Food safety culture to drive sustainability and profitability within primary production businesses

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Executive Summary

Horticulture in Australia plays a vital role in the supply of fresh, safe and nutritious food for consumers both locally and internationally. The aim of the fresh produce sector extends to supporting and sustaining generations of families, regional communities and supporting employment in the downstream supply chain. Fresh produce safety and security incidents create significant disruption, not only to the individual, but to the entire supply chain involved in the incident, with an example being the needles in the strawberries occurrence in 2018. More recently, several product recalls in Australia surrounding potential microbially affected bagged salads have had a negative impact on that sector too.

Fresh produce food safety has experienced increased compliance and technical requirements over the past 20 years. From early implementation of food safety standards to current food safety schemes, the burden of compliance on fresh produce growers is ever increasing. Locally and globally, the concept of food safety culture and its application to fresh produce is not well understood.

The introduction of food safety culture as an auditable element for all fresh produce-related food safety schemes has resulted in misunderstanding and misconception due to the subjective nature of evidence required for compliance. Coupled with the increasing customer and consumer expectations surrounding the supply of safe food, an opportunity exists for the adoption of a strengthened food safety culture in the fresh produce sector to drive business outcomes and meet or exceed current food safety standards.

Discussions with fresh produce growers highlighted a variety of issues that are plaguing the industry in relation to food safety. The linkage between food safety and food safety culture is becoming more closely aligned as the actions and processes adopted by businesses to manage their food safety systems are becoming increasingly viewed as cultural in nature.

Fresh produce businesses face multiple challenges in adopting a strengthened food safety culture such as seasonality of produce, access to labour (let alone labour suitability for their operations) and the apparent cultural bias of fresh produce being low risk, plus the variability in consistency and accuracy of auditor interpretation of food safety standards. Compliance burden with the introduction of additional customer requirements is creating compliance fatigue among small to medium sized businesses. Larger businesses where relevant skillsets are available or resources can be dedicated to food safety are managing these challenges with systems being designed to achieve safe food production as opposed to small to medium sized operations that generally adopt a default position of food safety compliance.

Given the current spotlight on food safety culture, fresh produce businesses should assess or measure their existing culture to identify gaps in compliance. Assessment tools range from surveys and questionnaires, to focus groups, observation of staff food safety practices and regular documentation review. Resources are available for businesses to utilise and should be manipulated to ensure the correct information is being requested from the workforce.

Once a business has had an opportunity to assess or measure its food safety culture, management can then implement various programs or activities to strengthen any

identified gaps. It is critical that owners and/or senior management take leadership in all aspects of driving and promoting food safety and culture within the business. Effective communication that is open and transparent will play a vital role in developing trust and promoting employee interactions for the benefit of the business. Using both top-down and bottom-up communication approaches will foster employee confidence which can lead to the sharing of valuable insights on existing food safety challenges within the business, while contributing to the development of procedures that align with the business's operations.

Training outcomes should be developed to empower the workforce to take active steps in preventing any unsafe product entering the supply chain. Similarly, technical and quality staff should be provided with untethered access to owners and senior management, when necessary, to ensure food safety compliance and issues or risks arising from operations are dealt with swiftly.

Owners and senior management should take opportunities to develop their skillset in this subject when presented. Talking with neighbours, engaging with industry, peak industry bodies and food safety professionals all have the capacity to improve food safety outcomes by providing practical guidance to problems facing the business or offering a different perspective in solving issues. Businesses should also ensure that the facilities and workplace environment are well designed to allow for safe food to be produced and staff to maintain good food safety practices that are in line with the business' requirements and expectations.

Improved food safety culture does have the potential to drive productivity and sustainability in fresh produce operations and should, in fact, be simply considered as 'good for business'. Attitudinal change must be evident in shifting the mindset from primary production to food production. Once this mindset shift can be implemented, the business and senior management can create behavioural changes through leadership, transparent and open communication, employee training and engagement, and job satisfaction. These factors combined will drive food safety culture within a business for productivity enhancement, sustainability, customer compliance and consumer confidence in the fresh produce provided by the business.

Keywords: Food safety, food safety culture, quality assurance, horticulture, food safety management systems

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Foreword

Having spent the past 20 years in horticultural operations and business management, the concepts of improved productivity and sustainability are always a goal worth pursuing. How improved productivity is or could be linked to food safety culture is another matter and one that commenced around 10 years ago.

My previous professional experiences range from intensive field grown crops like tomatoes, capsicums, berries, pineapples, melons and onions to orchard fruit crops such as avocados, mangoes and lychees with some additional time spent in the very highly intensive hydroponic sector with cucumbers and berries. All these crops have their own unique nuances, yet all share the common need to maximise productivity and maintain efficiency while managing production costs.

Quality assurance is an integral part of all horticultural operations. My journey in this space was limited to a basic understanding and as I moved into new roles, I was provided opportunities to learn more about the standards and requirements of quality management systems and how they are applied to horticultural production.

The linkage between quality management systems and improved efficiency came about following a poor outcome from a third-party audit. It was an inflection point that opened the door to greater awareness and practical application of the quality standards being implemented within the business. At the time, the burden of compliance within the horticultural sector when servicing the major retailers was significant. Each retailer had their own preferred standards or requirements coupled with industry-based programs resulting in four to five audits per year. The only answer to manage this workload was to become much better at it all, thus reducing the time spent on this vocation – improved productivity being the result.

The greater focus within this discipline led to food safety training opportunities and some consulting activities within the horticulture industry as I came to quickly recognise that there is a lack of understanding and practical application to the standards being applied.

A move to my current position at The Avolution sharpened my focus on assisting grower-suppliers to develop and implement quality management systems, inadvertently providing further evidence that food safety and productivity are not mutually exclusive. At the time of taking this new role, the compliance landscape was changing for all horticultural producers in Australia. New standards were being introduced, and the term food safety culture was being added to quality management programs as an auditable element.

Food safety culture has now become a “buzz” term in food safety requirements and discussion almost to the point it is a coverall for how food safety management systems are described. Recognising there was a lack of understanding in this now auditable element and what it meant in real terms for producers led me to apply for a Nuffield Scholarship.

In focusing on the concept of food safety culture within the primary production business, I could then gain an understanding of what this means in practical terms. The practical implementation of food safety culture would then potentially lead to avenues for productivity improvement. This in essence was the goal of my Nuffield journey.

Food safety culture to drive sustainability and profitability within primary production businesses

Due to the global pandemic COVID-19, my travel has been spread across a broader period, particularly the personal component of my project and research.

