Hort Innovation

Final Report

Valuing the sustainability story of the Australian vegetable and onion industries

Delivery partner:

Corporate Value Associates Australia

Project code:

MT24003

Project:

Valuing the sustainability story of the Australian vegetable and onion industries (MT24003)

Disclaimer:

Funding statement:

This project has been funded by Hort Innovation, using the onion and vegetable research and development levy and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

Publishing details:

Published and distributed by: Hort Innovation

Level 7
141 Walker Street
North Sydney NSW 2060

Telephone: (02) 8295 2300

www.horticulture.com.au

Table of contents

Table of contents 3
Table of figures 5
Message from the Partner 6
Public summary 8
Technical summary 8
Keywords 9
1. Executive Summary 10
1.1 Introduction: valuing the Australian vegetable and onion industry's sustainability story 10
1.2 Overall project methodology (MT24003) 11
1.3 Validating the HSF's suitability for the vegetable and onion sectors 14
1.4 Module A: Sector-wide data scan 16
1.5 Deep target-audience insights and analysis 18
1.6 Communication strategy roadmap 24
1.7 Communication materials 25
2. Module A: Sector-wide data scan 26
2.1 Introduction 26
2.2 Methods 26
2.3 Results & discussion 27
2.4 Recommendations/Conclusions 38
3. Module B: Deep target-audience insights and analysis 39
3.1 Introduction 39
3.2 Methodology 39
3.3 Results & Discussions 41
4. Module C: Communication Planning 62
4.1 Introduction 62
4.2 Methodology 62
4.3 Results and discussion 63
5. Outputs 72
6. Outcomes 75
7. Monitoring and evaluation 77
8. Key findings and conclusions 79
8.1 Key findings and conclusions – HSF and the data landscape of the industry 79
8.2 Key findings and conclusions – Cross-sector insights 80
8.3 Key findings and conclusions – Consumers 81

8.4 Key findings and conclusions – Growers 82
8.5 Key findings and conclusions – Grocery retailers as a supply chain partner 83
8.6 Key findings and conclusions – Government as an audience 84
8.7 Key findings and conclusions – Research partners 85
8.8 Communication roadmap for the Australian vegetable and onion industries 86
References 87
Intellectual property 91
Appendices 92
Appendix 1: The Australian-grown Horticulture Sustainability Framework 92
Appendix 2: The Australian-grown Horticulture Sustainability Framework 94
Appendix 3: Australian Grown Horticulture Sustainability Framework Sector wide scan – Pillar 2 People & Enterprise 95
Appendix 4: Australian Grown Horticulture Sustainability Framework Sector wide scan – Pillar 3 Planet & Resources 98
Appendix 5: Australian Grown Horticulture Sustainability Framework Sector wide scan – Pillar 4 Climate & Waste 100
Appendix 6: MaxDiff – A quick guide 102
Appendix 7: Messaging deep dive – food waste 103
Appendix 8: Messaging deep dive – packaging 104
Appendix 9: Messaging deep dive – chemicals 105
Appendix 10: Messaging deep dive – high-quality products 106
Appendix 11: Messaging deep dive – protecting land & local environment 107
Appendix 12: Messaging deep dive – protecting land & local environment 108
Appendix 13: Letter 109
Appendix 14: Communication Material – Consumer Findings 112
Appendix 15: Communication Material – Research Findings 121
Appendix 16: Communication Material – Sustainability Story Brochure 127

Table of figures

Figure 1: Australian-Grown Horticulture Sustainability Framework 10
Figure 2: Project methodology summary 12
Figure 3: Roadmap to strengthen and communicate the sustainability story of the Australian vegetable and onion industries (simplified) 24
Figure 4: Highlights of developed materials suitable for industry communication 25
Figure 5: Consumer perception of sustainability across industries 41
Figure 6: Share of consumers responded that the initiative would have a positive impact to their perception to the vegetable industry 41
Figure 7: Cost was a primary concern in consumers' purchasing decisions 42
Figure 8: Consumers prefer loose vegetables 42
Figure 9: Consumer Qualitative Research - ranking of sustainability messages by consumer perceived importance 43
Figure 10: Evaluation of sustainability initiatives based on consumer desire to hear more and perceived important of industry action 43
Figure 11: Share of consumers showing preference to different communication channels 44
Figure 12: Consumer reaction to supermarket led sustainability initiatives 44
Figure 13: Consumers' level of trust in stakeholder within the sustainability context 45
Figure 14: Percentage of respondents willing to hear sustainability initiatives from different stakeholders 45
Figure 15: Share of consumers showing preference to different communication format 46
Figure 16: Existing sustainability-related data collection systems 48
Figure 17: How a consolidated sustainability report can align stakeholders and support the vegetable and onion industry's communication strategy 69
Figure 18: Roadmap to strengthen and communicate the sustainability story of the Australian vegetable and onion industries 86

Table 1: Comparison of sustainability frameworks and reporting practices across Australian agricultural industries 15
Table 2: Summary of sustainability data trends, gaps, and opportunities across HSF pillars 16
Table 3: Sector-wide scan data capture classification 26
Table 4: Australian Grown Horticulture Sustainability Framework Sector wide scan 28
Table 5: Australian Grown Horticulture Sustainability Framework Sector wide scan - Pillar 1 Nourish & Nurture 29
Table 6: Australian Grown Horticulture Sustainability Framework Sector wide scan - Pillar 2 People & Enterprise 31
Table 7: Australian Grown Horticulture Sustainability Framework Sector wide scan - Pillar 3 Planet & Resources 34
Table 8: Australian Grown Horticulture Sustainability Framework Sector wide scan - Pillar 4 Climate & Waste 36
Table 9: Guiding Communication priorities and messages across key audiences 63
Table 10: Comparison of Sustainability Frameworks and reporting practices across Australian agricultural sectors 66
Table 11: Output summary 72
Table 12: Project deliverables summary 73
Table 13: Outcome summary 75

Message from the Partner

It has been a privilege to partner with the Australian vegetable and onion industries to examine how they can best communicate their sustainability story—and how this story can be strengthened for the future.

This research has produced a set of compelling results. **Most notably, the vegetable and onion industries were rated by a 1,000-consumer survey as the most sustainable sector in Australia as compared to all other sectors of the economy.** In a representative consumer quantitative survey, the vegetable industry was rated as the most sustainable sector (rated by 94% of those surveyed as 'neutral' to 'very sustainable'), ranking above dairy (86%), meat and livestock (79%), tourism (80%), energy (74%) and fashion (72%). Clearly the vegetable and onion industries have extremely high levels of trust amongst consumers as a fundamental healthy part of their diet. Furthermore, the consumer takes it as a given that Australian vegetables and onions are sustainably grown.

In other words, the starting point for the Australian vegetable and onion industries' sustainability story is very strong – at least in the eyes of consumers – and therefore the purpose of the industry Hort Sustainability Framework (HSF) is to provide the structure and systems by which this impressive positioning can be maintained and enhanced.

Our research found that the HSF (2023) remains relevant in its description of material matters and based on industry interviews, has support of stakeholders in the sector. The data available to report on status or progress towards a more sustainable industry is patchy and more work is required to co-ordinate data gathering and to report against the framework.

The consumer insights research also found that cost-of-living was an overwhelming sentiment and paying more for sustainability outcomes was very difficult for consumers. Who pays for future changes in sustainability in the food system remains a vexed question for all sectors of agriculture and the food value chain.

The consumer's experience with vegetables and onions is very much seen through the shopping experience in grocery retail. Matters such as packaging and food waste are therefore more front of mind. Other factors such sustainable farming practices are taken as "expected" or as "given", which is wrapped in the trust in Australian producers. Consumers also assume that growers will be paid in a way that maintains financial viability and this matter is not front of mind in when they buy their vegetables and onions.

The importance of the retail experience demonstrates the importance of industry working with retailers in the delivery of sustainability messaging to consumers. The HSF aligns with the retailers' published sustainability objectives albeit retailers focus more on packaging and waste given this is front of mind for shoppers.

Growers were also supportive of the HSF although it is not directly applied to day-to-day business. **It was also noted that growers already collect substantial sustainability-related data—primarily through participation in certification and assurance schemes such as HARPS, Freshcare, Fair Farms, and SEDEX—as a condition of market access. However, these data are typically used for compliance purposes rather than for aggregate reporting or communication of industry-wide progress. Interviewed stakeholders saw an opportunity to better utilise this data to inform sustainability reporting and strengthen the industry's public narrative.**

Growers interviewed pointed out the need for clarity in direction from retailers and industry, identified emerging matters e.g. requirements for lending and sustainably linked loans, some risks in export markets such as the loss of use of some chemicals used in Australia. They also raised the need for an evidence base that can defend against excess regulation and the need to manage data and control the narrative for key sustainability issues.

The message for Government was that the Australian and vegetable industry had already made significant gains in on-farm and supply chain practices. The industry is already heavily governed in regard to food safety, quality, chemical use and employment practices via Australian and global standards that are often a requirement of supply to retailers. The message to policy makers is clearly that the Australian vegetable and onion industries have lower footprints that other food sectors e.g. lower emissions and that is now seen to be the most trusted by consumers.

Discussions with researchers also provided evidence of support for the HSF including ideas for how it could be utilised more – for example in the assessment of projects for funding and how they align to HSF.

In developing the “so what” in telling the industries’ sustainability story, we looked at best-practice in other Australian agriculture sectors and framed messaging for each audience (e.g. consumers, retailers, growers and Government). In some cases, the sustainability story is underpinned by industry-wide data or research, in other cases there will be a reliance on case studies.

The Australian vegetable and onion industries are held in high regard when it comes to overall sustainability. The HSF (2023) remains a good framework by which to develop industry strategies, research, data gathering, reporting and communications. There are many gaps for industry to contemplate as it prepares to maintain a strong brand position into the next decade.

In considering this report we recommend the industry considers a roadmap for the development of goals, metrics and reporting that can maintain the industries' high standing and move the sector towards best-practice, effectively manage risks and grow consumption.

Robert Poole

CVA Australia

Thank you to our delivery partners

Ag Econ, Fifty-Five Five and The Growth Advisory.

Public summary

The MT24003 project was commissioned to help the Australian vegetable and onion industries strengthen how they communicate their sustainability story. While the sector already enjoys high levels of public trust and has made significant progress across environmental, social and economic domains, there has been no consistent, industry-level narrative that brings together evidence, messaging and audience needs in a structured way.

This project aimed to address that gap by identifying how the industry can communicate more proactively, clearly, and credibly—backed by data and aligned to stakeholder expectations. The work builds on the Horticulture Sustainability Framework (HSF), which outlines key sustainability topics for the broader horticulture sector, including four pillars: Nourish & Nurture, People & Enterprise, Planet & Resources, and Less Waste.

The primary audience for this project includes vegetable and onion growers, industry representative bodies, Hort Innovation, government, retailers, exporters, and researchers. These groups all interact with, or influence, how the industry's sustainability credentials are perceived and communicated. Consumers—especially in the domestic retail market—are also a key audience for external messaging.

The key output of MT24003 is a comprehensive sustainability communication strategy for the vegetable and onion industries. This includes a roadmap outlining short-, medium-, and long-term actions to strengthen communication, identify data and messaging gaps, and support the development of future industry-level reporting. The strategy is backed by detailed research and supported by draft communication tools such as a short-form Sustainability Snapshot that can be adapted for use across audiences.

The project provides a practical foundation for coordinated communication and reporting, helping the industry protect its reputation, respond to emerging risks, and create new opportunities in trade, policy, and investment.

Technical summary

NA

Keywords

Vegetables, onions, sustainability, communication, Horticulture Sustainability Framework, food waste, packaging, sustainable growers, consumers, retailers, growers, government

1. Executive Summary

1.1 Introduction: valuing the Australian vegetable and onion industry's sustainability story

1.1.1 The role of the vegetable and onion industries in a sustainable food system

The Australian vegetable and onion industries contribute significantly to national health, food security, and regional economic development, supplying high-quality, nutritious produce to both domestic and international markets. While many growers and supply chain partners have adopted a wide range of sustainable practices, these efforts have not yet been consistently represented through a unified, sector-wide narrative.

There is an opportunity for the sector to articulate its sustainability story in a way that reflects both its diversity and the progress achieved to date. Doing so is essential to build recognition among consumers, retailers, government, and other stakeholders, while also supporting alignment with evolving policy frameworks, ESG expectations, and market access requirements.

1.1.2 The Australian-grown Horticulture Sustainability Framework (HSF)

In 2019, Hort Innovation initiated the development of a whole-of-sector sustainability framework for Australian-grown horticulture. The resulting Australian-Grown Horticulture Sustainability Framework (HSF) was launched in 2021 as a structured mechanism to identify, measure and communicate the sustainability performance of the sector. It was developed through extensive consultation with over 600 stakeholders including growers, peak industry bodies, research organisations, investors, retailers and government departments.

The HSF was designed in response to rising stakeholder interest in how food and green life products are produced, and to help the horticulture sector engage with sustainability expectations across supply chains, investor networks, and policy environments. Hort Innovation committed to this work as part of its 2019–2023 Strategic Plan, aiming to support the sector in proactively addressing emerging issues, establishing benchmarks, and providing a platform to track performance over time. As part of this project, a review of other prominent sustainability frameworks (*Australian Agricultural Sustainability Framework* and *Reshaping Australian Food Systems*) was also undertaken to validate the HSF's relevance to the vegetable and onion sectors, and to identify any complementary elements that could strengthen its application.

The HSF covers the full breadth of Australian-grown horticulture, including vegetables and onions, and is applicable at the business, industry, and whole-of-sector levels. It is structured around four core pillars, which together encompass 19 focus areas and over 100 detailed indicators:

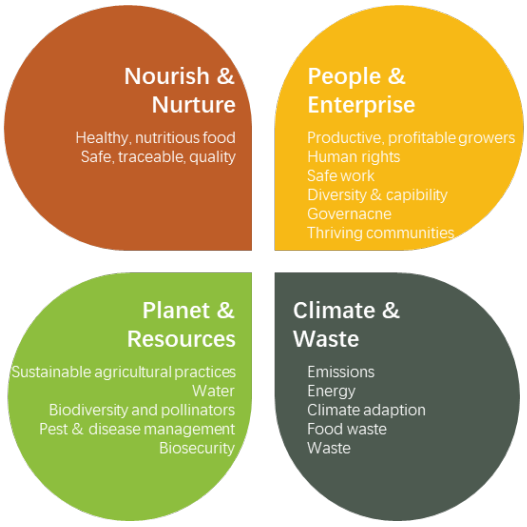


Figure 1: Australian-Grown Horticulture Sustainability Framework

- **Nourish & Nurture**: Highlights the role of Australian-grown produce in supporting healthier diets, ensuring food safety and traceability, and enhancing wellbeing through green spaces.

- **People & Enterprise**: Focuses on safe and ethical work, productive and profitable enterprises, community impact, innovation, leadership, and economic contribution.
- **Planet & Resources**: Addresses key environmental and resource areas such as water efficiency, land and soil health, climate resilience, energy use, and biosecurity.
- **Less Waste**: Targets reduction of food, packaging and farm waste, with an emphasis on sustainable packaging solutions and reuse practices.

The HSF was guided by international sustainability reporting standards, including the Global Reporting Initiative (GRI), and mapped against the United Nations Sustainable Development Goals (SDGs). The indicators are based on the best available data, drawing from government sources, industry benchmarking programs and existing sustainability initiatives such as Fair Farms, Hort360 and EnviroVeg.

In this project (MT24003), the HSF served as the foundation for assessing the sustainability performance of the Australian vegetable and onion industries. It provided a common structure to review and guide data collection, stakeholder engagement, and the development of communications that are relevant, evidence-based, and aligned with stakeholder expectations. While individual industries may adopt or adapt the HSF differently, it remains a shared reference point to support consistent messaging and a unified sustainability narrative across horticulture.

1.1.3 The case for strengthening the industry's sustainability narrative

While the HSF offers a structured approach for organising indicators and identifying priority themes, stakeholders consistently emphasised the importance of trust, transparency, and relevance in sustainability communication. Effective communication should be grounded in both credible data and the lived experiences of growers and supply chain participants. Case studies, regional examples, and audience-specific framing will be critical to ensuring that messages resonate across a diverse and complex sector.

This project recognises a clear need to document and communicate the sector's sustainability performance more effectively. Although sustainable practices are already widespread, they are not consistently visible to consumers, government, or the public. MT24003 was commissioned to address this gap by identifying the available evidence, developing tailored messaging for priority audiences, and highlighting the vegetable and onion industries' contributions to a sustainable food system.

The project aims to support retailers, growers, and policymakers by enabling clearer, evidence-based communication of industry performance and opportunity. It will also deliver a gap analysis to identify where further data, investment, or clarification is required. In doing so, this investment contributes not only to external engagement and transparency, but also to internal alignment and the long-term positioning of the industry as a leader in sustainable food production.

1.2 Overall project methodology (MT24003)

The project objectives for MT24003 were to enhance recognition of the Australian vegetable and onion industries' sustainability performance by identifying, consolidating, and strategically sharing existing evidence with key audiences. Audiences were classified into three layers:

- Primary audience includes retailers and consumers.
- Secondary audience includes growers, who can use findings to reflect on their current practices or identify areas for improvement.
- Tertiary audience includes the general public and government. In parallel, it also sought to uncover gaps in current sustainability performance, and develop an actionable plan to address those gaps, which will be used to inform further investment and action.

The project comprised **four key stages**:

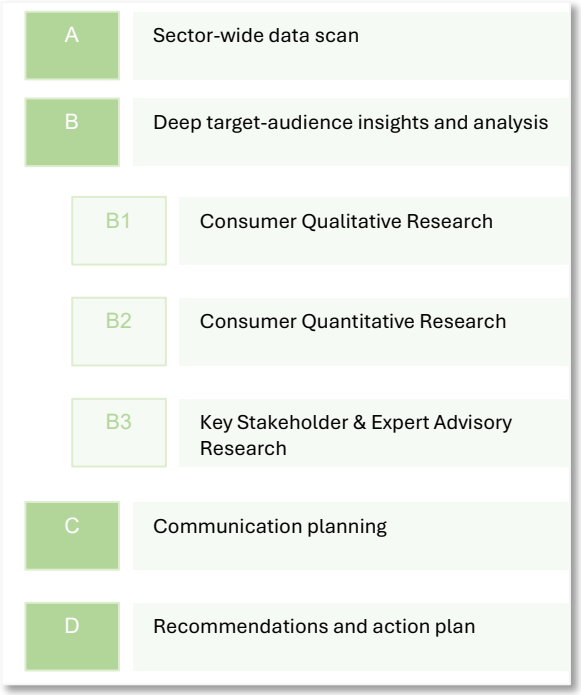


Figure 2: Project methodology summary

1.2.1 Module A: Sector-wide data scan

A sector-wide data scan was conducted for the vegetable industry utilising the HSF as the research guide. The objective of this phase was to assess the completeness of sustainability data and reporting, identify key trends, highlight leading practices, and support the development of evidence-based sustainability narratives and key messages that accurately reflect industry achievements. The scan reviewed 52 data sources, comprising government surveys (e.g. ABS, ABARES), levy-funded research (e.g. Hort Stats Handbook, VegNET) and industry initiatives (e.g. Freshcare, Fair Farms).

1.2.2 Module B1: Consumer Qualitative Research

Seven 90-minute, in-person focus groups were conducted across three locations in Australia: Sydney, Melbourne, and Brisbane. Each focus groups consisted of 6-7 participants –selected to reflect a diverse sample of age and life stages to ensure diversity in perspectives. These focus groups aimed to contextualise how consumers define sustainability, understanding the overarching insights among groups, and assess the relevance and appeal of proposed sustainability messages. The key outcomes of this module included an evaluation of message resonance, insights into potential impact, and strategic recommendations to enhance messaging effectiveness.

1.2.3 Module B2: Consumer Quantitative Research

A quantitative consumer survey was conducted to more deeply measure and understand sustainability messages and initiatives based on consumer perceptions.

Data was gathered via a 15-minute online survey, administered to a nationally representative sample of 1,004 Australian consumers aged 18–65, with balanced gender split and demographic weighting. Key metrics included interest in hearing more about specific topics from the industry, perceived importance of each topic for industry action, emotional impact of the messaging, and influence of initiatives on vegetable purchasing decision.

1.2.4 Module B3: Key Stakeholder & Expert Advisory Research

Nineteen in-depth interviews were conducted with key stakeholders representing various parts of the vegetable value chain. The objective was to understand their perspectives on the vegetable industry's sustainability performance, their interaction with the HSF, existing data gathering and structural challenges within the industry. Audiences included growers, representatives from industry bodies, grocery retailers, and academic experts from across several universities.

In addition to stakeholder interviews, the research involved an extensive review of publicly available and industry-supplied documents. This included:

- A cross-sector scan of sustainability frameworks across Australian and international agricultural sectors.
- Analysis of annual reports and public sustainability disclosures from leading vegetable producers, food companies, wholesale markets and grocery retailers.
- A review of regulatory and certification systems (e.g. Freshcare, GLOBALG.A.P, SQF, BRCGS, HARPS)
- Identification of key drivers of data collection and reporting across the industry.

The insights gathered in this module were collated to present a comprehensive overview of the vegetable industry's current communication landscape, stakeholder dynamics, and prevailing sustainability perceptions.

This integrated evidence base informed the development of a strategic framework identifying the most effective messages, communication channels, and stakeholder interactions. The resulting framework supports an optimised communication strategy aimed at enhancing the visibility and understanding of the industry's sustainability story across diverse stakeholder groups.

1.2.5 Module C: Communication planning

Module C focused on the design of a vegetable and onion industry communications strategy, to guide how material sustainability matters are conveyed to key audiences. This phase informed by the findings of the previous modules, with particular emphasis on aligning messages with the preferences, priorities, and behaviours of audience groups identified in Phase 3.

The methodology for this module comprised of three main components:

- Reviewing sustainability communication strategies from other agriculture sectors (e.g. dairy, wool, cotton), exemplar horticulture examples and international examples, to identify effective messaging approaches and content formats relevant to the vegetable industry.
- Consulting directly with growers, policy leaders, retailers, and consumer experts to co-develop audience-specific messages, tools, and delivery strategies grounded in behavioural and sector insights.
- Applied cross-sector learnings and stakeholder input to develop tailored communications along with a channel strategy and delivery schedule.

The resulting communication program was tailored to each audience, and comprised clearly defined multi-channel strategy informed by behavioural science and economics principles, detailing message flow, suitable communication channels, and a suite of channel-specific communication materials, including factsheets, infographics, digital contents. A content calendar and distribution schedule were also developed to guide consistent and targeted delivery across platforms and stakeholder groups.

1.2.6 Module D: Recommendations and action plan

This final phase synthesised insights from earlier modules to deliver a practical roadmap and communication approach for the vegetable and onion industries. It included:

- A comprehensive communication strategy tailored to each audience group, grounded in behavioural insights and sustainability priorities.
- Co-developed messaging frameworks aligned to the HSF and informed by workshops and interviews with growers, government, grocery retailers, and consumer experts.
- Communication tools including factsheets, infographics, audience-specific summaries, and a prototype Sustainability Snapshot—a short-form, publicly accessible document intended for all stakeholders.
- A detailed roadmap for industry sustainability communication, outlining phased actions to strengthen messaging, unify reporting efforts, and embed the industry narrative in government and retail settings.
- Identification of key communication and data gaps.

These insights and evidence were consolidated in the comprehensive final report and informed an implementation strategy and impact of the project to guide future actions and investment.

1.3 Validating the HSF's suitability for the vegetable and onion sectors

To inform the "Sector Wide Scan" of sustainability initiatives and performance in the Australian vegetable and onion industries, two other prominent sustainability frameworks were reviewed following a broader literature scan. The purpose of this review was to assess whether the HSF continues to comprehensively reflect the sustainability needs and priorities of the vegetable and onion sectors, and to identify any potential areas where additional themes, approaches or indicators could be drawn from other frameworks.

Australian Agricultural Sustainability Framework (National Farmers' Federation, 2023)

The Australian Agricultural Sustainability Framework (AASF) provides a platform to elevate the collective effort of the agriculture sector to address sustainability challenges, in response to increasing pressures on the agricultural sector to demonstrate sustainability performance. The AASF was developed based on a scan of international and domestic sustainability initiatives, followed by consultation with more than 1,300 stakeholders. The AASF is based on 17 Principles across 3 Themes encompassing environmental stewardship, wellbeing of people, animals and community, and bolstering economic resilience. It is designed to be flexible and adopted across various commodities and supply chain stages.

Reshaping Australian Food Systems (CSRIO, 2023)

Reshaping Australian Food Systems provides a roadmap focusing on the steps required to transform the sustainability and productivity of the Australian food system, from production through to consumption. The roadmap identifies five broad focal areas which reflect key drivers of the food system requiring transformation, with 27 opportunities and a series of R&D priorities that may enable Australian food systems to become more sustainable, productive, resilient, and equitable for participants and consumers. Informed through input from over 120 stakeholders through interviews, focus groups, and submissions, the roadmap comprehensively addresses food systems and interaction with wider societal systems.

This review confirmed that the HSF effectively covers the breadth of material issues for the vegetable and onion industries. It offers the most targeted and detailed coverage of sustainability topics relevant to these sectors and includes measurable indicators that support structured analysis and communication.

To contextualise the horticulture sector within the broader sustainability reporting landscape, a comparative review of sustainability strategies from ten major agricultural sectors was also undertaken. The comparison aimed to identify structural similarities in reporting frameworks, and to draw lessons that could inform the implementation of sustainability communication and performance monitoring in horticulture.

Seven of these industries have established formal sustainability frameworks. These frameworks typically cover core themes such as natural resource management, economic viability, workforce and community wellbeing, waste and emissions, and

sector-specific priorities like animal welfare, water use, or nutrition.

Among these, most have also implemented reporting mechanisms to communicate progress against the frameworks, including annual updates, summary scorecards, and thematic resource materials

Table 1: Comparison of sustainability frameworks and reporting practices across Australian agricultural industries

Australian Industry	Official Sustainability Framework	Sustainability Indicators	Industry Sustainability Targets	Published Sustainability Performance Data	Industry Sustainability Report
Horticulture	●	●			
Beef	●	●	●	●[3]	Annual
Cotton	●	●		●	Annual
Dairy	●	●	●[2]	●	Annual
Fishery	●[1]	●	●	●	Annual
Forestry	●[1]	●		●	5-yearly
Grains	●	●	●	●	
Pork	●	●		●	
Sugar					
Wine	●	●	●	●	Annual
Wool/Sheep	●	●	●	●[3]	Annual

1 The *National Fisheries Plan* is a strategic, sustainability target-based action plan but does not have a formal framework structure equivalent to HSF. The *Australian Forestry Report* offers an indicator-based overview of forest sustainability, closely resembling a formal sustainability reporting model.
2 Dairy sustainability report stands out for a detailed breakdown and quantitative targets published for all sustainability indicators.
3 Industry also has a published data dashboard.

In comparison, the HSF, released in 2021 and updated in 2023, is a more recent entrant. Developed specifically to support the horticulture sector—including vegetables and onions—it provides a comprehensive structure for identifying, measuring, and communicating sustainability performance. The HSF spans four pillars—Nourish & Nurture, People & Enterprise, Planet & Resources, and Less Waste—covering 19 topics, 35 goals, and 112 indicators (101 of which is relevant for the vegetable and onion industries). Its design reflects sector-wide consultation, a formal materiality assessment aligned with the Global Reporting Initiative (GRI), and mapping against the United Nations Sustainable Development Goals (SDGs).

Although the vegetable and onion industries do not yet formally report against the HSF, it provides a sector-relevant foundation for aligning data, stakeholder engagement, and communication efforts. Within the scope of MT24003, the HSF has informed the evidence-gathering approach and serves as a reference structure for developing consistent and credible messaging across stakeholder groups.

The HSF also supports the broader aims of this project by offering a clear structure for organising sustainability evidence, identifying gaps, and tailoring communication to the expectations of target audiences. In this context, it operates not only as a measurement tool but also as a strategic guide—shaping the selection of priority themes, relevant indicators, and messaging formats for the vegetable and onion industries.

1 **This review confirmed that the Australian-grown Horticulture Sustainability Framework (HSF) effectively covers the breadth of material issues for the vegetable and onion industries.**

1.4 Module A: Sector-wide data scan

This module involved comprehensive sector-wide scan undertaken for the Australian vegetable and onion industries, mapped against the HSF. The scan examined 101 sustainability indicators across four pillars, drawing on 52 data sources from government, levy-funded initiatives, and industry-led programs. The analysis provides a foundational evidence base for communicating the industries' sustainability credentials and supporting future engagement with stakeholders across the value chain. Data types included quantitative and qualitative sources, classified by timing (one-off, intermittent, or time series), coverage (limited, partial, or complete), and trend (improving, declining, steady-state, or unclear). Twenty-five indicators from the HSF were found to have no publicly available data.

Across the dataset, the analysis found that sustainability measurement is active but uneven. Many indicators are supported by data in some form—especially those related to food safety, nutritional intake, employment levels, economic value-add, and emissions. However, in most cases, these data are collected for operational, compliance, or programmatic reasons rather than designed with communication or benchmarking in mind. For instance, food safety metrics are shaped by audit and certification processes (e.g., Freshcare), and workforce statistics are often derived from Fair Work or census sources, but neither provides granular or dynamic insight into industry-wide sustainability performance over time.

Several previously available national datasets have been discontinued, including the ABS Water Use and Land Management surveys and the ABARES vegetable farm financial survey. Their absence has resulted in measurement gaps in key areas such as input efficiency, water productivity, cost of production, and financial performance by production system or region. Newer efforts—such as the vegetable and onion industry levy-funded Vegetable Benchmarking project (MT22009)—offer some coverage, but their scope is narrower and more farm-specific. As a result, sector-wide trends are difficult to establish.

Current data systems rely heavily on individual programs, such as VegNET, Hort360, Fair Farms, and Soil Wealth. These initiatives provide important insights into best practice adoption, grower engagement, and environmental management. However, participation is often voluntary and variable, and outputs are rarely standardised or aggregated across the industry. This limits their utility for assessing national trends, meeting consumer assurance needs, or supporting cohesive messaging.

Table 2: Summary of sustainability data trends, gaps, and opportunities across HSF pillars

PILLAR & INDICATOR	DATA SOURCES	TRENDS	GAPS	OPPORTUNITIES
Nourish & Nurture (n=10)	Gov't: 1 Levy: 6 Industry: 2 **Total = 9**	Long term consumption decline across adults & children. Cost of living impacting value/quality perceptions. Food recalls small but persistent.	Industry participation in Freshcare. Vegetable-specific consumer safety perceptions.	+1 Serve Program to change consumption behaviour. Communicate role of bioactive nutrients.
People & Enterprise (n=41)	Gov't: 6 Levy: 5 Industry: 6 **Total = 17**	Input cost increases reducing profitability despite productivity efforts. Workforce challenges remain. Delivers a clear economic contribution, especially through regional employment.	Limited evidence on impact of WHS processes. Define grower health and wellbeing priorities.	Leverage vegetable benchmarking to capture productivity and financial detail. Demonstrate link with leadership participation and impacts on enterprise / industry.
Planet & Resources (n=29)	Gov't: 4 Levy: 4 Industry: 3 **Total = 11**	Biological pest/disease control and soil management emerging as standard practice. Persistent biosecurity threats.	Discontinued gov't data sets on land and water use.	Expand vegetable benchmarking to include environmental factors. Increase industry participation in best practice programs.
Climate & Waste (n=21)	Gov't: 4 Levy: 4 Industry: 7 **Total = 15**	Low emissions vs other agri-sectors. Initial waste baselines established – high levels of perishable vegetable waste are present.	On-farm climate adaptation strategies. Quantifying product loss on farm (within grower control).	Investigate market perception of packaging, shelf life & waste. Substantiate low emissions vegetable production through adoption of reporting frameworks.

Coverage across the HSF's indicators is variable. Certain topics—such as food recalls, gross value of production, or greenhouse gas emissions—are well-documented with structured and time-series data. In contrast, areas like workplace health and safety (WHS), staff retention, biodiversity management, packaging, and grower wellbeing are supported only by partial, intermittent, or anecdotal evidence. For example, WHS outcomes (e.g., injury rates) are tracked through Safe Work Australia, but data on preventative training or WHS systems adoption is lacking. Similarly, while the vegetable industry is known to produce low emissions relative to other agriculture sectors, reporting on energy use and renewables adoption is incomplete, and climate risk strategies are not consistently tracked.

Where data is unavailable or fragmented, there is potential for credible case studies and qualitative summaries to supplement structured reporting. Programs like Soil Wealth and Hort360 already facilitate grower-led practice change; documenting these efforts in a verifiable and thematic way could help address short-term gaps. In addition, several projects are already in place to improve metrics and fill known voids—such as efforts under VG23005 to baseline consumption, and under HA24004 to understand productivity drivers.

To support long-term communication goals, there is an opportunity for the Australian vegetable and onion industry to develop a central metadata register to catalogue indicator coverage, source custodianship, update frequency, and data quality. This would help identify gaps, avoid duplication, and guide strategic investment. Additionally, aligning data collection with the expectations of key stakeholder groups will help ensure that reporting not only meets Framework criteria but also delivers value in market-facing contexts.

Module A Key findings

2	**Data coverage across the HSF varies in its completeness across the key elements.** While some areas—such as food safety, industry value, and employment—are supported by structured, regularly updated datasets, others—including biodiversity, water use, packaging, and workplace health and safety—have only partial or limited data coverage.
3	Several data sources are **decentralised across levy-funded programs and assurance schemes and are not consistently aggregated for sector-wide use.**
4	The **discontinuation of national dataset**s such as the ABS Water Use and Land Use surveys and the ABARES vegetable financial performance survey has created enduring **gaps in areas like productivity, input efficiency, and farm financial indicators**.
5	To improve future communication, **priority data gaps**—particularly those relevant to key audiences such as government (e.g. water use), retail (e.g. packaging), and finance (e.g. WHS and risk metrics)—**should be addressed through targeted data collection and standardisation**.
6	**A central meta data register** documenting existing data sources, responsible custodians, update frequency, and coverage against HSF indicators would improve transparency and guide strategic investment in measurement.
7	Where structured data is unavailable or incomplete, **grower-led case studies and program-level summaries** can be used to support messaging, provided they are clearly linked to sustainability themes and grounded in verifiable practice.
8	**Periodic review of indicator coverage and data system quality** should be undertaken to ensure that communication remains accurate, consistent, and aligned with the HSF over time.
9	**Compliance frameworks (e.g. HARPS, Sedex) capture sustainability data at the enterprise level,** particularly on inputs, workforce, and audit outcomes. However, **this data is not currently aggregated to inform industry-wide reporting.** Aligning these systems with sector-level sustainability objectives presents a practical opportunity to enhance performance tracking and external assurance.

1.5 Deep target-audience insights and analysis

This module investigated how different stakeholder groups engage with, perceive, and communicate the sustainability performance of the Australian vegetable and onion industry. It drew on qualitative interviews and a multi-stakeholder Expert Advisory Workshop involving growers, retailers, government representatives, researchers, and industry bodies. The purpose of the engagement was to understand the roles, expectations, data needs and communication preferences of each audience group—enabling the future development of tailored communication strategies aligned with both audience needs and industry realities.

