



FACTSHEET – FOOD SAFETY CULTURE

August 2021

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Based on Review article: Food Safety Culture from the Perspective of the Australian Horticulture Industry. Trends in Food Science and Technology. 116 (2021), 63-74.

This fact sheet addresses the issue of food safety culture: what it is, how it interacts with the food safety management system and how to build the culture of the business to continuously enhance food safety. Practical guidance is provided on what food businesses can do to identify, measure and improve the food safety culture in their business.

Over 4.1 million Australians suffer a foodborne illness annually.¹ Over a 10-year period, the OzFoodNet outbreak register recorded 93 produce-associated outbreaks in Australia.² Economic losses to the industry from dumped product, lost sales, reputational damage, and compensation, therefore, are significant. The common causes of outbreaks identified are: poor hygiene and sanitation by food handlers, contaminated

equipment, food from an unsafe source, and temperature abuse (i.e. food in the temperature danger zone). These factors are influenced directly or indirectly by food handler behaviour. Why is it then, that companies with seemingly advanced food safety management systems (FSMS) still sometimes cause outbreaks? Research evidence is building that food safety culture is a key component for achieving better food safety outcomes and reducing the cost of food safety control.

What is a food safety culture?

Food safety culture is that part of organisational culture that relates to food safety beliefs, attitudes, perceptions, and behaviours. However, food safety culture is a complex combination of technological, managerial, and organisational conditions, human factors, and the FSMS.

Food safety culture defined:

"shared values, beliefs and norms that affect mindset and behaviour toward food safety in, across and throughout an organization" GFSI (Global Food Safety Initiative).

"Food safety culture in a business is how everyone (owners, managers, employees) thinks and acts in their daily job to make sure that the food they make or serve is safe. It's about having pride in producing safe food every time, recognising that a good quality product must be safe to eat. Food safety is your top priority." FSANZ (Food Standards Australia New Zealand).

Culture relates to deeply rooted organisational beliefs, behaviours, and assumptions learned and shared by employees.³ It goes beyond the requirements of the FSMS and considers food safety values as foundational to its effective implementation and practice. These factors should be considered within the context of the national cultures of employees; this is because cultural traits influence risk perceptions, expectations, and response to management styles.

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How does food safety culture relate to quality/food safety assurance programmes?

Preventative control measures and hazard analysis and critical control point (HACCP) plans are effective process operations control systems, but they ignore the human input factor to food safety management.

To effectively manage food safety risk, integrate:

Food science:

- the *hazards* and how to mitigate the *risk* and

Behavioural science:

- the *will* to mitigate the risk

The effectiveness of FSMS is dependent on how food handlers apply company policies and implement procedures in practice.⁴ As such, a positive food safety culture is a necessary requirement for the successful operation of an FSMS, just like Good Manufacturing Practices (GMP) or Good Hygienic Practices (GHP).

Table 1 identifies the important dimensions of a positive food safety culture and how they relate to current FSMS requirements. It shows how everyone in the business has responsibilities for food safety culture and the indicators of a good culture. Figure 1 demonstrates how food safety culture envelops the FSMS and influences supply chains.

Compliance is required

Food safety culture is an embedded requirement of Codex HACCP, and all GFSI (Global Food Safety Initiative)-benchmarked quality assurance standards, including Freshcare, as part of management commitment and review, and improvements must be demonstrated. Requirements will continue to evolve as the links between attitudes, perceptions, and practices of food safety risk control, and food safety management outcomes, are better understood.



Figure 1. The essential elements and the links between food safety culture and the FSMS.