Table 1. Travel itinerary

Travel date	Location	Visits/contacts
March 2-23, 2022 **Pre CSC and CSC**	United Kingdom: Somerset Norwich	
June 5-8, 2022 **GFP**	Singapore	Total Fresh – Singapore Produce Markets
June 8-15, 2022 **GFP**	Netherlands	Pieter Winter (2022 Nuffield Scholar) Koppert Cress
June 16-22, 2022 **GFP**	Canada: Ontario	Schep's Bakery – Norwich Pure Flavour Greenhouses
June 22 to Jul 4, 2022 **GFP**	USA: Kansas Washington	DFA Milk Processing – Dairy Farms of America 4B Farms US Capitol
March 28 to April 6, 2023	New Zealand: Auckland Pukekohe	World Avocado Congress Just Avocados Prashant Singh
June 4-8 June, 2023	Australia: Adelaide	Hort Connections
February 3-10, 2024	Germany: Berlin	Fruit Logistica
June 9-28, 2024	United Kingdom, Scotland and Ireland	Summer Berry Company Hunter Hall Angus Soft Fruits Keelings Donnelly Fresh
July 28-31, 2025	Australia: Sydney	International Fresh Produce Safety Symposium

Acknowledgments

This research and report could not have been possible without the generosity of my project sponsor, PSP Investments. Their willingness to invest in the development of Australian agriculture is very much appreciated.

To the Nuffield Australia team, thanks so much for your patience and guidance that you provided during this process. Specifically, Jodie Redcliffe, thanks for listening, working with and allowing me the flexibility needed to complete this project.

I would also like to thank my employer, The Avolution, and moreover, CEO Antony Allen, for his unwavering support in allowing the time and effort for me to complete this project and undertake the travel needed for my research. To the rest of the team, a huge thanks for supporting me while I was travelling and working through this process.

For those locally and internationally that provided their time and thoughts on this topic, I thank you very much. Your insight into this subject that is still in its infancy has been invaluable in shaping the outcomes of this report and my future learnings.

My 2021 Nuffield cohort and GFP team, thanks for the experience. I often reflect on some of the unique experiences we shared. For those that have taken calls in the days past our GFP, thanks for your thoughts and words of wisdom.

Finally, I would like to thank my partner, Melanie Power. Often lending an ear when I needed to get something out there or on the other end of the phone when we were worlds apart, thanks so much.

Figure 1. July 2022 – GFP Group in Washington DC – photo taken on balcony of US Capitol Building with Washington Monument in the background. (Source: Author)

Abbreviations

BRC	British Retailer Consortium
DAFF	Department of Agriculture Foresty and Fisheries
FC	Freshcare
FSANZ	Food Standards – Australian and New Zealand
FSMS	Food Safety Management System
FTE	Full Time Equivalent
GAPs	Good Agricultural Practices
GFSI	Global Food Safety Initiative
GMPs	Good Manufacturing Practices
HACCP	Hazard Analysis Critical Control Point
HARPS	Harmonized Australian Retail Produce Scheme
ISO	International Standards Organisation
NASA	National Aeronautics and Space Administration
PIB	Peak Industry Body
QA	Quality Assurance
QMS	Quality Management System
USFDA	United States Food and Drug Administration
WHO	World Health Organization
WH&S	Workplace Health and Safety
WVQMS	Woolworths Vendor Quality Management Standard

Objectives

The objectives of this research and report are focused on several major key points surrounding food safety culture and its application to the Australian horticultural industry:

- Understanding and outlining the current food safety environment for horticultural production and how food safety culture is applied to quality management systems being utilised in Australia and globally:
- Understanding the limitations/challenges facing small and medium sized horticultural producers in implementing an improved food safety culture;
- Understanding how food safety culture can be assessed; and
- Provide practical examples of food safety culture improvements for horticultural production.

Figure 2 & 3. Hydroponic strawberry production in Ontario, Canada. Fig 2. Netted cherry trees ready for picking in Manjimup, Western Australia. (Source: Author)

Introduction

Australian Horticultural Production

Horticulture plays a significant role in Australia's economy with the local value of horticultural production (including wine grapes) estimated at $18 billion in 2023/24, an increase of $721 million from 2022/23. Total volume of fruit production sold was 2.8 million tonnes and vegetable production volume sold was 3.8 million tonnes. (ABS, 2025)

In terms of agricultural industries, horticulture is Australia's third largest industry. The industry is comprised of small, medium and large-scale operations with most growers being small to medium-scale family farms located across various production regions. Growers face several challenges including changing climate, price conditions and continued competition from imported produce, in some product lines (DAFF, 2025).

Food safety in horticultural production systems

Given the value of horticultural production in Australia, not only to the economy and by default those that rely on its continued success, but to everyday consumers, food safety plays a crucial role. Food safety is a pillar to the overall industry's continued success in ensuring consumer confidence is maintained, public health is protected through elimination of potential foodborne illnesses and ultimately safe food is produced.

Importance of food safety in horticultural production systems

Horticultural production in Australia is not without food safety risks. Modern horticulture faces several food safety risks relating primarily to microbial, chemical, allergen and physical contamination. Sources of contamination can range from a variety of activities in the production timeline from site selection, pre-harvest and post-harvest handling, storage and transport.

> *Fresh produce contaminated by disease-causing microorganisms (pathogens) poses a health risk to consumers. Foodborne illness has been linked to fresh berries, leafy vegetables and melons, costing the Australian economy approximately $20 million each year (FSANZ, 2023).*

Microbial contamination is a significant risk in horticultural production due to foodborne pathogens like E. coli, Salmonella and Listeria. These pathogens can originate from various sources such as soil, water, faecal contamination from domestic animals, rodents and wildlife, facilities and worker hygiene. Extreme weather events have also been attributed to having potential to introduce microbial and other contaminations (FSANZ, 2023)

According to FSANZ (2025) fruit and vegetables are amongst the most commonly recalled food products from 2020 to 2024. Fig 1 below shows food recalls by product

category from 2020 to 2024. Note that fruit, vegetables and herbs are the third highest product category for food recalls during this period.

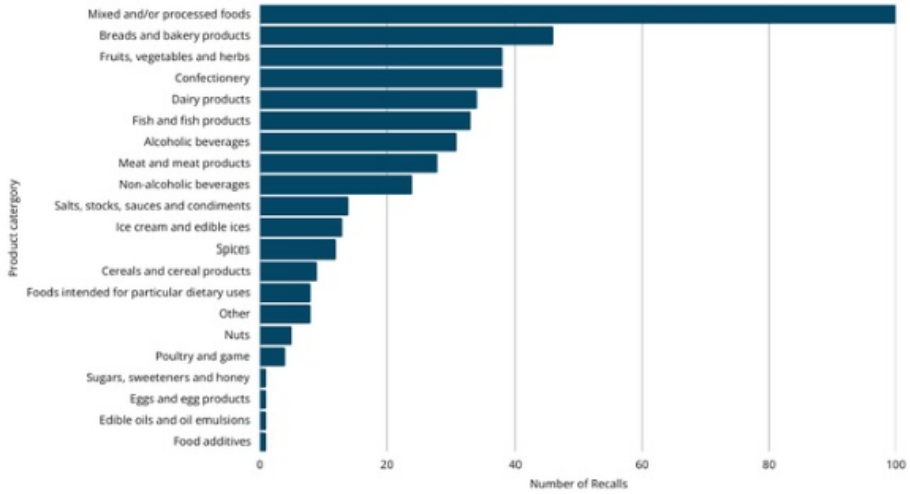

Figure 4. Food recalls by product category (2020-2024) (Source: FSANZ, 2025)

Most recent food recalls, March 2025, relating to fresh produce surrounded the potential E. coli-STEC contamination of fresh cut salad mixes which affected several major supermarkets across the east coast of Australia. Previous to this, in December 2022, fresh cut salad mixes were recalled due to potential microbial contamination.