Across all audiences, there was consensus that the industry had made significant gains in sustainable farming practices in the past 30 to 40 years —particularly in areas such as soil health, water use efficiency, workforce welfare, and waste reduction. However, participants also noted that these efforts are not yet widely visible or consolidated into a clear narrative. The absence of consistent and structured communication means that sustainability progress remains largely undocumented or under-recognised.

Currently, much of the sustainability data generated across the vegetable and onion industry is captured for compliance or operational requirements. This includes data collected for food safety certification, retailer audits, or chemical application records. However, there is limited aggregation of these data into sector-wide performance metrics, and minimal infrastructure for using this information to support narrative development or industry-wide communication. This fragmented approach results in missed opportunities to track progress, benchmark performance, and build broader trust with external stakeholders.

Module B Key findings

Cross-sector insights

10	Stakeholders identified **several emerging risks to the industry if sustainability performance is not measured and communicated proactively.** These include potential constraints on market access—particularly export access to regions such as the EU, where sustainability benchmarks (e.g. Scope 3 emissions, packaging regulations, farm chemical restrictions) are increasingly embedded in trade and regulatory expectations. Similarly, **government policies and retailer standards may evolve without sufficient input from the vegetable** industry if its data and practices are not visible. This may lead to duplication, inefficiencies and increased farm business costs.
11	Stakeholder groups expressed support for an **industry-led approach to sustainability communication**. Interviewed growers expressed a preference for frameworks and messaging that are **grounded in operational realities, practically feasible to implement, and accompanied by clear safeguards around how data will be used**. Retailers, researchers, and policy stakeholders similarly valued **evidence-based communication that aligns with their respective commercial, scientific, or regulatory objectives**. Participants noted that when the vegetable industry defines and leads its own sustainability narrative, it is better positioned to demonstrate progress, manage reputational risks, and influence emerging expectations.
12	A consistent theme across interviews was the **need to align communication efforts across the supply chain while tailoring content to specific audience needs**. Consumers responded most strongly to messaging focused on health, freshness, and food waste. Government stakeholders were seen to require concise, aggregated performance data aligned with public policy goals. Retailers sought category-level sustainability stories underpinned by credible and verifiable data. While the levers varied by audience, there was shared agreement across all groups on the need for improved transparency, standardisation of data, and clear evidence of performance.

Consumer insights

13 In a representative consumer quantitative survey completed as part of this research, the **vegetable industry was rated as the most sustainable sector (rated by 94% of those surveyed as 'neutral' to 'very sustainable'),** ranking above dairy (86%), meat and livestock (79%), tourism (80%), energy (74%) and fashion (72%).

14 While **76% of surveyed consumers indicated that sustainability is important in their purchase decisions**, most ultimately prioritised price—citing cost-of-living pressures as a key barrier to choosing sustainability-marked or premium options.

15 **Consumers primarily engage with the vegetable and onion industries through the retail experience,** which shapes their prioritisation of issues. The three most important topics rated by consumers were **food waste, packaging, and chemical use.** While supporting growers to deliver consistent, high-quality products is considered equally important, it is less desirable for communication as it primarily serves to reassure trust and uphold the reputation of Australian products, and is seen as beyond consumers' direct influence. Issues such as reducing greenhouse gas emissions ranks lower in both importance for action and communication appeal, due to strong consumer trust in the industry's existing environmental performance.

16 The grocery **retail setting (in-store and on-line) presents a point of influence**, with **high-impact, simple, concise sustainability messages presented to the consumer.**

17 Surveyed consumers responded most positively to sustainability communications that combined **factual credibility with emotional relevance**. Messages were most effective when they referenced both the **industry's past achievements and recent efforts**. Consumers particularly valued tangible claims—such as statistics or measurable impact—paired with local, human-centred stories that felt authentic and relatable.

18 Surveyed consumers identified **growers as the most trusted stakeholders in the vegetable supply chain and expressed a clear preference for receiving sustainability messages from them**. While direct interaction with growers is limited, consumers expect to see grower-led messaging in retail settings—particularly on-shelf in the vegetable aisle.

Growers

19 **Growers interviewed supported the HSF and considered it relevant to their operations/industry**; however, its use was largely limited to **compliance activities rather than performance improvement or communication.** Most sustainability-related data was already recorded across multiple systems for farm management, audit and certification purposes, but this data was decentralised, inconsistently analysed, and rarely used to assess outcomes or inform strategic planning.

20 Stakeholders identified an **opportunity for a centralised platform to consolidate sustainability data and translate it into aggregated, anonymised insights** that could support both internal decision-making (i.e. best practice adoption and benchmarking) and external communication. Data collection and reporting were seen as more effective when positioned as tools for industry learning and performance monitoring—not solely as regulatory or audit obligations.

21 To enable greater use of sustainability data, interviewed growers expressed support in a **voluntary, non-prescriptive reporting model aligned with existing systems**. They indicated a willingness to contribute to industry-wide sustainability storytelling, provided that data privacy was maintained and the intended use of information was transparent, well-defined, and based on evidence.

22 Growers noted the importance of **recognising the sector's historical improvements in sustainability performance**, and cautioned against conflating horticulture with broader agricultural sectors—particularly in areas such as emissions, land use, and production systems.

23 **Practical, real-world examples**—such as changes in fertiliser, pesticide, or water use—were considered more valuable by interviewed growers than abstract sustainability principles. These examples were considered more credible and relevant when shared through peer-informed channels or regionally grounded case studies.

24 Regarding long-term planning, consulted growers highlighted a **lack of clear guidance from government and retailers about future sustainability expectations**. This uncertainty was viewed as a barrier to confident investment in new practices or systems.

25 Some growers expressed concern that **evolving international expectations — particularly from the EU—may impose stricter sustainability and reporting requirements for market access**. There is a need for proactive industry coordination to help growers prepare for these changes, ensuring they can meet emerging compliance expectations around emissions reporting, environmental outcomes, and traceability.

Grocery retailers as a supply chain partner

26 Grocery retail sector research indicated that the themes of the **HSF were broadly aligned with current retail sustainability priorities**—particularly in areas such as **packaging, ethical sourcing, food safety, and responsible supply chains**.

27 Increasingly, grocery retailers require **third-party compliance standards** (e.g. HARPS, GLOBAG.A.P.) as a condition of supply. This includes **significant amount of data that aligns to the HSF** (e.g. water, chemical, labour). This trend needs to be considered with respect to future data standards and to avoid duplication or cost (see point *28*).

28 Shoppers expect fresh, sustainably produced, and affordable vegetables—but due to **cost of living pressures have a low capacity to pay**. This underscores the need to **carefully assess the cost of sustainability initiatives and clarify where costs will be absorbed across the value chain**.

29 As a largely domestic sector, vegetable production relies on local pricing mechanisms. Retailers and domestic intermediaries (e.g. processors) have a **significant role in shaping supply models that support financially sustainable farm businesses**. Unlike export sectors, the industry has limited sales in global markets, reinforcing the importance of demand-side strategies such as category growth (e.g. *Plus One Serve*).

30 **Consumers mostly encounter the industry at the retail** level—through packaging, in-store, and online communications. However, this channel has limited capacity to communicate complex narratives. There is a clear opportunity for **grocery retailers to collaborate with industry on clear, aligned messaging—particularly on front-of-mind issues like food waste and packaging.**

31 Communication at the retail level was seen as most effective when it **was simple, product-specific, and evidence-based**. Interviewed retailers recommended that point-of-sale messaging clearly explain the purpose of sustainability measures—such as packaging design or pest management practices—and be supported by credible data to maintain consumer trust.

32 There was support for an **industry-led model of sustainability reporting**, in which the sector defines its own standards, validates performance, and produces consolidated reports. Greater alignment, particularly with international retailer expectations (e.g. in the EU), could reduce compliance burdens and mitigate supply chain risk over time.

Government as an audience

33 The HSF was viewed by industry participants as a relevant tool for aligning with public policy themes such as **food security, preventative health, and environmental stewardship**.

34 There is a recognised **need to more clearly differentiate horticulture from broader agricultural sectors in policy and communication**. Current narratives often conflate the two, overlooking key differences in emissions profiles, export orientation, health and nutrition and domestic consumption patterns—reducing the visibility of horticulture's unique sustainability footprint.

35 Participants noted that public policy discourse does not always reflect the extent of innovation or sustainability progress achieved in vegetable production. There is an opportunity to **improve recognition of on-farm technology adoption, input efficiency, and modern growing systems through more visible and accessible communication**.

36 **Support for the development of consistent, sector-wide sustainability reporting**—covering both historical improvements and current performance—was seen as essential for building credibility in policy and finance settings. Tools that enable aggregated benchmarking and verification would assist growers in accessing sustainability-linked investment opportunities.

37 **A coordinated communication role for industry bodies** was viewed as a practical pathway to support consistency across trade, policy, and public engagement. Centralising data interpretation and storytelling through trusted channels could improve alignment with government priorities and market expectations.

38 A tiered approach to communication—combining **structured performance metrics with evidence-backed case studies**—was recommended to meet the needs of multiple audiences, from technical policy teams to the general public. This format was seen as effective in bridging the gap between sustainability data and meaningful public narratives.

Research partners

39 Interviewed researchers regarded **the HSF as well-aligned with current sustainability themes in agriculture research**. It was considered particularly useful as a directional tool for stakeholder engagement and research prioritisation, although it is not yet widely embedded in the formal design of research programs.

40 The study identified an **opportunity to more systematically assess research projects** (e.g. levy-funded or industry-supported) for their alignment with the HSF. This could help ensure that public investment in research supports sector-wide sustainability objectives and reinforces consistent metrics and language across initiatives.

41 Consulted researchers pointed to the **potential for strengthening existing grower data collection by improving consistency, centralisation, and interpretation**. While many growers already record relevant sustainability information, clearer pathways are needed to link on-farm data to aggregated industry-level insights that support broader reporting and decision-making.

42 It was noted that strengthening the connection between research outputs and sustainability frameworks—such as the HSF—could support more targeted communication and decision-making. They emphasised the importance of **regionally relevant indicators and calibrated benchmarks to ensure that sustainability metrics remain meaningful across Australia's diverse production systems**.

43 In communicating sustainability outcomes, interviewed researchers emphasised the value of **real-world case studies that combine grower narratives with credible, evidence-based results**. This approach was seen as an effective way to build trust, foster engagement, and make sustainability progress more relatable to both technical and non-technical audiences.

44 Stronger **collaboration between research institutions, industry bodies, and government agencies** was identified as a key enabler for long-term sector impact. This includes the development of shared sustainability tools, clearer data expectations, and alignment on strategic priorities across programs and funding pathways.

45 There is an **opportunity for innovation-focused research—such as plant breeding, biologicals, and precision input use—to support both sustainability and profitability.** Embedding these innovations into practice is essential for driving measurable on-farm improvements and achieving long-term sector resilience.

1.6 Communication strategy roadmap

The Australian vegetable and onion industries are uniquely positioned to lead in sustainability communication. This strong baseline is supported by several factors: the establishment of the Horticulture Sustainability Framework (HSF); the level of sustainability-related data already collected for on-farm assurance schemes; and high levels of consumer trust in Australian-grown vegetables and onions. While these advantages provide a strong foundation, they must be actively built upon.

Looking ahead, the challenge is not starting from scratch—but rather consolidating existing efforts into a shared sustainability narrative that reflects the sector's strengths, while building the systems and processes needed to track, validate, and communicate progress. A common voice will allow the industry to proactively shape its identity—rather than respond reactively to evolving stakeholder expectations, new regulations, or changing global markets.

This roadmap outlines a pragmatic approach for doing so. It begins by focusing on the sector's existing strengths in consumer trust and retail alignment. It then builds in the operational enablers: aligned RD&E efforts, coordinated data, and clearer benchmarks. Finally, it outlines the systems required to ensure the story is maintained over time—through formal reporting, ongoing benchmarking, and more consistent visibility in retail and policy channels.

To ensure long-term impact, these steps will require sustained investment in measurement, data infrastructure, and evidence-based communication. Doing so will not only safeguard the industry's social license to operate, but also unlock strategic value through improved market access, reduced compliance duplication, and stronger stakeholder trust.

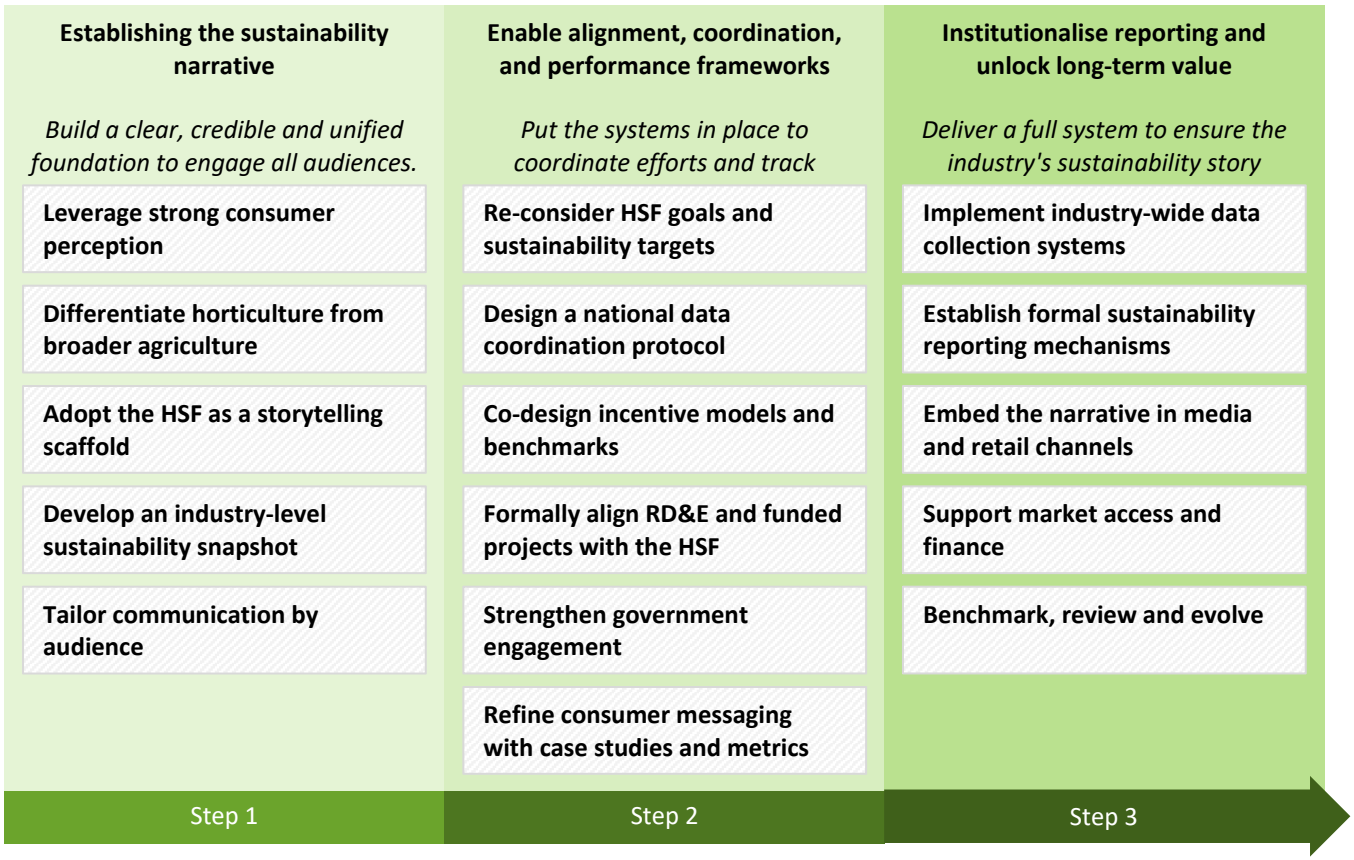


Figure 3: Roadmap to strengthen and communicate the sustainability story of the Australian vegetable and onion industries (simplified)

1.7 Communication materials

As part of the broader communication strategy developed through Project MT24003, this component outlines the concept and proposed structure for the Australian vegetable industry's inaugural Sustainability Snapshot—a short-form, audience-agnostic report designed to showcase the industry's sustainability credentials at a national level.

Building on the strong consumer perception of the vegetable and onion industries — rated the most sustainable of all agricultural and non-agricultural sectors in a national consumer survey — this initiative aims to give the industry a clear, unified voice. The Sustainability Snapshot is envisioned as a practical, accessible document that can be used by all key stakeholders, including industry bodies, retailers, government, researchers, and export-facing partners.

The Snapshot is intended to be hosted online, refreshed annually, and serve as a platform for industry-wide messaging. In the short term, it addresses the need for visible, coordinated communication that reinforces the sector's identity and achievements—while laying the groundwork for more robust reporting and engagement in the medium to long term.

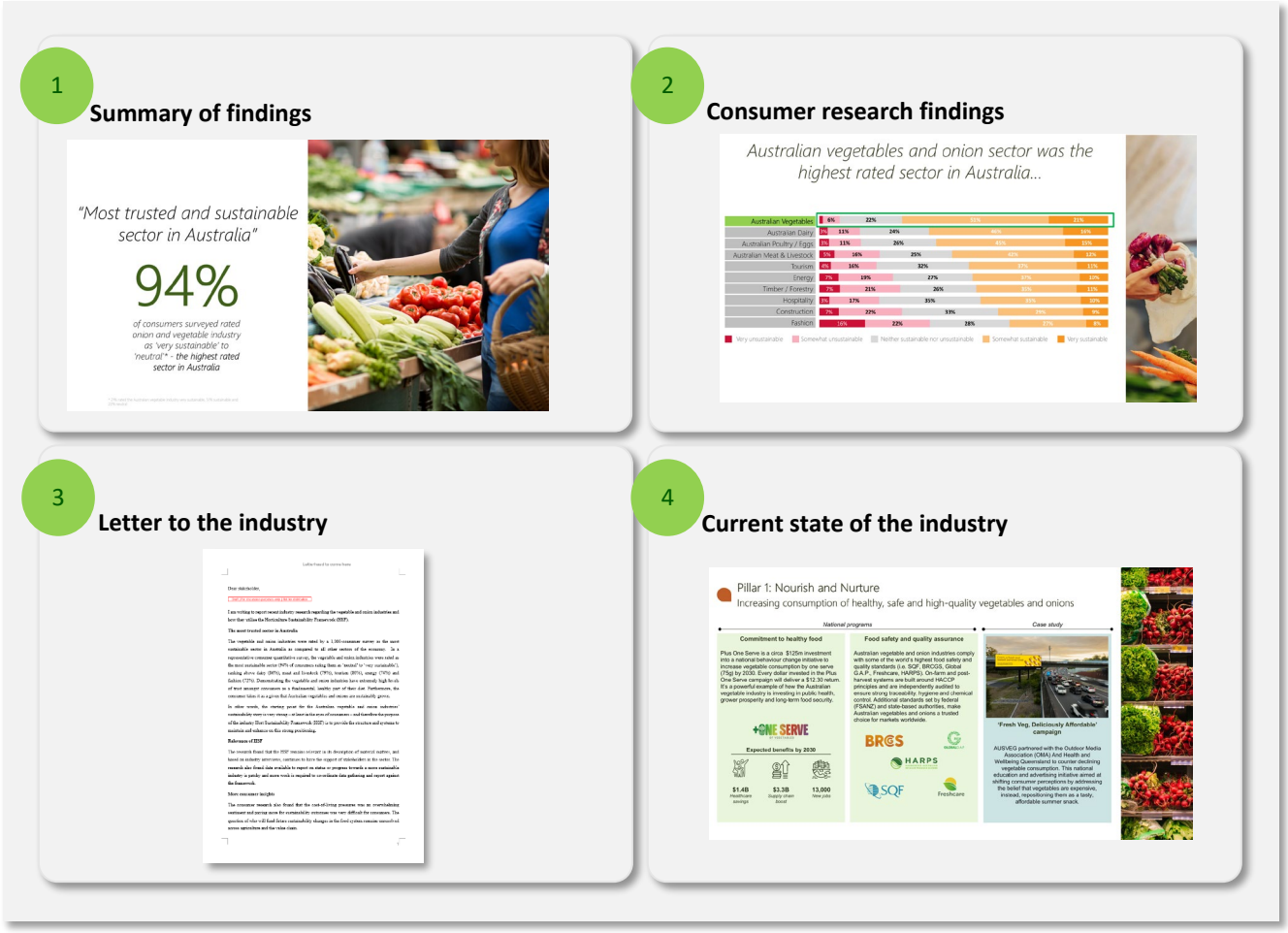


Figure 4: Highlights of developed materials suitable for industry communication

2. Module A: Sector-wide data scan

2.1 Introduction

This module documents the approach and results of a sector wide scan completed for the vegetable industry against relevant indicators identified in the HSF. The results of the sector wide scan provide evidence to inform how existing industry-level sustainability performance can be leveraged, in combination with an understanding of consumer sustainability expectations (Module B) to develop and communicate a clear value proposition regarding the industry's sustainability credentials.

2.2 Methods

The HSF identifies 4 pillars, 19 topics, 35 goals and 101 indicators that reflect sustainability priorities for the Australian vegetable and onion sector. The HSF was reviewed to ensure that only indicators relevant to the vegetable industry were considered, which resulted in the removal of 2 goals and 9 indicators. The "in scope" topics and goals of the HSF are reported in Appendix 1.

For each relevant indicator relating to a sustainability topic and goal, potential data sources were identified. Data sources were informed through the unpublished Facts and Faces of Australian Horticulture (HA21003) report for Hort Innovation which collated available data sources for the entire horticulture sector. Additional data sources that have emerged since publication of HA21003 specific to vegetables were also identified and investigated in detail. In the case where data was not publicly available, a data request with the suitable organisation was made.

Data identified as suitable for informing vegetable industry performance against the HSF were taken from Government, Levy-funded and Industry-led sources. Key data sources are provided below, and a complete list of data sources are included in results and key findings section of this module:

- Government: Including from the Australian Bureau of Statistics and ABARES
- Vegetable and Onion Levy-funded: Including through Hort Stats Handbook, Vegetable Benchmarking, Soil Wealth, VegNET
- Industry-led: Including programs like Hort360, Freshcare and Fair Farms

Data was classified according to type (quantitative, qualitative), timing (one-off, intermittent, timeseries), coverage (limited, partial, complete) and trend (improving, declining, steady-state, uncertain). Table 3 identifies the data capture classification used.

Table 3: Sector-wide scan data capture classification

Type	Timing	Coverage	Trend
Quantitative: Numerical measure informed through survey	**One-off**: Data available at single point of time. No evidence of intent for future capture.	**Complete**: Full coverage of industry activity.	**Improving**: Beneficial change relative to indicator.
Qualitative: Case study reflecting actual practices	**Intermittent**: Periodic data capture.	**Partial**: Mixed coverage that may reflect the broader industry trend.	**Declining**: Detrimental change relative to indicator.
	Timeseries: Consistent measure providing ongoing insight.	**Limited**: Isolated coverage not necessarily reflecting the overall industry trend.	**Steady-state**: Stable relationship relative to indicator.
		Unclear: No clear relationship relative to indicator.	

The data capture exercise identified several Government sources that have been discontinued since the 2022 HA21003 report which may result in data gaps across several metrics moving forward. The extent of this finding and opportunities for levy and industry led initiatives to fulfil these gaps are explored in the results and findings section.

Data analysis

Identified data for each sustainability indicator was recorded in a spreadsheet for analysis in accordance to the data classification. Where possible, performance trends were noted for quantitative, time series data while for qualitative data sources, the outcomes of management practices were summarised in case study format.

Reporting and synthesis

The results of the data capture and analysis have been reported for each indicator by Sustainability Pillar. Data gaps were noted and opportunities to strengthen and improve sustainability data for the vegetable industry were identified. As the sector wide scan reflects an industry perspective on actions and initiatives relating to sustainability, the relevance of the various topics, goals and indicators for vegetable industry consumers was also considered. This provides a starting point to test the relevance and suitability of industry priorities against a consumer lens to further inform coverage, prioritisation and message resonance.

2.3 Results & discussion

The sector wide scan has identified that a broad range of data sources are required to inform the “sustainability story” for the vegetable industry. This is a result of the varied nature of vegetable growing operations, the wide range of available data types, industry coverage and the extensive list of indicators that are identified in the HSF.

The results of the sector wide scan undertaken across the four pillars of the HSF have been summarised to identify the key themes that reflect vegetable industry activity and performance.

As not all indicators could be informed through consistent and comparable data (e.g. qualitative vs quantitative sources), consideration of the broader trends, gaps, risks and opportunities is provided.

The analysis of sector-wide sustainability data provided a critical foundation for engaging with external stakeholders. These subsequent consultations enabled a deeper understanding of how the vegetable and onion industries’ sustainability performance aligns with the values, expectations, and information needs of key audiences.

A total of 52 data sources were identified against the 101 HSF indicators for the vegetable industry including from Government, Levy-funded R&D and industry initiatives, with 25 data gaps identified. Table 4 summarises the results of the sector wide scan.

Table 4: Australian Grown Horticulture Sustainability Framework Sector wide scan

Pillar & indicator	Data sources	Trends	Gaps	Opportunities
Nourish & Nurture (n=10)	Gov't: 1 Levy: 6 Industry: 2 **Total = 9**	Long term consumption decline across adults & children. Cost of living impacting value/quality perceptions. Food recalls small but persistent.	Industry participation in Freshcare. Vegetable-specific consumer safety perceptions.	+1 Serve Program to change consumption behaviour. Communicate role of bioactive nutrients.
People & Enterprise (n=41)	Gov't: 6 Levy: 5 Industry: 6 **Total = 17**	Input cost increases reducing profitability despite productivity efforts. Workforce challenges remain. Delivers a clear economic contribution, especially through regional employment.	Limited evidence on impact of WHS processes. Define grower health and wellbeing priorities.	Leverage vegetable benchmarking to capture productivity and financial detail. Demonstrate link with leadership participation and impacts on enterprise / industry.
Planet & Resources (n=29)	Gov't: 4 Levy: 4 Industry: 3 **Total = 11**	Biological pest/disease control and soil management emerging as standard practice. Persistent biosecurity threats.	Discontinued gov't data sets on land and water use.	Expand vegetable benchmarking to include environmental factors. Increase industry participation in best practice programs.
Climate & Waste (n=21)	Gov't: 4 Levy: 4 Industry: 7 **Total = 15**	Low emissions vs other agri-sectors. Initial waste baselines established – high levels of perishable vegetable waste are present.	On-farm climate adaptation strategies. Quantifying product loss on farm (within grower control).	Investigate market perception of packaging, shelf life & waste. Substantiate low emissions vegetable production through adoption of reporting frameworks.

Pillar 1: Nourish & Nurture

The provision of healthy, safe, and high-quality vegetables plays an important role in supporting the health and wellbeing of Australians. The extent to which the vegetable industry delivers nutritious, trusted products—and supports increased consumption—is a key sustainability outcome. This contributes not only to improved public health, but also to industry growth by unlocking demand potential.

Table 5 summarises the results of the sector wide scan for Pillar 1, with full results by indicator provided in Appendix 2. A total of 10 indicators were considered.

Data gaps

- Limited understanding of grower, supply chain & consumer satisfaction with product traceability systems.

Opportunities

- Findings from the Hort Innovation funded project Factors driving horticulture productivity (HA24004) may support further insights into productivity drivers and measures for the vegetable industry.
- Industry sentiment surveys could be refined to align with indicators driving People and Enterprise sustainability (including staff retention, involvement in community, leadership training).
- Broaden the Vegetable Benchmarking program to reflect data gap metrics identified above.

Table 5: Australian Grown Horticulture Sustainability Framework Sector wide scan - Pillar 1 Nourish & Nurture

Coverage Complete Partial Limited **Trend** Increasing Steady Declining Unclear

Nourish & Nurture	Data source	Data type	Timing	Coverage	Trend	Summary
Healthy Nutritious Food	ABS national health survey VG23005 +One Serve Program	Quantitative	Timeseries			Vegetable consumption is declining across the Australian population. 6.5% of adults and 4.6% of children met the recommended vegetable intake in 2022, down from 7.5% and 6.3% in 2017-18 (ABS 2024). Average consumption of vegetables is 2.29 serves per day (ABS 2024). After accounting for food waste, this could be as low as 1.8 serves per day (AUSVEG 2024). Resources to communicate the superior nutritional value of vegetables is being explored through HN23003, with a focus on the role of bioactive nutrients. 1.79 average vegetable serves after wastage (VG23005, 2024).

Safe, Traceable, Quality	Freshcare FSANZ Community Trust in Rural Industries HortIQ MT21003 Trade Data	Qualitative Quantitative	Timeseries Intermittent			Freshcare Food Safety & Quality Standards the industry program for best management of food safety requirements for the production and packing of fresh produce on-farm. 18 Vegetable recalls 2015-2021 (trend unclear) (FSANZ). A new leafy veg standard (Feb 2025) will further reduce risk of safety issues in fresh leafy vegetable production. Consumer trust in food safety peaked in 2019 (84%), declining to 76% in 2024 (not veg specific) (CTiRI). Consumer perceptions of quality and value of Australian veg declining 24 months to FY24 (HortIQ). Demand for Aust grown veg in local (#2 purchase driver, MT21003)) & export markets (3.6% value CAGR 1.3% volume CAGR – 8 yrs to 2023).

Pillar 2: People and Enterprise

People are core to vegetable production. Alongside vegetable growers, people are employed in a diverse range of roles from seasonal harvest to permanent and skilled positions in farm management, operations, agronomy, propagation, packing, marketing, agritourism, logistics, freight, technology and research. Vegetable enterprises are located in communities around Australia in urban, peri-urban, regional and remote areas. They are an important part of the landscape and provide major sources of employment. In some small regional communities they can be the primary source of employment.

The extent to which the people and enterprises producing and supplying vegetables are productive, profitable and are associated with safe and ethical working practices is a key determinant of the vegetable industry's sustainability.

Table 6 summarises the results of the sector wide scan for Pillar 2, with full results by indicator provided in Appendix 3. A total of 41 indicators were considered.

Data gaps

- 9 direct data gaps.
- Productivity measures (e.g. $/ha) requires production volume and area data. ABS surveys collecting vegetable area have been discontinued, alternative measures of industry area will be required.
- The new Vegetable Benchmarking (MT22009) initiative only provides partial coverage of previous measures featured in the ABARES vegetable farm financial survey, with a greater focus on farm-specific performance. Affected data includes: Cost of production ($/t), Diversity of income, Marketable yield pack out.
- The role of WHS procedures and training programs reducing safety incidents on vegetable farms.
- Staff retention, continuity of seasonal workers, and indigenous engagement metrics.
- Land use conflict in urban areas.
- Grower wellbeing goals.

Opportunities

- Findings from the Hort Innovation funded project Factors driving horticulture productivity (HA24004) may support further insights into productivity drivers and measures for the vegetable industry.
- Industry sentiment surveys could be refined to align with indicators driving People and Enterprise sustainability (including staff retention, involvement in community, leadership training).
- Broaden the Vegetable Benchmarking program to reflect data gap metrics identified above.

Table 6: Australian Grown Horticulture Sustainability Framework Sector wide scan - Pillar 2 People & Enterprise

Coverage Complete Partial Limited **Trend** Increasing Steady Declining Unclear

People & Enterprise	Data source	Data type	Timing	Coverage	Trend	Summary
Productive, Profitable Growers	Hort Stats Handbook Veg Benchmarking ABARES veg survey ABS Agricultural Commodities ABS Labour ForceVegNET Hort Innovation	Quantitative Qualitative	Timeseries Intermittent One Off			Adoption of intensive farming systems, technology, machinery and other best practice have supported productivity growth. VegNET is reaching 33% of vegetable growers of which 40%-50% have adopted (or have intent to adopt) best practices. Cost of production increases have outpaced farmgate price growth, impacting grower profitability. The least profitable 25% of growers recorded a

						negative return in 2022-23 (MT22009). Over the 6 years to 2022/23, the vegetable levy invested $106M in R&D, with annual investment declining from a peak of $22M in 2017/18 to $15.3M in 2022/23. The impact of R&D undertaken between 2016 and 2021 resulted in a benefit-cost ratio of 3.1:1.
Human Rights	ABS Labour Force Fairwork Australia Fair Farms	Quantitative	Timeseries Intermittent			The vegetable industry is labour intensive, with an increasing workforce over time in response to expanded production area (ABS). Fairwork Horticulture Award outlines minimum pay requirements for vegetable business owners, while the industry program Fair Farms provides a training and certification program for fair and ethical employment practices.
Safe Work	Safework Australia	Qualitative	Intermittent			Serious injury and deaths occurring in the vegetable industry are recorded through Safe Work Australia, with approximately 10 serious injury claims per million hours worked each year.
Diversity & Capability	ABARES labour use ABS Census Industry programs	Quantitative Qualitative	Timeseries Intermittent One Off			Access to skilled labour remains a challenge for the industry, 46% of growers experiencing recruitment challenges in 2024. The industry have developed resources and initiatives to encourage students to consider a career in the vegetable industry, with 43% of the workforce having post school qualifications in 2021, up from 38% in 2016 (ABS).
Governance	Industry programs Hort360 Hort Innovation	Qualitative	One Off			Programs run through Rural Leadership Foundation, Women and Leadership Australia, Hort Master Class and Nuffield seek to strengthen the industry's leadership structures

Thriving Communities	MT21010 (CIE) UTS Survey ABS VACP Hort Stats Hort Innovation & AUSVEG sentiment survey ABARES Benchmarking Veg benchmarking	Quantitative	Timeseries Intermittent One Off			The vegetable industry directly generates economic value through its production activities, with a total direct value add of $2.561B, providing an important source of economic stimulus to regional communities. Short term industry sentiment has been falling, with 50% of growers reporting being financially worse off vs 12 months ago, while 46% expect it to worsen in next 12 months (to June 2025).

Pillar 3: Planet & Resources

Healthy soils, reliable water supplies and pollinators are vital for vegetable production. Practices that conserve and regenerate the environment linked to vegetable production are therefore essential in supporting industry sustainability. Initiatives that support resilience to biosecurity incursions that prevent the introduction of new pests and disease is also key to preserving the integrity of production.

The vegetable industry has continued to evolve its production best practices to ensure the planet and resources supporting its production are safeguarded.

Table 7 summarises the results of the sector wide scan for Pillar 3, with full results by indicator provided in Appendix 4. A total of 29 indicators were considered.

Data gaps

- 10 direct data gaps.
- Voluntary participation in best management practices results in limited data at the industry wide level, e.g. cover cropping, soil mapping, nutrient matching, compost management etc.
- Long standing ABS data sources on water use, land management have been discontinued since 2021.

Opportunities

- Expand vegetable benchmarking survey to capture additional environmental practices, e.g. water use that are no longer captured by the ABS, as well as biosecurity practices.
- Identifying data from industry best practice programs (e.g. Hort 360) still required to align with relevant indicators.

