative through-chain analysis to determine which commodities, risk factors and pathways are most likely to result in produce contamination, persistence and amplification. Data considered included a scientific literature review, prevalence of microbial contamination, food recalls, consumption data and outbreaks of foodborne illness associated with horticultural produce, domestically and internationally.

The assessment identified several key common risk factors for microbial contamination across the commodity sectors, including incursion by wildlife and domestic animals; location of growing areas near sources of contamination; extreme weather events; use of untreated manure; contaminated water; inadequate sanitisation processes; and poor hygiene practices during harvest and postharvest handling. Specific risk factors were also noted for each commodity: for leafy vegetables, rough surfaces and growth close to the ground increase the risk; for berries, the lack of a washing step and handling practices; and for melons, rough surfaces and the potential for pathogen internalisation during postharvest washing.

FSANZ conducted an analysis of production through-chain to identify where these risks of contamination were likely to occur and what steps could be taken at those steps to reduce those risks.

The assessment identified a range of control measures to minimise risks, such as applying good agricultural practices, good hygienic practices at harvest and postharvest, responding to changes in the growing environment and controlling inputs through-chain (eg effective use of sanitisers when applied). The assessment concluded the safety of these commodities relies on a consistent and well managed through-chain, multi-step approach to minimise risk that needs to begin on farm.

Standards development

The microbiological assessment helped inform at which steps hazards were most likely to be introduced, the controls needed throughout the production and early processing steps to mitigate food safety risks. A key consideration in developing these standards is that the produce is generally consumed raw, with little or no further processing, and there is currently no single step during primary production and processing that can ensure end product safety.

The most effective control measures were developed into standards and introduced into the Australia New Zealand Food Standards Code. Nationally consistent implementation of the standards was supported by guidance material co-designed with jurisdictional food regulators.³

The three new standards provide baseline food safety requirements for all producers and primary processors (e.g. packhouses):

- 4.2.7 - PPP Standard for Berries
- 4.2.8 - PPP Standard for Leafy Vegetables
- 4.2.9 - PPP Standard for Melons

Each standard addresses food safety risks associated with that commodity. Some requirements are common to all, such as notification, managing inputs, premises and equipment, traceability, staff training and health and hygiene. Other requirements were identified as unique to the nature of production, for instance, growing sites, weather events, animals and pests, washing and sanitation, and temperature to manage food safety hazards were important for leafy vegetables and melons. Table 1 provides an overview of the new requirements.

Table 1: Overview of new PPP requirements for berries, leafy vegetables and melons

Requirements	Berries	Leafy vegetables	Melons
Notification of business	✓	✗	✗
General food safety management requirements	✗	✓	✓
Traceability: one step forward, one step back	✓	✓	✓
Traceability: growing site	✓	✗	✗
Management of water as an input	✓	✓	✓
Management of soil and fertiliser as inputs	✗	✓	✓
Management of seed and seedling as inputs	✗	✓	✗
Management of the growing site	✗	✓	✓
Management of food safety following weather events	✗	✓	✓
Construction and cleanliness of premises and equipment	✓	✓	✓
Maintaining an appropriate temperature of harvested produce	✗	✓	✓
Appropriate washing and sanitisation of produce	✗	✓	✓
Management of animals and pests	✗	✓	✓
Skills and knowledge	✓	✓	✓
Health and hygiene of personnel and visitors	✓	✓	✓
No sale or supply of unacceptable commodity	✓	✓	✓

Final comment

Food production has inherent food safety risks; while it is not possible to eliminate risks throughout primary production and processing, they can be reduced using effective controls through-chain. The introduction of evidence- and risk-based nationally consistent standards for horticultural products is a key step towards reducing the impact of food-borne hazards associated with these commodities. Everyone, including consumers, has a role to play in keeping our food safe and it starts on the farm.

The new standards take effect on 12 February 2025.

References

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