Some of the more significant food safety events in the past were highlighted by a report by Galway (2022) included:

• 2015 - berries (Hep A) – 35 cases
• 2016 – bagged salad (Salmonella) – 311 cases
• 2016 – rockmelon (Salmonella) – 144 cases, one death
• 2018 – rockmelon (Listeria) – 22 cases, eight deaths.

Introduction and origins of food safety in horticulture

The food safety landscape for horticulture in Australia has evolved more distinctly over the past 25 years to our current state. Prior to the development of more functional and fit for purpose quality management systems or schemes, most larger producers who were involved in exporting along with their domestic supply, relied on international standards such as ISO or Euro-GAP.

By and large these international schemes were based on Hazard Analysis Critical Control Point (HACCP) principles. With HACCP having its origins in the 1960s when NASA and the Pillsbury Company collaborated to develop a system of producing safe food for space exploration. The HACCP system focuses on risk assessment and controlling potential hazards at critical control points in the food production process as opposed to relying solely on end product testing for food borne pathogens.

During the 1970’s HACCP was introduced into the broader food industry before being globally recognised in the 1980s by the World Health Organization (WHO) under the

Codex Alimentarius Commission as a key food safety system. HACCP also extended the well accepted practice of implementing Good Manufacturing Practices (GMPs) or in agricultural terms Good Agricultural Practices (GAPs).

The application of HACCP principles to horticulture in Australia came with the establishment and implementation of systems like Euro-GAP (now Global-GAP), SQF and specific customer requirements such as the Woolworths Vendor Quality Management Standard (WVQMS). Furthermore, some horticultural producers adopted a straight HACCP system for their quality assurance purposes.

While these systems served Australian horticulture well, in 2000 the establishment and introduction of Freshcare which was led and established by peak industry bodies and Horticulture Australia Limited (now Hort Innovation). Freshcare is an Australian-owned and operated company providing internationally recognised standards (GSFI) for the fresh produce industry (Freshcare, 2025). At the time of introduction Freshcare offered an industry driven option to address the need for a practical, cost-effective and Australian-centric industry focused food safety program. The basis of the Freshcare system is based on GAP's and HACCP principles (Chemcert, 2020).

Adoption of Freshcare by the horticultural sector in Australia has been significant with this program being the most widely used as a food safety management system (FSMS). High levels of adoption are due to the program being designed for implementation by all grower businesses, regardless of crops, size of operation, or location. In 2020 the release of version 4.1 achieved global recognition to GSFI benchmarking standards, underpinning global acceptance and confidence in the safety and quality in Australian fresh produce (Chemcert, 2020).

Evolving landscape for horticultural food safety systems

As the introduction and expansion of Freshcare continued there were also efforts from the Australian Governments Department of Agriculture, Forestry and Fisheries, via a government-industry working group that created the Guidelines for On-Farm Food Safety of Fresh Produce in 2001 (FPSCANZ, 2022) The guidelines continue to be upgraded to the point where existing versions assist with technical guidance for fresh produce production in Australia.

During this period, in 2012, Horticulture Australia Limited initiated a project to harmonise food safety certification requirements for the major retailers in Australia. The outcome of this project was the introduction and implementation of the Harmonised Australian Retailer Produce Scheme (HARPS). HARPS was designed to harmonise the bespoke major grocery retailers' certification schemes into a single standard, allowing for fresh produce producers to reduce compliance burden and address the various needs/requirements of the major retailers (Hort Innovation, 2022).

Along with Freshcare meeting GSFI standards and the introduction of HARPS in 2016, Australian horticultural producers finally had a streamlined, industry-led fresh produce safety system. These systems would allow horticultural producers access to major supermarket chains and reduce their overall compliance burden. HARPS also worked in conjunction with existing GSFI accredited (base) standards such as SQF, GlobalGAP and BRC to ensure access for all horticultural businesses.

Introduction and Inclusion of Food Safety Culture

Recent versions or editions of all fresh produce compliance standards have included food safety culture as an auditable element. The inclusion of food safety culture as an auditable element has created some confusion and misunderstanding among horticultural producers as the application and assessment is relatively subjective in nature. In confirming this situation, SAI Global (2021) stated that "though food safety can be measured in traditional ways, culture is much more instinctive and less specifically defined."

The introduction of food safety culture commenced in and around 2020s with Freshcare including the element in version updates in 2021. Food safety culture is now an embedded requirement of Codex HACCP and all GSFI benchmarked quality assurance standards (Frankish, 2021). Frankish (2021) also outlined that "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."

What is food safety culture?

The definition of food safety culture is varied, with FSANZ (2025) stating that "Food safety culture is about attitudes, behaviours and the priority given to food safety in an organisation. In a food business, it is how everyone (owners, managers, employees) thinks and acts in their daily job to make sure the food they make or serve is safe."

Frankish (2021), in an article written for the FPSC, cited food safety culture as being 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."

Frankish (2021) also provided a definition from the Global Food Safety Initiative (GSFI) for food safety culture as being "shared values, beliefs and norms that affect mindset and behaviour toward food safety in, across and throughout an organization".

Freshcare (2021) shares the GSFI definition of food safety culture in their Factsheet and further outlines that "a positive food safety culture is achieved within a business when there are shared values and a committed focus on delivering safe food by everyone."

Discussions with various fresh produce food safety experts have led to numerous interpretations of what food safety culture is and how it is applied. Brendan Hayes, a Senior Product Technologist with Coles Supermarket, outlined that food safety culture in fresh produce is about sound operational business practices. Hayes commented further that "food safety culture is not spoken, it's about being done and integrated in the ways of working from the top down" (Pers comms, July 2025).

International perspectives are similar to those echoed in the Australian horticultural industry with Ben Paige of the Summer Berry Company in the UK stating that "food safety culture is about getting buy-in and involvement from all staff in producing safe food" (Pers comms, June 2024).

Link between food safety and food safety culture

The link between food safety and food safety culture is considered direct given most respected definitions highlight that behaviour, values and attitudes across the organisation will reflect on delivering and producing safe food. Food safety management systems are designed to produce safe food if all elements are correctly implemented and all risks are assessed with adequate control measures put in place to control them.

Frankish (2021) provided a flow chart that highlighted the essential elements and links between food safety culture and the FSMS.