Table 7: Australian Grown Horticulture Sustainability Framework Sector wide scan - Pillar 3 Planet & Resources

Coverage Complete Partial Limited **Trend** Increasing Steady Declining Unclear

Planet & Resources	Data source	Data type	Timing	Coverage	Trend	Summary
Sustainable Agricultural Practice	ABARES veg survey Veg benchmarking ABS Land Mgmt ABS Water Use	Quantitative Qualitative	Intermittent One Off			Environmental best practice features throughout the industry extension platforms VegNET that reaches 33% of vegetable growers and best practice program Hort 360. Select programs such as the levy funded Soil Wealth and Integrated Crop Protection program has influenced approximately 50% of vegetable growers to improve use management practices that improve soil health.
Water	Soil Wealth ICP ABS Irrigated Production ABS Land Mgmt Hort360 Veg benchmarking	Quantitative Qualitative	Timeseries Intermittent			Limited pathway to measure vegetable production water use following discontinued ABS water use survey. Best practice programs may address water use on farm.

Biodiversity & Pollinators	ABS Land Mgmt Hort360 Pollination aware	Quantitative Qualitative	Intermittent			Further investigation of Hort 360 practice data is required to inform biodiversity initiatives. 2022 varroa mite incursion may increase the cost of accessing pollination for the 24% of vegetable crops that depend on pollination.
Pest & Disease	VegNET IPDM	Qualitative	One Off			Ongoing levy funded extension program VegNET support an integrated approach to pest and disease management that minimises the reliance on conventional chemical controls.
Biosecurity	Industry biosecurity plan VegNET VG22006	Qualitative	One Off			Vegetable Industry biosecurity plan provides a framework for prioritising biosecurity risk and grower surveillance and on farm management requirements.

Pillar 4: Climate & Waste

A changing climate requires the vegetable industry to enhance its resilience when responding to extreme weather events. Reducing emissions and waste on farm and through the supply chain have the potential to significantly reducing the footprint of vegetable production contributing to the long-term sustainability of the industry.

Several processing and packaging technologies that capture otherwise inedible/unmarketable produce are in development which will expand options for growers in reducing waste and improving resource conversion.

Table 8 summarises the results of the sector wide scan for Pillar 4, with full results by indicator provided in Appendix 5. A total of 21 indicators were considered.

Data gaps

- 7 direct data gaps.
- Up to date vegetable industry life cycle assessment capturing energy (including from renewables) and resource use across production.
- Availability of financial and insurance products that help build resilience to natural disasters and extreme weather.
- Baseline updates to food waste for vegetable industry.

Opportunities

- Reporting of emissions by large vegetable growers (AFPA members) using new GHG framework to provide evidence and build awareness for the low emissions foodprint.
- Industry wide resource to inform climate adaptation strategies.
- Validate vegetable industry priorities and opportunities for waste reduction across production and sale.

Table 8: Australian Grown Horticulture Sustainability Framework Sector wide scan - Pillar 4 Climate & Waste

Coverage Complete Partial Limited **Trend** Increasing Steady Declining Unclear

Climate & Waste	Data source	Data type	Timing	Coverage	Trend	Summary
Emissions	National Greenhouse Accounts AFPA GHG Framework PICC Lifecyle analysis	Quantitative	Timeseries One Off			Vegetable production contributes <1% of total agricultural emissions A GHG Framework has been developed to improve accuracy and reporting by vegetable growers, with adoption by major growers anticipated to occurring in coming seasons.
Energy	Hort 360 VG13054	Quantitative Qualitative	Intermittent One Off			Sector wide energy use has only been reported intermittently using a lifecycle analysis approach. Variation in vegetable business operations increase the challenge of a sector wide energy estimate. The share of energy sourced from renewables is potentially sourced through participation in the Hort 360 program.

Climate adaptation	Hort 360 Protected cropping map (AS20003)	Qualitative	One Off			Ongoing investment into protected cropping structures (e.g. glasshouses) increases resilience to extreme weather events. Supporting vegetable growers to develop a climate risk assessment strategy is a component of the Hort 360 program (data currently under investigation).
Food waste	Fight Food Waste FIAL Baseline VG15076 Retailer initiatives (e.g. Odd Bunch) Commercial ventures (e.g. Nutri-V)	Quantitative Qualitative	Intermittent One Off			Food waste occurs throughout the supply chain, from farm to plate and has been challenging to reconcile. The 2021 Food waste baseline provides a starting point to track initiatives to reduce vegetable Food Waste, via investment in the End Food Waste CRC. Baseline data identifies that the vegetable sector contributes large amounts of Food waste through the supply chain due to its perishability. Several retailer and grower initiatives have emerged to reduce Food waste, e.g. Woolworths “odd bunch” line has sold more than 110,000t of otherwise unmarketable produce since its launch in 2015.
Waste	AFPA Packaging Hort360 CSIRO VegNET	Qualitative	Intermittent One Off			Grower approaches to on-farm waste management vary significantly, making data capture challenging. 75% of Hort 360 participants have a waste management plan, encouraging practices that seek to reuse. divert, repurpose or recycle material. Evidence continues to emerge about the role of packaging in extending shelf life of fresh produce, however further investigation of reusable or recyclable packaging to align consumer preference remains underway.

2.4 Recommendations/Conclusions

The sector-wide scan conducted as part of Project MT24003 assessed the extent to which sustainability performance across the Australian vegetable and onion industries is currently measured, recorded, and accessible for use in communications. The analysis covered 101 indicators from the HSF, using 52 data sources from government, levy-funded and industry-led programs. The findings reflect the state of the data landscape, not the sustainability performance itself.

2	**Data coverage across the HSF varies in its completeness across the key elements.** While some areas—such as food safety, industry value, and employment—are supported by structured, regularly updated datasets, others—including biodiversity, water use, packaging, and workplace health and safety—have only partial or limited data coverage.
3	Several data sources are **decentralised across levy-funded programs and assurance schemes and are not consistently aggregated for sector-wide use.**
4	The **discontinuation of national dataset**s such as the ABS Water Use and Land Use surveys and the ABARES vegetable financial performance survey has created enduring **gaps in areas like productivity, input efficiency, and farm financial indicators**.
5	To improve future communication, **priority data gaps**—particularly those relevant to key audiences such as government (e.g. water use), retail (e.g. packaging), and finance (e.g. WHS and risk metrics)—**should be addressed through targeted data collection and standardisation**.
6	**A central meta data register** documenting existing data sources, responsible custodians, update frequency, and coverage against HSF indicators would improve transparency and guide strategic investment in measurement.
7	Where structured data is unavailable or incomplete, **grower-led case studies and program-level summaries** can be used to support messaging, provided they are clearly linked to sustainability themes and grounded in verifiable practice.
8	**Periodic review of indicator coverage and data system quality** should be undertaken to ensure that communication remains accurate, consistent, and aligned with the HSF over time.
9	**Compliance frameworks (e.g. HARPS, Sedex) capture sustainability data at the enterprise level,** particularly on inputs, workforce, and audit outcomes. However, **this data is not currently aggregated to inform industry-wide reporting.** Aligning these systems with sector-level sustainability objectives presents a practical opportunity to enhance performance tracking and external assurance.

3. Module B: Deep target-audience insights and analysis

3.1 Introduction

Module B of the project focused on generating deep, audience-specific insights to inform the development of targeted sustainability messages for the Australian vegetable and onion industry. This phase combined qualitative and quantitative research methods to understand how different stakeholder group perceive sustainability, what messages resonate most with them, and how communication can be tailored for maximum relevance and impact. The research included exploratory focus groups with consumers, in-depth interviews and a cross-sector advisory workshop with industry stakeholders, and a nationally representative survey to test and prioritise key message themes.

3.2 Methodology

3.2.1 B1: Consumer Qualitative Research

This research was undertaken in a structured qualitative approach comprising seven 90-minute focus group discussions conducted across three key metropolitan markets: Sydney, Melbourne, and Brisbane. The groups were designed to capture a broad cross-section of consumer perspectives by segmenting participants according to household life stage, including Single Income No Kids or Double Income No Kids (SINKs/DINKs), young families with children under 10, and older families with children aged 10 and above.

Participant recruitment was guided by clearly defined screening criteria. All respondents were required to be aged between 18 and 65 and to serve as either sole or joint decision-makers for the purchase of vegetables and onions within their household. In addition, all participants demonstrated at least a basic level of interest in sustainability. Individuals who explicitly rejected the topic were excluded. The sample reflected a natural variation in sustainability engagement, informed by self-identified attitudes and behaviours.

The discussion flow followed a consistent framework across all groups. The main discussion topics comprises four key areas, addressing:

- Consumer perceived meaning and importance of sustainability
- Consumer Expectations of Retailers and the Vegetable Industry
- Sustainability Message Territories assessment
- Territory-specific sustainability messaging evaluation

Stimulus materials were rotated across groups to ensure balanced exposure and reduce order bias. Message testing incorporated both spontaneous individual reactions and guided group discussion to assess appeal, clarity, relevance, differentiation, and perceived impact.

3.2.2 B2: Consumer Quantitative Research

To inform the prioritisation and communication of sustainability messages, a 15-minute online survey was conducted with a nationally representative sample of 1,004 Australian consumers. The sample included a balanced distribution across gender, age, geographic location, and region (metro vs regional) to minimise bias. A detailed demographic breakdown is provided in Appendix 9. All respondents were fresh vegetable purchasers and identified as either main or joint grocery buyers, aged 18 to 65 years. The sample was weighted to reflect national population benchmarks, ensuring the results are representative of the broader Australian grocery-buying population.

The survey covered three key areas:

- Setting the scene on consumer perception on sustainability
    - Assessed the importance, knowledge, confidence, and consideration of sustainability in food and grocery decision-making
    - Captured perceptions of the industry and retailers in the context of sustainability
    - Explored vegetable purchasing behaviour and sustainability considerations at point of sale

- Testing consumer priority on sustainability messages and initiatives
    - Measured interest in hearing different sustainability messages
    - Evaluated the perceived importance of messages to drive action
    - Assessed the impact of messages on consumer perception of the industry and their potential influence on purchasing behaviour
- Evaluating top performing messages to inform communication guidance for the vegetable and onion industry
    - Identified preferred messengers for sustainability communication
    - Determined where consumers want to see these messages communicated
    - Evaluated the most effective formats for delivery (e.g. in-store signage, product labels, digital media)

3.3.3 B3: Key Stakeholder & Expert Advisory Engagement

This module included nineteen in-depth interviews with key industry stakeholders and a multi-stakeholder Expert Advisory Workshop. These engagements were designed to validate emerging insights from earlier phases of the project and to surface practical strategies for future communication and data use.

Participants included representatives from across the value chain:

- Growers
- Grocery retailers
- Government relations experts
- Academic and research experts

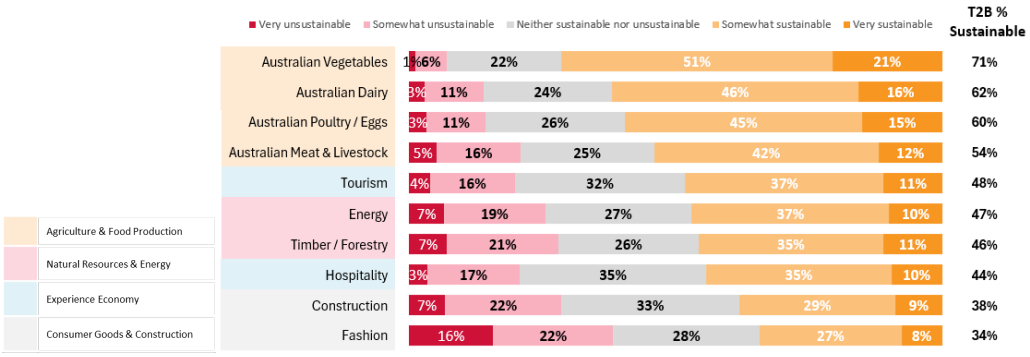
Each session covered the following components:

- A discussion of the HSF and its relevance to the audience
- A briefing on key insights from the completed consumer research
- An interactive discussion regarding the stakeholder's interaction with the HSF, including:
    - Relevance and alignment of the HSF's pillars and indicators with their organisational sustainability priorities
    - Their current engagement with the HSF – such as on-farm data collection activities, compliance or reporting practices
    - Opportunities to integrate data collection into existing farm management or assurance systems
    - Their perspectives on how well the HSF captures post-farmgate issues (e.g. labour, packaging, supply chain waste)
    - Current approaches to managing supply chain sustainability requirements (e.g. product specifications or procurement terms)
    - Priority sustainability issues to be communicated to key audiences (e.g. government, retailers, consumers)
    - Preferred methods of storytelling—particularly the role of data, case studies, and grower-led narratives in building trust and impact

3.3 Results & Discussions

3.3.1 Consumers

According to the *Quantitative Consumer Survey* (2025), the vegetable industry was perceived as the most sustainable sector of the industries tested



A3. How do you view the sustainability of the following industries?
Base: All fresh veg purchasers (n-1,004)

Figure 5: Consumer perception of sustainability across industries

Amongst the representative sample of 1,000 Australians surveyed, the vegetable and onion industry was perceived as the most sustainable among other major agricultural and non-agricultural sectors – with 94% viewing the industry as *'neutral'* or *'very sustainable'* (Figure 5).

When asked about their perception of sustainability in the Australian vegetable industry, participants in the *Consumer Qualitative Study* shared a range of views that helped contextualise this sentiment. Consumers commonly referenced attributes such as freshness, healthiness, and a sense of naturalness — "*If it looks fresh and doesn't have lots of packaging, I just feel better buying it*".

In addition, vegetables were often perceived as less resource-intensive than other food or products, as one respondent mentioned: "*Compared to meat that uses so much input and has chemicals in it, veggies just don't use that much*", with limited reference to upstream impacts such as emission and natural resources.

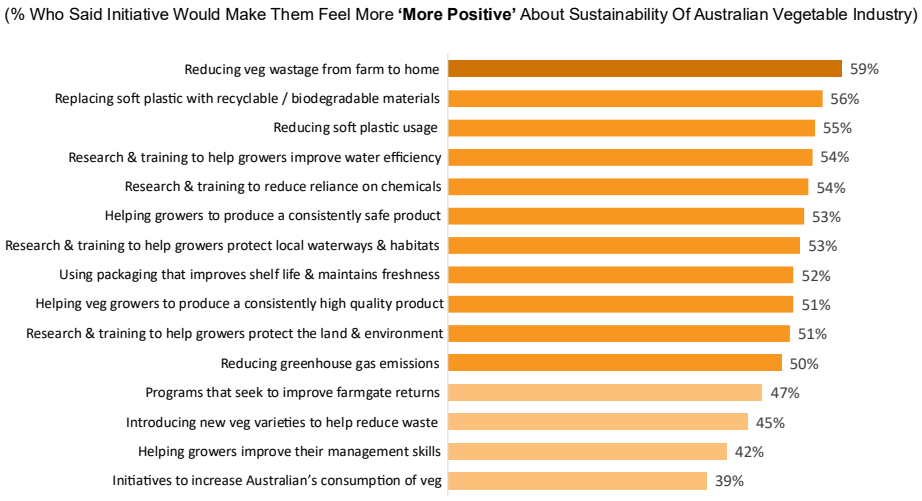


Figure 6: Share of consumers responded that the initiative would have a positive impact to their perception to the vegetable industry

B3. If you heard about each of these initiatives, would you feel more positive, less positive or about the same regarding the sustainability of the Australian vegetable industry?
Base: All fresh veg purchasers (n-1,004)

While the vegetable industry was already perceived as the most sustainable agricultural sector in Australia, this research suggested that further communication continues to have influence.

When presented with a range of sustainability-related messaging topics, between 39% and 59% of surveyed consumers indicated that the messaging would positively shape their perception of the industry (Quantitative Consumer Survey, 2025).

Notably, this responsiveness occurred across all topic areas (as shown in Figure 6) —ranging from waste reduction, packaging, and water efficiency to farm returns and consumption initiatives—suggesting that even among a generally supportive audience, there remains substantial headroom to enhance perceptions through targeted communication. This finding indicated that sustainability messaging retains value across a wide range of themes and can reinforce or strengthen consumer trust, even in the context of an already favourable baseline.

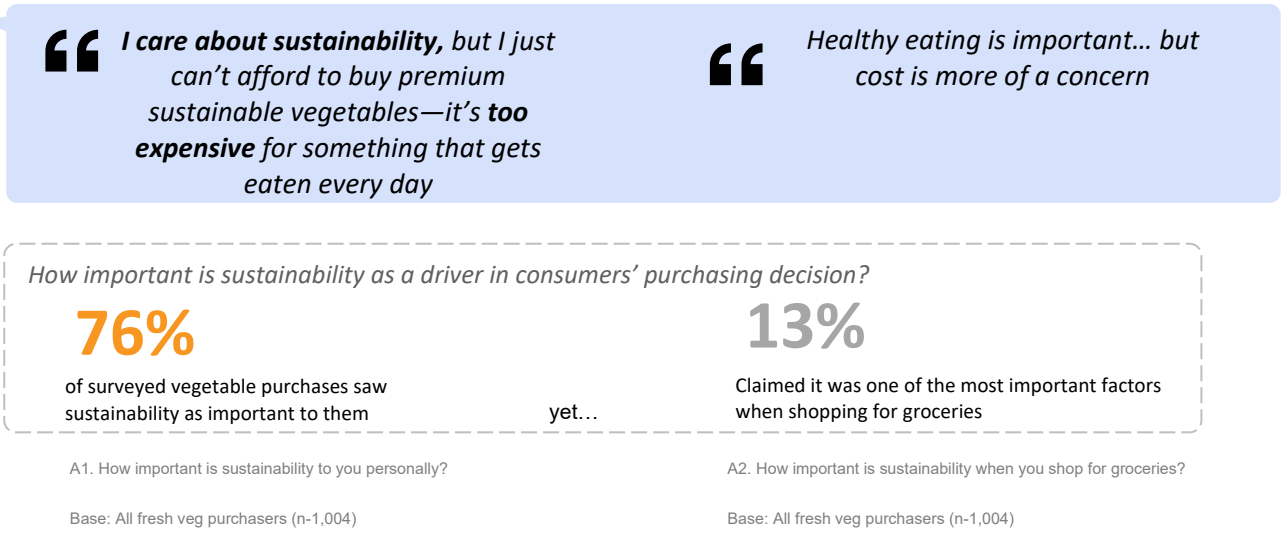


Figure 7: Cost was a primary concern in consumers' purchasing decisions

When exploring what drives consumer decisions in the vegetable category, consumer audiences indicated that price remains the dominant consideration. Participants frequently cited cost-of-living pressures as a barrier to choosing more premium or sustainability-labelled options.

While sustainability was viewed as important by 76% of surveyed consumers, it was often seen as involving trade-offs—either in terms of higher cost or reduced performance (e.g. freshness, shelf life). This perception undermined follow-through, even among those who expressed concern for environmental outcomes.

Consumers described sustainability choices as more viable when they were seen as win–wins: offering tangible personal benefits, such as longer shelf life, lower waste, or better value.

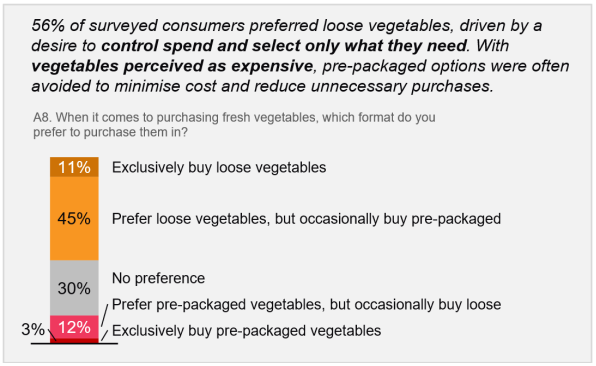


Figure 8: Consumers prefer loose vegetables

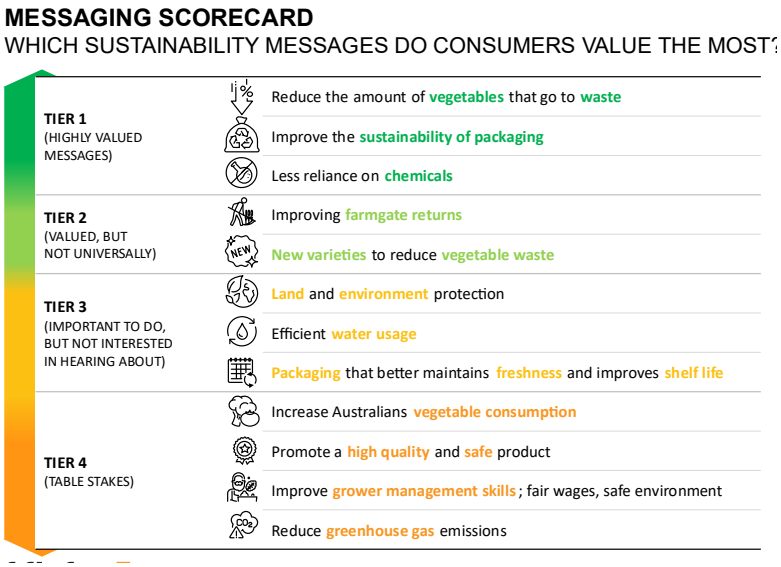


Figure 9: Consumer Qualitative Research - ranking of sustainability messages by consumer perceived importance

Surveyed participants' perception of sustainability was typically mediated through the retail experience, which acts as the primary point of contact between consumers and the product. As a result, the sustainability topics stood out the most were those which are visible and tangible at the point of sale.

Tier 1 messages included topics that consumers felt were within reach and had the potential to deliver visible change and personal benefit. These were viewed as actionable and relevant to everyday shopping decisions.

Tier 2 messages reflected that consumers also care about ensuring growers are well supported, though there was less emphasis on growers' broader contributions to their communities.

Tier 3 messages covered areas that consumers considered important for the industry to continue addressing but did not wish to receive further communication about—reflecting a level of assumed trust or limited engagement.

Tier 4 messages, such as healthy eating and living, received the least attention. Many consumers felt saturated by messaging in this space and believed that such guidance should come from public health authorities or government agencies, rather than from industry or retail brands. These topics were often viewed basic expectations that the industry was assumed to meet.

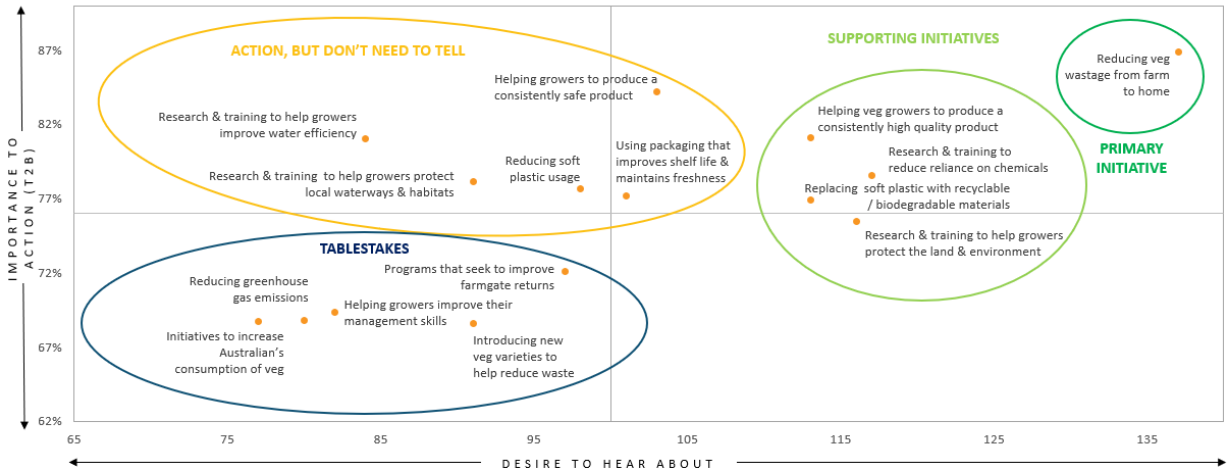


Figure 10: Evaluation of sustainability initiatives based on consumer desire to hear more and perceived important of industry action

B2. How important is it for the Australian Vegetable industry to action the following initiatives? B1. Which of these are you MOST / LEAST interested in hearing more about from the Australian Vegetable industry?

Food being wasted before reaching the supermarket seen as a core problem that has wide impact on both growers, consumers and the environment

*Because **it will have an impact on a lot of things**. It will help **reduce the cost of groceries**, it will **give growers more money** for what they grow, it helps with **greenhouse emissions**.*

*It would make a **huge difference for farmers**, **supermarkets and the everyday Australian** that buys the product. No vegetables should ever go to waste when they can be used, donated or made into something else.*

*Food wastage is such a terrible thing when you have people **who can't afford food** in Australia.*

Informed by the qualitative studies, 15 sustainability-themed messages were developed based on elements of the HSF and tested, using the Maximum Difference (MaxDiff) Scaling approach (see Appendix 7). This method enabled consumers to prioritise messages and quantify the result, resulting in the grouping shown in Figure 9. Based on their placement, the messages were grouped into four strategic categories, each with distinct communication implications.

Reducing food waste from farm to home emerged as the clear priority. It received the highest scores across all tested dimensions—most notably in "desire to hear about," "importance to solve," and "impact on industry perception." Consumers viewed food waste as a tangible issue with personal, industry-wide, and environmental implications. It was especially compelling for older and regional Australians, who associated it with value, affordability, and fairness. This message is well positioned to serve as the "hero" of a sustainability communication campaign.

Supporting messages such as reducing chemical use, improving sustainable packaging, and protecting land and environment also performed strongly. While slightly less salient than food waste, they showed above-average appeal and were perceived as credible and meaningful. Each had distinct strengths:

- **Sustainable packaging** was seen as a straightforward, actionable change—particularly attractive to consumers already engaged in sustainability, or those who prefer loose produce.
- **Reducing chemical use** appealed broadly, especially to families, offering reassurance about health and environmental impacts.
- **Land protection** was viewed as essential to the industry's long-term viability and resonated strongly with sustainability-minded consumers.

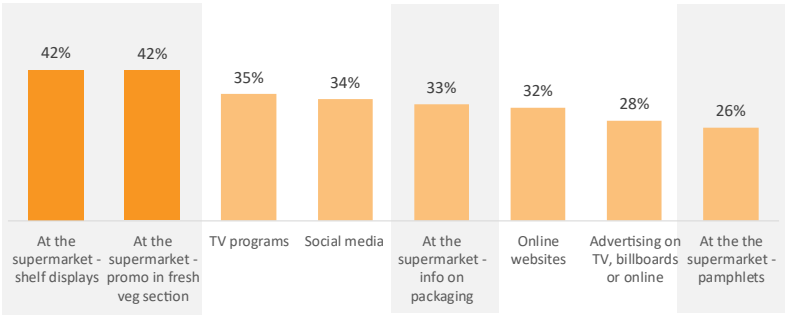


Figure 11: Share of consumers showing preference to different communication channels

C1a. If the Australian Vegetable Industry were to communicate some of these sustainability initiatives to you, where would you want to hear more about them?

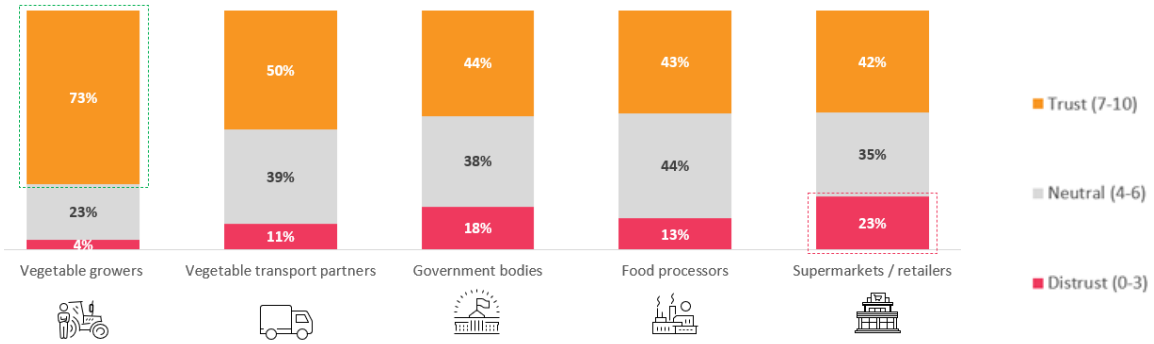
Base: All fresh veg purchasers (n-1,004)

Figure 12: Consumer reaction to supermarket led sustainability initiatives

As the point of purchase remained the primary moment of consumer interaction with fresh vegetables, retailers—particularly supermarkets—were widely viewed as the main conduit for sustainability messaging. Participants in the research consistently identified supermarkets as central actors in the sustainability landscape, attributing to them significant responsibility for communicating and demonstrating sustainable practices across the supply chain. In this context, the role of communicating sustainability was understood as a shared responsibility between retailers and the broader vegetable industry.

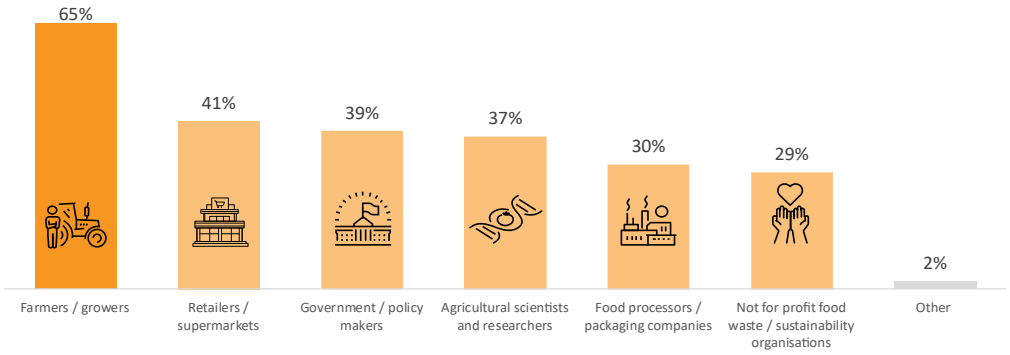
The *Consumer Quantitative Survey* (2025) showed that 76% of surveyed consumers expressed a preference for receiving sustainability-related information in-store. As shown in Figure 10, the most preferred in-store communication formats were supermarket shelf displays and fresh produce promotional areas, each selected by 42% of respondents. These touchpoints were considered highly visible and influential opportunities to inform and influence consumers at the moment of purchase.

Surveyed consumers also recognised existing retailer-led sustainability efforts. Examples such as blemished produce promotions (e.g. "Odd Bunch" campaigns) were frequently described as "win–win" solutions—simultaneously addressing food waste while offering better value. Additional retailer initiatives, including food donation programs and in-store recycling stations, were also noted and positively received, reflecting their dual benefit in advancing environmental and social outcomes.



A5. On a scale of 0-10, how much do you trust the following organizations involved in the Australian vegetable industry to make sustainable decisions?
Base: All fresh veg purchasers (n-1,004)

Figure 13: Consumers' level of trust in stakeholder within the sustainability context



C1b. And who would you like to hear talking about the sustainability initiatives

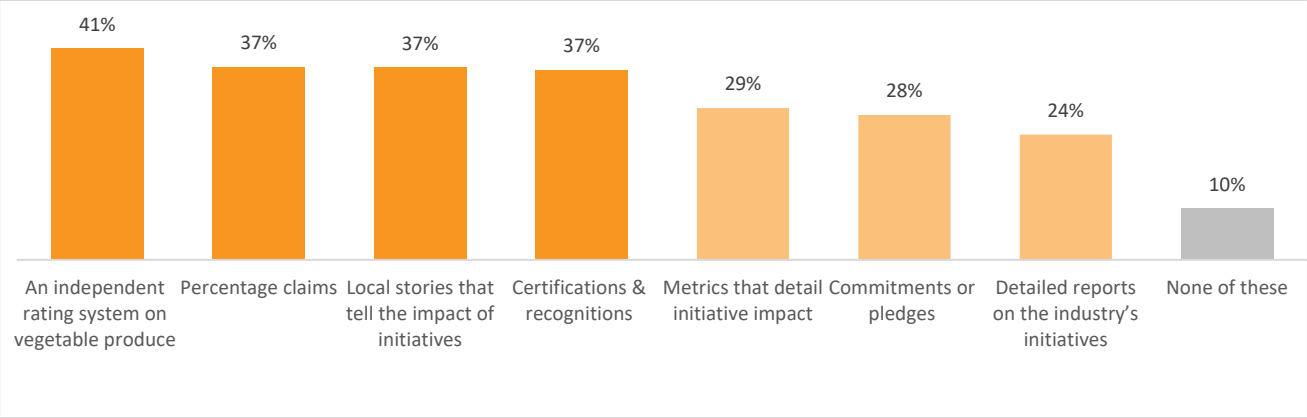
Base: All fresh veg purchasers (n-1,004)

Figure 14: Percentage of respondents willing to hear sustainability initiatives from different stakeholders

Building on the role of retailers, the research also explored how surveyed consumers interpret and prioritise sustainability issues across different levels of influence—from everyday decisions like packaging choices to upstream farming practices. While many participants acknowledged a lack of visibility into specific sustainability metrics, trust in the vegetable industry—particularly in growers—remained high. Participants expressed a desire for greater transparency through clear, accessible information, especially when sourced directly from growers.

As shown in Figure 12, 73% of surveyed consumers rated their trust in growers highly (7–10 on a 10-point scale). This level of trust exceeded that placed in other stakeholders, including supermarkets, processors, and government bodies.

In addition to trust, surveyed consumers also showed a strong preference for hearing about sustainability initiatives directly from growers. Sixty-five percent of respondents indicated they would prefer to receive sustainability messages from growers rather than from retailers or other intermediaries (Figure 13). This suggests that communication strategies aiming to build credibility and impact should anchor messaging in growers' voices—whether through testimonials, case studies, or direct statements.



C2. Which of the following would be likely to impact the way you think about the sustainability of the Australian Vegetable Industry?

Base: All fresh veg purchasers (n-1,004)

Figure 15: Share of consumers showing preference to different communication format

The format in which sustainability information is presented also has a major influence on consumer receptivity. Even when delivered by trusted messengers such as growers, messages are more impactful when they are simple, evidence-based, and relatable. As shown in Figure 14, the most preferred formats were independent rating systems (41%), quantified impact claims (37%)—e.g., "30% reduction in plastic use"—local stories with a human element (37%), and formal certifications or recognitions (37%).

These preferred formats were valued for their ability to convey credibility and impact quickly, without overwhelming the consumer. Long, complex messaging was frequently overlooked, regardless of source.

Surveyed consumers also showed support for on-pack messaging that was brief, informative, and relevant to their values.

The combination of trusted messengers and clear formats represents a powerful strategy for increasing consumer engagement and reinforcing the vegetable industry's sustainability performance.

3.3.2 Growers

Growers supported the HSF and preferred industry-led, farm-aligned reporting, with emerging pressure from finance and a need for clearer supply chain signals.

Growers' perception of the HSF

The vegetable growers interviewed demonstrated a broad awareness and general acceptance of the HSF. Most respondents found its structure appropriate, noting that it provides a comprehensive coverage of the issues relevant to sustainable vegetable production.

Larger-family/corporate growers reported that the HSF aligned with the sustainability dimensions relevant to their operations—including areas beyond the farmgate, such as labour, packaging, and waste. However, several growers noted that its relevance to marketing or export access was currently limited. They also observed that sustainability messaging was often led by retailers, rather than shaped by growers or the broader industry.

