

Final report

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Global biological control investigation and pathway identification study tour

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Public summary

The *Global biological control investigation and pathway identification study tour* was undertaken to address a critical and emerging challenge for Australian horticulture: maintaining productivity, market access and profitability in an environment of tightening regulatory settings, declining availability of conventional chemistry, and increasing supply chain expectations.

Australian horticulture is operating in an increasingly complex environment, shaped by tightening chemical regulations, evolving market expectations, and growing pressure on sustainability performance. At the same time, there is limited clarity within the Australian context around how biological crop inputs can be effectively integrated into production systems at scale.

The *Global biological control investigation and pathway identification study tour* was undertaken to build industry capability by exposing Australian growers and advisors to leading international practices in the use of biological crop protection and nutrition products. A targeted study tour to Europe (EU) and the United Kingdom (UK) was conducted, engaging with global crop input companies, researchers, advisors and commercial horticulture operations. Insights were captured through structured site visits, stakeholder engagement and a supporting desktop market analysis of biological products, regulatory frameworks and adoption pathways.

The study tour confirmed that biological crop inputs are now a core component of modern horticultural systems in leading EU production systems. Their adoption is being driven by regulatory constraints, retailer expectations, and the need to manage risk associated with maximum residue limits. Importantly, biologicals are not being used as direct substitutes for conventional chemistry, but are integrated into broader production systems through Integrated Pest Management approaches.

For Australian horticulture, the key implication is that biologicals represent a structural shift rather than an incremental change. Successful adoption will require stronger collaboration across the farm input and supply chain ecosystems, and the development of locally relevant evidence to support advisor knowledge and grower decision-making, underpinned by products that work.

The project has generated new insights into international adoption pathways, regulatory drivers and emerging product trends, alongside identification of priority opportunities for Australian validation and extension activities. These findings will support future research, development and extension investment, helping to ensure Australian growers remain competitive in global markets and are equipped to navigate a rapidly evolving crop input landscape.

Introduction

Context

Australian horticulture is a high-value and globally competitive sector, operating in an increasingly complex production and market environment. Growers are facing a convergence of challenges including tightening chemical regulations, evolving consumer expectations, and stricter domestic and export market requirements. These pressures are occurring alongside broader structural drivers such as climate variability, resistance development, and the need to improve resource efficiency and environmental outcomes.

Globally, there is a clear shift toward reduced reliance on conventional crop protection chemistry. Market access is increasingly influenced not only by food safety standards, but by retailer and consumer expectations for low or zero residues, traceability, and sustainable production systems. At the same time, growers in leading horticultural regions are responding to declining availability of traditional chemical actives and increasing regulatory scrutiny by integrating alternative crop protection approaches, including biological solutions, into their production systems.

Agricultural biologicals (for the purpose of this project broadly including biopesticides, biostimulants and biofertilisers) represent a growing class of inputs that can support crop protection, plant health, and soil function while contributing to broader sustainability outcomes. These technologies are increasingly recognised as a critical component of future-ready production systems, supporting resilience to pests, diseases, and climatic stress, while aligning with market and regulatory expectations.

Despite this global momentum, the Australian horticulture industry currently faces a knowledge and capability gap in relation to biologicals. There is limited clarity on where these products fit within production systems, how they perform under Australian conditions, and how they can be practically integrated at scale. This uncertainty is contributing to slower adoption and limiting the ability of growers to confidently transition toward more diversified and sustainable crop protection strategies.

Industry-led approach

The *Global biological control investigation and pathway identification study tour* was undertaken to address this gap by exposing Australian growers and advisors to international best practice. The project sought to build industry capability by examining how biologicals are being considered and successfully deployed in more advanced markets, identifying key drivers of adoption, crop input supply chain considerations, and translating these insights into practical, locally relevant pathways for Australian production systems.

The significance of this work for industry is substantial. As regulatory, market and sustainability pressures continue to intensify, it is important that the Australian horticulture sector can make informed choices on the integration of biologicals into production systems. This project provides an important step in building the knowledge base, confidence and capability required to support increased knowledge to help the sector move forward with confidence.

Methodology

The *Global biological control investigation and pathway identification study tour* applied a structured approach combining desktop research, stakeholder engagement, and field-based observation to generate practical insights into biological crop inputs and their applicability to Australian horticulture systems.