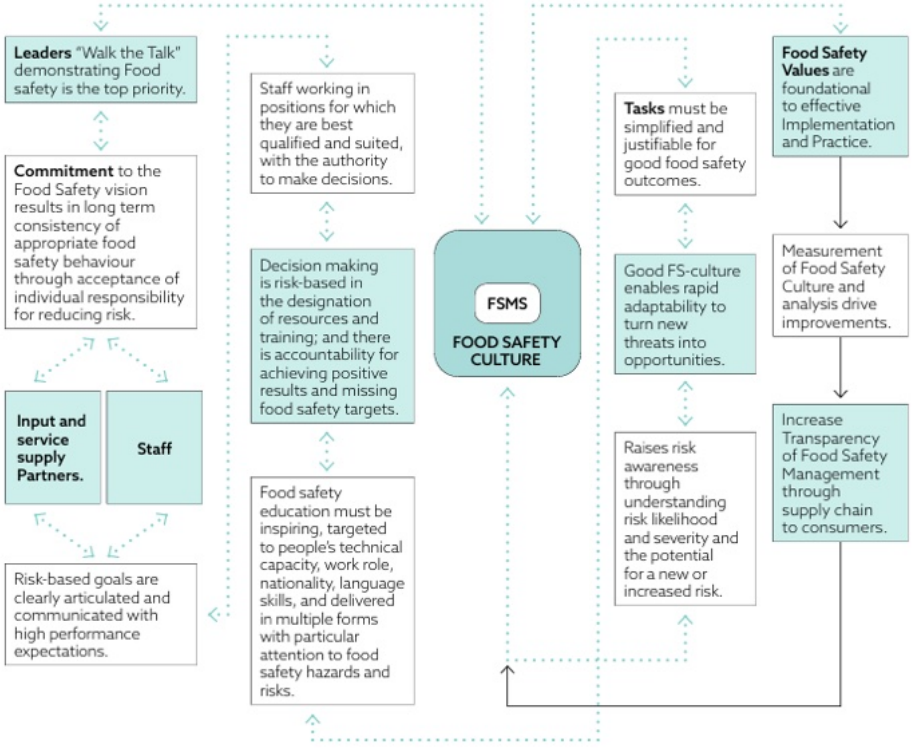

Figure 5. The essential elements and the links between food safety culture and the FSMS (Source: Frankish, 2021)

Frankish (2021) further highlighted that:

> *The effectiveness of FSMS is dependent on how food handlers apply company policies and implement procedures in practice. 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).*

Further discussions with industry experts highlighted the strong correlation between food safety culture and an effective FSMS. Jane Siebum, CEO Freshcare, outlined that food safety culture is about the daily processes that a horticultural business, undertakes to produce safe food (Pers comms, June 2023).

Increasing focus on food safety culture

Industry discussions in recent times have increasingly recognised that food safety culture is a critical element for the management of a FSMS. In terms of recognition, *"Food Safety Culture"* is now commonly used in food safety discussions as greater attention shifts towards how horticultural businesses manage their processes and meet food safety system requirements.

As outlined previously, food safety emphasises the role of attitudes, behaviour and the overall priority given to food safety within the business. Therefore, increasing recognition of the importance of food safety culture as a core element for operational success and moving beyond simply adhering to the requirements of a QMS is fostering a more proactive and engaged approach to food safety management.

Future updates of the Guidelines for fresh produce food safety from the Fresh Produce Safety Centre will also incorporate a chapter on food safety culture (Pers comms, July 2025). Additionally, all major GSFI standards being used for horticultural production have incorporated food safety culture as an auditable element, which further demonstrates there will be increasing emphasis on food safety culture into the future.

Challenges in implementing or improving food safety culture in horticulture

The need for food safety and production of safe food in horticulture is ever demanding. The consumption of fresh produce in a raw state leads to many challenges that are faced by those producing the products. In a world of continual regulatory pressure and cost burden the production of safe food at a farm gate level is becoming increasingly difficult.

Science bias vs cultural bias

One of the more significant challenges facing horticultural producers is the concept of science bias vs cultural bias. Producers lean more heavily towards a cultural bias when assessing food safety risks and implementation of FSMSs.

Cultural bias is defined as a tendency to judge or interpret situations, and behaviours based on one's own cultural background and experience, often without considering other perspectives. This can unintentionally shape the way individuals perceive information and make decisions. Such reference points could lead to significant misunderstandings, interpretations and unfair judgements about critical risk factors within the production system (Learnship, n.d.).

Science bias has its roots in proving that prescribed activities or actions will result in the production of safe food for human consumption. Examples of this are used in everyday food production such as cooking instructions (heat to internal temperature of 75^{o}C for chicken) or refrigeration requirements of <4^{o}C for chilled meats or dairy products. The extension to horticulture can be viewed in terms of chemical application and the use of potable water for post-harvest treatments/washing of produce prior to final packaging. Both of these common functions, from a fresh produce point of view, have set limits that have been scientifically proven to reduce risk of food borne pathogens in fresh produce.

Joseph Ekman, Technical Director at the Fresh Produce Group, believes science bias vs cultural bias is a critical challenge of fresh produce safety. The conceptual influence of "it hasn't happened to me" or "we produce a low-risk product" is not sustainable in horticultural production (Pers comms, 2022 and 2025).

Understanding food safety culture

Another critical element for most horticultural producers is understanding what food safety culture means for them and their business. Personal experience and continual discussions with producers across Australia and the world have shown that food safety culture is not well understood at a primary level.

In discussing food safety culture on a global sense with Frank Yiannas (Pers comms, July 2024), an author on food safety culture and Deputy Commissioner for Food Policy and Response at the US FDA, it was concluded that the understanding of food safety culture is very limited and that there is significant room for improvement.

Attitudes to food safety

The attitudes towards food safety and the management of food safety systems are mixed among the horticultural grower base. Small to medium sized growers, where the food safety system is managed by the owner, generally elicit a begrudging response. In some cases, growers feel it is a necessary evil that must be undertaken to gain access to particular markets.

Such cultural bias and attitudes will also lead to those growers having an adversarial experience during third party compliance audits of the QMS being employed by the grower. All too frequently within small to medium sized enterprises, generally at annual audit time, fear and panic is created as opposed to viewing the audit by an independent reviewer as an opportunity for improvement in their food safety system.

This belief and attitude are further exacerbated by the increasing compliance and regulatory burden horticultural growers are currently experiencing. Quality assurance and the subsequent annual costs are also viewed as non-productive expenses within the business. A recent call from the National Farmers Federation Horticultural Council (NFF, 2025) to launch a survey in horticulture to take a snapshot of benefits and burdens associated with market driven compliance which is often driven by trading partners down the supply chain as a condition of doing business provides evidence that this is becoming unsustainable for some in the industry, and that quality assurance is not adding value.