> *"I think it touches the bases. I'm pretty comfortable seeing what is on there... It covered all the points. It comes down to what detail is... something that's concise enough for people to understand what that means for production*

> *"With systems in place, we already capture harvest data, units dispatched, and inputs like irrigation, fertilizer, fuel..."*

How growers currently engage with sustainability framework

Growers reported that they are collecting detailed data relating to many elements of the HSF via mandatory food safety and quality compliance schemes such as FreshCare, HARPs, SQF, Sedex, Fair Farms and GlobalG.A.P.. These schemes have increasingly become a requirement of supply to grocery retailers. The vast amount of data in these schemes is currently not available in a de-identified, summarised form for industry reporting.

Growers indicated that any future data reporting model aligned with the HSF should leverage data already collected via existing farm management systems and avoid adding administrative burden. Many expressed interest in improvement-oriented and voluntary reporting tools that provide feedback, rather than those designed solely for compliance purposes.

Interviewed growers expressed interest in models that enable industry-level aggregation and benchmarking, rather than requiring farm-level disclosure. Growers noted that anonymised, aggregated reporting—when implemented transparently and with a clear purpose—could support sector-wide learning and communication.

Previous experiences with data systems highlighted the importance of clearly defined parameters and appropriate use of information. Referencing examples where evolving regulatory frameworks affected farms already operating at high standards, growers emphasised the value of reporting approaches that recognise existing good practice and offer consistency.

Key preferences included opt-in models, clear data use policies, and alignment with systems already in use on-farm. Several growers indicated support for contributing to regional or sector-wide metrics if the reporting platform was streamlined and offered meaningful insights.

Grower perspectives on supply chain sustainability requirements

Sustainability-related requirements from downstream supply chain partners—particularly retailers—were described by interviewed growers as compliance-focused. Most engagement centres around food safety, labour practices, and ethical sourcing, with some increasing emphasis on packaging and waste. Environmental indicators such as carbon emissions or water use were not consistently cited as retailer requirements.

Some growers pointed to recent changes in packaging requirements, with the lettuce category cited as an example of increased packaging driven by retailer specifications. Anticipated developments, such as packaging levies to support recycling, were also on their minds.

Although growers acknowledged the national emissions reduction agenda, they noted a lack of horticulture-specific guidance. Most described their sustainability practices as internally driven and shaped by operational priorities, rather than by external mandates.

There was emerging interest in the role of the finance sector, including ESG-linked loans and sustainability-related lending

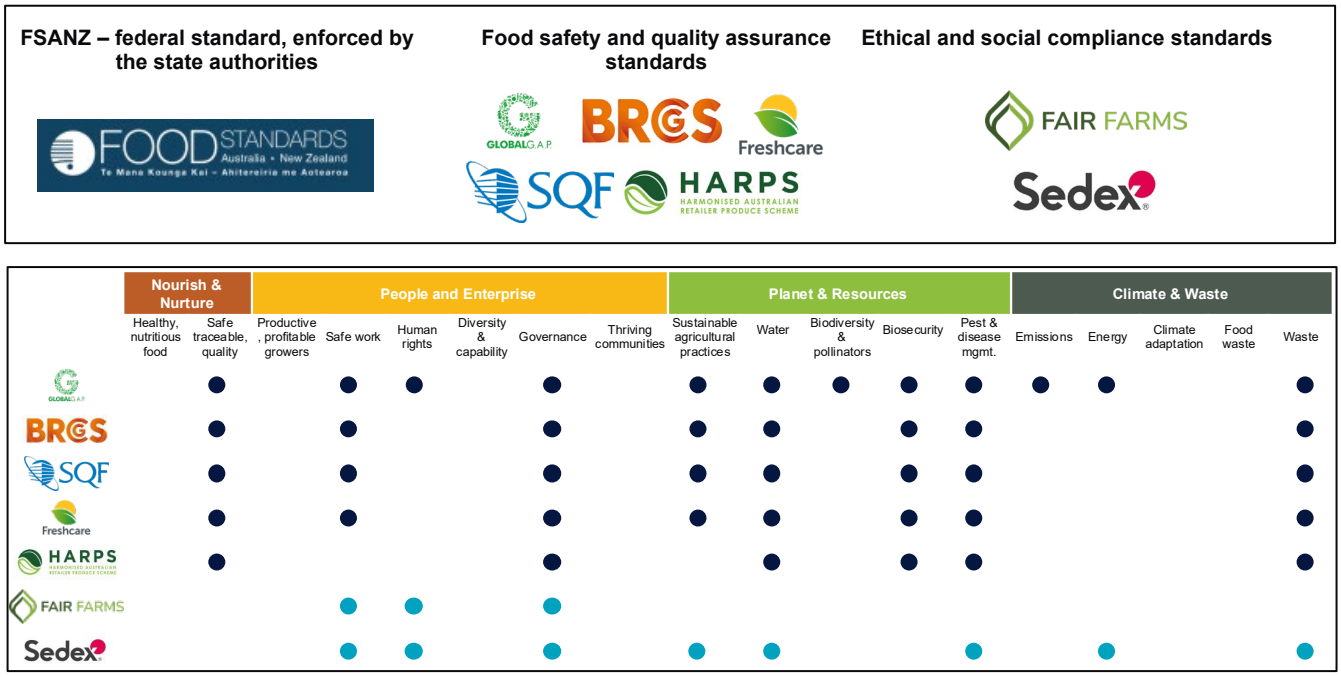
terms. Some growers saw banks as a future driver of industry sustainability, particularly if financial incentives were tied to verified performance outcomes.

Carbon accounting (Scope 3 Reporting) was noted as a potential area for improvement, where existing greenhouse gas calculators could better reflect short crop cycles and high seasonal variability in vegetable production. Practices such as compost use and reduced fertiliser inputs likely support emissions reductions but were not yet reflected in formal reporting incentives.

> *"Capital and finance is where we're feeling most sustainability pressure.."*

> *"Packaging is an interesting space — changes are coming, but not clear what they are yet."*

How growers currently engage with the HSF and data collection systems



Based on BRCGS Global Standard Food Safety, issue 9 F904a, GlobalG.A.P. Integrated Farm Assurance GFS Fruit and Vegetables Checklist, SQF Food Manufacturing Edition 9, HARPS Standard Version 2.0, Freshcare Food Safety & Quality Standard Edition 4.2, Fair Farms Version 3, SMETA 7.0

Figure 16: Existing sustainability-related data collection systems

Vegetable growers in Australia routinely collect a wide range of operational data. This data is primarily captured to meet compliance requirements for food safety certification, quality assurance, and internal management purposes. Data collection practices are shaped largely by state food safety regulations and market-driven certification schemes, rather than by specific sustainability reporting requirements.

At the national level, the Australian Government sets the food safety framework via food Standards Australia New Zealand (FSANZ). Enforcement occurs at the state level, where growers are required to maintain a Food Safety Management System (FSMS), undergo periodic audits, and meet documentation requirements unless already certified under a GFSI scheme. Additional standards for leafy vegetables have been introduced recently and either adopted or in the process of being adopted by state authorities

In addition to these regulatory obligations, growers participate in a range of certification schemes—such as Freshcare (domestic-focused), Global G.A.P. (export-focused), SQF, BRCGS, and HARPS—depending on their market access requirements. These schemes require growers to collect and retain data on key operational domains such as water usage, chemical inputs, waste and pest control, staff training, traceability, and hygiene protocols.

Compliance standards such as Fair Farms an SEDEX include elements that directly relate to the People and Enterprise pillars of the HSF. These schemes require growers to ensure adequate staff training, compliance with workplace laws and ethical labour practices, fair wages, grievance mechanisms, and appropriate employment documentation.

While this system ensures that a substantial amount of sustainability-related data is being recorded, interviewed growers indicated that performance outcomes are rarely evaluated at scale. In many cases, growers are required to demonstrate that they record water quality or chemical use—but there is no corresponding assessment of whether usage is improving, sustainable, or consistent with best practice. Compliance processes typically focus on data presence and traceability, not on outcome monitoring or performance benchmarking.

Key communication opportunities - Growers		HSF Pillar				Communication pathway
		Nourish & Nurture	People & Enterprise	Planet & Resources	Climate & Waste	
Recognition of horticulture as distinct from broader agriculture	Growers noted that horticulture is often grouped together with broader agriculture in public discussions about sustainability. They observed that this framing can obscure important differences in production systems and lead to sector-wide expectations that do not always align with the realities of vegetable production. Growers suggested there may be value in more clearly communicating the distinct attributes of horticulture within broader agricultural narratives.	●	●	●	●	From the industry to Government
Certification complexity and buyer requirements	Interview participants raised concerns about the growing number of certifications required to access markets. They highlighted the administrative burden associated with managing multiple schemes—such as Freshcare, Fair Farms, and SEDEX—and noted a lack of alignment across these frameworks. This complexity was seen as a barrier to efficient compliance. Interviewed growers expressed interest in greater harmonisation of certification pathways and clearer communication from downstream partners, particularly retailers, about the purpose of individual certification requirements. They also identified a potential role for industry bodies in facilitating cross-recognition or consolidation of overlapping schemes.		●	●		From downstream partners (Retailers) to Growers
Product specifications and supply chain waste	There is a need for improved mechanisms / market signals to growers re supply volumes with the goal of utilising whole-of crop and reducing over-supply, out-of-spec and ultimately waste to compost or landfill.	●			●	From downstream partners (Retailers) to Growers
Clarity on long-term sustainability direction	Interviewed growers observed that sustainability expectations from downstream partners—particularly relating to packaging and emissions—were often unclear. This lack of visibility was seen as a barrier to long-term planning and capital investment. Growers recommended that more consistent signals about future sustainability priorities from government and supply chain partners could support more proactive and informed decision-making at the farm level. It was also noted (see above) that sustainability standards were included as part of broader compliance requirements. This approach was not strategic and created duplication and cost.		●		●	From downstream partners (Retailers) and Government to Growers
Need for incentives and proof-of-concept	Interviewed growers expressed interest in seeing more practical examples of successful sustainability initiatives including systems that reward growers for sustainability interventions. They noted that case studies or pilot programs—particularly those relevant to similar production systems or regional conditions—were effective in building confidence and encouraging adoption. Peer-led demonstrations and regionally grounded initiatives were seen as especially valuable in translating broad sustainability concepts into actionable, farm-level practices.	●	●	●	●	Between Growers From Industry to Growers

Best way to tell the story

- The vegetable and onion industries are lower-footprint industries compared to some other forms of agriculture
- The vegetable and onion industries are highly trusted by consumers.
- Many growers are required to collect detailed information relating to sustainable and ethical production for Australian and global compliance systems
- Great progress has been made already in sustainable farm systems.
- Growers will work with supply chain partners towards better data use, continuous improvement and effective communications to consumers and stakeholders.

3.3.3 Grocery Retailers

The sustainability issues faced by the grocery retail sector are in line with the issues covered by HSF, with focus on consumer-facing issues such as packaging and food waste.

The HSF's alignment with retailer's internal sustainability objectives

HSF themes are broadly aligned with existing grocery retailer priorities, particularly around plastic reduction, responsible sourcing, food safety, and ethical labour practices. labour. While not formally embedded into procurement or reporting requirements, the HSF was seen as directionally consistent with the standards used by major Australian retailers.

The important role of Australia's wholesale vegetable markets is noted. This note only relates to the role in the supply chain, but also the provision for smaller vegetable and onion growers to market their produce. The markets and grocers of Australia continue to make up a significant market share outside the major retailers.

Wholesale markets also align with HSF in key areas such as waste minimisation and renewable energy.

> *"In the retail sector, marketing sustainability is similar to marketing health and safety - it's just expected."*

Current sustainability requirements and reporting expectations for vegetable suppliers.

Major grocery retailers' current expectations of vegetable suppliers focus on compliance with product safety, ethical sourcing (e.g. modern slavery certification), and packaging requirements. (see Figure 15, page 40).

An expansion of compliance standards required as a terms of supply was increasing the amount of sustainability data required to be collected on farm.

Grocery retailers have to manage the conflict between clear consumer demand for high-quality fresh products vs. a broader sustainability issue of using whole-of-crop i.e. maximising the use of all vegetable and onion produced on farm and reducing food waste.

Stakeholders noted the requirements of international grocery retailers and their influence on sustainability trends and compliance. This includes market-access requirements and non-tarriff barriers.

Grocery retailers do report some farm/supply chain stories in their current sustainability material. This is generally in the form of supplier case studies or pilot programs.

Opportunities to improve data collection for industry reporting, category growth and consumer messaging.

Significant data is collected via compliance standards, and this data is not used to inform sustainability reporting against HSF. There is an opportunity for a discussion with growers, retailers and standards agencies to consider how to utilise the compliance and standards system to inform improved industry sustainability reporting.

As a largely domestic sector, vegetable production relies on local pricing mechanisms. Retailers and domestic intermediaries (e.g. processors) have a significant role in shaping supply models that support financially sustainable farm businesses. Unlike export sectors, the industry has limited sales in global markets, reinforcing the importance of demand-side strategies such as category growth (e.g. *Plus One Serve*).

There are also some opportunities to work with wholesale markets to gather data relevant to the HSF. This is more common in other countries where markets are more central in matters such as traceability.

How sustainability influences consumer purchasing decisions and retailer expectations.

Shoppers expect fresh, sustainably produced, and affordable vegetables—but due to cost of living pressures have a low capacity to pay more. This underscores the need to carefully assess the cost of sustainability initiatives and clarify where costs will be absorbed across the value chain.

Sustainability issues are complicated, and the consumer research in this report demonstrated that sometimes consumers struggle with contradictions. For example, the use of packaging to improve shelf-life and reduce food waste. There is an opportunity for retailers to support messaging that helps consumers understand the trade-offs and overall sustainability benefits of some interventions.

Key communication opportunities – Retailers

		HSF Pillars				Communication pathway
		Nourish & Nurture	People & Enterprise	Planet & Resources	Climate & Waste	
The cost of sustainability	Grocery retailers should work with industry to maximise efficiency in compliance process, avoid cost and duplication – maximize value for consumers and growers.	●	●			Between Industry and Retailers
Retail as the primary interface for sustainability communication	There is an opportunity for the industry to collaborate with grocery retailers to co—develop and deliver sustainability messages effectively. Given that consumers are most attuned to issues like food waste and packaging, these themes present a natural entry point for messaging within the retail context. Additionally, the role of retailers extends beyond procurement to demand creation; partnerships on programs such as *Plus One Serve* offer a pathway to reverse declining vegetable consumption and drive category growth in a sustainable manner.			●	●	Between Industry and Retailers
Growers' financial sustainability	The HSF provides a foundation to consider farm businesses viability as a sustainability outcome, but this remains an area for ongoing dialogue—particularly given concerns that compliance costs may disproportionately impact smaller producers.	●	●			Between Industry and Retailers
Industry-led sustainability story-telling	There is an opportunity for industry and grocery retailers to collaborate through a consistent approach to sustainability communication (reporting against the HSF) to reduce duplication and improve consumer penetration across reporting requirements.	●	●	●	●	From Industry to all audiences
Changing requirements of international grocery retailers	The HSF and associated communication strategy needs to consider the evolving expectations of international markets – including emerging trends in specific grocery retailers. Shifts in global sustainability standards may have flow-on effects for domestic industry practices and reporting requirements.	●	●	●	●	From Industry to International Retailers / Trade Partners
Messaging that matches consumer priorities	There is an opportunity to increase message resonance by aligning sustainability communication with consumer priorities—particularly visible issues like waste and plastic, and trusted messengers like growers. Messaging should be short-form, simple, and backed by evidence or product relevance, with strong preference for supermarket-based touchpoints such as shelf displays and promotions.			●	●	Grocery Retailers to Consumers

Best way to tell the story - Retailers

- Make the most of the consumers engagement with the category during their regular in-store or on-line experience
- Simple messaging about sustainability, value and quality.
- Work with industry re data capture and build improved data sets and industry-level reporting.
- Work with industry on trends and future market needs e.g. scope 3 reporting
- Work on supply models and keeping reporting requirements highly efficient.

3.3.4 Government

Government-relations stakeholders viewed the HSF as directionally aligned with public priorities but highlighted the need for clearer data, narrative, and tailored communication to increase relevance.

Government and policymakers' engagement with the HSF

Interviewed government-relations experts indicated that the HSF was well aligned with broader public policy objectives, including food security, preventative health, and environmental sustainability. Although the HSF was not embedded within government reporting systems or funding structures at the time of consultation, it could serve as a useful tool for articulating a consistent, sector-wide narrative—particularly in demonstrating the sustainability contributions of the vegetable industry.

Horticulture was often conflated with broader agriculture in government policy and reporting, despite clear differences in emissions profiles, market orientation, and nutritional importance.

This generalisation was also seen in policy narratives around food security and affordability. Interviewees highlighted that horticulture exports only a small proportion of its production—approximately 4%—and therefore plays a more direct role in domestic food supply compared to more export-oriented agricultural sectors (Hort Innovation, 2025).

> *"Our issue is that we may have never even told the story, let alone thought about how we tell the story"*

> *"Horticulture is only 1% of 17% (national contribution of emissions from agriculture)"**

*Note: Annual emissions (Mt CO2-e) year to December 2024 for agriculture represented c. 17% of national inventory total (National Greenhouse Gas Inventory, 2024). Emissions from Australian horticulture are c. 1% of allagriculture emissions (Department of Industry, Science, Energy and Resources, 2022)

Perceived alignment between the HSF and public policy priorities

Interviewed government and policy stakeholders indicated that the health and sustainability benefits associated with vegetable production were broadly recognised but not always strongly reflected in public policy emphasis. For example, while the contribution of vegetables to preventative health was well understood, interviewees noted that these benefits were often more difficult to quantify or integrate within conventional policy and investment frameworks.

One expert observed challenges of elevating preventative approaches within short-term policy cycles. Interviewees saw this as an area where clearer evidence and strategic framing could enhance the relevance of vegetable production to broader health and sustainability objectives.

Technological advancements within the horticulture sector—such as precision input management, waterer monitoring, robotics, and data-driven production systems—were not always visible to external stakeholders. As a result, the sector's innovation and ongoing sustainability improvements may be under-recognised in national policy and investment narratives. Interviewed stakeholders identified an opportunity to better communicate these advancements in a way that aligns with government priorities and funding mechanisms.

> *"It's easier to justify spending $1 on emergency services than on preventative health."*

Considerations for sustainability-related data collection and communication

Interviewed experts emphasised the importance of improving how sustainability-related data were collected, interpreted, and communicated—both to inform policy development and to enhance the vegetable industry's credibility in the market. While robust, quantitative data was considered important for demonstrating performance—particularly through clear, high-level metrics—interviewed stakeholders also noted that narrative elements played a critical role in engaging broader audiences, including consumers and non-technical stakeholders.

Stakeholders also highlighted that vegetable production encompasses a wide diversity of crop types, growing methods, and geographic contexts. This diversity presents both challenges and opportunities in designing data systems and communication strategies. A flexible, tiered approach was suggested—one that combines broad, publicly accessible narratives with more structured data collection and benchmarking in areas where consistency and comparability are feasible.

> *"Sustainability language should reflect practical realities on-farm... terms like 'chemical-free' may be perceived as oversimplified or unrealistic when not paired with context about crop protection and food safety requirements."*

Key communication opportunities - Goverment		HSF Pillars				Communication pathway
		Nourish & Nurture	People & Enterprise	Planet & Resources	Climate & Waste	
Recognition of horticulture as distinct from broader agriculture	The sustainability narrative of the vegetable industry is often conflated with that of the broader agricultural sector. While agriculture is cited as contributing approximately 17% of national greenhouse gas emissions, horticulture comprises only a small fraction of this total—estimated at around 1%. Despite this distinction, vegetable producers are regularly included in high-level emissions conversations without recognition of the sector's comparatively lower footprint. This presents an opportunity to more clearly differentiate horticulture's role within the national sustainability profile and to communicate the sector's relatively efficient performance.			●	●	From Industry Bodies to Government
Modernising perceptions of the vegetable industry	Despite being technologically advanced, the vegetable industry can sometimes be perceived by some consumers and government audiences as 'low-tech'. In reality, many growers employ sophisticated approaches such as precision irrigation, robotics, integrated pest management, and real-time data systems. These technologies remain largely invisible to external audiences. Improving public awareness of the modern capabilities of vegetable farming could help reshape perceptions and support recognition of innovation within the sector.		●	●		From Industry Bodies and Growers to all audiences
Capturing the long-term sustainability journey of the industry	Interviewed stakeholders noted that discussions surrounding the industry's sustainability performance often start from the present day, overlooking the decades of progress already achieved within the vegetable industry. For example, past practices such as the use of mercury-based sprayers in apple production have long been phased out, but these transitions are rarely acknowledged. There is an opportunity to present sustainability as a long-term journey, rather than a recent priority. Capturing historical improvements in practice can provide important context, demonstrate leadership, and reinforce that many vegetable growers have been ahead of their time in adopting sustainable approaches.	●	●	●	●	From Industry to Government and General Public

Positioning sustainability as compatible with profitability	The idea that sustainability comes at the expense of profitability remains common, particularly among growers facing financial pressure. However, many sustainable practices—such as reducing chemical inputs or improving resource efficiency—can also lead to cost savings and improved margins. There is an opportunity to reframe sustainability as a driver of operational efficiency and long-term business viability, rather than as a compliance cost.	●	From Industry and Researchers to Government and Growers
Communicating resilience and risk in the supply chain	Vegetables are widely viewed as staple items that should always be available and affordable. However, the structure of the supply chain reveals several vulnerabilities—for example, reliance on a small number of packhouses or distributors for salad mixes. If one facility experiences disruption, it can affect product availability across major markets. Communicating these systemic risks in a measured way could help raise awareness of the importance of investment, diversification, and resilience in fresh produce supply systems.	●	From Industry to Government and Policymakers
Compliance schemes increasingly include sustainability data	Many growers are required to comply with one or more domestic and international standards as a condition of supply. These standards (e.g. HARPS, GLOBALG.A.P., Sedex) often involve the collection of sustainability data relevant to the HSF. However, this trend presents several challenges. The cost and time associated with data collection and audit processes place a considerable burden on growers—particularly smaller enterprises—potentially limiting their capacity to supply certain markets. In most cases, the data collected for compliance is not aggregated or de-identified for broader industry reporting, resulting in a missed opportunity to strengthen the sector's sustainability narrative using already available information.	●	From Industry Bodies to Government

Best way to tell the story:

- Clearly distinguishing horticulture from broader agriculture and giving the vegetable industry a more visible and distinct voice in public and policy conversations.
- Recognising the industry's historical progress. Rather than focusing solely on future targets, participants suggested that reporting should reflect the long-term improvements already achieved across the sector—such as the transition away from legacy practices like mercury-based sprays or broadacre insecticide use. Acknowledging this progress could help build credibility and shift perceptions of the industry as modern, responsible, and continually evolving.
- Utilising multiple communication formats, including:
    - Structured, evidence-based reporting can support engagement with government and technical stakeholders—particularly when it generates clear, quotable metrics.
    - Case-based storytelling was considered especially powerful for consumer audiences, offering relatable examples of sustainability in action.
- Participants also noted the complexity of vegetable production as both a challenge and an opportunity. The sector includes a wide range of crop types, geographies, and growing systems, making it difficult to capture and benchmark sustainability performance uniformly. However, this diversity also allows for differentiated storytelling, where individual examples can illustrate broader themes.

3.3.5 Researchers

Consulted researchers viewed the HSF as broadly aligned with current sustainability themes, and supported improvements in data systems to enable benchmarking and practical impact.

The HSF's alignment with current research priorities in agricultural sustainability

Researchers interviewed generally regarded the HSF as comprehensive, relevant, and well-aligned with current sustainability themes in vegetable production. While most noted they do not use the HSF explicitly to guide research, its structure and key pillars were described as consistent with the considerations commonly embedded within project design and stakeholder engagement processes.

Researchers indicated that the HSF could serve as a useful reference point—comparable to frameworks like the UN Sustainable Development Goals—particularly at early stages of program design, when identifying sustainability priorities, mapping risks and opportunities, and guiding stakeholder engagement. Some researchers supported using the HSF as a lens to assess the sustainability relevance of funded research activities, especially those with high energy or input requirements (e.g., protective cropping systems), to ensure public investment supports industry-aligned sustainability principles.

Researchers also emphasised the value of improved alignment between academic institutions and industry frameworks to strengthen shared impact. Regional calibration of sustainability indicators—such as biodiversity, water, or land use—was seen as critical for making the HSF applicable across Australia's diverse production systems.

> *"The framework is relevant and exhaustive. No recommendation to change."*

> *"There is an argument that the Framework should be more directly applied to assess research activities as an evaluation framework"*

Opportunities for improved data collection and reporting to support sustainability metrics

A consistent theme in the interviews was the fragmentation of sustainability data across the vegetable industry. Engaged researchers acknowledged that while many growers are actively collecting data—particularly around inputs such as water and chemical use—this information is rarely translated into cohesive, sector-wide sustainability narratives or performance metrics. Limitations identified include a lack of data centralisation and standardisation, absence of structured benchmarking at the industry level, and limited mechanisms for feedback or recognition tied to data submission.

Several barriers were identified:

- A lack of centralised and validated reporting systems
- Absence of industry-level benchmarking tools
- Uncertainty around which metrics growers should report on and how data would be used or recognized
- Limited incentives or feedback mechanisms tied to data submission

Participants supported improvements in data platforms that could combine structured, high-level metrics with accessible, narrative-based reporting to engage broader audiences, including policymakers and the public. Translating technical data into clear, relevant messages was seen as a key opportunity to support grower adoption, inform research design, and enhance external trust in the industry's sustainability performance.

> *"There is no clear, trusted or centralised data source for growers... growers are holding off on action, waiting until expectations become more certain."*

> *"Growers may lack clarity in how / what sustainability metrics to measure... industry is not standardised."*

Key knowledge gaps or emerging research areas that could strengthen the HSF.

Key research gaps were identified that could help strengthen both measurement and communication of sustainability outcomes:

- **Understanding of market signals**: Interviewees observed low awareness among some growers—particularly smaller or domestically focused operations—regarding emerging sustainability expectations from government and retail partners. Improved capability in interpreting these signals was seen as important for timely practice adoption and risk management.
- **Government sustainability literacy**: Interviewees noted that public sector priorities often emphasised productivity, with limited focus on input efficiency or environmental outcomes. As a result, opportunities to align existing industry achievements with broader sustainability goals may be missed in public narratives.
- **Integrated outcome frameworks**: Few research projects were structured to measure both environmental and economic benefits. Interviewed researchers highlighted the value of integrated approaches that link improvements in resource use with financial outcomes, to better reflect real-world decision-making factors.
- **Translation of technical data into decision-relevant insights**: While technical data is often collected, it was not always presented in formats accessible to growers, retailers, or policy audiences. Researchers highlighted the need for clearer communication tools—such as case studies, summary metrics or standardised formats—to improve interpretation and uptake across the value chain.

Key communication opportunities - Researchers		HSF Pillars				Communication pathway
		Nourish & Nurture	People & Enterprise	Planet & Resources	Climate & Waste	
Grower understanding of market direction	Interviewees identified an opportunity to improve how long-term sustainability priorities—particularly from retailers and regulators—are communicated to growers.	●		●	●	From Retailers and Government to Growers
Sustainability framed holistically	It was noted that horticultural research often addresses environmental and economic outcomes separately. Researchers emphasised the value of initiatives that deliver co-benefits—such as reducing pesticide use while lowering input costs. Framing sustainability more holistically was seen as a way to improve relevance and drive broader uptake.			●	●	From Researchers to Growers and Policymakers
Supporting translation and adoption	Beyond generating data, researchers stressed the need for better support in helping growers apply sustainability insights. Demonstration farms and regional pilot programs were cited as effective for showing how tools work in practice. Interviewees saw value in clearer communication around when, how, and why specific sustainability tools should be used to support on-farm decision-making.		●			From Researchers to Growers

Best way to tell the story

- Researchers consistently identified grower case studies—particularly those supported by evidence—as the most effective tool for communicating sustainability performance across the industry. While data on sustainable practices is already being collected by many growers, participants noted that this information is often not translated into accessible or compelling narratives for external audiences.
- The preferred communication model involved pairing personal, real-world grower stories with validation from credible research institutions. This combination was seen to enhance both authenticity and trust, while also bridging the gap between anecdotal experience and measurable outcomes. In-person demonstrations or site visits were also described as valuable—particularly for influencing other growers and informing stakeholders such as consumers, policymakers, or industry partners.
- Participants emphasised the importance of inclusive communication strategies that reflect the diversity of sustainability journeys across the industry. There is a risk that programs focused solely on recognising top-performing farms may discourage broader participation. Researchers recommended that sustainability storytelling should acknowledge both excellence and continuous improvement to ensure it is motivating and representative of the sector as a whole.
- To maximise impact, stories should be rooted in real grower experiences, supported by credible data on environmental or economic outcomes, validated through research or independent observation, and framed to resonate with both technical and non-technical audiences.

4. Module C: Communication Planning

4.1 Introduction

Module B of the project focused on generating deep, audience-specific insights to inform the development of targeted sustainability messages for the Australian vegetable and onion industry. This phase combined qualitative and quantitative research methods to understand how different stakeholder group perceive sustainability, what messages resonate most with them, and how communication can be tailored for maximum relevance and impact. The research included exploratory focus groups with consumers, in-depth interviews and a cross-sector advisory workshop with industry stakeholders, and a nationally representative survey to test and prioritise key message themes.

4.2 Methodology

The communication planning phase was designed to build on the evidence generated through earlier phases of the project—particularly the sector-wide data scan (Phase 2) and deep audience engagement (Phase 3). The methodology combined insights translation, best practice benchmarking, and co-design to develop a communication strategy tailored to the needs and preferences of key stakeholder groups: growers, retailers, consumers, and government.

Communication Framework Development

Initial work focused on synthesising insights from Phases 2 and 3 to identify core sustainability themes and priority messages. Audience personas developed in Phase 3 were used to shape communication objectives, message framing, and delivery approaches. The HSF was used as the backbone for structuring content and aligning indicators with audience values.

Audience-Specific Channel Planning

Preferred formats and touchpoints for each stakeholder group were mapped using findings from Phase 3. These informed the design of communication streams across:

- Digital (e.g. websites, social media, webinars)
- Traditional media (e.g. press releases, earned media)
- Industry-specific platforms (e.g. sector publications, conferences)

Global and Cross-Sector Scan

A desktop review was conducted to identify best-practice communication strategies from adjacent Australian agricultural sectors (e.g. dairy, wool, cotton) and international campaigns (e.g. the UK's Peas Please). This included reviewing campaign materials, value-chain storytelling approaches, data visualisation methods, and behavioural insight integration to identify transferable lessons.

Co-Design Workshops

Three stakeholder workshops were convened to validate messaging and co-design communication materials:

- Two workshops with growers and government stakeholders
- One workshop with retailers and consumer insight specialists

Workshops were designed to integrate top-down (policy and institutional) and bottom-up (practitioner and grower) inputs. Messaging prototypes and campaign concepts were refined collaboratively, ensuring alignment with sector realities and audience expectations.

Content Planning and Material Development

Following the co-design process, a suite of prototype communication tools was developed, including factsheets, infographics, digital content, and presentation materials. A preliminary content calendar and platform distribution schedule were also created, detailing timing, format, and responsibilities for delivery across stakeholder groups.

4.3 Results and discussion

4.3.1 Communication Framework Development

Strategic sustainability messaging must reflect audience needs, using trusted data and the HSF to deliver credible, targeted and unified communication.

Table 9: Guiding Communication priorities and messages across key audiences

Audience	Communication objective	Priority Topics for Industry Reporting	Alignment with HSF pillars				Message framing	Potentially suitable delivery format / channel
			Nourish & Nurture	People & Enterprise	Planet & Resources	Climate & Waste		
Topics suitable across all audiences		Modernising perceptions of the vegetable industry Capturing the long-term sustainability journey of the industry					*"The vegetable and onion industries are recognised as the most trusted, need to make sure we maintain that position…"*	• Industry-level fact sheets • Sustainability report overviews • Shared digital hubs
Growers	Drive adoption of sustainable practices and encourage data participation	Certification complexity and buyer requirements (e.g. Freshcare, SEDEX) Clarity on long-term sustainability direction and signals Incentives and proof-of-concept models for adoption Positioning sustainability as compatible with profitability Consumer expectations that affect production (e.g. waste linked to specifications)	◐	●	●	●	*"Your practices are already contributing to sustainability—here's how to track and tell that story. We need to maintain and grow our position as the most trusted industry"*	• Industry newsletters • Workshops and peer demo programs • Grower case studies • Sustainability snapshots

Retailers	Position retailers as key partners in delivering credible sustainability outcomes—both in consumer messaging and working with the vegetable and onion industry to maximise efficiency, avoid duplication and reducing costs in sustainability compliance processes.	Communicating sustainability through consumer-facing messages (esp. packaging, food waste) Clarifying who pays for sustainability and how costs are shared International buyer requirements and compliance alignment (especially in export markets such as EU) Ensuring the compliance model avoids duplication and makes the most of the data collected.	◐	●	●	●	*"Consumers trust our produce—clear, verified claims protect your brand and meet shopper expectations. Let's work together on credible data, aligned messaging, and shared systems that reduce compliance burden and strengthen domestic and global market access."*	• Packaging guidance • Co-branded factsheets • Brief impact reports
Government	Position the vegetable and onion industries as highly-trusted, low-footprint sectors already delivering against policy objectives—and worthy of targeted recognition, support, and investment.	Differentiating horticulture from other forms of agriculture in footprint and sustainability profile Communicating high level of existing governance: food safety, labour, chemical, quality systems Avoiding duplicative or regressive compliance impacts, especially on small producers	◐	●	●	●	*"The vegetable and onion industries are already delivering on national priorities—low emissions, food security, efficient resource use, and strong compliance with food safety and labour standards. Recognising horticulture's distinct profile is important to ensure that emerging sustainability regulations are appropriately tailored and do not place disproportionate burden on smaller growers or duplicate existing systems."*	• Policy briefs • Sector-level reporting snapshots

Researchers	Align tools and studies with HSF themes and industry challenges	Translation of sustainability data into on-farm practices and decision-making Supporting evidence on consumer behaviours and trade-offs Identifying data gaps across HSF pillars Aligning project design with industry needs and reporting frameworks (e.g. HSF)					*"The HSF provides a clear framework to guide future research toward outcomes that matter to industry, consumers, and policy. There is strong appetite for cross-sector collaboration."*	• Access to datasets • HSF-aligned project templates • Issue briefs on practice impact • Collaborative workshops
Consumers	Reinforce trust, connect everyday choices to sustainability outcomes	Reducing vegetable waste (on-farm, in-store, at home) Sustainable packaging and shelf-life improvements Chemical use and food safety assurances Trust in Australian farming standards Increased consumption of vegetables and onions					*"Good for your health, good for the planet—Australian vegetables are grown with care to reduce waste, protect natural resources, and bring you fresh, healthy food every day. Behind the scenes, strong standards help ensure safe, responsible farming you can trust."*	• On-pack messaging • Retailer media • Social/digital content • Simple scorecards

4.3.2 *Best-practice communication strategies from adjacent Australian agricultural sectors*

Many Australian agricultural sectors have adopted co-designed sustainability frameworks and reporting, offering proven communication models the vegetable industry can build on.