The approach drew on the strengths of both Elders (as a leading Australian crop input retail and advisory business) and leading global crop input suppliers (including Corteva, Bayer and UPL) – connecting through the comprehensive ecosystem, from research, through to commercialization, product retail, advisory and also on-farm production. The approach aimed to capture global innovation trends and practical applications of biological products through a targeted focus on EU and UK markets, with the aim of translating these insights into locally relevant opportunities for Australian growers, advisors and industry stakeholders.

The methodology combined international exposure with structured analysis and stakeholder engagement to ensure that global insights were translated into locally relevant outcomes. This approach supports the development of practical, evidence-based pathways for the adoption of biological crop inputs within Australian horticulture systems.

The methodology was designed to align with Knowledge, Attitudes, Skills and Aspirations (KASA) principles, ensuring that outcomes supported both technical understanding and confidence to adopt new practices.

1. Desktop analysis – Knowledge

A structured desktop analysis was undertaken to assess biological crop inputs available in EU and UK markets, drawing on information from major global suppliers, industry sources, and regulatory frameworks.

This analysis:

- Reviewed current product offerings and emerging pipeline products from leading global crop input companies
- Assessed regulatory frameworks and market conditions influencing biological adoption in Europe and the UK
- Examined key drivers of adoption, including regulatory pressure, retailer expectations and sustainability requirements
- Explored likely fit within Australian production systems, informed by grower and advisor perspectives

This analysis supported the identification of biological opportunities relevant to Australian horticulture.

2. Stakeholder engagement – Knowledge and attitudes

A structured international study tour was delivered, involving a delegation of Australian horticultural growers and Elders representatives.

The program included attendance at Fruit Logistica (Berlin) and targeted site visits and meetings across EU and UK with:

- Global crop input suppliers
- Agronomists and advisors
- Researchers and industry organisations
- Horticulture growers and processors

These engagements were designed to provide exposure to real-world production systems and enable direct discussion around the role of biologicals, regulatory drivers, and commercial adoption pathways.

Insights were captured through structured discussions, observation and facilitated engagement, providing practical understanding of emerging trends, technologies and their applicability to Australian production systems.

3. On-the-ground research and knowledge transfer – Knowledge, attitudes, skills and aspirations

Field-based research was undertaken through direct observation of production systems and engagement with stakeholders during the study tour.

This component:

- Explored the application of biological crop inputs and complementary AgTech solutions within commercial production environments
- Captured qualitative insights through interviews, discussions and observational learning with EU/UK stakeholders and Australian participants
- Facilitated structured knowledge-sharing sessions within the delegation to test ideas, capture real-time reactions and support learning

These activities enabled the identification of key barriers and enablers to adoption, including system design considerations, advisory capability requirements, and the importance of local validation.

4. Collaboration and industry partnerships – Knowledge, skills and aspirations

The project leveraged collaboration with global crop input suppliers, Hort Innovation and industry stakeholders to ensure relevance and depth of insight.

Engagement with companies such as Corteva, Bayer and UPL provided access to:

- Product portfolios and development pipelines
- Regulatory perspectives across different markets
- Strategic insights into global biological adoption trends

Learnings were also informed by input from the Elders agronomy network and the Thomas Elder Sustainable Agriculture (TESA) team, ensuring findings were grounded in Australian industry experience and aligned with practical grower needs.

5. Data collection and analysis – Knowledge, skills and aspirations

Qualitative data was collected throughout the project, including:

- Market intelligence from desktop analysis
- Stakeholder insights from supplier, advisor and grower engagement
- Participant observations and feedback during the study tour and post-trip debriefs

These datasets were analysed to identify key themes, adoption pathways, barriers and opportunities relevant to Australian horticulture.