Larger businesses where resources can be provided to manage food safety maintain an entirely different point of view. These businesses, some corporate and some family owned, can also employ the necessary technical skillset to manage the complex requirements of food safety compliance systems relative to fresh produce. It is also quite often the case that these types of businesses have longer windows of production compared to smaller seasonal type operations. Ben Paige, Summer Berry Company in the UK, stated that “we have annual unannounced BRC audits and these are not confrontational as we are confident in our system due to continual assessment and improvements within the system” (Pers comms, June 2024); i.e. that audits are adding value to their business and helping to reduce the likelihood of a potentially damaging incident.

Small to medium vs large scale operations

As outlined in the previous section, scale of operation has a strong correlation to how food safety is viewed and managed within the business. Small and medium operations tend to have a limited window of activity in which food safety requires more focus, generally around harvest periods. Regardless of size of operation, the fundamental requirements for food safety remain the same.

Where larger enterprises have a distinct advantage, as previously noted, is their opportunity to employ technical specialists to manage and drive food safety, effectively creating a FSMS by design. This is in direct contrast to smaller operations where the FSMS is often in a default state, but a necessary requirement for the business to operate.

It is further noted that the family owned and operated enterprise also potentially has capacity and/or time pressures associated with compliance. Some horticultural producers have clearly stated that compliance matters, be that food safety or workplace health and safety, but are sometimes the last things to be thought about in a day's work. According to former NQ avocado and lime grower, Mark Yelavich, "being a jack of all trades and adding the increasingly complex compliance paperwork into our schedule is difficult, especially when the pressures of harvesting and packing are taking place" (Pers comms, March 2024). Such considerations were echoed by Angus Soft Fruits Farm Manager, Alan Innes, who stated that "documentation is effectively reducing the time available for farming" (Pers comms, June 2024).

Figure 6. Large scale glasshouse micro herb production Koppert Cress in the Netherlands (Source: Author)

Seasonal workforce

To further complicate the management of food safety culture and the FSMS within a business, most horticultural enterprises, certainly those that are operating seasonally, have significant challenges with their workforce. As an example, some lychee growers may require a workforce for only four weeks during their harvesting and packing period. This creates some unique challenges.

This situation is a global issue as highlighted by Jain et al (2024) stating that "labour shortages have become a significant issue in horticulture, especially in developed countries where fewer local people are willing to work in agriculture. The lack of skilled labour affects planting, maintenance, and harvesting operations." Accessing suitable labour for the Summer Berry Company in the UK is a perennial issue with most workers requiring English lessons due to their non-English speaking backgrounds (Paige, Pers comms, June 2024).

Another aspect of employing workers in the horticultural industry is around socio-cultural challenges. As previously mentioned, cultural bias exists within horticulture at an ownership and management level. From an employee perspective, some horticultural workers may have established practices that they consider are effective for them or experienced from previous employment and this may not necessarily align with modern food safety standards or the standards being employed by the business.

Traditionally, most horticultural regions in Australia relied on backpacker (working holiday) labour to ensure crops were planted, maintained, harvested and packed in a timely manner. Following COVID-19, these traditional sources of labour started to dwindle thus forcing producers to examine the use of labour hire, contractors, and/or alternative labour schemes like the Pacific Australian Labour Mobility scheme or PALM.

Regardless of origin, foreign nationals or itinerant labour can pose an issue when implementing a food safety system due to cultural barriers and expectations of behaviour and hygiene standards. The limited nature of seasonal labour, largely being unskilled, creates even greater challenges for producers in ensuring compliance to FSMS within the working environment. For some producers utilising labour hire can be tedious with contractors providing new or different workers on an almost daily basis as was outlined by Steve Cadorin (Pers comms, Jan 2025), a Mareeba based orchardist growing mangoes, passionfruit, avocados and limes. Steve continued to outline the challenges of these arrangements highlighting the need for adequate induction, training and assessment of working rights as being an almost full-time administration role within the business.

Those businesses where year-round, longer seasonal production takes place can retain labour for longer periods and can therefore develop and implement food safety culture concepts far more effectively. Personal experience of managing a year-round hydroponic cucumber farm wasn't without labour issues, however, access to a stable workforce allowed for development and implementation of systems that enhanced the business's food safety culture.

Assessing and measuring food safety culture

Understanding the current level of food safety culture and compliance with the relevant standards or working practices is a critical element in modern food production. The assessment or performance measurement of food safety culture and compliance is a means of defining its effectiveness and provides for a baseline from which to drive food safety culture improvement (Frankish, 2021).

How to assess food safety culture – tools and methods

Choosing a method for assessing and evaluating food safety culture within the business is challenging. There are many factors to consider before undertaking the first step. These may include:

- Seasonality of the business
- Staff turnover
- Level of risk associated with the products produced
- Staff language barriers
- Willingness of staff to complete surveys etc
- Level of food safety cultural maturity within the business

The last point above will hold the most relevance for any business that is ready to assess or measure their food safety culture. The business leaders need to be ready to accept feedback and input from all staff in this process, regardless of tools or methods being used. Assessment of a business's food safety culture is subjective and can lead to the basis of assumption being – "we haven't had any complaints". As such, objectivity in assessing food safety culture within the business is difficult to achieve in full scale (Bennett, Pers comms, August 2025).

In discussions with Richard Bennett (Pers comms, August 2025), a former Technical Manager at the FPSC-ANZ and Produce Marketing Association Head of Food Safety and Technology, outlined that horticultural producers should also not view a measure of food safety culture as passing an audit. A similar point was made by Joel Dinsdale (Pers comms, August 2025) in achieving compliance on an audit is not necessarily a good indicator of food safety culture within a business.

Methods of assessing and measuring food safety culture

There are several methods available to assess food safety culture within the business environment. These have been largely manipulated from forms of assessing business culture. The initial methods were developed with food producers/manufacturing in mind where high risk food manufacturing was taking place and the need for assessing food safety within the workforce and business as a means of continual improvement is paramount to producing safe food for consumption.

The methods available to businesses wishing to undertake an assessment of their food safety culture are listed below:

- *Surveys and questionnaires* - surveys or questionnaires can be used to gather data from workers, managers and stakeholders about their perceptions of food

safety, including their understanding of good practices within the business operations. This method also gathers information about the respondent's commitment to food safety. The most important aspect of direct surveys or questionnaires is that it offers the opportunity to assess the level of knowledge about specific food safety risks and requirements of the business from the respondent. This type of data is critical to the development of targeted training or for identifying areas of improvement for the business. A potential downside or risk to this type of assessment is that employees could provide the answer that they think the business wants, therefore, skewing the results.