Table 10: Comparison of Sustainability Frameworks and reporting practices across Australian agricultural sectors

Australian Industry	Official Sustainability Framework	Sustainability Indicators	Industry Sustainability Targets	Published Sustainability Performance Data	Industry Sustainability Report
Horticulture	●	●			
Beef	●	●	●	●[3]	Annual
Cotton	●	●		●	Annual
Dairy	●	●	●[2]	●	Annual
Seafood	●[1]	●	●	●	Annual
Forestry	●[1]	●		●	5-yearly
Grains	●	●	●	●	
Pork	●	●		●	
Sugar					
Wine	●	●	●	●	Annual
Wool/Sheep	●	●	●	●[3]	Annual

1 The *National Fisheries Plan* is a strategic, sustainability target-based action plan but does not have a formal framework structure equivalent to HSF. The *Australian Forestry Report* offers an indicator-based overview of forest sustainability, closely resembling a formal sustainability reporting model.
2 Dairy sustainability report stands out for a detailed breakdown and quantitative targets published for all sustainability indicators.
3 Industry also has a published data dashboard.

This section presents a scan of sustainability communication practices across major Australian agricultural sub-sectors, with the aim of identifying transferable insights and best-practice models relevant to the vegetable industry. The review examined publicly available sustainability frameworks and reporting mechanisms across ten of Australia's largest agricultural sectors by value or national policy relevance.

Across these sectors, seven have developed formal sustainability frameworks that reflect whole-of-industry collaboration and are aligned with global reporting expectations. These frameworks are typically underpinned by co-design with growers and supply chain stakeholders, and informed by environmental science, public policy, and international standards such as the UN Sustainable Development Goals (SDGs).

The sustainability frameworks consistently address a common set of priority domains: environmental impact (e.g. emissions, water use, chemical inputs), economic viability, workforce and community wellbeing, and stewardship (of land, animals, or product quality). These domains broadly align with the four pillars of the HSF. Sector-specific tailoring is common—for instance, the Wool industry emphasises fibre traceability, while Dairy integrates nutrition and consumer health into its reporting structure.

Among the sectors scanned, seven—including beef, cotton, dairy, fishery, forestry, wine and wool/sheep—publish formal annual sustainability reports. These reports are typically supported by additional resources such as scorecards, technical fact sheets, interactive dashboards, explainer videos, and policy briefs. In many cases, these resources are hosted on dedicated digital platforms for stakeholder engagement.

The cotton and dairy sectors present especially relevant best-practice models for the vegetable industry. Both sectors have adopted long-term, transparent, and highly structured approaches to communicating sustainability progress—anchored in co-designed frameworks, regular reporting cycles, and diversified communication materials.

Some sectors integrate long-term data, communications design, and audience-specific formats to communicate sustainability—this approach reflects a higher degree of sustainability-related risk and preparedness.

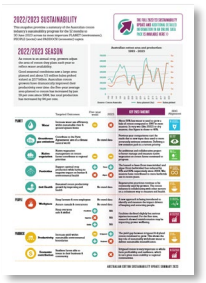
Across Australian agriculture, best-practice sustainability communication is distinguished not by the existence of a framework alone, but by the strategic integration of data, narrative, and audience segmentation. The vegetable industry—is already benefiting from strong public trust and a history of sustainability practices and can draw on these examples to further enhance how it communicates its story:

A proactive industry-led approach to sustainability communication

Example 1:

Australian Beef Sustainability Framework (ABSF) reports annually against 24 priority issues aligned with the United Nations Sustainable Development Goals (SDGs) (ABSF, 2024).

These updates are supported by summary scorecards, stakeholder dashboards, and infographics designed to engage both technical and non-technical audiences.



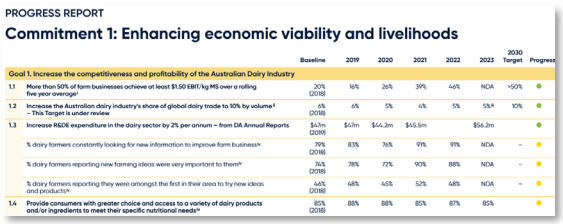
Example 2:

The Australian cotton industry produces a comprehensive five-year sustainability update supported by supplementary materials including fact sheets, infographics, and explanatory videos designed for accessibility and stakeholder engagement (Cotton Australia & CRDC, 2025).

Rather than static reporting artefacts, these materials are dynamically integrated into communication and consultation processes via dedicated digital platforms (Cotton Australia & CRDC, 2024).

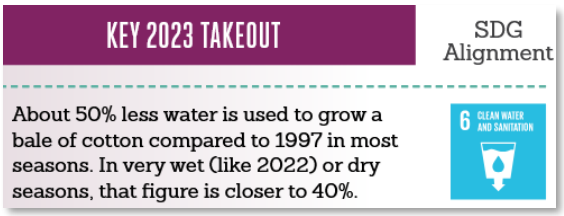
Recognising historical progress

Many sectors anchor their sustainability story in years or decades of continuous improvement. Australian Wool Innovation, for instance, traces performance through legacy programs like Land, Water & Wool. The cotton sector references pesticide reduction achievements dating back to the 1990s, including a 97% decline in insecticide use (Cotton Australia & CRDC, 2023). This historical lens strengthens credibility and supports stakeholder trust. The vegetable industry is similarly positioned to tell a long-term story, drawing on programs such as EnviroVeg and wide adoption of integrated pest management (IPM) (Hort Innovation, 2021; AUSVEG, 2022).



Example 3:

Australian dairy industry's 5-year progress report of sustainability commitments - published in the *2023 Sustainability Report* and standalone *Environmental Sustainability Factsheet* (Diary Australia, 2023)



Example 4:

Inclusion of long-term (25-year) tracking of water-use efficiency in cotton production, as reported in the *Australian Cotton Sustainability Update 2023* (Cotton Australia & CRDC, 2023).

Some industries improve communication by tailoring messages and using visual tools that make sustainability data more engaging, accessible, and relevant to diverse audiences.

Tailored communication of sustainability performance

Effective sustainability communication is also tailored to audience needs. In dairy, nutrition-focused narratives are directed toward consumers, while SDG-aligned metrics are presented to policy and investment stakeholders. In contrast, farmers are supported with benchmarking tools and best practice guides (ADF, 2024).

Example 5:

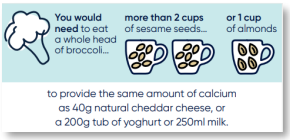
The Australian Dairy Hygiene Handbook, published by Dairy Australia, serves as a practical reference manual to support hygiene practices across dairy farms.

(Dairy Australia, 2020)

Example 6:

Dairy Australia produced a video for World Milk Day to engage end users, raise public awareness, and highlight the role of Australian dairy in the nation's economy and society.

(Dairy Australia, 2023)



Example 7:

In Dairy Australia's "Trade Factsheet Dairy Health and Nutrition 2024", nutrition-focused messaging is used to engage consumers, emphasizing dairy's role as a core food group and its health benefits

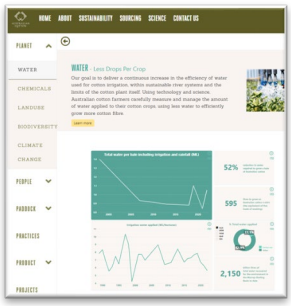
(Dairy Australia, 2024)

Strategic use of visualisation and digital tools

Data dashboards, infographics, and simple counters (e.g. "1.1 billion extra vegetable servings" from Peas Please) make progress tangible. The Sheep Sustainability Framework's digital dashboard and Cotton Australia's visual hub make use of layered visual formats to reach audiences from policymakers to growers. This reinforces that how data is presented is as important as the data itself.

Example 8:

Sheep and wool introduced a Digital Data Dashboard in 2024 to present real-time tracking of metrics. Users can filter data and navigate through thematic categories (e.g., animal welfare, environment, and biosecurity) via a side panel (Sheep Sustainability Framework, n.d.)



Example 9:

Cotton Australia's sustainability hub featuring framework-aligned content categories, interactive graphs, and downloadable datasets (Cotton Australia & CRDC, 2025).

4.3.3 Co-development of audience-specific messages, tools and delivery strategies

A unified sustainability report can streamline data, align stakeholder needs, and strengthen the industry's communication across domestic and international audiences.

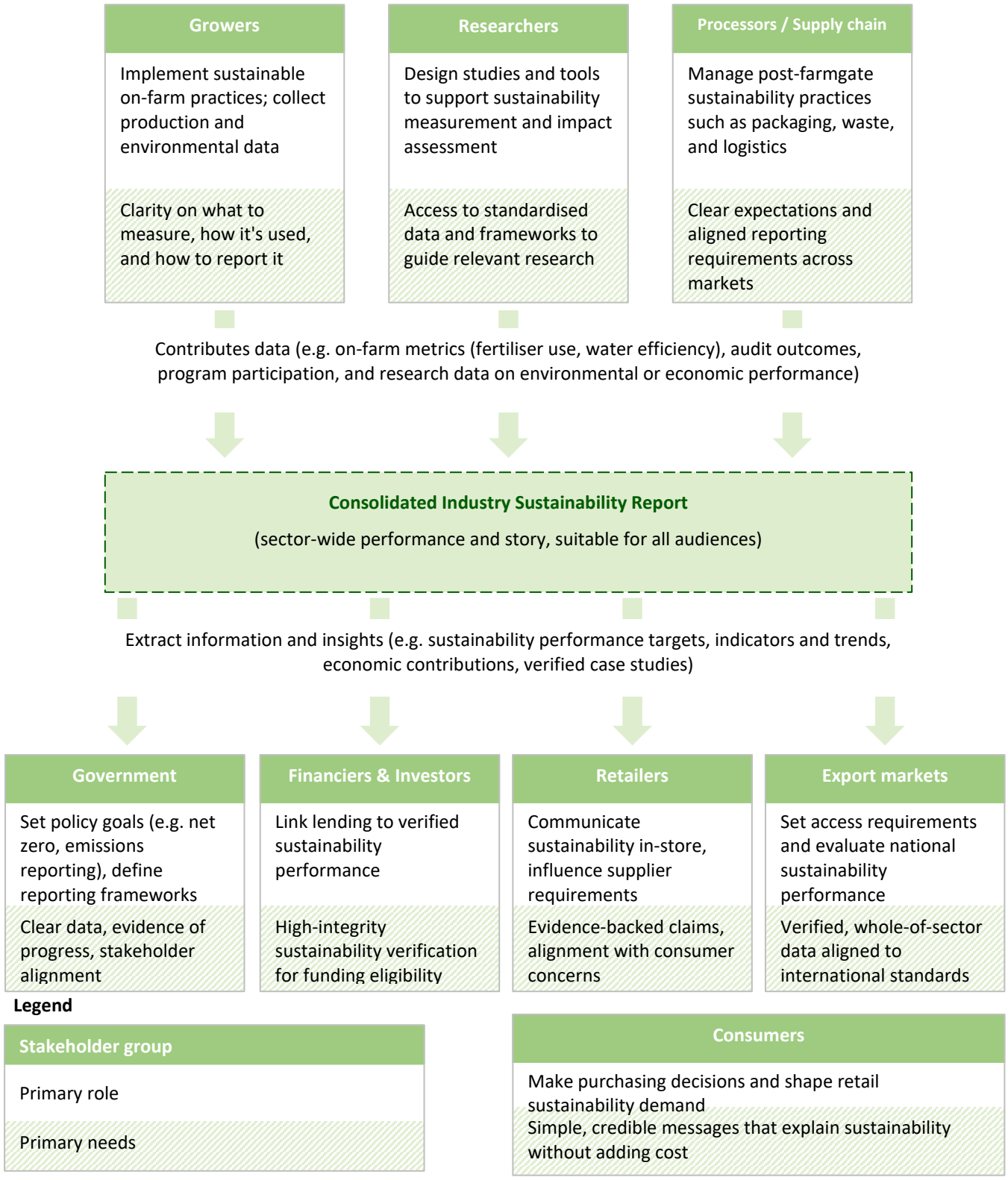


Figure 17: How a consolidated sustainability report can align stakeholders and support the vegetable and onion industry's communication strategy

The research findings from Modules A and B indicate that there is strategic value in the vegetable and onion industry taking ownership of its sustainability narrative and presenting it with a unified voice. This means delivering a clear, audience-appropriate message through a consolidated format—such as an industry-level sustainability snapshot, fact sheet, or summary report.

The intention is for this communication product to be made publicly available—hosted on an industry website (e.g. Hort Innovation or AUSVEG)—and accessible to all stakeholders, including exporters, retailers, and other interested parties seeking credible sustainability information.

Over time, the industry should consider evolving this into a formal Industry Sustainability Report, led by grower organisations in partnership with levy-funded bodies. As a benchmark, 7 out of Australia's 10 largest agricultural sectors already have official sustainability frameworks, and 6 of those publish regular, sector-wide sustainability reports.

This option is included in the proposed communications roadmap.

Targeted communications content can showcase progress, build stakeholder confidence, and drive engagement with the industry's sustainability narrative

1. **Summary of findings**

   Research summary highlighting industry leadership on sustainability and alignment with the HSF and key stakeholder insights. Suitable for all audiences including consumers, growers, researchers, government.

2. **Consumer research findings**

   Summary of qualitative and quantitative findings from consumer research, providing insights into attitudes, behaviours and expectations around sustainability in the vegetable and onion industries. Valuable to grocery retailers, growers and researchers (e.g. nutrition)

3. **Letter to the stakeholders**

   A formal letter summarising key research findings, and providing a clear call to action for stakeholders to support and engage with the next phase of implementation can be tailored to specific audiences such as growers, government.

4. **Current state of the industry**

   Current state of Australia's vegetable and onion industries' advancement in sustainability, aligned with the HSF. Suitable for all audiences – particularly emerging markets, customers and consumers.

4.3.4 Data and communication gaps

Communication Gaps

- **Underutilised consumer trust:** Research has shown that the vegetable and onion industries are highly trusted in sustainability matters – but this narrative has never been told.
- **Unified industry voice:** There is an opportunity for a shared, sector-wide platform (e.g. annual sustainability snapshot or report) to articulate the industry's collective sustainability narrative.
- **Conflation with broader agriculture:** The vegetable industry could often be grouped under general “agriculture” in policy, media, and reporting. This overlooks the sector’s lower emissions footprint, high domestic supply relevance, and distinct production systems.
- **Industry-wide reporting:** Growers already collect large volumes of sustainability-related data for compliance (e.g. HARPS, SEDEX, Freshcare), this data is not leveraged to communicate performance at the industry level.

Data Gaps

- **Inconsistent and decentralised data sources:** Sustainability data exists across various systems (audit platforms, RD&E programs), but is not standardised, centralised, or designed for longitudinal tracking.
- **Coverage gaps across indicators:** From the data scan, 25 out of 101 indicators (based on the HSF) had no publicly available data. Others had only limited or one-off data points, restricting trend analysis.
- **Discontinued national datasets**: Key sources such as the ABS Land Management and Water Use surveys and ABARES vegetable financial performance data have been discontinued—reducing visibility over water efficiency, input use, and regional financial performance.
- **Lack of sector-specific benchmarking:** Many data sources are broad or aggregated (e.g. agriculture-wide), and do not reflect the diversity of vegetable production systems, making it hard to set industry-wide performance targets.

The research findings indicate that industry sustainability communication remains fragmented, despite a range of relevant data being collected at the grower and program level. Key gaps include the absence of a consolidated industry narrative, limited use of sustainability-related data for reporting and story-telling, and insufficient differentiation between the vegetable sector and broader agriculture in public discourse.

Many data points relevant to the HSF are collected through assurance and certification schemes (e.g. Freshcare, HARPS, SEDEX), but are not aggregated to reflect national trends or performance over time. Additionally, discontinued government datasets—such as ABS water use and ABARES farm performance surveys—have left gaps in measuring economic viability, resource efficiency, and production inputs.

Improving visibility of sustainability outcomes will require more coordinated data systems, as well as clearer alignment between what is measured at the farm level and what is communicated to stakeholders across the supply chain. These steps are critical to ensuring trust, reducing duplication, and supporting future readiness as expectations from regulators, markets and consumers continue to evolve.

5. Outputs

Table 11: Output summary

Output	Description	Detail
MT24003 Final Report	Comprehensive record of project design, methodology, and findings across all project modules. Intended for Hort Innovation and industry stakeholders. Includes 45 key findings and detailed recommendations to guide future sustainability communication strategies.	Intended for publication on Hort Innovation website.
MT24003 Communication material – Consumer findings	Summary of qualitative and quantitative findings from consumer research, providing insights into attitudes, behaviours and expectations around sustainability in the vegetable and onion industries. Valuable to grocery retailers, growers and researchers (e.g. nutrition)	Delivered to Hort Innovation as an editable PowerPoint file (.pptx) to support further use. Designed for sharing at stakeholder events, briefings, or retail/consumer outreach; includes visual summaries and topline statistics (e.g. "94% of consumers view vegetable/onion industries as sustainable").
MT24003 Communication material – Research findings	Research summary highlighting industry leadership on sustainability and alignment with the HSF and key stakeholder insights. Suitable for all audiences including consumers, growers, researchers, government.	
MT24003 Communication material – Sustainability story brochure	Current state of the industry Current state of Australia's vegetable and onion industries' advancement in sustainability, aligned with the HSF. Suitable for all audiences – particularly emerging markets, customers and consumers.	
MT24003 Letter	A formal letter summarising key research findings, and providing a clear call to action for stakeholders to support and engage with the next phase of implementation can be tailored to specific audiences such as growers, government.	Provided to Hort Innovation as editable .docx format to allow further modifications for further use (e.g. government communication).
MT24003 - Consumer Qualitative Study Report	Detailed documentation of the methods, results and insights of focus group findings.	Submitted as a standalone appendix to the Final Report. Includes detailed methodology and findings. Can be attached to the Final Report and made available on the Hort Innovation website.
MT24003 - Consumer Quantitative Study Report	Detailed documentation of the methods, results and insights of consumer survey.	
MT24003 – Sector-wide Data Scan Report	Detailed documentation of the methods, results and insights of data scan.	

Table 12: Project deliverables summary

Output	Evidence
Deliverable 1.1: Report from the kick-off meeting with Hort Innovation, detailing agreed project scope, objectives, timelines, and key sustainability factors. Deliverable 1.2: Detailed project plan, including program logic linked to Hort Innovation and industry/fund objectives, project risk register, and stakeholder engagement/communication plan.	Kick-off meeting report and project plan submitted as part of MS101.
Deliverable 2.1: Comprehensive report on existing sustainability performance data, information, and case studies that can be used to tell the Australian vegetable and onion industries' sustainability story. Deliverable 2.2: Matrix of sustainability themes evidenced in the data.	Comprehensive sector-wide data scan report submitted as part of MS102 Case studies compiled and included in the suite of communication materials.
Deliverable 3.1: Report on key audience insights, inc. targeted messages and communication channels.	Consumer Qualitative Study Report and Consumer Qualitative Study Report submitted as part of MS103 Insights from audience consultations provided in Section 3 of the Final Report Linkage between data points / stories identified in Phase 2 (Module A) summarised in Section 4 of the Final Report; these insights were used to develop the suite of communication materials (provided as standalone Appendices to the Final Report)
Deliverable 3.2: Matrix showing which messages are most effective for specific audience segments and communication channels.	Matrix showing the most effective messages for consumers are provided in p25 of *MT24003 - Consumer Qualitative Study Report & Quantitative Approach.* Additionally, the preferred channels are provided on p38. Priority topics for industry communications are summarised throughout Section 3 (summarised again in Section 4.3.1) in the Final Report.
Deliverable 4.1: Contemporary communication program design, including multi-channel strategy informed by behavioural science and economics principles. Deliverable 4.2: Suite of tailored communication materials.	Communication strategy provided in Section 4 and 5.7 of the Final Report. Suite of communication materials (provided as standalone Appendices to the Final Report) Best practice scan summarised in Section 4.3.2 of the Final Report Co-design workshops conducted – results were used to directly inform communication planning and recommendations in Sections 4 and 5 of the Final Report.
Deliverable 5.1: Gap analysis report identifying areas	Sustainability data gaps are detailed in Module A's

lacking in sustainability performance or evidence, with prioritized areas for improvement. Deliverable 5.2: Actionable plan with detailed recommendations for addressing identified gaps, including potential partnerships or collaborations. Deliverable 5.3: Comprehensive final report detailing all findings, sustainability stories, gap analysis results, action plan, implementation and impact of the project, contributing to the RFP's requirement of final report.	Sector-wide Data Scan Report (summarised in Sections 2 and 4.3.4 in the Final Report) Findings and recommendations – including a Strategy Roadmap are summarised in Section 5 of the Final Report. Final Report submitted as part of MS190.

6. Outcomes

Table 13: Outcome summary

Outcome	Alignment to fund outcome, strategy and KPI	Description	Evidence
Enhanced sustainability performance understanding, equipping stakeholders with insights into current practices, achievements, and gaps to support informed decision-making and strategic planning. Additionally, guide ongoing initiatives and establish M&E frameworks to keep sustainability narratives relevant.	Improved capability and an innovative culture that maximises investments in productivity and demand and builds a resilient Australian vegetable and onion industry; Demand creation supports the Australian vegetable and onion industries to develop existing and future domestic and international markets.	This outcome was realised through a comprehensive sector-wide data scan and stakeholder engagement process, which mapped 101 indicators across the Horticulture Sustainability Framework (HSF). The project synthesised quantitative and qualitative data to provide an evidence base for current performance, gaps, and areas for improvement. These findings informed tailored messaging, supported strategic planning, and provided a foundation for future monitoring and evaluation (M&E) efforts. This aligns with Hort Innovation's strategic objective to enhance industry capability, strengthen innovation, and support evidence-based investment in sustainability and demand creation.	Detailed data scan documented in Section 2 of the Final Report (also provided in Sector-wide scan report, previously submitted as part of Milestone 102) Summary of gaps, opportunities, and indicator coverage in (Section 2, Final Report and Sector-wide scan report) Key messages and strategic opportunities derived from data (Sections 3 and 4, Final Report) Communication roadmap (Section 5, Final Report)
Increase the industries' ability to effectively communicate their sustainability stories by developing and disseminating targeted messaging, communication guidelines, and best practice recommendations tailored to key audience groups.		This outcome was achieved through the development of audience-specific sustainability messaging and communication tools tailored to the needs of consumers, retailers, growers, government, and researchers. Insights from qualitative and quantitative research directly informed the creation of messaging frameworks, content formats, and best-practice guidelines. These resources enhance the industry's capacity to communicate its sustainability performance in a consistent and credible way—supporting reputation, stakeholder engagement, and strategic alignment. This aligns with Hort Innovation's strategic focus on building industry capability and demand through improved communication.	Consumer insights and messaging tested in Modules B1 and B2 (detailed insights and findings also provided in the Consumer Qualitative Study and Quantitative Study reports, previously submitted as part of Milestone 103) Audience-specific communication strategies (Sections 4 and 5, Final Report) Communication roadmap and recommended messaging tools (Section 5, Final report) Development of tailored communication outputs/templates (Appendices)

Enhanced industry sustainability competitiveness by identifying and prioritising areas for improvement in the Australian vegetable and onion industries' sustainability performance. Identify steps that can be taken to realize the opportunities to improve sustainability performance and competitiveness.		This outcome was realised through the development of a sustainability roadmap, which outlined practical opportunities to improve the industry's sustainability performance (e.g. addressing declining vegetable consumption, preparing for changes in sustainability-linked finance and export market compliance). These areas were prioritised based on a combination of stakeholder consultations and evidence from data and consumer research. Together, they support long-term industry resilience and alignment with both domestic and international sustainability expectations.	Examples of sector risks and performance gaps identified during stakeholder consultations (Sections 3 and 4.3, Final Report) Strategic roadmap detailing practical actions to improve sustainability performance (Section 5, Final report) Summary of emerging issues (e.g. chemical access, sustainability-linked finance, data readiness for EU markets) (Section 3, Final Report) Declining trends in sustainability performance identified in Section 2 (e.g. under-consumption of vegetables) (Reference)
Establish effective channels for sustainability knowledge sharing and collaboration within the industry. Aim to increase industry-wide understanding of sustainability opportunities and challenges.		This outcome was realised by engaging key stakeholder groups—growers, researchers, retailers, and policy influencers—through qualitative interviews, focus groups, and an expert advisory workshop. These consultations helped surface current sustainability knowledge, identify common priorities, and reveal opportunities for future alignment and collaboration. The project also produced accessible communication tools, such as a proposed sustainability snapshot and message matrix, which provide shared resources for industry-wide storytelling. These outputs aim to serve as reference points for future engagement and knowledge transfer across the value chain.	Stakeholder engagement across the value chain, including growers, researchers, retailers, and policy experts (Section 3 and 4, Final Report) Communication materials developed for shared use, including the draft sustainability snapshot and tailored messaging tools (Appendices) Findings matrix and communication framework provide consistent messaging aligned with stakeholder needs (Sections 3 and 4, Final Report)
Enhance the long-term resilience and adaptability of the industries to evolving sustainability requirements and stakeholder expectations. Ensure that the industries are better prepared to respond to future challenges and opportunities in the global sustainability landscape.		This outcome was addressed by evaluating the vegetable and onion industries' current sustainability positioning and by identifying external pressures likely to shape future industry requirements—such as consumer demands, retailer expectations, government regulation, and international market access standards. The project developed a forward-looking communications roadmap and offered recommendations to improve the industry's ability to track, report, and communicate sustainability progress. By outlining practical steps—such as establishing reporting baselines, consolidating grower data, and clarifying roles across the value chain—the project supports proactive adaptation to emerging risks and opportunities, including access to markets with stricter environmental and social standards.	Roadmap for industry communications and data development (Section 5, Final Report,) Insights into stakeholder expectations and future risks (Sections 3 and 4, Final Report) Discussion of future-facing drivers, such as EU sustainability regulations and sustainability-linked finance (Section 5, Final Report) Recommendations for building readiness, including coordinated messaging, better use of compliance data, and progressive benchmarking practices (Section 5, Final Report)

7. Monitoring and evaluation

Key evaluation questions	Project-specific questions	Answer	Continuous improvement opportunities
Effectiveness			
1. To what extent has the project achieved its expected outcomes?	To what extent has the project improved key stakeholders' understanding and valuation of the Australian vegetable and onion industries' sustainability performance?	The project enhanced stakeholder understanding by systematically engaging diverse audiences—including growers, retailers, researchers, and government representatives—through interviews, workshops, and surveys. These engagements uncovered gaps in current perceptions (e.g. lack of distinction between horticulture and broader agriculture by policymakers), and delivered tailored insights that clarified the sector's position. These insights, combined with a structured evidence base and communication materials, provided stakeholders with clearer, audience-specific reference points for valuing and discussing the industry's sustainability performance.	Future efforts could focus on strengthening sector-wide communication by consolidating data and stories into a central, recurring vehicle such as an industry sustainability report.
	To what extent has the project identified opportunities to address gaps in the sustainability story to support ongoing demand and industry resilience?	The project identified multiple opportunities to strengthen the industry's sustainability narrative, particularly around underutilised data sources, inconsistent communication across the supply chain, and the absence of an industry-wide reporting mechanism. Key outputs—including a roadmap, a proposed sustainability snapshot, and communication prototypes—were informed by these gaps and designed to help consolidate and present credible messaging. These tools provide pathways to improve transparency, support market access, and enhance resilience by aligning stakeholder expectations with the industry's sustainability goals and achievements.	Addressing identified data and narrative gaps will be critical to future industry messaging and policy engagement.
Relevance			
2. How relevant was the project to the needs of intended beneficiaries?	How well did the project align with the needs and expectations of key audiences (e.g., retailers, customers, industry stakeholders) in communicating sustainability performance?	The project engaged directly with key audience groups through interviews, focus groups, and advisory sessions to understand their communication preferences, data needs, and material priorities. These insights directly informed the recommendations and the roadmap summarised in Section 5 of the Final Report, ensuring alignment with audience expectations. The project also produced a suite of audience-specific communication materials to support practical application of findings. Overall, the project ensured that stakeholder perspectives were not only captured, but reflected in both the strategic recommendations and the communication tools developed.	Future efforts could focus on institutionalising audience-specific communication products—such as factsheets or tailored summaries.
	To what extent has the project influenced future	The project provided the foundation for future communication strategies by delivering a sector-wide roadmap. This offers a structured approach for embedding sustainability	The communication roadmap should now be embedded into

	industry strategies or communication approaches regarding sustainability?	into broader industry strategies and align with stakeholder needs identified throughout the project.	formal industry planning processes and supported with resources to activate priority actions over time.
Process appropriateness			
3. How well have intended beneficiaries been engaged in the project?	How effectively were key audiences (e.g., growers, retailers, consumers) engaged in shaping the project's messaging and outputs?	Engagement with key audiences was integral to the project's design and delivery. Input was collected through 19 stakeholder interviews, a multi-stakeholder workshop, seven consumer focus groups, and a nationally representative consumer survey. This feedback directly informed message development, prioritisation of sustainability topics, and the design of tailored communication materials. Stakeholder views also shaped the structure of the roadmap and informed the proposed tools for future outreach.	Broader and deeper engagement (e.g. with other members of the value chain such as financial institutions) could improve the relevance and adoption of future communication tools.
4. To what extent were engagement processes appropriate to the target audience/s of the project?	What changes, if any, were made to project activities based on stakeholder feedback or data insights?	Several activities were adjusted to reflect stakeholder insights. For example, the project's sustainability snapshot concept evolved to reflect the need for a unifying narrative accessible to all audiences. Additionally, findings from the data scan highlighted specific measurement gaps, leading to refined recommendations around industry-wide data coordination and evidence-based communication.	Test and refine the developed suite of communication prototypes with relevant audience groups.
Efficiency			
5. Did the project deliver required outputs and outcomes on time and on budget?	Did the project deliver its planned outputs within the expected timeframe and budget?	Yes, the project delivered all planned outputs— including the final report, roadmap, communication prototypes, audience-specific insights, and sustainability data scan—within the contracted timeframe and budget.	Subsequent work should explore how project tools—such as the draft Sustainability Snapshot—can be refined and deployed through industry channels.
6. What efforts did the project make to improve efficiency?	What efforts did the project make to improve efficiency (e.g. stakeholder engagement, data collection, etc.)?	Stakeholder engagement was structured to maximise value from each interaction—for example, in-depth interviews combined discussions of the Horticulture Sustainability Framework (HSF), data use, and communication needs into a single session. Data collection was streamlined by leveraging existing industry programs and secondary sources, such as Hort Stats Handbook, Freshcare. Additionally, a staged approach to message testing—starting with qualitative focus groups followed by quantitative validation—ensured that only the most relevant concepts were progressed.	A centralised data coordination mechanism could reduce future inefficiencies by aligning farm-level data collection with reporting needs across the HSF pillars.

8. Key findings and conclusions

8.1 Key findings and conclusions – HSF and the data landscape of the industry

1	**This review confirmed that the Australian-grown Horticulture Sustainability Framework (HSF) effectively covers the breadth of material issues for the vegetable and onion industries.**
2	**Data coverage across the HSF varies in its completeness across the key elements.** While some areas—such as food safety, industry value, and employment—are supported by structured, regularly updated datasets, others—including biodiversity, water use, packaging, and workplace health and safety—have only partial or limited data coverage.
3	Several data sources are **decentralised across levy-funded programs and assurance schemes and are not consistently aggregated for sector-wide use.**
4	The **discontinuation of national datasets** such as the ABS Water Use and Land Use surveys and the ABARES vegetable financial performance survey has created enduring **gaps in areas like productivity, input efficiency, and farm financial indicators**.
5	To improve future communication, **priority data gaps**—particularly those relevant to key audiences such as government (e.g. water use), retail (e.g. packaging), and finance (e.g. WHS and risk metrics)—**should be addressed through targeted data collection and standardisation**.
6	**A central meta data register** documenting existing data sources, responsible custodians, update frequency, and coverage against HSF indicators would improve transparency and guide strategic investment in measurement.
7	Where structured data is unavailable or incomplete, **grower-led case studies and program-level summaries** can be used to support messaging, provided they are clearly linked to sustainability themes and grounded in verifiable practice.
8	**Periodic review of indicator coverage and data system quality** should be undertaken to ensure that communication remains accurate, consistent, and aligned with the HSF over time.
9	**Compliance frameworks (e.g. HARPS, Sedex) capture sustainability data at the enterprise level,** particularly on inputs, workforce, and audit outcomes. However, **this data is not currently aggregated to inform industry-wide reporting.** Aligning these systems with sector-level sustainability objectives presents a practical opportunity to enhance performance tracking and external assurance.

8.2 Key findings and conclusions – Cross-sector insights

10	Stakeholders identified **several emerging risks to the industry if sustainability performance is not measured and communicated proactively.** These include potential constraints on market access—particularly export access to regions such as the EU, where sustainability benchmarks (e.g. Scope 3 emissions, packaging regulations, farm chemical restrictions) are increasingly embedded in trade and regulatory expectations. Similarly, **government policies and retailer standards may evolve without sufficient input from the vegetable** industry if its data and practices are not visible. This may lead to duplication, inefficiencies and increased farm business costs.
11	Stakeholder groups expressed support for an **industry-led approach to sustainability communication**. Interviewed growers expressed a preference for frameworks and messaging that are **grounded in operational realities, practically feasible to implement, and accompanied by clear safeguards around how data will be used**. Retailers, researchers, and policy stakeholders similarly valued **evidence-based communication that aligns with their respective commercial, scientific, or regulatory objectives**. Participants noted that when the vegetable industry defines and leads its own sustainability narrative, it is better positioned to demonstrate progress, manage reputational risks, and influence emerging expectations.
12	A consistent theme across interviews was the **need to align communication efforts across the supply chain while tailoring content to specific audience needs**. Consumers responded most strongly to messaging focused on health, freshness, and food waste. Government stakeholders were seen to require concise, aggregated performance data aligned with public policy goals. Retailers sought category-level sustainability stories underpinned by credible and verifiable data. While the levers varied by audience, there was shared agreement across all groups on the need for improved transparency, standardisation of data, and clear evidence of performance.

8.3 Key findings and conclusions – Consumers

13 In a representative consumer quantitative survey completed as part of this research, the **vegetable industry was rated as the most sustainable sector (rated by 94% of those surveyed as 'neutral' to 'very sustainable'),** ranking above dairy (86%), meat and livestock (79%), tourism (80%), energy (74%) and fashion (72%).

14 While **76% of surveyed consumers indicated that sustainability is important in their purchase decisions**, most ultimately prioritised price—citing cost-of-living pressures as a key barrier to choosing sustainability-marked or premium options.

15 **Consumers primarily engage with the vegetable and onion industries through the retail experience,** which shapes their prioritisation of issues. The three most important topics rated by consumers were **food waste, packaging, and chemical use.** While supporting growers to deliver consistent, high-quality products is considered equally important, it is less desirable for communication as it primarily serves to reassure trust and uphold the reputation of Australian products, and is seen as beyond consumers' direct influence. Issues such as reducing greenhouse gas emissions ranks lower in both importance for action and communication appeal, due to strong consumer trust in the industry's existing environmental performance.

16 The grocery **retail setting (in-store and on-line) presents a point of influence**, with **high-impact, simple, concise sustainability messages presented to the consumer.**

17 Surveyed consumers responded most positively to sustainability communications that combined **factual credibility with emotional relevance**. Messages were most effective when they referenced both the **industry's past achievements and recent efforts**. Consumers particularly valued tangible claims—such as statistics or measurable impact—paired with local, human-centred stories that felt authentic and relatable.

