

CHAPTER 1

Introduction



Overview

The Fundamental Guidelines for Fresh Produce Food Safety (referred to throughout this document as ‘the Fundamental Guidelines’) aim to support hazard analysis, risk assessment and the adoption of good practice for food safety in the fresh produce industry. They also support consistency in the development, implementation and auditing of food safety standards across the fresh produce supply chain.

The primary audience for the Fundamental Guidelines is growers and packhouses given the food safety risks associated with production and post-harvest handling of fresh produce. In addition, they are commonly used by those throughout the supply chain, including wholesalers and retailers. They are also highly relevant to service providers including auditors, contractors, consultants, educators, trainers, researchers, assurance programmes, laboratories and input suppliers. The Fundamental Guidelines support their work, provide consistency on an agreed approach, and ensure that services complement and promote practices that improve food safety outcomes.

The Fundamental Guidelines are designed to reflect current good practice, scientific evidence and practical experience. Rather than a prescriptive standard, they provide a user-friendly framework for managing food safety risks based on the best available knowledge at the time of publication. For latest updates, visit www.fpsc-anz.com.

1.1 Scope

The scope of the Fundamental Guidelines includes food safety considerations (e.g. hazards, risks and good practices) for minimally processed fresh produce (fruit, vegetables, herbs and mushrooms). The content is generally applicable and useful to fresh produce growers globally, though the document is written primarily for fresh produce businesses in Australia and New Zealand with reference to locally specific hazards, practices, guidelines and regulations.

The Fundamental Guidelines are designed to assist fresh produce businesses to identify and manage potential food safety hazards. They describe the causes and sources of hazards, the risks they may present, and their potential impact across the supply chain. Practical guidance is provided on measures to manage, minimise or eliminate these hazards, supporting the production and supply of safe fresh produce for consumers.

In these Fundamental Guidelines:

- Fresh produce – refers to fruit, vegetables, herbs and mushrooms.
- Food safety hazards – refers to physical, chemical (including allergen) and microbiological aspects that may impact consumer health if not effectively managed, minimised or eliminated.

The Fundamental Guidelines apply to all stages of fresh produce production and handling, including growing, harvesting, packing, storage, ripening and transportation, from initial planting through to delivery at retail distribution centres or retail stores. Growing encompasses both field production and structures where produce is grown.

They do not extend to processing activities, which typically introduce risks beyond those associated with whole, fresh produce.

The recommended practices in this document are based on the Hazard Analysis and Critical Control Point (HACCP) framework for risk assessment and mitigation, which also underpin fresh produce food safety standards and assurance programmes.



The Fundamental Guidelines aim to support hazard analysis, risk assessment and the adoption of good practice...

1.2 Fresh Produce Safety Centre (FPSC)

The Fresh Produce Safety Centre (FPSC) was established in 2014 as an industry-led, not-for-profit organisation with a mission to enhance food safety outcomes across the fresh produce industry in Australia and New Zealand.

The current vision is ‘safe produce and a thriving industry’ while the purpose is to ‘create, connect and sustain independent, science-driven food safety guidance’.

Since its inception, FPSC has served as the custodian of the Guidelines. This role involves reviewing, updating and disseminating the Fundamental Guidelines in line with emerging science, evolving regulatory expectations and changing industry needs. Through collaboration with growers, industry, retailers, researchers and government, FPSC ensures the Guidelines remain accurate, relevant, practical and underpinned by science.

1.3 Version history

Version 5.0 (2025): Comprehensive review and the Horticulture Food Safety Initiative

Commencing in 2023, FPSC led the Horticulture Food Safety Initiative project (Hort Innovation Project No. HN21000) in collaboration with industry, retailers and government partners across Australia and New Zealand. This trans-Tasman effort strengthened food safety capability, alignment and responsiveness with a focus on improving the practical application of food safety practices, building technical capacity, and promoting greater consistency across the industry.

As part of this project, FPSC undertook a full review of the current Guidelines. The resulting version 5 (2025) reflects updated scientific evidence, current good agricultural and hygiene practices, and extensive industry consultation. Key updates include:

- New chapters on Critical Incident Management and Recalls, as well as Food Safety Culture
- Additional Appendices:
 - » Appendix 02: Food Safety Regulation and Assurance Programmes
 - » Appendix 04: The Use and Significance of Faecal Indicator Bacteria
- Enhanced guidance on water quality criteria and microbial testing protocols
- Updated content and layout for improved usability
- Updated visuals including refreshed images, figures and decision trees
- Development of complimentary Quick Guides for Fresh Produce Food Safety.

These updates support more consistent implementation across the industry and reflect the evolving challenges and expectations facing fresh produce food safety.

Version 4.1 (2022): Targeted update to fertiliser guidance

Section 6.2 on microbial contamination from fertilisers and soil amendments was revised based on a peer reviewed literature search, forming a partial update to the 2019 version.

Version 4 (2019): Iterative updates based on new research

The 2015 Guidelines were revised in 2019 to reflect additional research and industry developments.

Version 3 (2015): Trans-Tasman expansion and modernisation

FPSC published a new edition in 2015, extending The Guidelines across the Australian and New Zealand supply chains and incorporating current scientific knowledge.