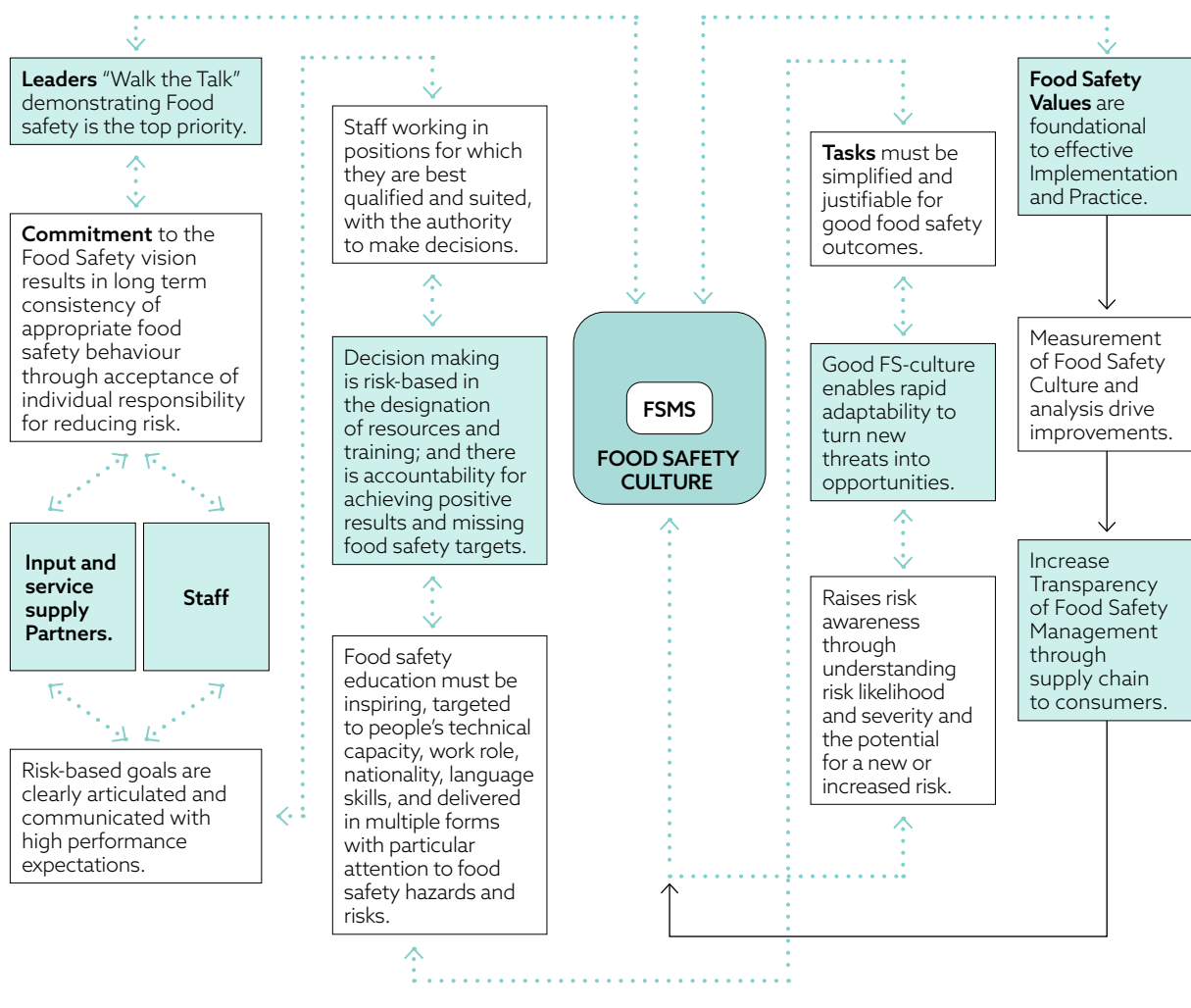


Table 1. Dimensions of food safety culture relating to current food safety requirements in Australian/NZ horticulture, roles, and indicators of a good food safety culture.

Food safety culture		Current FSMS ¹ requirements	Work roles responsible for food safety culture in pre- and post-harvest operations ²	Indicators of 'good food safety culture'
Categories	Dimensions			
People-based	Leadership	Roles & responsibilities, reporting relationships	Business owner, managers, team leaders, QA officers, food handlers	Authority to make decisions; high-performance expectations; suitability for the role
	Communication	Documentation, reporting, records, signage	QA officers, team leaders, food handlers	Inspiring, accessible, relevant, clear, regular, delivered in multiple forms, context-specific
	Commitment	Vision, food safety goals, compliance, adequate resources	Business owner, managers, team leaders, QA officers, food handlers	Leaders 'walk the talk'; individual responsibility for risk reduction; consistency of appropriate behaviour; accountability for actions
	Knowledge	Training, qualifications	Business owner, managers, team leaders, QA officers, food handlers	Targeted to work role, technical capacity, nationality, language skills. Measurement and analysis to demonstrate competence and drive improvement
	Risk awareness & perception	Risk assessment: hazard analysis, water, soil amendments, people, facilities, site history, food defence, food fraud, recall and traceability	Business owner, managers, team leaders, QA officers, food handlers	Understand risk likelihood and severity; potential for new/increased risk
	Work pressure & normative beliefs	Resources, compliance	Business owner, managers, team leaders, QA officers	Risk-based decision making; measurement of FS-culture to drive improvement
Technological/ Organisational	Work environment	Facilities design & construction, Preventive controls, Intervention controls, Monitoring systems	Business owner, managers, team leaders, QA officers, food handlers	Measurement and analysis of data to drive improvement
	Management system, styles, process	Management reviews Business continuity Crisis/incident management Food safety culture development Internal audits, corrective actions, customer specifications, approved suppliers, validation, verification	Business owner, managers, QA officers, food handlers	Transparency of FSMS through the supply chain, Task simplification, Justifiable rules and controls action plan, measurement, review of the effectiveness

¹ Food Safety Management System (Food Safety Program) requirements in Australian/NZ approved standards (Freshcare, HARPS, NZGAP, GLOBALG.A.P., SQF9, BRCGS8) and the FPSC's Guidelines for Fresh Produce Food Safety. ²QA officers – (quality assurance) people involved in managing the quality system: documentation, implementation, training, and supervision.