18 Surveyed consumers identified **growers as the most trusted stakeholders in the vegetable supply chain and expressed a clear preference for receiving sustainability messages from them**. While direct interaction with growers is limited, consumers expect to see grower-led messaging in retail settings—particularly on-shelf in the vegetable aisle.

8.4 Key findings and conclusions – Growers

19	**Growers interviewed supported the HSF and considered it relevant to their operations/industry**; however, its use was largely limited to **compliance activities rather than performance improvement or communication.** Most sustainability-related data was already recorded across multiple systems for farm management, audit and certification purposes, but this data was decentralised, inconsistently analysed, and rarely used to assess outcomes or inform strategic planning.
20	Stakeholders identified an **opportunity for a centralised platform to consolidate sustainability data and translate it into aggregated, anonymised insights** that could support both internal decision-making (i.e. best practice adoption and benchmarking) and external communication. Data collection and reporting were seen as more effective when positioned as tools for industry learning and performance monitoring—not solely as regulatory or audit obligations.
21	To enable greater use of sustainability data, interviewed growers expressed support in a **voluntary, non-prescriptive reporting model aligned with existing systems**. They indicated a willingness to contribute to industry-wide sustainability storytelling, provided that data privacy was maintained and the intended use of information was transparent, well-defined, and based on evidence.
22	Growers noted the importance of **recognising the sector's historical improvements in sustainability performance**, and cautioned against conflating horticulture with broader agricultural sectors—particularly in areas such as emissions, land use, and production systems.
23	**Practical, real-world examples**—such as changes in fertiliser, pesticide, or water use—were considered more valuable by interviewed growers than abstract sustainability principles. These examples were considered more credible and relevant when shared through peer-informed channels or regionally grounded case studies.
24	Regarding long-term planning, consulted growers highlighted a **lack of clear guidance from government and retailers about future sustainability expectations**. This uncertainty was viewed as a barrier to confident investment in new practices or systems.
25	Some growers expressed concern that **evolving international expectations — particularly from the EU—may impose stricter sustainability and reporting requirements for market access**. There is a need for proactive industry coordination to help growers prepare for these changes, ensuring they can meet emerging compliance expectations around emissions reporting, environmental outcomes, and traceability.

8.5 Key findings and conclusions – Grocery retailers as a supply chain partner

26 Grocery retail sector research indicated that the themes of the **HSF were broadly aligned with current retail sustainability priorities**—particularly in areas such as **packaging, ethical sourcing, food safety, and responsible supply chains**.

27 Increasingly, grocery retailers require **third-party compliance standards** (e.g. HARPS, GLOBAG.A.P.) as a condition of supply. This includes **significant amount of data that aligns to the HSF** (e.g. water, chemical, labour). This trend needs to be considered with respect to future data standards and to avoid duplication or cost (see point *28*).

28 Shoppers expect fresh, sustainably produced, and affordable vegetables—but due to **cost of living pressures have a low capacity to pay**. This underscores the need to **carefully assess the cost of sustainability initiatives and clarify where costs will be absorbed across the value chain**.

29 As a largely domestic sector, vegetable production relies on local pricing mechanisms. Retailers and domestic intermediaries (e.g. processors) have a **significant role in shaping supply models that support financially sustainable farm businesses**. Unlike export sectors, the industry has limited sales in global markets, reinforcing the importance of demand-side strategies such as category growth (e.g. *Plus One Serve*).

30 **Consumers mostly encounter the industry at the retail** level—through packaging, in-store, and online communications. However, this channel has limited capacity to communicate complex narratives. There is a clear opportunity for **grocery retailers to collaborate with industry on clear, aligned messaging—particularly on front-of-mind issues like food waste and packaging.**

31 Communication at the retail level was seen as most effective when it **was simple, product-specific, and evidence-based**. Interviewed retailers recommended that point-of-sale messaging clearly explain the purpose of sustainability measures—such as packaging design or pest management practices—and be supported by credible data to maintain consumer trust.

32 There was support for an **industry-led model of sustainability reporting**, in which the sector defines its own standards, validates performance, and produces consolidated reports. Greater alignment, particularly with international retailer expectations (e.g. in the EU), could reduce compliance burdens and mitigate supply chain risk over time.

8.6 Key findings and conclusions – Government as an audience

33 The HSF was viewed by industry participants as a relevant tool for aligning with public policy themes such as **food security, preventative health, and environmental stewardship**.

34 There is a recognised **need to more clearly differentiate horticulture from broader agricultural sectors in policy and communication**. Current narratives often conflate the two, overlooking key differences in emissions profiles, export orientation, health and nutrition and domestic consumption patterns—reducing the visibility of horticulture's unique sustainability footprint.

35 Participants noted that public policy discourse does not always reflect the extent of innovation or sustainability progress achieved in vegetable production. There is an opportunity to **improve recognition of on-farm technology adoption, input efficiency, and modern growing systems through more visible and accessible communication**.

36 **Support for the development of consistent, sector-wide sustainability reporting**—covering both historical improvements and current performance—was seen as essential for building credibility in policy and finance settings. Tools that enable aggregated benchmarking and verification would assist growers in accessing sustainability-linked investment opportunities.

37 **A coordinated communication role for industry bodies** was viewed as a practical pathway to support consistency across trade, policy, and public engagement. Centralising data interpretation and storytelling through trusted channels could improve alignment with government priorities and market expectations.

38 A tiered approach to communication—combining **structured performance metrics with evidence-backed case studies**—was recommended to meet the needs of multiple audiences, from technical policy teams to the general public. This format was seen as effective in bridging the gap between sustainability data and meaningful public narratives.

8.7 Key findings and conclusions – Research partners

39 Interviewed researchers regarded **the HSF as well-aligned with current sustainability themes in agriculture research**. It was considered particularly useful as a directional tool for stakeholder engagement and research prioritisation, although it is not yet widely embedded in the formal design of research programs.

40 The study identified an **opportunity to more systematically assess research projects** (e.g. levy-funded or industry-supported) for their alignment with the HSF. This could help ensure that public investment in research supports sector-wide sustainability objectives and reinforces consistent metrics and language across initiatives.

41 Consulted researchers pointed to the **potential for strengthening existing grower data collection by improving consistency, centralisation, and interpretation**. While many growers already record relevant sustainability information, clearer pathways are needed to link on-farm data to aggregated industry-level insights that support broader reporting and decision-making.

42 It was noted that strengthening the connection between research outputs and sustainability frameworks—such as the HSF—could support more targeted communication and decision-making. They emphasised the importance of **regionally relevant indicators and calibrated benchmarks to ensure that sustainability metrics remain meaningful across Australia's diverse production systems**.

43 In communicating sustainability outcomes, interviewed researchers emphasised the value of **real-world case studies that combine grower narratives with credible, evidence-based results**. This approach was seen as an effective way to build trust, foster engagement, and make sustainability progress more relatable to both technical and non-technical audiences.

44 Stronger **collaboration between research institutions, industry bodies, and government agencies** was identified as a key enabler for long-term sector impact. This includes the development of shared sustainability tools, clearer data expectations, and alignment on strategic priorities across programs and funding pathways.

45 There is an **opportunity for innovation-focused research—such as plant breeding, biologicals, and precision input use—to support both sustainability and profitability.** Embedding these innovations into practice is essential for driving measurable on-farm improvements and achieving long-term sector resilience.

8.8 Communication roadmap for the Australian vegetable and onion industries

Communication roadmap: strengthening and communicating the sustainability story of the vegetable and onion industries

The following roadmap outlines how the Australian vegetable and onion industries can build upon their strong sustainability reputation and establish a future communications program. Drawing on insights from consumers, growers, retailers, researchers, and government, this roadmap recommends a phased approach—from establishing a consistent narrative and messaging platform to developing the structures that enable performance tracking, transparency, and long-term credibility. Importantly, the steps laid out here reflect a shared opportunity across stakeholders to strengthen industry leadership, secure market access, and build trust through evidence-based, sector-wide storytelling.

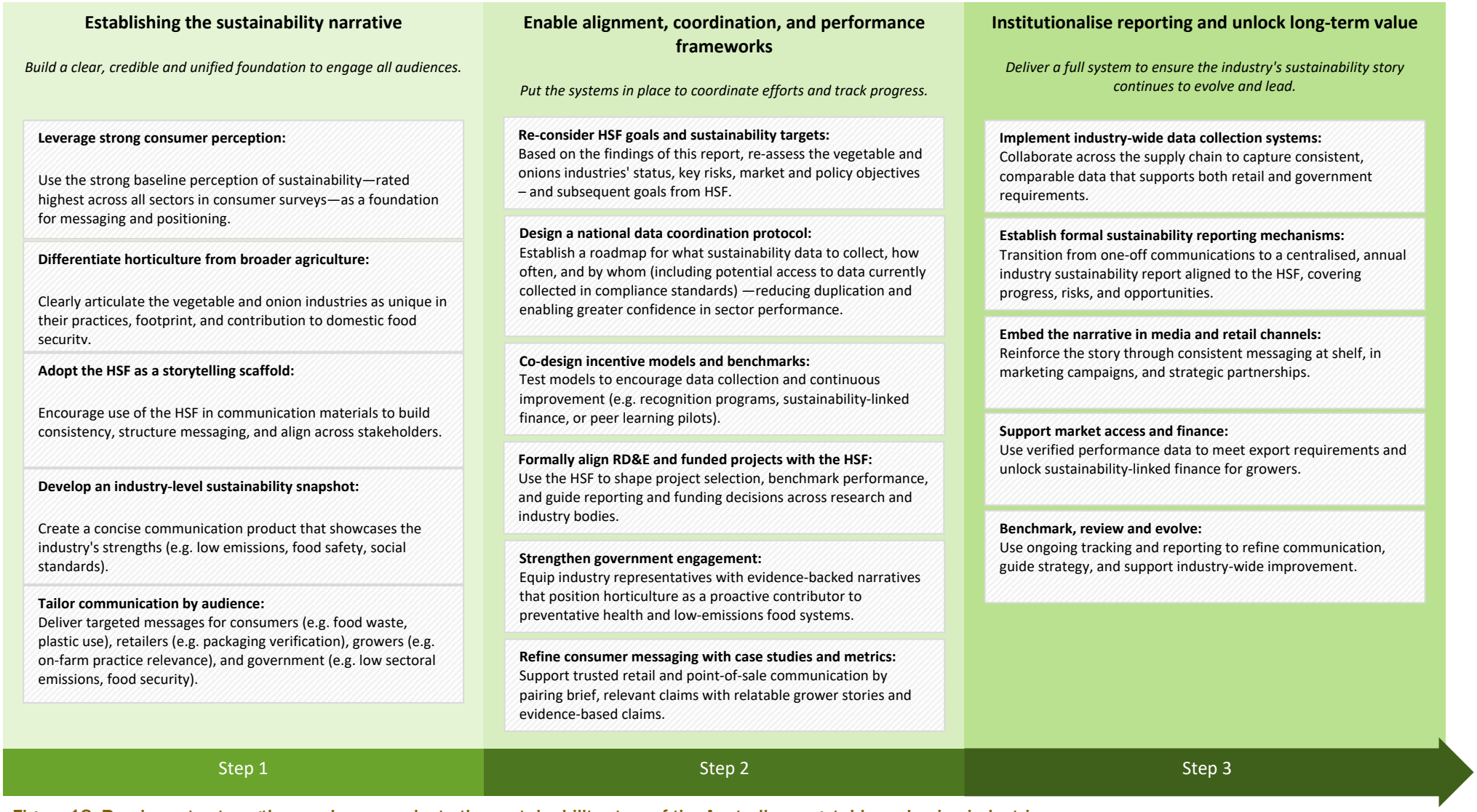


Figure 18: Roadmap to strengthen and communicate the sustainability story of the Australian vegetable and onion industries

References

Australian Beef Sustainability Framework (ABSF). 2024. *Annual update 2024* [Online]. Available: https://www.sustainableaustralianbeef.com.au/globalassets/beef-sustainability/documents/absf-annual-update-2024-web.pdf

Australian Dairy Farmers. 2024. *Australian Dairy Sustainability Framework* [Online]. Available: https://australiandairyfarmers.com.au/adsf/

Australian Government 2022, *National Fisheries Plan,* Department of Agriculture, Water and the Environment, Canberra. CC BY 4.0. ISBN 978-1-76003-452-8.

Australian Pork Limited. 2021. *Sustainability Framework 2021–2030* [Online]. Canberra: Australian Pork Limited. Available: https://www.australianpork.com.au/sites/default/files/2021-11/APL-Sustainability-Framework_Web.pdf

AUSVEG. 2022. *Final Report: The EnviroVeg Program 2017-2022*. Retrieved 27 June 2025, from https://www.horticulture.com.au/contentassets/9215392e0b404020be367e7ca4a320e6/vg16063-final-report-complete.pdf.

Cotton Australia & Cotton Research and Development Corporation (CRDC). 2023. *Australian Cotton Sustainability Update 2023* [Online]. Available: https://australiancottonsustainability.org.au/assets/reports/2023-sustainability-Summary-ONLINE.pdf

Cotton Australia & Cotton Research and Development Corporation (CRDC). 2024. *PLANET. PEOPLE. PADDOCK. – The* Australian *Cotton Sustainability Framework* [Online]. Available: https://australiancottonsustainability.org.au/

Cotton Australia & Cotton Research and Development Corporation (CRDC). 2025. *Resources – Australian Cotton Sustainability Framework* [Online]. Available: https://australiancottonsustainability.org.au/resources

Dairy Australia. 2020. *Australian Dairy Hygiene Handbook.* [Online]. Available: https://www.dairyaustralia.com.au/resource-repository/2020/07/09/australian-dairy-hygiene-handbook

Dairy Australia. 2023. *2023 Sustainability Report*. [Online]. Available: https://australiandairyfarmers.com.au/wp-content/uploads/2023/12/5549_ADSF_Sustainability_Report_2023_FA_WEB.pdf

Dairy Australia. 2023. *World Milk Day 2023 | Make your mornings with milk!*. [Online video]. Available: https://www.youtube.com/watch?v=VS31iWBT3rM&list=PLF43zgg2AAta1hic9VRDUx_PufYSiV9vt&index=2

Dairy Australia. 2024. *Trade Factsheet Dairy Health and Nutrition 2024.* [Online]. Available: https://www.dairyaustralia.com.au/en/international-dairy-markets/importing-australian-dairy/dairy-industry-facts

Department of Agriculture and Fisheries, Queensland. 2022. *Final report – HortCarbon Info: calculating and reducing horticulture emissions* [Online]. Brisbane: DAF. Available: https://era.dpi.qld.gov.au/id/eprint/9396/1/Final+Report+-+HortCarbon+Info+050822.pdf

GrainGrowers. 2024. *GrainGrowers Grain Sustainability Forum provides strong focus on industry sustainability* [Online]. Available: https://www.graingrowers.com.au/news/graingrowers-grain-sustainability-forum-provides-strong-focus-on-industry-sustainability

Horticulture Innovation Australia Limited (Hort Innovation). 2021. *RD&E program for control, eradication and preparedness for vegetable leafminer (MT16004)* [Online] Available: https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/mt16004/

Horticulture Innovation Australia Limited (Hort Innovation). 2023. *2023/24 AUSTRALIAN-GROWN HORTICULTURE SUSTAINABILITY FRAMEWORK* [Online] Available: https://www.horticulture.com.au/contentassets/f629a21ab8514f16882f40764927d09f/2023-horticulture-sustainability-framework-003.pdf

Horticulture Innovation Australia Limited (Hort Innovation). 2025. *Australian horticulture statistics handbook: 2023/24 – Introduction & trade* [Online]. Available: https://www.horticulture.com.au/globalassets/hort-innovation/australian-horticulture-statistics-handbook/hort-innovation-ahsh-2023-24-intro-trade.pdf

Montreal Process Implementation Group for Australia and National Forest Inventory Steering Committee. 2024. *Australia's State of the Forests Report: Synthesis 2023 (2nd ed.),* ABARES, Canberra, 2024. CC BY 4.0 DOI:

http://doi.org/10.25814/649h-hk82

Quarterly Update of Australia's National Greenhouse Gas Inventory: September 2024, Australian Government Department of Climate Change, Energy, the Environment and Water. CC BY 4.0. This publication is available at National Greenhouse Gas Inventory: Quarterly updates - DCCEEW

Sheep Sustainability Framework. 2024. *Annual report 2024* [Online]. Brisbane: Sheep Sustainability Framework. Available: https://www.sheepsustainabilityframework.com.au/globalassets/sheep-sustainability/media/240731-ssf-2024-annual-report---web.pdf

Sheep Sustainability Framework. No date. *SSF Digital Dashboard* [Online]. Available: https://www.sheepsustainabilityframework.com.au/resources/ssf-digital-dashboard/

Sustainable Winegrowing Australia. No date. *Homepage*. Available at: https://sustainablewinegrowing.com.au/

ABARES (2021). Vegetable Industry Farm Performance. https://www.agriculture.gov.au/abares/research-topics/surveys/vegetables

ABARES (2024). Labour use in Australian horticulture: Analysis of survey results, 2022–23. https://www.agriculture.gov.au/abares/research-topics/agricultural-workforce/labour-use/2023#daff-page-main

Australian Bureau of Statistics (ABS) (2018). Land Management and Farming in Australia. https://www.abs.gov.au/statistics/industry/agriculture/land-management-and-farming-australia/latest-release

Australian Bureau of Statistics (ABS) (2019). Gross Value of Irrigated Agricultural Production. https://www.abs.gov.au/statistics/industry/agriculture/gross-value-irrigated-agricultural-production/latest-release

Australian Bureau of Statistics (ABS) (2022). Census Tables: Industry of Employment. https://www.abs.gov.au/statistics/people/people-and-communities/snapshot-australia/2021#data-downloads

Australian Bureau of Statistics (ABS) (2022). Water Use on Australian Farms. https://www.abs.gov.au/statistics/industry/agriculture/water-use-australian-farms/latest-release

Australian Bureau of Statistics (ABS) (2023). Agricultural Commodities, Australia, 2021-22. https://www.abs.gov.au/statistics/industry/agriculture/agricultural-commodities-australia/latest-release

Australian Bureau of Statistics (ABS) (2023). National Health Survey. https://www.abs.gov.au/statistics/health/health-conditions-and-risks/national-health-survey/latest-release

Australian Bureau of Statistics (ABS) (2023). Value of Agricultural Commodities Produced, Australia. https://www.abs.gov.au/statistics/industry/agriculture/value-agricultural-commodities-produced-australia/latest-release

Australian Bureau of Statistics (ABS) (2025). Labour Force, Australia, Detailed. Reference Quarter December 2024. https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia-detailed/latest-release

Australian Fresh Produce Alliance (2019). The role of packaging for Australian fresh produce. https://afccc.org.au/images/resources/afpa-report-2019-digital-book_(4).pdf

Australian Fresh Produce Alliance (2024). Common Greenhouse Gas Accounting Framework for the Australian Fresh Produce Industry. https://freshproduce.org.au/__static/68808703b28e49fe40aba92893918ac4/afpa-ghg-framework-industry-summary.pdf

AUSVEG (2024). Vegetable Industry Sentiment Report. https://ausveg.com.au/app/uploads/2024/12/AUSVEG-Industry-Sentiment-Report_2024-Digital.pdf

CSIRO (2019). Mapping of Australian fruit and vegetable losses pre-retail. https://publications.csiro.au/publications/publication/PIcsiro:EP191660

Department of Climate Change, Energy, the Environment and Water (2024). National Emissions Inventories. https://www.greenhouseaccounts.climatechange.gov.au/

End Food Waste CRC. https://endfoodwaste.com.au/

Fair Farms (2025). Pending data request. https://fairfarms.com.au/

Fair Work Australia (2020). Horticulture Award. https://www.fairwork.gov.au/employment-conditions/awards/awards-summary/ma000028-summary

Food Innovation Australia Limited (2020). National Food Waste Strategy Feasibility Study.

https://www.fial.com.au/sharing-knowledge/food-waste

Food Standards Australia New Zealand (FSANZ). https://www.foodstandards.gov.au/business/food-safety-horticulture

Freshcare Food Safety and Quality Standard. https://www.freshcare.com.au/our-standards/food-safety-quality/

Growcom: Hort360 Best Management Practice. https://www.growcom.com.au/hort360

Hort Innovation (2008). Preliminary Estimation of the Carbon Footprint of the Australian Vegetable Industry (VG08107).

Hort Innovation (2014). Economic evaluation of farm energy audits and benchmarking of energy use on vegetable farms (VG13054). https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg13054/

Hort Innovation (2019). Creating value from edible vegetable waste (VG15076). https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg15076/

Hort Innovation (2021). Naturally Nutritious (HN15001). https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/hn15001/

Hort Innovation (2022). Consumer demand spaces for horticulture (MT21003). https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/mt21003/

Hort Innovation (2023). A national map of protected cropping systems (AS20003).

Hort Innovation (2023). Economic contribution of Australian horticulture (MT21010). https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/mt21010/

Hort Innovation (2023). Soil Wealth and Integrated Crop Protection. https://soilwealth.com.au/

Hort Innovation (2024). Grower and Partner Sentiment Survey 2023. https://www.horticulture.com.au/globalassets/hort-innovation/corporate-documents/hort-innovation-gaps-2023-report-final-jan-2024.pdf

Hort Innovation (2024a). National strategy, baseline and value perception study for Plus one serve by 2030 program (VG23005). https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg23005/

Hort Innovation (2024b). Horticulture Statistics Handbook 2022/23. https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/australian-horticulture-statistics-handbook/

Hort Innovation (MT21013). Fund Impact Assessment 2020/21: cherry, vegetables and small tropicals (MT21013). Vegetable summary report. https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/mt21013/

Hort Innovation (ongoing). National fall armyworm innovation system for the Australian vegetable industry (VG22006). https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg22006/

Hort Innovation (ongoing). National vegetable and onion benchmarking program (MT22009). https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/mt22009/

Hort Innovation (ongoing). Plus one serve of vegetables by 2030 (HN23001).

Hort Innovation (ongoing). The nutritional advantage of fresh produce: a focus on bioactive nutrients and their role in consumer demand (HN22003). https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/hn22003/

Hort Innovation (ongoing). VegNET 3.0 (VG21000). Case study material provided on request by RMCG. https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg21000/

Hort Innovation (ongoing). VegNET 3.0 (VG21000). M&E data and reporting supplied on request by RMCG. https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg21000/

Hort Innovation. (2019-2024). Vegetable Fund Annual Reports. https://www.horticulture.com.au/hort-innovation/funding-consultation-and-investing/investment-documents/fund-annual-reports/

Hort IQ. Data accessed by request. https://www.horticulture.com.au/growers/hortiq/

Horticulture Industry Programs: Australian Rural Leadership Foundation: https://rural-leaders.org.au/; Women and Leadership Australia: https://www.wla.edu.au/; University of Tasmania Graduate Diploma in Agribusiness: Horticulture Business Specialisation (formerly Masterclass in Horticulture business) https://www.utas.edu.au/courses/cse/courses/s6e-graduate-diploma-in-agribusiness-specialisation?year=2024; Nuffield Australia; https://www.nuffield.com.au/

Maraseni TN., Cockfield G., Maroulis J. & Chen G. (2010): An assessment of greenhouse gas emissions from the Australian vegetables industry, Journal of Environmental Science and Health 45:6, 578-588

Nurti-V Vegetable Power. https://www.nutriv.com.au/

Plant Health Australia (2018). Biosecurity Plan for the Vegetable Industry. https://ausveg.com.au/app/uploads/2018/06/Industry-Biosecurity-Plan-for-the-Vegetable-Industry.pdf

Primary Industries Climate Challenges Centre (2023). Horticulture Greenhouse Accounting Tool. https://piccc.org.au/resources/Tools.html

Rural Research Industries Development Corporation (2010). Pollination Aware – The Real Value of Pollination in Australia. https://agrifutures.com.au/wp-content/uploads/publications/10-081.pdf

Safework Australia (2025). Key Work Health and Safety Statistics Australia 2024. https://data.safeworkaustralia.gov.au/insights/key-whs-stats-2024

TradeMap. International Trade Centre. https://www.trademap.org/

University of Canberra (2023). Regional Wellbeing Survey. https://www.canberra.edu.au/research/centres/hri/research-projects/regional-wellbeing-survey

UTS (2018). Right to Farm Agricultural Land Use Survey. Prepared for NSW DPI. https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0009/837099/r2f-agricultural-land-use-survey.pdf

Voconiq (2024). Community Trust in Rural Industries. https://voconiq.com/en/ctiri/

Woolworths (2024). Committed to reducing food waste (e.g. odd bunch program). https://www.woolworths.com.au/shop/discover/community/food-waste?srsltid=AfmBOorLWUAhSBAi8CjJ1QIcSDfbs44EpoQuibO10DrUyIVsET2g4JwW

Intellectual property

No project IP or commercialisation to report.

Appendices

Appendix 1: The Australian-grown Horticulture Sustainability Framework

Pillar	Definition	Focus area	Goals embedded
Nourish & Nurture	Nourish & Nurture recognises horticulture's role in supporting health and wellbeing by producing nutritious food and greening communities. It emphasises safe, high-quality, and traceable produce, alongside plants that enhance urban environments and natural solutions for pest control.	Healthy, nutritious food	N.1 Healthier, nourishing diets through increased consumption of readily available, affordable Australian grown fruits, vegetables and nuts.
		Greenlife	N.2 Community health and wellbeing is improved by increased greenspace, plants and cut flowers in homes, cities and towns
		Safe, Traceable, quality	N.3 Australian-grown horticultural produce is trusted as safe and traceable. N.4 Reliable quality, authentic, Australian grown horticultural produce is sought and valued by both international markets and Australian consumers.
People & Enterprise	People & Enterprise highlights the role of people in horticulture, encompassing growers, seasonal workers and skilled professionals, and emphasises the sector's contribution to employment, communities and the economy. The pillar promotes fair work practices, diverse career opportunities, innovation and long-term business viability.	Productive, profitable growers	P.1 Vibrant, productive, profitable enterprises. P.2 Maximise the quality and utilisation of all produce. P.3 World-leading research, technology and innovation improves practices and drives transformational change.
		Human rights	P.4 Provide ethical, fair and safe work conditions. Creating a culture of pro-actively meeting employment and duty of care obligations and standards of sustainable, ethical employment that mitigate risks of modern slavery. P.5 Attract and retain motivated workers creating rewarding career paths and a sustainable workforce.
		Safe work	P.6 Zero harm
		Diversity & capability	P.5 Attract and retain motivated workers creating rewarding career paths and a sustainable workforce.
		Governance	P.7 Australian horticulture's leadership structures and capacity build the vitality, sustainability and diversity of the horticulture sector
		Thriving communities	P.8 Regional, periurban and urban communities value the contributions of horticulture. P.9 Recognition of horticulture in local government planning in key growing regions. P.10 Become an economic powerhouse for local communities and the Australian economy.

Planet & Resources	Planet & Resources focuses on protecting the natural systems that horticulture depends on, including healthy soils, water, biodiversity and pollinators. It supports sustainable practices that reduce environmental impact, enhance resource efficiency, and uphold strong biosecurity to safeguard crops and ecosystems.	Sustainable Agricultural Practice	R.1 Best practice land management is used in horticultural production. R.2 Soil health and productive capacity is maintained or improved. R.3 Nutrient applications are matched to crop need. R.4 Movement of soil, nutrients and chemicals into the environment are minimised.
		Water	R.5 Reliable, viable access to sustainable water resources. R.6 Responsible and efficient use of allocated water to optimise production per unit of water. R.7 Objective measures guide more efficient water use. R.8 Increased adoption of water recycling and reuse.
		Biodiversity & Pollinators	R.9 Biodiversity is managed sustainably. R.10 Australian horticultural crops have effective pollination and protect pollinator species.
		Pest & Disease	R.11 Responsible management of pests, weeds, diseases and agricultural inputs. R.12 Proactively manage biosecurity risks from pest and disease incursions into regions and Australia.
		Biosecurity	R.11 Responsible management of pests, weeds, diseases and agricultural inputs.
Climate & Waste	Climate & Waste addresses the need to reduce emissions, adapt to climate change and minimise waste across the horticulture supply chain. It promotes low-carbon energy use, climate-resilient production systems and waste reduction through innovation, recycling and improved resource efficiency.	Emissions	W.1 Horticultural plants capture carbon; production systems minimise greenhouse gas emissions.
		Energy	W.2 Energy is used efficiently, with an increased proportion from renewable sources.
		Climate adaptation	W.3 Australian horticulture understands and manages the risks of climate change and extreme weather variability and builds resilience to natural disasters. W.4 Increased use of horticultural plants and green space cools our cities and mitigates climate extremes.
		Food waste	W.5 Increase the proportion of produce that meets first grade quality and increase utilisation of lower grade produce. W.6 Reduce food waste in the production system.
		Waste	W.7 Packaging is minimised, recyclable, compostable or reusable. W.8 Reduce, reuse or recycle on-farm waste and input supply packaging.

Appendix 2: The Australian-grown Horticulture Sustainability Framework

Coverage Complete Partial Limited **Trend** Increasing Steady Declining Unclear

Nourish & Nurture	Data source	Data type	Timing	Coverage	Trend	Key points
Healthy Nutritious Food	ABS national health survey VG23005 +One Serve Program	Quantitative	Timeseries	●	●	Vegetable consumption is declining across the Australian population. 6.5% of adults and 4.6% of children met the recommended vegetable intake in 2022, down from 7.5% and 6.3% in 2017-18 (ABS 2024). Average consumption of vegetables is 2.29 serves per day (ABS 2024). After accounting for food waste, this could be as low as 1.8 serves per day (AUSVEG 2024). Resources to communicate the superior nutritional value of vegetables is being explored through HN23003, with a focus on the role of bioactive nutrients. 1.79 average vegetable serves after wastage (VG23005, 2024).
Safe, Traceable, Quality	Freshcare FSANZ Community Trust in Rural Industries HortIQ MT21003 Trade Data	Qualitative Quantitative	Timeseries Intermittent	●	●	Freshcare Food Safety & Quality Standards the industry program for best management of food safety requirements for the production and packing of fresh produce on-farm 18 Vegetable recalls 2015-2021 (trend unclear) (FSANZ). A new leafy veg standard (Feb 2025) will further reduce risk of safety issues in fresh leafy vegetable production. Consumer trust in food safety peaked in 2019 (84%), declining to 76% in 2024 (not veg specific) (CTiRI). Consumer perceptions of quality and value of Australian veg declining 24 months to FY24 (HortIQ). Demand for Aust grown veg in local (#2 purchase driver, MT21003)) & export markets (3.6% value CAGR 1.3% volume CAGR – 8 yrs to 2023).

Appendix 3: Australian Grown Horticulture Sustainability Framework Sector wide scan – Pillar 2 People & Enterprise

Coverage Complete Partial Limited **Trend** Increasing Steady Declining Unclear

People & Enterprise	Data source	Data type	Timing	Coverage	Trend	Data scan summary	Key points
Productive, Profitable Growers	Hort Stats Handbook Veg Benchmarking ABARES veg survey ABS Agricultural Commodities ABS Labour ForceVegNET Hort Innovation	Quantitative Qualitative	Timeseries Intermittent One Off			Production volume, flat productivity ($/ha), ($/FTE). Avg. return on capital circa 3% - target 8%. Unit farmgate price increasing 5% CAGR over 8 yrs to 2023. Share of marketable produce 70-80%. VegNET engaged 1/3 of growers, 40-50% best practice adoption. R&D investment declined (peak $22M in 2018, now $15M). BCR of 3.10:1 for R&D investment between 2016-2021 (MT21013)	Adoption of intensive farming systems, technology, machinery and other best practice have supported productivity growth. VegNET is reaching 33% of vegetable growers of which 40%-50% have adopted (or have intent to adopt) best practices. Cost of production increases have outpaced farmgate price growth, impacting grower profitability. The least profitable 25% of growers recorded a negative return in 2022-23 (MT22009). Over the 6 years to 2022/23, the vegetable levy invested $106M in R&D, with annual investment declining from a peak of $22M in 2017/18 to $15.3M in 2022/23. The impact of R&D undertaken between 2016 and 2021 resulted in a benefit-cost ratio of 3.1:1.
Human Rights	ABS Labour Force Fairwork Australia Fair Farms	Quantitative	Timeseries Intermittent			Increased vegetable employment (15,400 FTE workers in 2024) Fairwork Horticulture award introduced in 2020.	The vegetable industry is labour intensive, with an increasing workforce over time in response to expanded production area (ABS). Fairwork Horticulture Award outlines minimum pay requirements for vegetable

						Several ethical employment programs exist, e.g. Fair Farms.	business owners, while the industry program Fair Farms provides a training and certification program for fair and ethical employment practices.
Safe Work	Safework Australia	Qualitative	Intermittent	🟡	🟡	10 serious claims annually per million hours worked. Deaths per year Limited evidence on impact of WHS processes Grower health & wellbeing outcomes not defined.	Serious injury and deaths occurring in the vegetable industry are recorded through Safe Work Australia, with approximately 10 serious injury claims per million hours worked each year.
Diversity & Capability	ABARES labour use ABS Census Industry programs	Quantitative Qualitative	Timeseries Intermittent One Off	🟡	🟢	Workforce challenges affect 50% of vegetable business (ABARES) 43%of workforce have post-school education (ABS) Relevant leadership programs include Rural Leadership Foundation, Women and Leadership Australia, Hort Master Class, Nuffield. Veg Education Training and Education Program.	Access to skilled labour remains a challenge for the industry, 46% of growers experiencing recruitment challenges in 2024. The industry have developed resources and initiatives to encourage students to consider a career in the vegetable industry, with 43% of the workforce having post school qualifications in 2021, up from 38% in 2016 (ABS).
Governance	Industry programs Hort360 Hort Innovation	Qualitative	One Off	🔴	⚪	Participation of veg growers in leadership opportunities 49% of Hort360 participants maintain and review business planning	Programs run through Rural Leadership Foundation, Women and Leadership Australia, Hort Master Class and Nuffield seek to strengthen the industry's leadership structures

Thriving Communities	MT21010 (CIE) UTS Survey ABS VACP Hort Stats Hort Innovation & AUSVEG sentiment survey ABARES Veg benchmarking	Quantitative	Timeseries Intermittent One Off	🟡	🟢	Total veg: Increasing value of production ($5.8B); $2.561B veg direct value add, indirect value add $0.276 per $1 (MT21010) Employ 23,277 FTEs (MT21010) Declining production in significant urban areas (UTS). Mixed industry sentiment – impacted by financial and market challenges (AUSVEG) <15% cash receipts from non-veg sources (ABARES).	The vegetable industry directly generates economic value through its production activities, with a total direct value add of $2.561B, providing an important source of economic stimulus to regional communities. Short term industry sentiment has been falling, with 50% of growers reporting being financially worse off vs 12 months ago, while 46% expect it to worsen in next 12 months (to June 2025).