- *Interviews and focus groups* – conducting interviews or focus groups can provide in-depth insights into the challenges faced by employees at different levels within the business. Conversations within these interviews or focus groups can reveal a multitude of information behind potential non-compliance to food safety practices within the business or any resistance to new or introduced practices and procedures. Depending on the level of maturity within the business, these types of methods for assessing food safety culture may require some level of independence from a professional facilitator to get the best from the activity (Wilson-Chartres, Pers comms, August 2025).
- *Observation* – observing of day-to-day operations and activities is an effective way to assess food safety culture. This method can facilitate direct performance data on employee's compliance to and general adherence of food safety protocols and requirements within the business. Ben Paige, Summer Berry Company, outlined that observation using CCTV in the packing shed was an important aspect of assessing staff practices (Pers comms, June 2024). Another key aspect of this method is the effectiveness of identifying gaps between written policy and procedures and actual practices undertaken by employees. This is a common technique used by auditors when conducting audits of facilities or work environments.
- *Documentation and Key Performance Indicator Reviews* – by assessing documentation within the business, trends can be observed relating to timeliness of verification and validation activities. Further, reviewing key performance indicators, generally lag indicators, like number of customer complaints, reviewing any food safety violations or number of training hours per staff member allows the business to interrogate real data on the business.

Frankish (2021) provided a brief guide on the outlined methods of assessing food safety culture in Australian horticulture. The guide also examined any potential advantages or limitations, see the guide below.

Table 2. Food safety culture measurement approaches, their advantages and limitations for horticulture (Source: Frankish, 2021)

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

Available tools for assessing and measuring food safety culture

It is critical that any tools used in assessing or measuring food safety culture within a business are valid, suitable for the business and its operations, and are designed in a manner that best allows the obtaining of what the business needs to know. As outlined previously, the risk levels associated with the products the business produces will be a determining factor in how advanced the tools and subsequent methods used to assess or measure food safety culture will be.

As food safety culture concepts have evolved over the past five years there have been some efforts undertaken to assist businesses in providing access to ready-made surveys and questionnaires. FSANZ (2025) created a food safety questionnaire that provides businesses with a ready-made survey suitable for all levels of employment within the business. Commercial business Safety Culture (2024) provides examples of questionnaires and sample reports while also outlining what may be included in the questionnaire. This resource also provides templates that can be manipulated to suit the business operations.

For those utilising the SQF FSMS in their business, a guidance document is available outlining FSC concepts and means of how a business's food safety culture can be examined or assessed. The SQF Guidance Document introduces the concept of ROI – Records, Interviews and Observations. Similarly, BRCGS provides an exclusive module on Food Safety Culture Excellence. The module involves a percentage of staff

at all levels to undertake a questionnaire in which responses are converted into a score to produce an Assessment Report.

Communication in assessing food safety culture

In an article for Food Safety Magazine, Jespersen et al (2024), outlined that communication plays a key role when assessing food safety culture within a business. The style of communication within the business will have a deciding factor in what methods of assessment are used and their effectiveness as this is an important indicator of the maturity stage of the business. The below table outlines the correlation between these factors.

As outlined in the below table, communication to staff following any assessment or measuring events will be a catalyst for any improvement within the business. Senior management must ensure appropriate information and outcomes are shared between all levels of the business.

Table 3. Food Safety Culture Assessment Methods and Communication in Relation to Food Safety Culture Maturity Stages (Source: Jespersen et al, 2024)

Maturity Stage	1	2	3	4	5
Most common assessment methods by maturity stage	Surveys	Surveys, Document analysis	Surveys, Document analysis, Focus groups and Interviews	Surveys, Document analysis, Focus groups and Interviews, Data integration	Surveys, Document analysis, Focus groups and Interviews, Data integration
What can you expect to learn from this assessment?	A measure of the top of the culture pyramid—what your teams see and hear from leaders.	A measure of norms as described; for example, in food safety meeting minutes and near-misses.	Insights into how people would describe the organization, in current or aspirational terms.	Potential correlations between human resources, people safety, and food safety performance and behaviors.	Potential predictive models based on company-specific food safety risks and behaviors.
What to ask to make sure you get valid insights?	Design surveys to obtain accurate results that genuinely reflect the intended measurement objectives. This ensures that the data collected is reliable, valid, and ultimately supports informed decision-making.	Select the relevant documents, information, data, and appropriate indicators that provide relevant insights. Insights obtained should be reliable, valid, and support decision-making.	Design the focus groups and interviews to elicit insights that reflect intended measurement objectives.	Identify appropriate data sources and analyze the data to draw valid and reliable insights. This goes beyond the qualitative and quantitative data collected toward statistical analysis and interpretation that is easily understood.	Incorporate machine learning to ensure continuous measurement and insights into performance and potential company-specific risks.
What are common communication methods?	Memo from CEO and FSQA lead.	FSQA leads engagement of plant leadership.	Cascading insights across functional groups by functional leaders, shared in meetings.	Integration in tiered structure and continuous improvement rhythms, shared in meetings, posters, and corporate communications.	Insights shared across function and levels, to all other functions and levels.

Food safety culture in practice

There are several elements that should be considered when implementing a strategy to improve food safety culture within a business. In a similar vein to overall business culture, food safety culture must be structured and designed in its approach to ensure effectiveness and buy-in from staff at all levels.

Leadership

Effective food safety culture must start with business or farm leadership. Those charged with managing the operations of the business must demonstrate a clear commitment to food safety, ensure they lead by example and promote food safety at all levels within the business. Items that are non-negotiables are ensuring that food safety is clearly addressed in business policy and that resources needed for food safety are available for all staff.

To demonstrate commitment, senior management must be visible within the business to all levels of staff. Active participation in food safety training events, setting expectations around food safety behaviours and fostering an environment where food safety is a core value and priority for the business are all critical components of leadership in this context. Damien Butler of Donnelly Fresh in Ireland, Managing Director of a third-generation horticultural business, articulated this concept very well, outlining that the requirement for senior management to be actively involved in food safety is top of the agenda. Butler further reinforced this statement by stating that “the business has a responsibility to itself and its customers to provide safe food” (Pers comms, June 2024).

Communication

As with leadership, communication between all levels of the business is a critical element of effective food safety culture. Communication must be clear and transparent along with consistency in its delivery. Management must ensure that food safety dialogue, such as policy, procedures and expectations, is delivered in a concise and practical manner that allows all staff to understand.

Having open and transparent communication allows staff to feel comfortable and confident in reporting food safety concerns, ask questions or suggest improvements. Where necessary, the provision of pictorial and multi-lingual messaging that is culturally sensitive should be provided (Frankish, 2021).

The Summer Berry Company undertakes regular toolbox talks regarding food safety matters and have outlined that the use of audio-visual aids in common areas that reinforce good food safety practices are excellent reinforcement tools (Paige, Pers comms, June 2024). Just Avocados in New Zealand undertake a similar daily process where a toolbox meeting is held prior to the commencement of daily work. While production matters are discussed, management regularly take the opportunity to reinforce good food safety practices with staff. This ensures reinforcement of business

expectations to food safety practices are maintained (Hayward, Pers comms, March 2023).