Find food safety culture requirements here:

Codex General Principles of Food Hygiene CXC 1 – 1969 Amended 2020

http://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252Fstandards%252FCXC-C%2B1-1969%252FCXC_001e.pdf

FSSC 22000

<https://www.fssc22000.com/scheme/scheme-documents-version-5-1/>

HARPS

<https://harpsonline.com.au/growers-and-suppliers/>

Freshcare FSQ4.2

<https://www.freshcare.com.au/wp-content/uploads/FSQ-Resources-All-Factsheets-Combined-FSQ4.2.pdf>

BRC Global Standard 2018

<https://www.brcgs.com/media/63855/food-safety-culture-module-brochure.pdf>

SQF 9

https://online-training.registrar-corp.com/resources/sqf-edition-9/?lead_source=Google%20Ad#1622046565597-9549bb61-182d

Coles

<https://www.supplierportal.coles.com.au/csp/wps/portal/web/SupplyChain>

Woolworths Code of Practice: Food Safety Culture

<https://partnerhub.woolworthsgroup.com.au/s/article/Supplier-Excellence-Program-Food>

Publicly Available Standard coming soon

<https://www.bsigroup.com/en-AU/pas-320/>

Planting the culture in horticulture food safety management

The seed of food safety culture is sown from the top. Leadership and team building should clearly articulate food safety performance expectations. Food handlers should be educated during training to understand why specific controls are in place. This is to build trust that the expectations placed on them will lead to improved food safety. The likelihood of compliance with policies and procedures will then increase. They should understand that they are working as food handlers, and the use of such terminology is the starting block.

The seed of food safety culture is sown from the top.

So, what does this mean for my business?

Attitudes towards and perceptions of food safety risk are already part of your business. The prevailing food safety culture is influenced by the interaction of workforce composition, size of the organisation, maturity level of the food safety (and quality) management system and position in the supply chain. The FSMS, financial and technical resources, change management, market forces, and customer requirements combine to drive requirements to develop a positive food safety culture. Use of these mechanisms ultimately determines food safety culture and as a result, food safety outcomes. Understanding how your workers perceive risk, respond to expectations, and what motivates them in their work is required to ensure continuous improvement of food safety culture.

It's obvious but not easy

Do your people feel a valued part of the workforce?
The Australian/NZ workforce⁵ values freedom but generally accepts the leadership provided. However, "top down" decision-making can lead to lack of engagement with or ownership of the decisions by workers.

Do your people have authority to make food safety decisions without fear of failure?
Australians and New Zealanders generally communicate clearly, simply, and honestly and these communication characteristics encourage debate without affecting team relationships. However authoritarian delivery or bluntness, especially when delivering negative feedback, can stifle open communication.

Are deadlines compromising quality and safety?
 Promptness and good organisation are valued but focus on deadlines should not be at the expense of poor quality control and recognising near misses. All workers must be encouraged to build trust through working together and speak up about improvements. The use of balanced score cards for team members, for example, can support good food safety practices.

Does everyone understand and correctly interpret food safety risk messages?
 The multinational workforce in Australia/NZ horticulture is likely to introduce additional cultural traits and challenges which should be recognised. For example, some cultures are generally less likely than Australians/NZs to challenge authority so might fail to raise food safety concerns. If English is poorly understood, pictorial food safety messages are most effective.

Measuring food safety culture

Evaluation of FSMS is through validation, verification, and monitoring. Performance measurement of food safety culture is a means of defining its effectiveness⁶ and provides a baseline from which to drive culture improvement. Measuring food safety culture:

- raises risk awareness;
- supports risk assessment;
- promotes commitment to food safety and program ownership;
- provides accountability from clear goals and expectations;
- provides focus on resource needs for improvement;
- supports internal audit processes;
- identifies weaknesses;
- informs decision-making; and
- helps avoid foodborne illness incidents and food recalls.