Appendix 4: Australian Grown Horticulture Sustainability Framework Sector wide scan – Pillar 3 Planet & Resources

Coverage Complete Partial Limited **Trend** Increasing Steady Declining Unclear

Planet & Resources	Data source	Data type	Timing	Coverage	Trend	Data scan summary	Key points
Sustainable Agricultural Practice	ABARES veg survey Veg benchmarking ABS Land Mgmt ABS Water Use	Quantitative Qualitative	Intermittent One Off	Partial	Increasing	Best practice programs include Hort360, Soil Wealth up to 50% of growers). Discontinued ABARES survey indicated 45% of vegetable growers participated in a best practice program in 2018. Industry wide data not collected. Soil Wealth program delivers workshops, field days, webinars, case studies to improve knowledge of soil management. 75% of surveyed growers have or intend to change practice through the supported initiatives.	Environmental best practice features throughout the industry extension platforms VegNET that reaches 33% of vegetable growers and best practice program Hort 360. Select programs such as the levy funded Soil Wealth and Integrated Crop Protection program has influenced approximately 50% of vegetable growers to improve use management practices that improve soil health.
Water	Soil Wealth ICP ABS Irrigated Production ABS Land Mgmt Hort360 Veg benchmarking	Quantitative Qualitative	Timeseries Intermittent	Limited	Unclear	ABS data sources have been discontinued resulting in outdated data on water use. Water use productivity ($/ML) has increased to ~ $37K/ML in 2022, but not currently measured. The Soil Wealth Program provides resources to support growers undertake soil moisture monitoring.	Limited pathway to measure vegetable production water use following discontinued ABS water use survey. Best practice programs may address water use on farm.

						Opportunity for additional data collection through vegetable benchmarking.	
Biodiversity & Pollinators	ABS Land Mgmt Hort360 Pollination aware	Quantitative Qualitative	Intermittent	🟡	⚫	Case studies demonstrate biodiversity initiative & management of feral weeds & pests (Hort360 / ICP). 2016 survey indicated that 28% of growers maintained a share of land for conservation purposes (ABS). 24% of vegetables are pollination dependent.	Further investigation of Hort 360 practice data is required to inform biodiversity initiatives. 2022 varroa mite incursion may increase the cost of accessing pollination for the 24% of vegetable crops that depend on pollination.
Pest & Disease	VegNET IPDM	Qualitative	One Off	🟡	🟢	VegNET initiatives encourage grower adoption of IPDM practice, minimising chemical use and supporting biodiversity.	Ongoing levy funded extension program VegNET support an integrated approach to pest and disease management that minimises the reliance on conventional chemical controls.
Biosecurity	Industry biosecurity plan VegNET VG22006	Qualitative	One Off	🟡	🟢	Industry biosecurity management plan for vegetables developed in 2018 (AUSVEG) Farm level adoption unknown. Ongoing threats e.g. Fall Army Worm, CGMMV, require vigilance.	Vegetable Industry biosecurity plan provides a framework for prioritising biosecurity risk and grower surveillance and on farm management requirements.

Appendix 5: Australian Grown Horticulture Sustainability Framework Sector wide scan – Pillar 4 Climate & Waste

Coverage Complete Partial Limited **Trend** Increasing Steady Declining Unclear

Climate & Waste	Data source	Data type	Timing	Coverage	Trend	Data scan summary	Key points
Emissions	National Greenhouse Accounts AFPA GHG Framework PICC Lifecyle analysis	Quantitative	Timeseries One Off			Vegetable emissions: 0.05 t CO2 / t Total veg production emissions 9.2 tCO2 / ha 54% emissions from pumping irrigation Low emissions vs other ag sectors	Vegetable production contributes <1% of total agricultural emissions A GHG Framework has been developed to improve accuracy and reporting by vegetable growers, with adoption by major growers anticipated to occurring in coming seasons.
Energy	Hort 360 VG13054	Quantitative Qualitative	Intermittent One Off			2.11 GJ/ t production in 2015 (VG13054 Case studies for on farm energy practices under development Unknown share of energy from renewables	Sector wide energy use has only been reported intermittently using a lifecycle analysis approach. Variation in vegetable business operations increase the challenge of a sector wide energy estimate. The share of energy sourced from renewables is potentially sourced through participation in the Hort 360 program.
Climate adaptation	Hort 360 Protected cropping map (AS20003)	Qualitative	One Off			Share of producers with a climate risk assessment strategy Increasing investment in veg protected cropping, including 293ha of glasshouse.	Ongoing investment into protected cropping structures (e.g. glasshouses) increases resilience to extreme weather events. Supporting vegetable growers to develop a climate risk assessment strategy is a component of the Hort 360 program (data currently under investigation).

Food waste	Fight Food Waste FIAL Baseline VG15076 Retailer initiatives (e.g. Odd Bunch) Commercial ventures (e.g. Nutri-V)	Quantitative Qualitative	Intermittent One Off			Volume of food waste challenging to measure Food waste baseline – reductions in farm waste (600Kt) Share of product from waste steams diverted	Food waste occurs throughout the supply chain, from farm to plate and has been challenging to reconcile. The 2021 Food waste baseline provides a starting point to track initiatives to reduce vegetable Food Waste, via investment in the End Food Waste CRC. Baseline data identifies that the vegetable sector contributes large amounts of Food waste through the supply chain due to its perishability. Several retailer and grower initiatives have emerged to reduce Food waste, e.g. Woolworths “odd bunch” line has sold more than 110,000t of otherwise unmarketable produce since its launch in 2015.
Waste	AFPA Packaging Hort360 CSIRO VegNET	Qualitative	Intermittent One Off			Packaging can extend veg shelf (AFPA). 75% of Hort360 participants have a waste management plan. Organic farm waste to landfill varies from 4-18% for select vegetable products (CSIRO) VegNET supports on-farm initiatives to reduce waste (e.g. plastics)	Grower approaches to on-farm waste management vary significantly, making data capture challenging. 75% of Hort 360 participants have a waste management plan, encouraging practices that seek to reuse. divert, repurpose or recycle material. Evidence continues to emerge about the role of packaging in extending shelf life of fresh produce, however further investigation of reusable or recyclable packaging to align consumer preference remains underway.

Appendix 6: MaxDiff – A quick guide

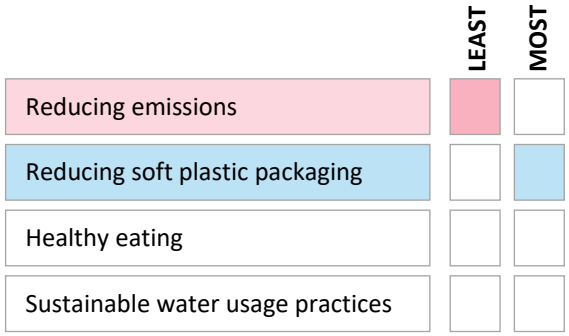
WHAT IS IT?

BEST-WOSR CHOICE TASK

- **MaxDiff** is a simple **trade-off technique** that is used to rank a list of items by relative importance (similar to choice model)
- Helpful when **everything** is considered 'somewhat important' (like with sustainability)
- During the qual, we found consumers **needed to be pushed** with comparisons and trade offs for us to get the true priority order of messages.

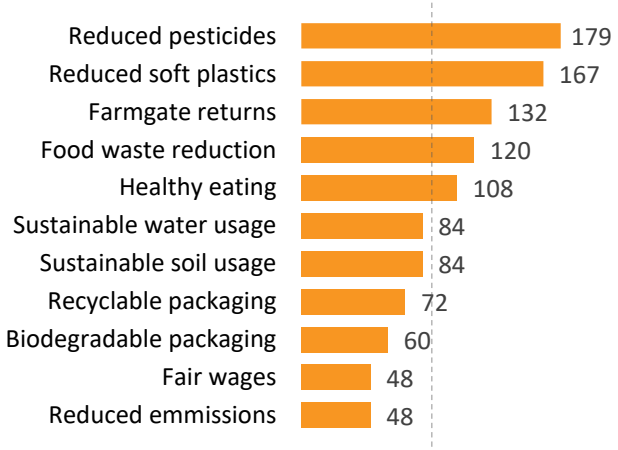
HOW DID WE ASK IT?

- Respondents were shown several sets of messages. For each set, they indicated which attributes are the most and least interesting
- Question we asked them…*Please indicate which statement you are **MOST** interested in hearing more about, and which you are **LEAST** interested in hearing more about*



EXAMPLE OUTPUT

The MaxDiff will provide a clear ranking of the attributes, which can be grouped into themes and compared across key audiences (e.g. we can see ranking by age, state, attitudes etc.)



HOW TO INTERPRET

MaxDiff data is presented as an Index, where 100 = average score

e.g. an index of 120 means people are 20% more likely to want to hear this message vs the average

Appendix 7: Messaging deep dive – food waste

Reducing the amount of vegetables that go to waste from farm to home

Food waste is the most valued topic the industry should focus its efforts on

INITIATIVE SCORECARD

	Message Score	AVERAGE (all messages)
DESIRE TO HEAR ABOUT (INDEX)	137 ▲	100
IMPORTANCE TO SOLVE (T2B)	87% ▲	76%
IMPACT ON PERCEPTIONS (T1B)	59% ▲	51%
IMPACT ON SHOPPING BEHAVIOUR (T1B)	37% ▲	30%

WHY THEY WANT TO HEAR ABOUT IT

*Because **it will have an impact on a lot of things**. It will help **reduce the cost of groceries**, it will **give growers more money** for what they grow, it helps with **greenhouse emissions**.*

*It would make a **huge difference for farmers, supermarkets and the everyday Australian** that buys the product. No vegetables should ever go to waste when they can be used, donated or made into something else*

*Food wastage is such a terrible thing when you have people **who can't afford food** in Australia.*

Food being wasted before reaching the supermarket seen as a core problem that has wide impact on both growers, consumers and the environment

WHO VALUES IT MORE / LESS?

Works best with…

- Older Australians (Aged 55+)
- Regional Australians

Doesn't resonate as well with…

- Young families
- Packaged Veg Preferers

ROLE

The leading message across all metrics and should therefore be the hero message of a sustainability campaign.

It speaks to the most salient problem the industry has, so it will have widespread appeal and create the most buzz & positive impact on the industry.

Appendix 8: Messaging deep dive – packaging

Replacing soft plastic packaging with recyclable & biodegradable materials

Sustainable packaging will tangibly impact behaviour at shelf for consumers

INITIATIVE SCORECARD

	Message Score	AVERAGE (all messages)
DESIRE TO HEAR ABOUT (INDEX)	113	100
IMPORTANCE TO SOLVE (T2B)	77%	76%
IMPACT ON PERCEPTIONS (T1B)	56% ▲	51%
IMPACT ON SHOPPING BEHAVIOUR (T1B)	35% ▲	30%

WHY THEY WANT TO HEAR ABOUT IT

*Flexible plastic packaging is a **significant contributor to plastic pollution**, with a large amount of it ending up in **landfills** or as **waste in the environment.***

*It's something that **I have never understood**. We don't **need** plastic bags around our fruit and veg and its **terrible having to throw away plastic from fresh food***

*We use so much plastic that **just goes to the tip**. We have the means to make better packaging and **we should be doing it.***

Plastic packaging seen as unnecessary cause of waste and pollution that could be an easy fix for the industry

WHO VALUES IT MORE / LESS?

Works best with…

- Older S/DINKs
- Consumers highly engaged with sustainability
- Loose Veg Preferers

Doesn't resonate as well with…

- Consumers not engaged with sustainability

ROLE

Seen as a tangible solution to a large tension consumers have with plastic packaging in the industry.

Likely to have a strong impact on grocery shopping behaviour, especially those looking to make sustainable choices, so it should be a prominent message at shelf.

Appendix 9: Messaging deep dive – chemicals

Reduce reliance on chemicals, pesticides and herbicides in vegetable production

Consumers highly value being reassured that the industry is doing it's best to reduce chemicals

INITIATIVE SCORECARD

	Message Score	AVERAGE (all messages)
DESIRE TO HEAR ABOUT (INDEX)	117	100
IMPORTANCE TO SOLVE (T2B)	79%	76%
IMPACT ON PERCEPTIONS (T1B)	54%	51%
IMPACT ON SHOPPING BEHAVIOUR (T1B)	32%	30%

WHY THEY WANT TO HEAR ABOUT IT

*It is **always at the back of my mind** when purchasing fruits and vegetables how much **chemicals** and **bad things** could be on what I am **consuming.** It would be nice to see a reduction in using this going forward*

*Use of chemicals is **bad for the consumer** and **bad for the land**. A bad combination for sustainability.*

*By reducing reliance on chemicals etc, there would be benefits to **waterways, wildlife, climate change**. Also better for **human health** not to consume chemicals.*

Use of chemicals in the Vegetable Industry seen as negatively impacting both the environment and the health of consumers

WHO VALUES IT MORE / LESS?

Works best with…

- Older families

Doesn't resonate as well with…

Broad appeal – no groups where message works less well

ROLE

A broadly appealing message that provides reassurance that the industry is thinking about the environment and not negatively impacting their health.

Consumers have a strong desire to hear about the reduction of chemicals and so should be included as a supporting message to reassure.

Appendix 10: Messaging deep dive – high-quality products

Appendix 11: Messaging deep dive – protecting land & local environment

Protect the land & local environment to improve the long-term sustainability of vegetable production

Consumers value this initiative as it underpins the future of the industry & all other initiatives

INITIATIVE SCORECARD

	Message Score	AVERAGE (all messages)
DESIRE TO HEAR ABOUT (INDEX)	116	100
IMPORTANCE TO SOLVE (T2B)	76%	76%
IMPACT ON PERCEPTIONS (T1B)	51%	51%
IMPACT ON SHOPPING BEHAVIOUR (T1B)	26% ▼	30%

WHY THEY WANT TO HEAR ABOUT IT

*It's the **most important issue**, if you irreversibly damage the environment then **nothing will grow** and the land becomes **dead.***

*Because it is very important that the land is looked after responsibly, so vegetable crops can grow with success in **many decades to come.***

*If they are not sustainable then there **will be no industry to have to deal with the other initiatives***

Protecting the land seen as an important step to ensure the future of the industry

WHO VALUES IT MORE / LESS?

Works best with…

- Consumers highly engaged with sustainability
- Loose veg preferers

Doesn't resonate as well with…

- Consumers not engaged with sustainability

ROLE

Initiatives that protect the land & local environment are something that consumers have a strong desire to hear more about, especially those highly engaged with sustainability.

Should be a supporting message designed that looks to build positive sustainability associations, but less likely to make an impact at shelf.

Appendix 12: Messaging deep dive – protecting land & local environment

Australian Government		• FSANZ sets the national food safety standards and framework. However, FSANZ is not the enforcing body • No federal licence, fee, or mandatory testing applies to primary producers
State Government		• States enforce FSANZ standards; Primary Production and Processing (PPP) Standard for Leafy Vegetables adopted by WA and VIC, with others pending • Must maintain a Food Safety Management System (FSMS) covering risks, cleaning, water testing, training, traceability, and mock recalls • Registration is required; audit fees apply unless already in a GFSI scheme(s) (i.e. Freshcare , GlobalG.A.P., SQF or BRCGC) • No PPP Standard for non-leafy crops (e.g. potatoes), but Food Act still applies without ongoing registration or audit costs
Market-led certifications	**Freshcare** *domestic market focused*	• Managed by Hort Innovation and Freshcare Ltd as Australia's industry-recognised on-farm food safety program • Recognised for domestic market access; offers separate certification standards (e.g. Food Safety & Quality, Environmental, Supply Chain) • At least one person must be trained in HACCP, growers must complete initial training, then maintain certification through annual third-party audits
	GLOBALG.A.P. *export market focused*	• Widely used in Australian horticulture for export, and sometimes mandated by buyers such as McDonald's for supplier eligibility • No formal training required, but growers must maintain certification through annual third-party audits • Typically, stricter than Freshcare in documentation and traceability
	SQF *processing focused*	• Typically required for post-harvest handling and food processing, especially in facilities supplying major retailers or export markets • Offers separate certification standards (e.g. Food Safety, Quality, Manufacturing, Storage & Distribution) • No formal training required, but at least one person must be trained in HACCP; certification is maintained through annual third-party audits
	BRCGS *processing focused*	• Typically required for post-harvest handling and food processing, especially in facilities supplying major retailers or export markets • Offers separate certification standards (e.g. Food Safety, Packaging, Storage & Distribution, Agents & Brokers) • Has a detailed grading system (AA to D), requires at least one person trained in HACCP, and is more audit-intensive than other schemes with mandatory annual third-party audits
	HARPS *Retailer-led*	• Retailer-led overlay introduced to standardise food safety requirements across major supermarkets • Growers must hold a base GFSI certification and complete an annual HARPS audit • Adds retailer-specific requirements including supplier approval, product risk ranking, and traceability controls
Ethical and social compliance	**Fair Farms** *Australian Horticulture focused*	• Australian program focused on on-farm ethical employment practices • Aligns with national labour laws and the Fair Work Act; built specifically for the Australian horticulture sector • No formal training required,; certification is maintained through annual third-party audits
	SEDEX *Internationally recognised*	• Global ethical auditing framework applied across both on-farm and processing operations, requirement for international and some domestic buyers • Audits follow the SMETA methodology, available in either a 2-pillar format (labour standards and health & safety) or an extended 4-pillar format (adds environment and business ethics) • No formal training is required; audit frequency is performance-based—typically conducted annually but may extend to every 2–3 years for low-risk, high-performing sites. In some cases, farms may only need to complete an online self-assessment questionnaire to meet certification requirements

Appendix 13: Letter

DRAFT FOR CONSIDERATION JULY 2025 V1

Dear stakeholder,

I am writing to share outcomes from recent industry research regarding the vegetable and onion industries and how they engage with the Horticulture Sustainability Framework (HSF) which was developed by industry in 2019, updated in 2023 (see diagram overleaf).

The most trusted sector in Australia

This research has produced a set of compelling results. Most notably, the vegetable and onion industries were rated by a 1,000-consumer survey as the most sustainable sector in Australia as compared to all other sectors of the economy. In a representative consumer quantitative survey, the vegetable industry was rated as the most sustainable sector (rated by 94% of those surveyed as 'neutral' to 'very sustainable'), ranking above dairy (86%), meat and livestock (79%), tourism (80%), energy (74%) and fashion (72%). Clearly the vegetable and onion industries have extremely high levels of trust amongst consumers as a fundamental healthy part of their diet. Furthermore, the consumer takes it as a given that Australian vegetables and onions are sustainably grown.

In other words, the starting point for the Australian vegetable and onion industries' sustainability story is very strong – at least in the eyes of consumers – and therefore the purpose of the industry Hort Sustainability Framework (HSF) is to provide the structure and systems by which this impressive positioning can be maintained and enhanced.

Relevance of HSF

The research found that the HSF (2023) remains relevant in its description of material matters and based on industry interviews, has support of stakeholders in the sector. The data available to report on status or progress towards a more sustainable industry is patchy and more work is required to co-ordinate data gathering and to report against the framework.

More consumer insights

The consumer insights research also found that cost-of-living was an overwhelming sentiment and paying more for sustainability outcomes was very difficult for consumers. Who pays for future changes in sustainability in the food system remains a vexed question for all sectors of agriculture and the food value chain.

The consumer's experience with vegetables and onions is very much seen through the shopping experience in grocery retail. Matters such as packaging and food waste are therefore more front of mind. Other factors such sustainable farming practices are taken as "expected" or as "given", which is wrapped in the trust in Australian producers. Consumers also assume that growers will be paid in a way that maintains financial viability and this matter is not front of mind in when they buy their vegetables and onions.

Retail setting is critical for communication

The importance of the consumer retail-experience demonstrates the importance of industry working with retailers in the delivery of sustainability messaging to consumers. The HSF aligns with the retailers' published sustainability objectives albeit retailers focus more on packaging and waste given this is front of mind for shoppers.

Growers are collecting data as part of their compliance requirements

Growers were also supportive of the HSF although it is not directly applied to day-to-day business. It was also noted that growers already collect substantial sustainability-related data—primarily through participation in certification and assurance schemes such as HARPS, Freshcare, Fair Farms, and SEDEX—as a condition of market access. However, these data are typically used for compliance purposes rather than for aggregate reporting or communication of industry-wide progress. Interviewed stakeholders saw an opportunity to better utilise this data to inform sustainability reporting and strengthen the industry's public narrative.

Growers interviewed pointed out the need for clarity in direction from retailers and industry, identified emerging matters e.g. requirements for lending and sustainably linked loans, some risks in export markets such as the loss of use of some chemicals used in Australia. They also raised the need for an evidence base that can defend against excess regulation and the need to manage data and control the narrative for key sustainability issues.

The message for Government was that the Australian and vegetable industry had already made significant gains in on-farm and supply chain practices. The industry is already heavily governed in regard to food safety, quality, chemical use and employment practices via Australian and global standards that are often a requirement of supply to retailers. The message to policy makers is clearly that the Australian vegetable and onion industries have lower footprints that other food sectors e.g. lower emissions and that is now seen to be the most trusted by consumers.

Use of sustainability data for research programs

Discussions with researchers also provided evidence of support for the HSF including ideas for how it could be used more effectively– for example, in the assessment of research projects and how they align to HSF.

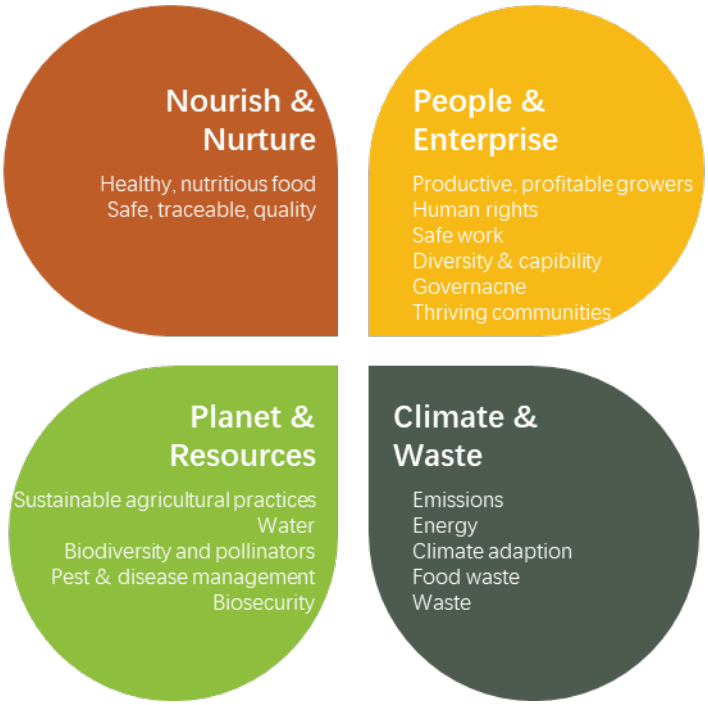
Next steps

In developing the "so what" in telling the industries' sustainability story, we looked at best-practice in other Australian agriculture sectors and framed messaging for each audience (e.g. consumers, retailers, growers and Government). In some cases, the sustainability story is underpinned by industry-wide data or research, in other cases there will be a reliance on case studies.

The Australian vegetable and onion industries are held in high regard when it comes to overall sustainability. The HSF (2023) remains a good framework by which to develop industry strategies, research, data gathering, reporting and communications. There are many gaps for industry to contemplate as it prepares to maintain a strong brand position into the next decade.

In considering this report we recommend the industry considers a roadmap for the development of goals, metrics and reporting that can maintain the industries' high standing and move the sector towards best practice, effectively manage risks and grow consumption. *- Vegetable industry leader 1 and leader 2*

The Horticulture Sustainability Framework can be found here



Report and associated materials can be found here [placeholder]

Appendix 14: Communication Material – Consumer Findings

Draft communication material MT24003 - July 2025

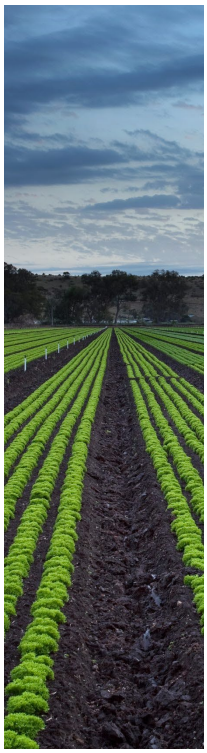
Our sustainability story

How consumers view the sustainability of the vegetable and onion industries?
part of the research findings from MT24003

Introduction

- The project objectives for MT24003, funded by Hort Innovation, were to enhance recognition of the Australian vegetable and onion industries' sustainability performance by identifying, consolidating, and strategically sharing existing evidence with key audiences
- It also sought to uncover gaps in current sustainability performance, and develop an actionable plan to address those gaps, which will be used to inform further investment and action
- This presentation is an excerpt of the research findings describing "how consumers view the sustainability of the vegetable and onion industries?"

Project methodology summary



Qualitative and quantitative survey

7
Focus groups

7 * 90 mins, in-person focus groups across Australia, with 6-7 participants in each focus group

15 min
online survey

To measure and understand sustainability messages and initiatives based on consumer perceptions

1,004
participants

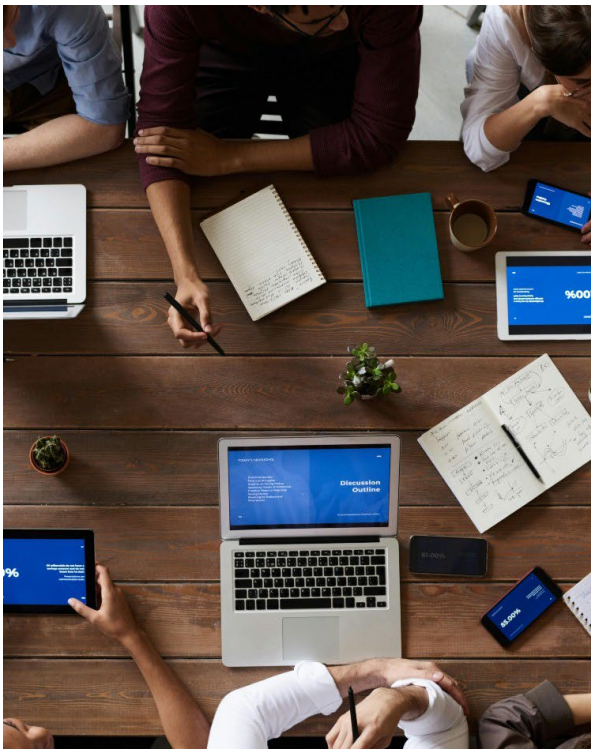
Australian consumers aged 18–65, with balanced gender split and demographic weighting.

Key objectives

Meaning and importance of sustainability for consumers	Expectations for supply chain members in the industry
Sustainability territories and messages	Communication guidance

How was the survey designed?

- CVA and FiftyFive5 designed a consumer survey to explore how consumers think about sustainability in the vegetable and onion industries
- The Horticulture Sustainability Framework (HSF) shaped the survey and was used to test how it can strengthen future sustainability messaging for the vegetable and onion industries
- Through the lens of the HSF, insights were gathered on how consumers view the industry's role in sustainability and what influences their choices
- Example stimulus messages were tested to see which ideas resonated, felt credible, and built trust for each element of the HSF
- Preferences around messaging and communication channels were explored to understand how consumers want to engage on sustainability



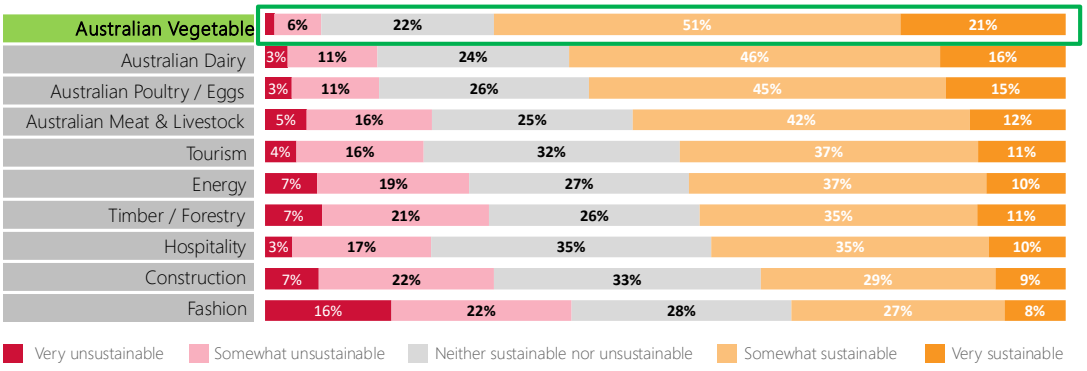
"Most trusted and sustainable sector in Australia"

94%

of consumers surveyed rated onion and vegetable industry as 'very sustainable' to 'neutral' - **the highest rated sector in Australia***

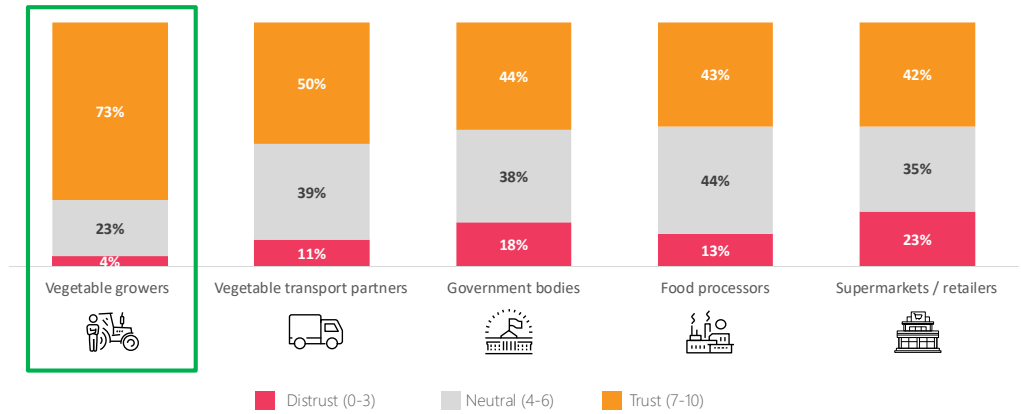
* 21% rated the Australian vegetable industry very sustainable, 51% sustainable and 22% neutral

Australian vegetables and onion sector was the highest rated sector in Australia amongst other sectors tested



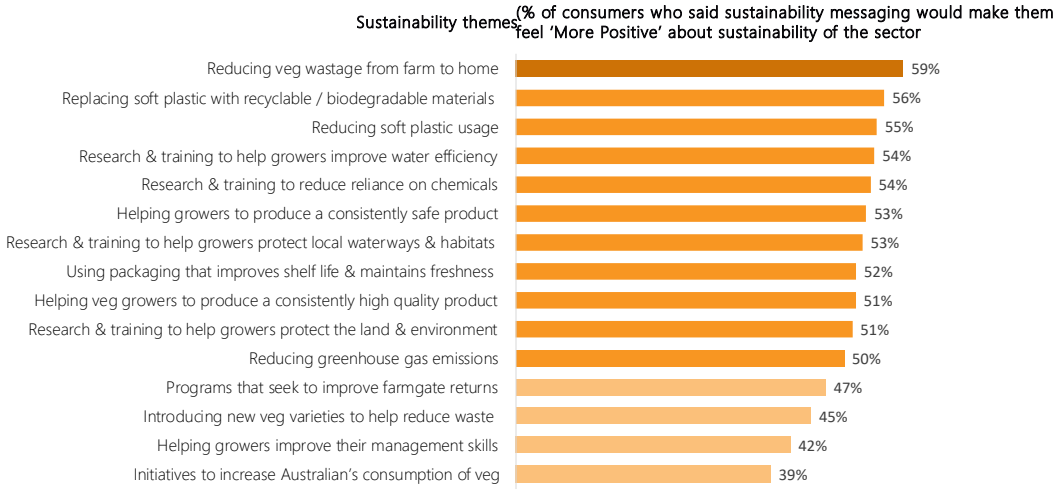
How do consumers view the sustainability of the following industries?

Consumers trust growers the most on sustainability-related matters—above all other stakeholder groups



On a scale of-00, how much do consumers trust the following stakeholders involved in the Australian vegetable industry to make sustainable decisions?

Consumers remain receptive and engaged to broad range of sustainability messaging, even when they find the sector most sustainable and trusted



"Cost-of-living pressure was an overwhelming sentiment, and paying more for sustainability outcomes was very difficult for consumers"

13%

of those surveyed said sustainability was one of the most important factors when shopping for groceries

> *I (consumer) care about sustainability but I just can't afford to buy premium sustainable vegetables —it's too expensive for something that gets eaten every day*

A1. How important is sustainability to you personally? A2. How important is sustainability when you shop for groceries? Base: All fresh veg purchasers (4,004)

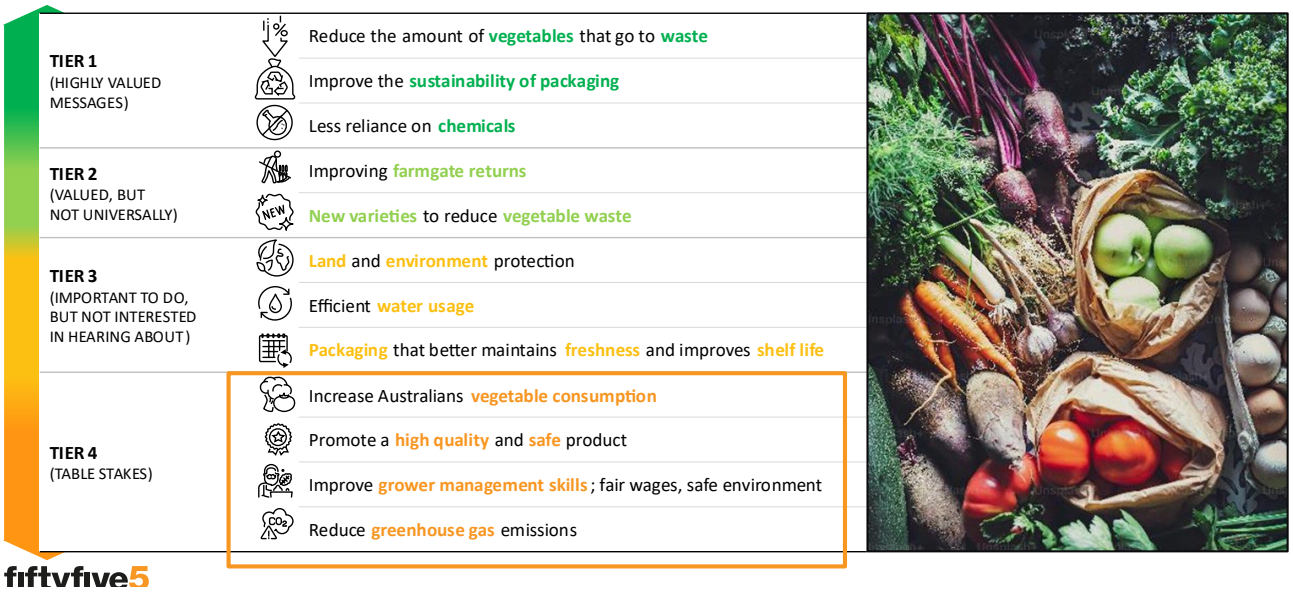
"The consumer's experience with vegetables and onions is very much seen through the shopping experience in grocery retail"

Therefore, key sustainability matters consumers find most important to them are formed by their retail experience

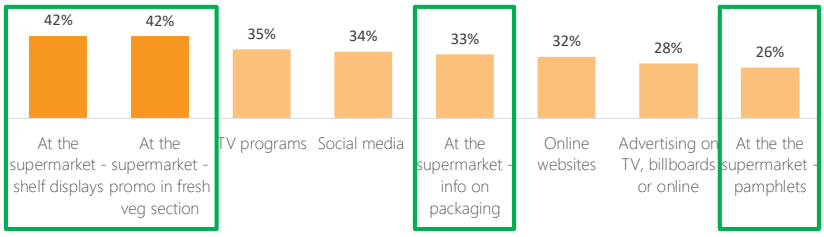
TIER 1 (HIGHLY VALUED MESSAGES)	Reduce the amount of **vegetables** that go to **waste**
	Improve the **sustainability of packaging**
	Less reliance on **chemicals**
TIER 2 (VALUED, BUT NOT UNIVERSALLY)	Improving **farmgate returns**
	New varieties to reduce **vegetable waste**
TIER 3 (IMPORTANT TO DO, BUT NOT INTERESTED IN HEARING ABOUT)	**Land** and **environment** protection
	Efficient **water usage**
	Packaging that better maintains **freshness** and improves **shelf life**
TIER 4 (TABLE STAKES)	Increase Australians **vegetable consumption**
	Promote a **high quality** and **safe** product
	Improve **grower management skills**; fair wages, safe environment
	Reduce **greenhouse gas** emissions

"Consumers assume growers will be paid in a way that maintains financial viability — and expect Australian vegetables and onions to consistently meet high-quality standards"

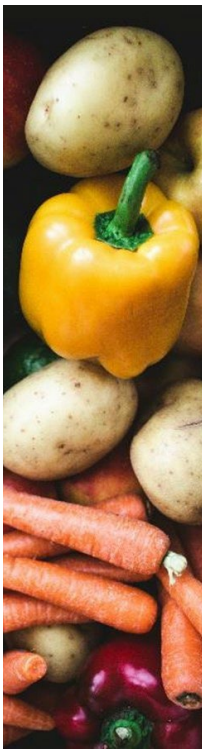
Hence, consumers take some sustainability matters as 'expected' or 'a given'



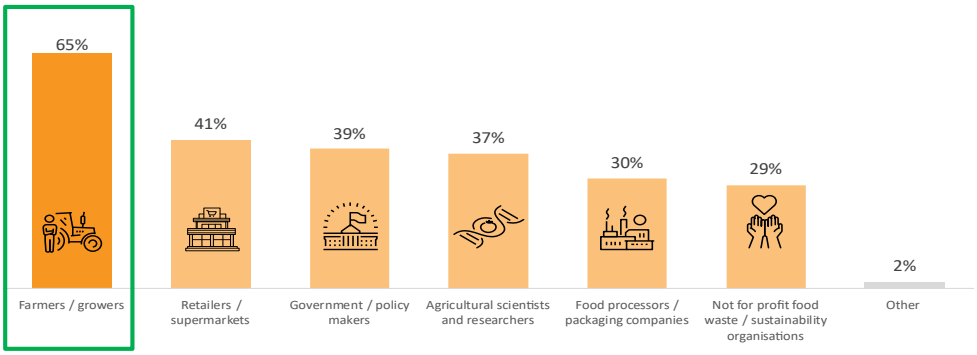
76% of consumers said grocery retail is their preferred communication channel for sustainability messaging



. If the Australian Vegetable Industry were to communicate some of these sustainability initiatives to consumers, where would consumers want to hear more about them?