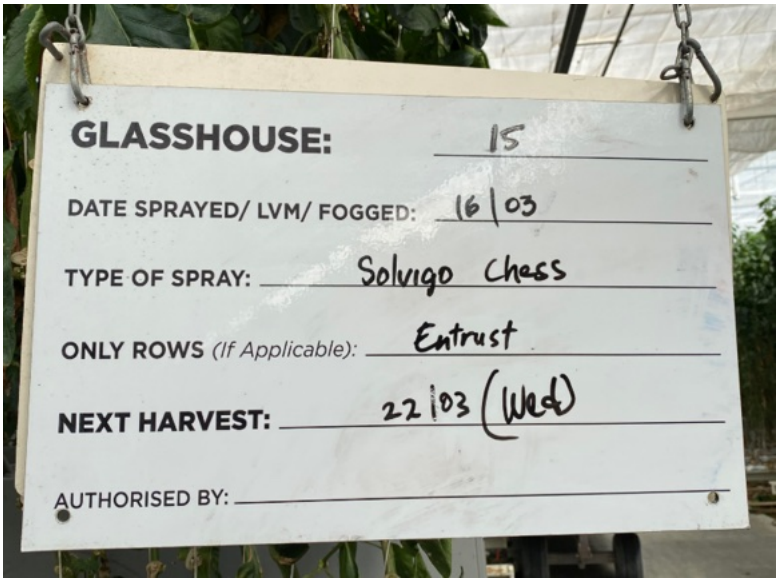

Figure 7. Communication is not always verbal – signage clearly displaying last chemical application and next harvest timing in a glasshouse capsicum crop in New Zealand. (Source: Author)

Training and education

Training and education of staff, at all levels within the business, is vital for the success of any horticultural business but more importantly should form the foundations of any food safety culture improvement program. All training should be planned to ensure that it is relevant, targeted to the audience and practical where necessary. Refresher and reinforcement training should be scheduled to ensure staff are up to date with any changes in food safety practices, procedures, policy or expectations.

The commencement of training, in all businesses, for food safety should start with induction to the business. Any policy, procedures and expectations should be clearly defined and in a format that is easily understood for the staff member. Further on-the-job training should be undertaken with experienced staff 'mentors' that can provide relevant and real time feedback for those new staff members.

One of the critical elements associated with training, particularly for food safety practices, is ensuring that the 'why' is provided when training is being conducted. For staff to understand 'why' procedures are performed in a systematic manner and the explanation as to the potential outcome if compliance isn't achieved must be clear. A similar style of training method is employed by berry grower Hall Hunter in the UK. The concept of '*train and explain'* is used for all staff to ensure they understand the potential consequences of non-compliance for the business in the event of a food safety incident (Deacon, Pers comms, June 2024).

Workforce empowerment

Staff at all levels should have the confidence to report potential food safety issues or to have the ability to 'stop the line' if necessary, without the fear of senior management reprisal (Bennett, Pers comms, August 2025). This type of empowerment for all staff displays a level of trust within the workforce and further provides commitment to positive food safety outcomes for the business. Keelings, a horticultural business based in Ireland with global growing operations, recognise that employees are central to the success of the business regardless of their role (Ahmed, Pers comms, June 2024).

Frankish (2021) outlines that by involving workers at all levels in the design, implementation and monitoring of procedures and practices within the business can create ownership of the food safety management system. This type of engagement results in employees becoming food safety ambassadors for the business.

Rewarding good food safety practices

Providing positive reinforcement of good food safety practices and attitudes will result in greater adherence to policy and procedures by all staff. Creating a structure where employees may be rewarded or recognised for excelling at upholding food safety standards reinforces a sense of ownership in food safety and provides for greater job satisfaction. Yiannas (2015) has suggested that happier staff may be more likely to have improved food safety behaviours and comply with food safety requirements.

Active skillset development

A continuous theme in all discussions held with food safety professionals is the need for the owner/manager or senior management within a fresh produce business to remain active in developing their skills in food safety. Understanding requirements of a standard is considered a bare minimum for all fresh produce undertaking an audit, however, continually working on improving their knowledge of food safety will ultimately provide opportunities to strengthen food safety culture for the business (Drinsdale, Pers comms, August 2025).

Given the continually changing landscape in food safety requirements fresh produce growers must look to stay well connected to sources ensuring that information being received is relevant to their business. There are multiple resources available online, ranging from webinars to periodic newsletters along with accessing resources from within industry like PIB's industry development staff or downstream marketing organisations (Drinsdale, Pers comms, August 2025).

Working on the FSMS

Businesses that displayed higher levels of maturity with food safety culture repeatedly reinforced the need to continually work on the FSMS being used by the business. Gaining a stronger understanding of the standards being implemented is important in

gaining confidence in the FSMS and how it will be interpreted. Following the changes of the FSMS being used by the business and taking control of the FSMS is considered good practice and leads to greater understanding overall (Drinsdale, Pers comms, August 2025). Scheduling parts of internal audits throughout the year and not just at a point in time will improve the functionality of the FSMS and allow for more regular risk assessment to be undertaken (Paige, Pers comms, June 2024).

Workplace environment and facilities

For staff to adequately adhere to food safety requirements and expectations the workplace environment and facilities should be fit for purpose. The creation of a tidy workplace will result in improved quality and food safety outcomes as it sets a standard of expectation from the moment employees enter the workplace (Hayward, Pers comms, March 2023).

Figure 8 & 9. A cleaning equipment shadow board and colour coding system for cleaning equipment taken in an avocado packing shed in New Zealand. (Source: Author)

Production facilities that are well designed and free from clutter, not only allow for effective sanitation but also improve productivity. Designing facilities should be undertaken with a multi-disciplinary approach to ensure that personnel are controlled and appropriate hygiene for all staff is easily obtained. This will also reduce the potential of cross-contamination by restricting movements from personnel (Hayes, Pers comms, July 2025).

Food safety culture – a brief case study

Wilkin & Sons, located in the Essex village of Tiptree, have been growing fruit for 300 years on their own farms in the surrounding village and local region. In 1885 the business formed the Britannia Fruit Preserving Company and commenced making jams and preserves. As a side note, the very first batch of preserves were sold to a travelling merchant and shipped to Australia! Tiptree continues to flourish as an integrated growing and food manufacturing business.

Tiptree's successful integration as a food manufacturer has provided their horticultural growing operations of the business a unique perspective of food safety over the years. This has allowed the business to establish deep-rooted cultural and procedural mechanisms, not only within the food manufacturing component of the business, but also within the growing portion of the operation.

Figure 10. Promotional poster at Wilkin & Sons Ltd office in Tiptree, Essex, UK (Source: Author)

The food safety culture maturity level within Tiptree is high, with senior management taking active approaches to food safety along with providing QA staff with full access to senior management. Communication with employees is important and allows the business to annually conduct questionnaires on its food safety and WH&S culture. The questionnaire uses mostly open-ended questions to gain a response from participants and is completed on a voluntary basis.