Measurement options include toolkits, maturity models and mixed-method models. The basis

Table 2. Food safety culture measurement approaches, their advantages and limitations for horticulture

Food safety culture measurement approaches	Basis of measurement	Advantages	Limitations
Toolkits e.g., FSANZ, 2019 ⁷	Questionnaires Matrices assigning risk-based culture category	Benchmarking Ideas for improvement Good starting point	Snapshot in time Insufficient elements provided for mature FSMS No integration with individual company FSMS
Maturity models e.g., Jespersen et al, 2016 ⁶	Questionnaires Matrices assigning a scale of food safety culture maturity	Benchmarking Identify areas for improvement Provide a concept of the end goal	Snapshot in time Participant perceptions influence results Subjective Appropriate action plan for improvement not easily resolved
Mixed methods models e.g., Nyarugwe et al, 2018 ⁸	Questionnaires Interviews Observations Document analysis Microbial analysis Focus groups	Assessment over time Triangulation of data provides a more comprehensive interpretation of results Ability to target specific areas for improvement Objective assessment included	Time-consuming Needs to be led by an experienced quality assurance person or consultant Higher cost

of their measurement, their advantages and limitations are shown in Table 2. Measurement tools should be valid, accurate, and investigate what your business needs to know. The 'riskiness' of the product/process partly determines improvement goals because higher-risk products may need more advanced food safety culture. Nonetheless, culture improvement will benefit quality for all products and financial targets. It is important to be aware that people might answer questionnaires according to what they think is right (social desirability or wanting to please) and often consider what they do is not risky (optimistic bias or wanting to minimize any perception of wrongdoing).

Mixed-method approaches incorporate observations, questionnaires, focus groups, interviews, document analysis, microbial analysis, and in some approaches historical data, acknowledging the interconnectedness of factors determining food safety culture. As such, they are most effective in determining the outcomes of food safety culture inputs. While time-consuming, they allow for 'triangulation' (i.e., result comparison from many sources and types of information) to counteract weaknesses of any one method. This increases validity of the results, reduces bias, allows for trend analysis, and provides for the use of feedback to target specific improvements.



Continuous improvement

Why?

Regulatory compliance

Business agility

Transparency in supply chains

Business sustainability

Social responsibility

Risk mitigation for all stakeholders, the supply chain, investors, and insurers

Retailer expectations

Where do I start?

FSANZ food safety culture in action

<https://www.foodstandards.gov.au/food-safety/culture/Pages/food-safety-culture-in-action.aspx>

GFSI food safety culture

<https://mygfsi.com/wp-content/uploads/2019/09/GFSI-Food-Safety-Culture-Full.pdf>

PMA Australian + New Zealand food safety

<https://www.pma.com/global-pma/anz/topics/food-safety>

BRCGS food safety culture

<https://www.brcgs.com/our-standards/food-safety-culture-excellence/>

SQFI food safety culture

<https://www.sqfi.com/tag/food-safety-culture/>

Pathway to best practice: Good Cultural Practices (GCP)

Apply strategic food safety thinking

Design the working environment and equipment to encourage correct food safety behaviours: start with accommodation, toilet facilities, and lunchrooms.

Ensure that workflow encourages control of cross-contamination and equipment is readily cleanable: these measures influence the workforce's perceptions of safety priorities.

Identify trends in food safety control: electronic record-keeping systems save time and make jobs easier.

Harness the power of the whole business.

Motivate employees with clear priorities and goals: this encourages and enhances employee fulfilment.

Align investment with goals: this sends a systematic reinforcement of food safety messages.

Identify champions to support teams empowered to make decisions to build trust: this makes food safety "business as usual" and builds an overall safety culture.

Target the most effective changes

Establish specific competency requirements for critical food safety tasks: this helps workers understand expectations.

Monitor performance of food safety key performance indicators. Some studies⁹ show that enforcement of hygiene practices decreases microbial contamination.

Become food safety culture ambassadors

Lead through aligning resources with food safety priorities: this sends the message that top management cares about improvements.

Involve workers at all levels in the design, implementation and monitoring of procedures and practices: this creates ownership of the food safety management system.

Create ownership of the food safety system.

Identify and reward individuals who comply with good food safety practices because this increases individual responsibility: this could be achieved with a recognition or awards program.

Encourage 'raising the hand' when irregularities occur because empowered workers are beneficial to food safety culture.

Improve communication

Provide clear, accessible documentation in the relevant work areas: this aids communication and understanding. Dot point job instructions at critical points act as reminders because people's minds sometimes wander on the job.

Use pictorial and multi-lingual messaging that is culturally sensitive and "pitched" to target groups: this is most effective. One point lesson plans are a useful tool.

Say what you do and do what you say

Think 'better culture = better business sustainability'

Increase frequency of worker rotation in repetitive tasks (e.g., removal of damaged product): this improves focus and a team culture of ownership of safety outcomes, vital to a happy workplace.

Encourage a happy workplace: engaged and educated workers form cohesive teams which provides fulfilment. Research suggests happier people may be more likely to comply with food safety requirements and improve behaviours.¹⁰

An unpublished study in an Australian produce company found culture focus "resulted in a 70 percent reduction in customer complaints and a 45 percent reduction in lost-time injuries". This in turn improves reputation and productivity.

Quality and safety = profit

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