Version 2 (2004): Second Edition expands scope and industry uptake

The second edition added new content on contamination risk assessment and product testing. It was widely adopted, with thousands of printed and online copies distributed.

Version 1 (2001): Origins of the Guidelines

The Guidelines were first developed in collaboration between government and industry which was initiated in 1999. The Australian Government's Department of Agriculture, Fisheries and Forestry convened a working group to support alignment in safety and quality systems.

This led to the original Guidelines for On-Farm Food Safety for Fresh Produce, published in 2001. The document provided good practice guidance for the growing, harvesting, packing, storage and dispatch of fruits, vegetables, herbs, mushrooms and nuts destined for wholesale, retail, food service or processing markets.

1.4 Overview of chapters

Chapter 3 Food Safety Hazards outlines the main physical, chemical (including allergen) and microbiological hazards that may contaminate fresh produce, along with their potential sources. It serves as a concise reference to support identification of critical control points across the fresh produce supply chain.

Chapter 4 Where Contamination Can Occur in the Supply Chain provides example flow charts illustrating typical processes and inputs across growing, harvest, packing, storage and distribution. Developing a flow chart tailored to your own business operations is an important first step in identifying where contamination risks may occur.

Chapter 5 Managing the Growing Site emphasises the importance of assessing potential growing sites for their suitability in fresh produce production. It provides decision trees to support the evaluation of risks associated with potential hazards (e.g. persistent chemicals and heavy metals).

Chapter 6 Managing Fertilisers and Soil Amendments outlines potential food safety hazards associated with fertiliser and soil amendment use, with particular emphasis on untreated animal manures. To support risk mitigation, general guidance is provided on minimum exclusion periods between livestock grazing or manure application and crop harvest. These intervals are crop-specific and based on mean maximum air temperature ranges at the growing site, as reflected in temperature-based decision trees evidenced from peer-reviewed studies.

Chapter 7 Managing Water highlights potential food safety hazards associated with water use across production stages including growing, harvesting, washing, packing, and distribution. It provides guidance on risk assessment, water quality analysis and applicable standards to support safe and compliant use.

Chapters 8 to 15 describe the inputs and operational areas linked to potential food safety hazards in production and supply. Potential sources of contamination include chemicals, facilities, tools, equipment, containers, packaging, vehicles, animals and pests. Human activity presents distinct challenges, with targeted training playing an essential role in reducing contamination risk.

Chapter 16 Managing Allergens focuses on the increasing challenges businesses face in managing allergens. It identifies the allergens that are required to be declared and specifies the associated labelling requirements to support regulatory compliance and safeguard consumer health.

Chapter 17 Identification and Traceability describes the importance of ensuring produce is identifiable from grower to retailer and preferably to the consumer, as well as being traceable in reverse. Effective traceability enables the swift removal of potentially unsafe produce and supports identification of the contamination source. In the event of a food safety incident, traceability plays a critical role in protecting public health.

Chapter 18 Testing explains the role of testing as a verification tool for managing chemical, microbial, allergen and environmental hazards. While testing supports compliance and helps trace contamination, it cannot guarantee product safety on its own. Guidance is provided on sampling methods, laboratory selection and interpreting results.

Reinforcing that testing should complement hazard analysis and preventive controls within a broader food safety system.

Chapter 19 Managing Critical Incidents and Recalls defines the nature of critical incidents in fresh produce supply chains, including natural disasters, criminal activity and confirmed food safety risks that disrupt normal operations. It emphasises the importance of maintaining and regularly testing an Incident Management Plan (IMP), which details procedures for managing disruptions, protecting consumer safety and ensuring operational continuity.

Chapter 20 Food Safety Culture emphasises the importance of a mature food safety culture, where safe practices are consistently upheld across all roles, not only during audits. All businesses operate at varying levels of food safety culture maturity. The chapter provides resources to support culture improvement, monitoring tools and guidance on aligning food safety objectives with daily operations.

Appendix 1 Food Safety Management Systems outlines the role of a Food Safety Management System (FSMS) in preventing, detecting and responding to a contamination event. It emphasises root cause analysis and the use of data to identify control failures. An overview of food defence and food fraud is provided, highlighting risks from intentional attacks and deceptive practices such as mislabelling and substitution.

Appendix 2 Food Safety Regulations and Assurance Programmes describes the integrated food safety framework across Australia and New Zealand, combining regulatory requirements and voluntary assurance programmes to mitigate risk, demonstrate compliance and support adoption of good practice. It emphasises coordinated stakeholder collaboration in maintaining food safety, ensuring regulatory alignment and enabling market access within the fresh produce industry.

Appendix 3 Microbes Associated with Fresh Produce introduces the range of microorganisms that can cause foodborne illness, including bacteria, viruses, parasitic protozoans and microscopic worms. It emphasises the need for awareness and control measures to prevent severe health impacts across the fresh produce supply chain.

Appendix 4 The Use and Significance of Faecal Indicators describes the use of indicator bacteria, such as *E. coli*, to signal potential pathogen presence. It highlights their cost-effective, rapid detection attributes and explains that results indicate possible, not confirmed contamination.

Appendix 5 Glossary offers a quick reference guide to key terms used throughout the Fundamental Guidelines. It ensures consistent understanding across the fresh produce industry by defining terminology in a clear and practical language.