Figure 11. Hydroponic strawberry system for onsite jam production, Tiptree Farm (Source: Author)

Historically, around 75% of all staff complete the questionnaire, therefore, providing a high level of confidence in the results. The food safety culture team, a mix of HR, operations and technical staff, review the results and provide feedback to staff via various mechanisms including regular meetings with all heads of departments where themes from the questionnaire results are discussed. While the annual questionnaire is useful in understanding food safety culture, staff are always encouraged to provide feedback on food safety issues using a Suggestions Box. To develop confidence in employee interaction on food safety culture, along with other operations matters, Tiptree implemented a Positive Interaction in People Strategy, recognising that cultural change is a marathon and not a sprint.

Figure 12. Field hygiene station on Tiptree farm (Source: Author)

Tiptree employs approximately 500 FTE staff and 250 seasonal workers for harvest periods on the farms. Procedures and expectations for food safety requirements are specifically built into position descriptions for each role to ensure non-negotiable requirements, like putting your seat belt on when you get into your car, is just a habit. This includes requirements like wearing hair nets in all production and processing areas, including the field. Hygiene practices are regularly tested among staff with hand swabbing reinforcing the 'why' hygiene is important at all levels of production.

While Tiptree is considered a large mature business with complex operational requirements and strong food safety culture, lead-in periods to third party and customer audits were still a source of anxiety for the business and technical employees. Like many smaller farming operations, the concept of an audit by a third party was daunting. The QA team at Tiptree flipped the narrative and started looking at audits as a source of improvement starting with preparation. This attitudinal change created behavioural change where audits are no longer seen as a point of anxiety, instead a resource for improvement.

Overall, Tiptree works on the principles of a top-down approach to food safety culture. This has enabled the business to enhance productivity through well-grounded procedures that provide staff at all levels an opportunity to contribute. Staff maintenance and wellbeing play a further role in ensuring that culturally the business is sustainable into the future.

Conclusions

The changing landscape of food safety will continue to evolve into the future. As fresh produce growers, businesses must take positive action to ensure they maintain their knowledge and compliance with these changes. The compliance burden will need to be managed through improving business processes and procedures to make induction and subsequent adherence to food safety expectations and requirements easier for all levels of staffing.

Linkages between business culture and improved business profitability are well known and have been reviewed at length. Food safety culture is no different. The ability for a business to understand, assess and improve food safety culture will result in improved quality outcomes and the sustainable production of safe food. Frankish (2021), in an unpublished study in an Australian produce company, found a focus on business culture “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.

The value of improving food safety culture is a given in food production businesses where the concepts have been evolving for a much longer timeframe. Jaco Schep, President of Schep’s Bakeries in Norwich, Ontario, Canada, clearly outlined that strengthening food safety culture resulted in sizable improvements and productivity gains and the ability to manage processes with reduced input (Pers comms, June 2022).

The introduction of food safety culture as an auditable element in third-party food safety audits is creating the need for fresh produce growers to adopt and implement cultural practices to achieve the necessary compliance. However, attitudinal change from the mindset of being primary producers to being food producers will greatly enhance the ability and effectiveness of implementation. Once this mindset shift has occurred, the behavioural change necessary to strengthen organisational food safety culture will lead to productivity and sustainability gains for the business.

A further benefit that will result from a strengthened food safety culture is improved processes within the business leading to greater ease of delegation of tasks, allowing owners or senior management to focus on the business. This in turn provides for greater sustainability and growth opportunities for the business in the longer term.

Potential change may not necessarily be easy and for small to medium sized family run farms introducing change may create difficulties in upskilling to achieve these outcomes. Taking positive action on a regular basis, along with staying current on changes to FSMS’s will greatly reduce time burdens and increase the confidence in how the FSMS works within the business. These actions will in turn lower audit anxiety and unlock the value of food safety audits by providing a source of continuous improvement.

Recommendations

Change in attitude for fresh produce growers

As horticultural growers have traditionally been referred to as primary producers, there is greater need for an attitudinal change with growers adopting a mindset of being food producers. Most horticultural produce is consumed raw, adding to the food safety risks associated with production and supply to the consumer. By adopting a food producer mindset, food safety risk assessment for the business and the resulting management of those risks will provide a different perspective, opening the opportunity for strengthening food safety culture to support the business's sustainability and productivity.

Leadership in food safety must be a top-down approach

For food safety culture to take priority within an organisation, the business owners and/or senior managers must display leadership and commitment to food safety. It must be visible in their personal actions, not just as policies. Participation in training with staff at all levels should be a priority to display commitment, as is active participation in quality and technical meetings. Technical and QA staff should have unrestricted access to owners and/or senior management to discuss food safety issues when necessary.

Develop trust through communication

As with leadership, having clear and transparent communication at all levels of the organisation will improve food safety culture and efficiency. This will reduce any of 'us and them' mentality that may exist within the business. Communication functions as a conduit for knowledge transfer and allows for employees to speak up for positive change. Open dialogue as a top-down and bottom-up scenario is behavioural in nature and should be encouraged through team meetings and or individual interaction with employees.

Seek opportunities for practical implementation of food safety

All horticultural producers should seek opportunities to gain knowledge and understanding of practical food safety implementation. Discussions with neighbours, engaging with industry representatives or their PIBs should be encouraged at all levels of production. Similarly, subscribing to readily available food safety newsletters and standards (e.g. Freshcare or HARPS) communications will provide up-to-date technical information on food safety matters.

Another source of information could be to engage consultants to address knowledge or skills gaps. These industry professionals can provide insight into FSMS changes and offer practical solutions to any issues being encountered. Similarly, some

horticultural PIBs offer technical assistance in FSMS to their members and may be another option to seek improvements in technical knowledge for the business.

Periodical assessment or measuring of food safety culture

Staff knowledge at all levels can provide valuable data when undertaking a food safety culture improvement program. Questionnaires or surveys, correctly structured, can allow for food safety practices within the business to be reviewed against expectations and procedures.

Small to medium sized growers that operate seasonally should target a mixed-method approach to assessing food safety culture. A survey that is coupled with staff discussions and observations should be implemented towards the end of a season. This form of triangulation exposes gaps in food safety practices allowing for adjustments in procedures and training to be ready for the following season. Therefore, providing for continuous improvement to take place during down time between intense operational activity.

Utilise employee knowledge

All sizes of fresh produce business can benefit from utilising the practical knowledge that is available from their employees. When developing or implementing any change to food safety structures, a multi-disciplinary approach should be undertaken. Engaging with employees across all functions will ensure that food safety is well incorporated into the practices of the business to create non-negotiable tasks, culturally designing a system of ownership by all staff akin to “around here we…..”.

Training in food safety

Training is a critical element of any business and particularly so for FSMS and production of safe food. Initial induction training should ensure that all staff fully comprehend their roles and responsibilities around food safety and the expectations of the business. Refresher or follow-up training provides reinforcement of messages that are crucial to safe food production. The introduction of scenario-based learning where staff knowledge may be tested through brief workshops should be implemented as a means of developing collective agreement among employees and provide valuable assessment feedback in real time about food safety culture within the business.

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