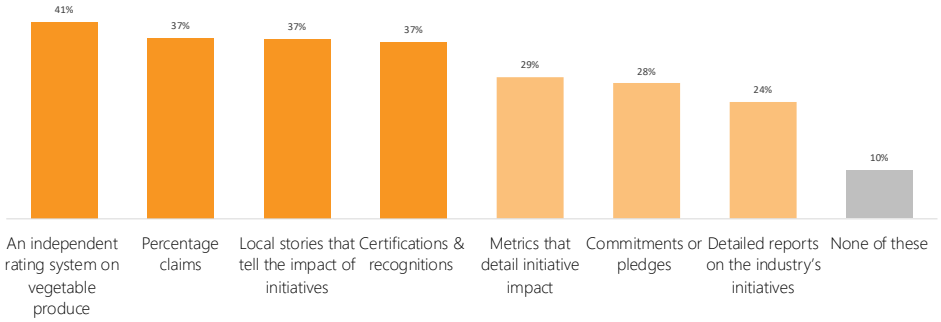


Consumers view growers as the most trusted voice in the industry—and want to hear more from them on sustainability



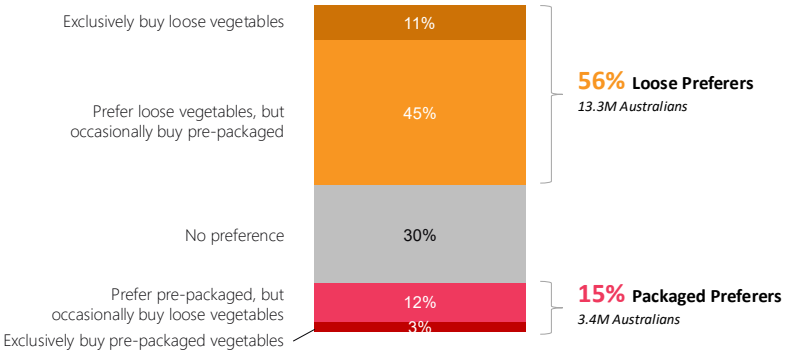
% of consumers willing to hear sustainability initiatives from different stakeholders

Short-form messaging & stories are likely to have the most impact at conveying sustainability initiatives

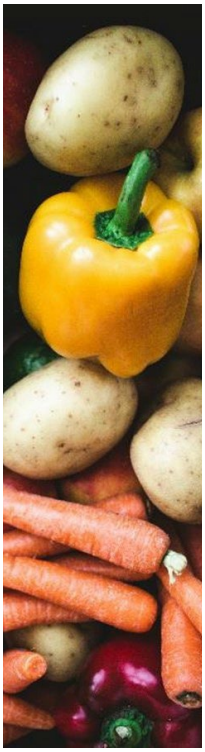


% of consumers showing preference to different communication format

More than half of Australian consumers prefer to buy loose veg, with a minority preferring packaged



When it comes to purchasing fresh vegetables, which format do consumers prefer to purchase them in?



Appendix 15: Communication Material – Research Findings

Draft communication material MT24003 - July 2025

Our sustainability story

Summary of key research findings MT24003

"Most trusted and sustainable sector in Australia"

94%

of consumers surveyed rated onion and vegetable industry as 'very sustainable' to 'neutral' - **the highest rated sector in Australia***

* 21% rated the Australian vegetable industry very sustainable, 51% sustainable and 22% neutral

Horticulture Sustainability Framework (HSF) Review 2025

Do we have data to underpin the HSF?

Data is currently recorded to meet compliance requirements, but not available to industry

Is the framework still suitable?

Very well received by the industry and covers all relevant material matters

How do stakeholders think the HSF story should be communicated?

Industry should lead the sustainability narrative and use HSF to maintain and enhance market positioning

Nourish & Nurture

Healthy, nutritious food
Safe, traceable, quality

People & Enterprise

Productive, profitable growers
Human rights
Safe work
Diversity & capibility
Governacne
Thriving communities

Planet & Resources

Sustainable agricultural practices
Water
Biodiversity and pollinators
Pest & disease management
Biosecurity

Climate & Waste

Emissions
Energy
Climate adaption
Food waste
Waste

"Cost-of-living pressure was an overwhelming sentiment, and paying more for sustainability outcomes was very difficult for consumers"

13%

of those surveyed said sustainability was one of the most important factors when shopping for groceries

> *I (consumer) care about sustainability but I just can't afford to buy premium sustainable vegetables —it's too expensive for something that gets eaten every day*

A1. How important is sustainability to you personally? A2. How important is sustainability when you shop for groceries? Base: All fresh veg purchasers (n=1004)

"Consumers' experience with vegetables and onions is very much seen through the shopping experience in grocery retail"

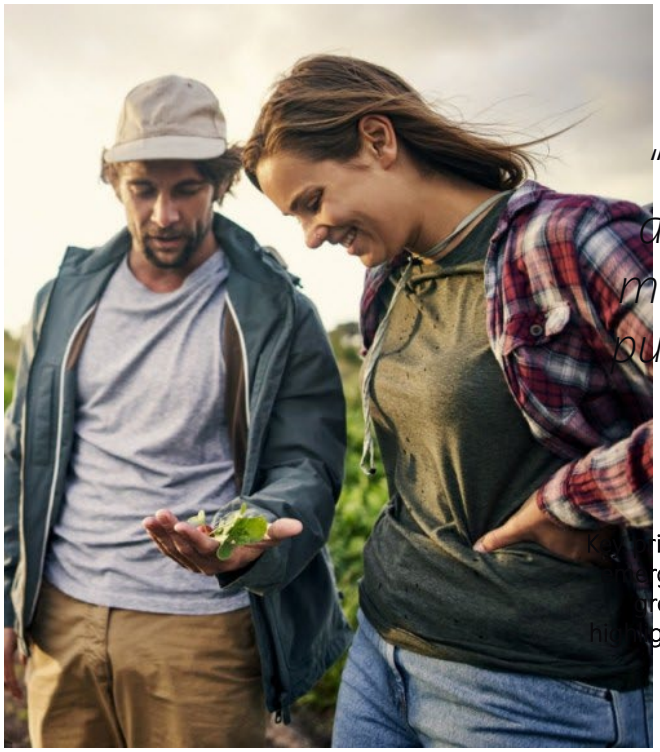
Therefore, sustainability matters most relevant for consumers are...

- Reducing the amount of vegetables that go to waste
- Improving the sustainability of the packaging
- Decreasing reliance on chemicals

"Consumers assume growers will be paid in a way that maintains financial viability — and expect Australian vegetables and onions to consistently meet high-quality standards"

Hence, sustainability matters consumers take as 'expected' or 'a given' include...

- Increasing Australians vegetable consumption
- High quality and safe product
- Fair wages and safe environment for growers
- Reducing greenhouse gas emissions



"Sustainability-related data is already being recorded across multiple systems for compliance purposes, but is not available for sustainability reporting"

Key priorities and emerging risks for growers highlighted are...

- Increasing cost burden to **meet food safety and quality assurance; and ethical and social standards**
- Potential **loss of access to markets and chemicals** due to export market requirements
- Emerging issues in requirements for **lending and sustainability-linked loans**
- Clarity and concerns regarding the cost impact of potential **future packaging changes**

"Grocery retailers are a key partner in in shaping the future of Australian vegetables and onions sustainability story"

Grocery retailers can play a significant role in...

Shaping supply models which can support financially sustainable farm businesses

Assessing the cost of compliance/sustainability initiatives and considering how costs can be absorbed across the value chain

Collaborating with the industry on clear, aligned messaging—particularly on front-of-mind issues for consumers such food waste and packaging – and also healthy eating

"There is a recognised need to more clearly differentiate the sustainability story in policy and communication"

*Horticulture contributes **less than 1%** of 17% **emissions** from agriculture*

The vegetable industry complies with some of the **highest food safety and quality assurance** and ethical and social compliance standards

How do we best communicate our sustainability story?

Consumers

- Communicating messages which align with their priorities (e.g. food waste and packaging) and healthy eating
- Meet them where they shop (e.g. in-store, online and on-packaging)
- Simple, credible messages that explain sustainability without adding cost

Growers

- Align sustainability data gathering with existing compliance and farm management systems
- Share past success and position of trust
- Defend market access and access to key farm inputs

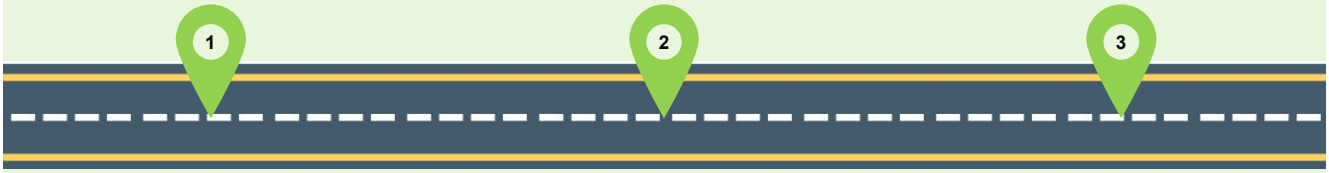
Retailers

- Maximise efficiency in compliance process, avoiding cost and duplication
- Opportunities for industry and grocery retailers to collaborate through a consistent approach to sustainability communication (e.g. reporting against the HSF, partnering on industry initiatives like Plus One Serve)

Government

- Recognition of horticulture as distinct from broader agriculture
- Capturing the long-term sustainability journey of the industry
- Provide evidence to reduce the risk of unnecessary regulation

Roadmap



Establishing the sustainability narrative

1. Leverage strong consumer perception
2. Differentiate horticulture from broader agriculture
3. Adopt the HSF as a storytelling scaffold
4. Develop an industry-level sustainability snapshot
5. Tailor communication by audience

Enable alignment, coordination & performance frameworks

1. Formally align RD&E funded projects with HSF
2. Design a national data coordination protocol
3. Co-design incentive models and benchmarks
4. Establish industry sustainability targets
5. Strengthen government engagement
6. Refine consumer messaging with case studies and metrics

Institutionalise reporting and unlock longterm value

1. Implement industry-wide data collection systems
2. Establish formal sustainability reporting mechanisms
3. Embed the narrative in media and retail channels
4. Support market access and finance
5. Benchmark, review and evolve

Appendix 16: Communication Material – Sustainability Story Brochure

Draft communication material MT24003 - July 2025

Our sustainability story

Detailing the sustainability journey of the vegetable and onion industries

Opening address: Australia's most trusted sustainable industry

We are pleased to present the vegetable and onion industries' sustainability story, and how we continue to implement positive change in line with the Horticulture Sustainability Framework.

The vegetable and onion industries were rated by a 1,000-consumer survey as the most sustainable sector in Australia as compared to all other sectors of the economy. In a representative consumer quantitative survey, the vegetable industry was rated as the most sustainable sector (rated by 94% of those surveyed as 'neutral' to 'very sustainable'), ranking above dairy (86%), meat and livestock (79%), tourism (80%), energy (74%) and fashion (72%). Clearly the vegetable and onion industries have extremely high levels of trust amongst consumers as a fundamental healthy part of their diet. Furthermore, the consumer takes it as a given that Australian vegetables and onions are sustainably grown.

In other words, the starting point for the Australian vegetable and onion industries' sustainability story is very strong – at least in the eyes of consumers – and therefore the purpose of the industry Hort Sustainability Framework (HSF) is to provide the structure and systems by which this impressive positioning can be maintained and enhanced.

Our research found that the HSF (2023) remains relevant in its description of material matters and based on industry interviews, has support of stakeholders in the sector. The data available to report on status or progress towards a more sustainable industry is patchy and more work is required to co-ordinate data gathering and to report against the framework.

The consumer insights research also found that cost-of-living was an overwhelming sentiment and paying more for sustainability outcomes was very difficult for consumers. Who pays for future changes in sustainability in the food system remains a vexed question for all sectors of agriculture and the food value chain.

The consumer's experience with vegetables and onions is very much seen through the shopping experience in grocery retail. Matters such as packaging and food waste are therefore more front of mind. Other factors such sustainable farming practices are taken as "expected" or as "given", which is wrapped in the trust in Australian producers. Consumers also assume that growers will be paid in a way that maintains financial viability and this matter is not front of mind in when they buy their vegetables and onions.

The importance of the consumer retail-experience demonstrates the importance of industry working with retailers in the delivery of sustainability messaging to consumers. The HSF aligns with the retailers' published sustainability objectives albeit retailers focus more on packaging and waste given this is front of mind for shoppers.

Growers were also supportive of the HSF although it is not directly applied to day-to-day business. **It was also noted that growers already collect substantial sustainability-related data—primarily through participation in certification and assurance schemes such as HARPS, Freshcare, Fair Farms, and SEDEX—as a condition of market access. However, these data are typically used for compliance purposes rather than for aggregate reporting or communication of industry-wide progress. Interviewed stakeholders saw an opportunity to better utilise this data to inform sustainability reporting and strengthen the industry's public narrative.**

Growers interviewed pointed out the need for clarity in direction from retailers and industry, identified emerging matters e.g. requirements for lending and sustainably linked loans, some risks in export markets such as the loss of use of some chemicals used in Australia. They also raised the need for an evidence base that can defend against excess regulation and the need to manage data and control the narrative for key sustainability issues.

The message for Government was that the Australian and vegetable industry had already made significant gains in on-farm and supply chain practices. The industry is already heavily governed in regard to food safety, quality, chemical use and employment practices via Australian and global standards that are often a requirement of supply to retailers. The message to policy makers is clearly that the Australian vegetable and onion industries have lower footprints that other food sectors e.g. lower emissions and that is now seen to be the most trusted by consumers.

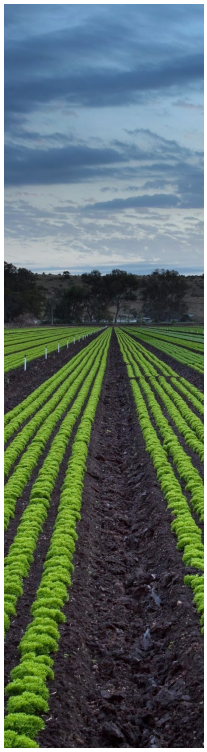
Discussions with researchers also provided evidence of support for the HSF including ideas for how it could be utilised more – for example in the assessment of projects for funding and how they align to HSF.

In developing the "so what" in telling the industries' sustainability story, we looked at best-practice in other Australian agriculture sectors and framed messaging for each audience (e.g. consumers, retailers, growers and Government). In some cases, the sustainability story is underpinned by industry-wide data or research, in other cases there will be a reliance on case studies.

The Australian vegetable and onion industries are held in high regard when it comes to overall sustainability. The HSF (2023) remains a good framework by which to develop industry strategies, research, data gathering, reporting and communications. There are many gaps for industry to contemplate as it prepares to maintain a strong brand position into the next decade.

In considering this report we recommend the industry considers a roadmap for the development of goals, metrics and reporting that can maintain the industries' high standing and move the sector towards best-practice, effectively manage risks and grow consumption.

- Vegetable industry leader 1 and leader 2



Australia's vegetable and onion industries are advancing sustainability, in lin with the national Horticulture Sustainability Framework (HSF)

Australia has a vibrant vegetable and onion industry that supplies more than 98% of the fresh vegetables sold in Australia. Growers also export to markets around the world.

To further strengthen its sustainability practices and credentials, the industry has adopted the **Horticulture Sustainability Framework (HSF)** to identify, measure and communicate sustainability performance.

Developed through a detailed materiality assessment and industry consultations, the Framework is aligned with the Global Reporting Initiative (GRI) and mapped against the United Nations Sustainable Development Goals (SDGs).

The HSF covers the full breadth of Australian-grown horticulture, including vegetables and onions, and is applicable at the business, industry, and whole-of-sector levels.

It is structured around four core pillars, which together encompass 17 focus areas and over 100 detailed indicators:

- **Nourish & Nurture**: Highlights the role of Australian-grown produce in supporting healthier diets and ensuring food safety and traceability
- **People & Enterprise**: Focuses on safe and ethical work, productive and profitable enterprises, community impact, innovation, leadership, and economic contribution.
- **Planet & Resources**: Addresses key environmental and resource areas such as water efficiency, land and soil health, climate resilience, energy use, and biosecurity.
- **Less Waste**: Targets reduction of food, packaging and farm waste, with an emphasis on sustainable packaging solutions and reuse practices.

94% *of those surveyed rated onion and vegetable industry as 'very sustainable' to 'neutral'**

The Australian vegetable and onion industry is rated the most sustainable sector in Australia compared to other sectors

** 21% rated the Australian vegetable industry very sustainable, 51% sustainable and 22% neutral*

Pillar 1: Nourish and Nurture

Increasing consumption of healthy, safe and high quality vegetables and onions

National programs

Commitment to healthy food

Plus One Serve is a circa $125m investment into a national behaviour change initiative to increase vegetable consumption by one serve (75g) by 2030. Every dollar invested in the Plus One Serve campaign will deliver a $12.30 return. It's a powerful example of how the Australian vegetable industry is investing in public health, grower prosperity and long-term food security.

+ONE SERVE OF VEGETABLES

Expected benefits by 2030

$1.4B	$3.3B	13,000
Healthcare savings	*Supply chain boost*	*New jobs*

Food safety and quality assurance

Australian vegetable and onion industries comply with some of the world's highest food safety and quality standards (i.e. SQF, BRCGS, Global G.A.P., Freshcare, HARPS). On-farm and post-harvest systems are built around HACCP principles and are independently audited to ensure strong traceability, hygiene and chemical control. Additional standards set by federal (FSANZ) and state-based authorities, make Australian vegetables and onions a trusted choice for markets worldwide.

BRCGS · GLOBALG.A.P. · HARPS HARMONISED AUSTRALIAN RETAILER PRODUCE SCHEME · SQF · Freshcare

Case study

'Fresh Veg, Deliciously Affordable' campaign

AUSVEG partnered with the Outdoor Media Association (OMA) And Health and Wellbeing Queensland to counter declining vegetable consumption. This national education and advertising initiative aimed at shifting consumer perceptions by addressing the belief that vegetables are expensive, instead, repositioning them as a tasty, affordable summer snack.

Pillar 2: People and Enterprise

Valuing the people that underpin the Australian vegetable and onion industries

National programs

Ethical and social compliance

Australian vegetable and onion industries comply with national workplace laws and occupational health and safety regulations set by federal and state authorities. Many also engage with market -led programs such as Fair Farms and SEDEX. These frameworks support best practice in areas like wages, working conditions, grievance handling and labour hire management. By adopting these standards, growers demonstrate ethical leadership and provide transparency and integrity across the supply chain.

FAIR FARMS

Sedex

Bridging workforce gaps, building regional futures

The Pacific Australia Labour Mobility (PALM) scheme enables eligible Australian businesses to address labour shortages by recruiting workers from nine Pacific island nations and Timor-Leste. The scheme plays a critical role in supporting rural and regional industries — particularly in agriculture. Beyond addressing domestic workforce constraints, the PALM scheme delivers shared value by enabling workers to gain employment experience, build skills, and remit income to their home communities, reinforcing broader regional development outcomes.

PALM
Pacific Australia Labour Mobility

18,000 PALM scheme workers employed in agriculture sector in Australia*

9,000 long-term workers (1-4 years roles)

Case study

Veg Education Multilingual Safety Training

Velisha Farms' Veg Education arm partnered with WorkSafe Victoria to develop a multilingual farm safety program that better protects vegetable harvest workers. Launched in 2024, it uses visual aids and translations to teach seasonal workers about machinery operation, proper protective gear, and safe chemical handling – regardless of English proficiency.

* Based on May 2025 statistics (PALM). 18,000 PALM scheme workers in agriculture sector represent people across all the agricultural industries (e.g. vegetable, onion, fruits, nuts, etc)

Pillar 3: Planet and Resources

Caring for the land and environment in which we grow Australia's vegetables and oni

National programs

Managing biosecurity risk

Australia's biosecurity system is governed by the Biosecurity Act 2015 (DAFF). AUSVEG leads the Vegetable Industry Biosecurity Plan, supported by Plant Health Australia and state authorities. On-farm protocols are underpinned by national surveillance, quarantine and emergency response systems. The industry also meets strict import/export controls including fumigation, irradiation and phytosanitary certification.

Key systems

VegNET *delivers on-the-ground biosecurity and best-practice training direct to growers*

The ***BICON database*** *sets mandatory import treatment conditions.*

State-based biosecurity protocols *govern farm hygiene, pest notification, movement controls and emergency response.*

Safe chemical use

Chemical use is regulated to protect human health, ecosystems and market access. Compliance is supported through on -farm recordkeeping (spray diaries), growing uptake of digital traceability tools, and independent third -party audits under certification schemes. The industry is actively shifting toward biological controls, precision application, and Integrated Pest Management (IPM), reducing chemical loads while maintaining crop protection standards.

Key systems

APVMA *sets which agchem can be legally used in Australia, with approvals published in the* ***PUBCRIS database***

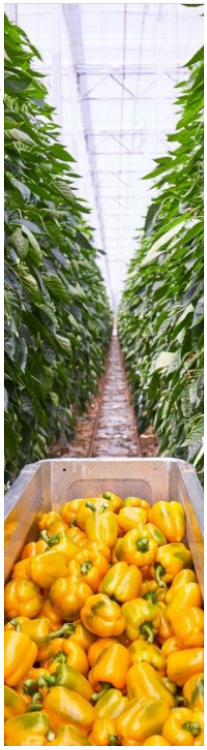
NAMP - *AUSVEG and Hort Innovation work together to secure critical minor use permits — ensuring access to vital crop protection tools*

ChemClear & drumMUSTER - *National programs for safe chemical disposal and container recycling*

Case study

Australia's first Carbon Robotics Laser Weeder

Tripod Farmers Group leads in sustainable horticulture, as one of the first in Australia to adopt the Carbon Robotics Laser Weeder to reduce herbicide use and improve soil health. They worked closely with US to adapt it to Australian conditions. Their CHEP partnership saved 1,877 tonnes of CO2 -e, 10,807kL of water, and diverted 514 tonnes of waste.



Pillar 4: Climate and Waste

Proactively reducing waste from our food and packaging

National programs

Sustainable packaging across the supply chain

The Australian Packaging Covenant Organisation (APCO) leads national efforts to improve packaging sustainability through industry-led, government-supported targets. In the fresh produce sector, businesses are increasingly adopting circular packaging solutions—recyclable, compostable or reusable—under voluntary commitments that aim to future-proof operations and mitigate environmental risk.

APCO

2030 key targets metrics

86%	***100%** reusable, recyclable, or compostable packaging*
19%	***70%** plastic packaging being recycled or composted*
44%	***50%** average recycled content included in packaging*

An Australia without food waste

Through the Australian Food Pact, End Food Waste Australia (EFWA) works with volunteering businesses to reduce food waste and improve efficiency from paddock to plate. EFWA's goal is to halve food loss and waste in Australia by 2030, in line with the National Food Waste Strategy. By fostering cross-sector collaboration, EFWA enables strategic investments to prevent food waste across the entire supply chain.

ENDFOODWASTE AUSTRALIA

2022-2024 progress

13%	*decrease in food waste (16,000 tonnes) for signatories*
982Kt	*of 'food not sold' repurposed*
$57m	*saved for signatories by reducing food waste*

Case study

Vegetables reimagined

Nutri V, a joint venture between Fresh Select and CSIRO, transforms surplus vegetables into shelf-stable powders for use in soups, snacks and baked goods. The initiative reduces food waste while creating new market opportunities for vegetable growers. Each pack offers a convenient, nutrient-dense format that extends shelf life and adds value to otherwise lost produce.

The Australian vegetable and onion industries are committed to advancing sustainability outcomes

Case studies

On-site solar generation for emissions reduction

Hussey & Co began its transition to renewable energy with a 99.64 kW roof-mounted solar system. Following the environmental success of the project, the business expanded with a 505 kW ground-mounted solar array. The system now offsets 100% of peak daytime electricity use and cuts 754 tonnes of carbon emissions annually—the equivalent of taking 161 cars off the road. This supports the company's broader commitment to sustainable, low-emissions farming.

National Farm Safety Week Campaign

National Farm Safety Week is run annually by FarmSafe Australia to promote safer practices across the agriculture sector. As part of the campaign, FarmSafe releases a report highlighting key trends in farm-related incidents. A live Rural Media Farm Injury Dashboard—developed by AgHealth Australia and the University of Sydney —was recently launched to provide real-time insights into on-farm injuries and fatalities across Australia.

Advanced water capture, treatment, and recycling

Flavorite operates over 70 ha of glasshouses across regional Victoria, producing tomatoes, capsicums, and cucumbers. In FY24, the business used 941 ML of water across four sites, with only 8.9% lost as waste. The system combines individual dripper irrigation, gutter-based runoff capture, and UV sterilisation, allowing nearly 29% of total water use to be recycled and re-used safely within production.

[Placeholder for logo]

Horticulture Sustainability Framework

Plus One Serve

Palm Scheme

APCO

End Food Waste

Safer Farm Report 2025

Contact details

xxx@xxx.com.au

xxx@xxx.com.au

[Placeholder for logo]

Appendix 17: Co-design workshops

Workshop Series Overview

A series of virtual co-design workshops were conducted between [insert months, e.g. March–May 2024]. These sessions brought together the project team and subject matter experts:

Consumer insights: FiftyFive-5 (consumer research and behavioural insights)
Communications/media: Justine Coates, The Growth Advisory (horticulture and media strategy)
Project team: CVA sustainability and strategy specialists

The purpose was to synthesise research findings, test hypotheses, and co-design the communication strategy and roadmap for the vegetable and onion industries.

Workshops 1 Qualitative Consumer Insight Playback

Purpose: to synthesise qualitative research insights, develop hypotheses on consumer sustainability perceptions, and agree on implications for the communication framework and survey design.

Discussion highlights:

- Consumers recognised different elements of 'sustainability' as a theme but lack a clear, consistent understanding of what it encompassed.
- Food waste and packaging were front-of-mind issues, viewed as directly relevant to daily life and household budgets. Messages showing tangible "win–win" benefits (e.g. freshness, lower cost, convenience) were considered most effective.
- A high level of trust in the Australian vegetable industry was evident. Consumers assumed that standards around food safety and quality were being upheld. While this trust is an asset, it risks complacency if not supported by visible evidence and proactive communication.
- Discussion focused on perceptions of retailer influence over packaging and waste outcomes.
- Initial hypotheses formed based on the qualitative results:
    - Messaging to consumers should focus on HSF Pillar 4 (Climate & Waste), specifically food waste and packaging, supported by Pillar 3 (Planet & Resources) for reassurance on chemical use and environmental care.
        - Packaging could be reframed as a positive tool (e.g. reducing waste, keeping produce fresh) if evidence is clearly communicated.
        - Consumer education is needed on where food waste occurs (home and farm more than retail) and why packaging is used.
    - Messages should emphasise tangible, household-level benefits—freshness, value, waste reduction—rather than abstract environmental outcomes.
    - Growers should remain central messengers to build credibility, while retailers' role in packaging and waste must also be addressed.
- Insights from this workshop informed the design of the quantitative survey – notable findings included:
    - Testing consumer perceptions of the vegetable industry's sustainability performance against other agricultural and non-agricultural sectors.
    - Validating consumer trust in growers and its implications for message framing.
    - Developing message stimuli aligned with the HSF pillars and designing trade-off testing (e.g. packaging vs. pricing vs. waste reduction).

Workshop 2 Quantitative Study Design

Purpose: co-design workshop to develop the consumer qualitative survey

Discussion highlights:

- Co-design of the quantitative survey structure included:
    - Awareness and importance measures to assess how consumers define and prioritise sustainability in grocery decisions.
    - Trust metrics across supply-chain stakeholders (growers, retailers, processors, government) to identify credible messengers.
    - Perception benchmarking comparing the vegetable industry's sustainability performance to other sectors.
    - Message-testing modules covering 15 potential sustainability initiatives mapped to the four HSF pillars (e.g. food waste, recyclable packaging, chemical reduction, land care, product quality).
- Refinement of the MaxDiff (DIFF Max) experimental design to test the relative strength of each message across four metrics:
    - Desire to hear about the initiative
    - Importance for the industry to act
    - Impact on perceptions of the industry

Likelihood to influence purchasing behaviour

Draft message statements were reviewed and finalised for testing. Examples included:

"Reducing vegetable waste from farm to home"
"Replacing soft plastics with recyclable or biodegradable materials"
"Helping growers protect the land and local environment"
"Investing in research and training to reduce reliance on chemicals"

Survey design discussions covered stimulus rotation, randomisation, and quota balancing to maintain national representativeness (n = 1,000 fresh-veg purchasers aged 18–65 years) and avoid respondent fatigue.

Additional input was provided on communication channels and messenger testing, ensuring respondents could indicate preferred messengers (growers, retailers, government, NGOs) and preferred communication locations (in-store, packaging, social media

Workshop 3 – Quantitative Consumer Insight Playback and Implications

Purpose: to review and interpret results from the quantitative consumer study, validate earlier qualitative hypotheses, and translate findings into actionable directions for sustainability message design and prioritisation.

Discussion highlights:

The quantitative results confirmed a high baseline perception of sustainability performance for the Australian vegetable industry. Consumers rated the industry more favourably than other agricultural and non-agricultural sectors. The group discussed potential use of this as a key message in sustainability communication, whilst noting that while this strong reputation is a positive starting point, it presents a risk of complacency within the industry if not balanced by continued evidence of progress.

Food waste and packaging remained the most important sustainability topics for consumers – consistent with the qualitative findings. These themes were considered most relatable to consumers and showed clear potential for messages that demonstrate benefits such as freshness, value and convenience.

Trust in growers was reinforced as a key strength, with consumers continuing to view growers as the most credible source of sustainability information. Retailers were seen as necessary intermediaries but less trusted messengers.

The discussion also covered differences in consumer engagement levels – most audiences preferred straightforward, evidence-based claims (a smaller segment sought more detailed information).

Examples of well-performing messages were reviewed – showing consumer resonance for those linking sustainability to personal benefits such as food freshness, family health, and waste reduction.

Communication implications were discussed in relation to consumers' main interaction channel – retail – highlighting the importance of retailer collaboration in demonstrating industry progress.

Key outcomes:

Findings will inform the finalisation of the sustainability communication framework and message hierarchy.

Consumer-tested messages will be integrated into the broader industry and retailer communication plan.

Message areas will be cross-referenced against existing data sources to identify evidence gaps and guide future investment in data generation (e.g. packaging impact, food waste metrics).

Workshop 4 – Industry Engagement and Roadmap Development

Purpose: To review stakeholder and industry engagement findings, consolidate insights from previous workshops, and agree on priorities and sequencing for the sustainability communication roadmap.

Discussion highlights:

Insights from grower and stakeholder interviews showed broad support for improving transparency and demonstrating progress through credible data.

Discussion focused on how strong consumer trust in the vegetable industry's sustainability should be positioned carefully to avoid industry complacency. Communication to industry audiences should emphasise protecting and continuing to build this reputation through continued efforts such as continued data collection and performance reporting.

Retailers were identified as pivotal partners for communicating progress on food waste and packaging (HSF Pillar 4 – Climate & Waste). However, participants observed that current evidence on packaging performance and waste reduction is limited, constraining what can credibly be communicated to consumers.

The discussion reinforced that governments and markets are primarily interested in environmental and workforce outcomes (HSF Pillars 1 and 2). Participants agreed that improving datasets on water use, biodiversity, and labour practices would strengthen engagement with these stakeholders.

A preliminary structure for the communication roadmap was developed:

Phase 1: Consolidate existing data and build internal alignment on key messages.
Phase 2: Develop industry-to-retailer communication materials focused on packaging, food waste, and ethical sourcing.
Phase 3: Broaden to consumer and government audiences once data gaps have been addressed.

The group discussed governance and ownership of sustainability communication within industry. It was agreed that messaging should be coordinated at the sector level to ensure consistency, while allowing regional and business-specific examples to illustrate progress.

Ongoing review of communication content was identified as essential to ensure accuracy as new data becomes available.

Next steps:

Finalise and circulate the draft sustainability communication roadmap for review and sign-off.

Map existing and planned data initiatives to communication priorities to inform future evidence-generation activities.

Prepare a short set of guidance notes outlining key messages, audiences, and responsibilities for use in industry and retailer engagement.