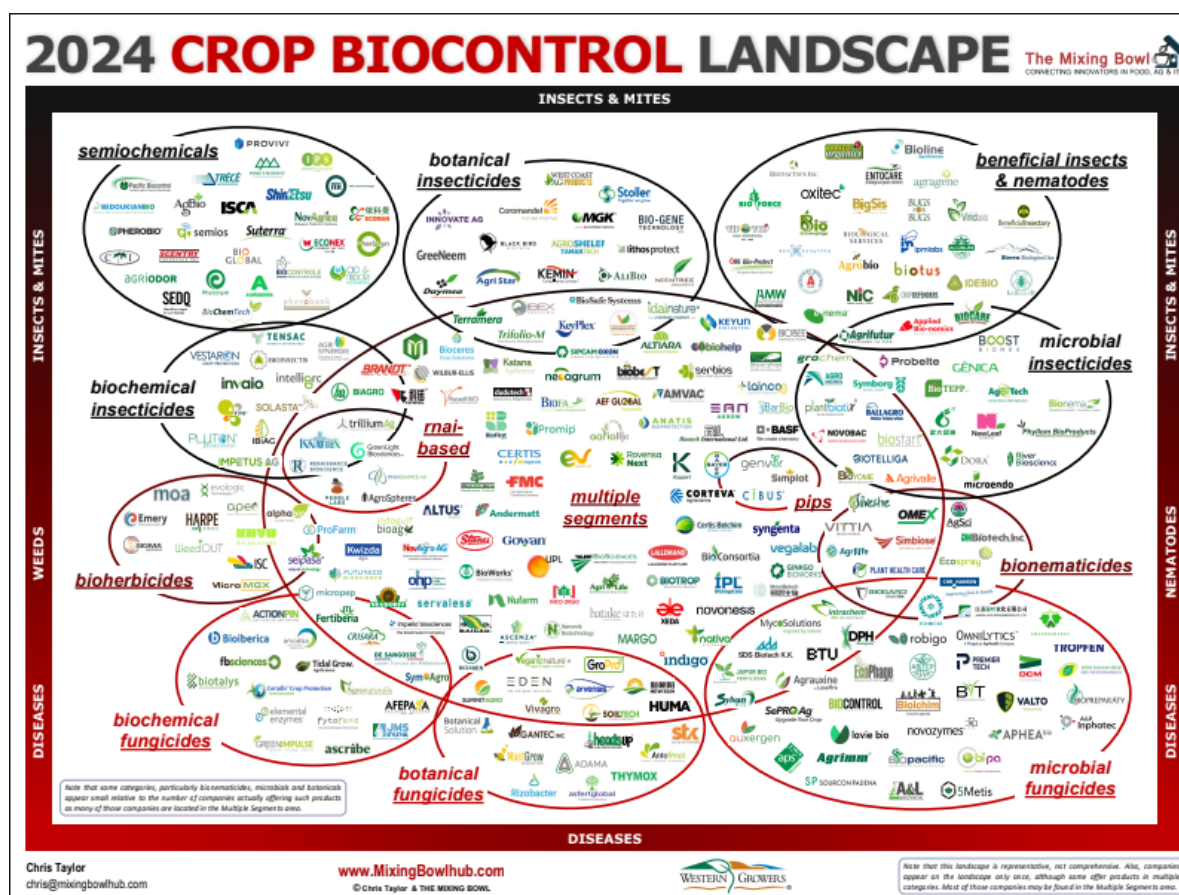
6. Participant engagement and accountability

Participating growers were actively engaged throughout the project and contributed to knowledge generation and insight development.

Participants:

- Took part in structured discussions, interviews and reflection sessions during the study tour
- Contributed to real-time feedback and knowledge-sharing sessions
- Provided post-tour reflections on relevance and potential application within Australian production systems

This approach ensured insights reflected practical, grower-informed perspectives rather than purely theoretical observations.



The Mixin Bowl

The study reinforced that global biological adoption is strongly influenced by tightening regulatory settings and evolving market requirements. In Europe, growers are experiencing a gradual loss of conventional crop protection tools, alongside increasing scrutiny from retailers on maximum residue limits (MRLs) and overall use of synthetic crop protection products.

The group also witnessed potato growers in Germany actively lobbying the most senior levels of government to provide greater access to a wider range of crop protection products as their ability to deal with emerging pest pressures was not able to be adequately managed with the narrowing suite of products.

This reinforces that biological adoption is not purely innovation-driven—it is increasingly a risk management response to market access requirements, but must also be managed carefully with available alternatives for major pest incursion situations when there is not a viable biological solution.

System redesign versus product substitution

A central finding, consistent across both the original research and field observations, is that biologicals are most effective when deployed within integrated systems rather than as one-for-one substitutes for chemistry.

Across advanced markets, including what was witnessed in Spain, biologicals are embedded within systems that combine:

- Pest monitoring and forecasting
- Pheromones and traps
- Beneficial organisms
- Biological crop protection
- Plant nutrition and soil health strategies

This confirms that successful adoption requires a whole-of-system redesign, rather than incremental product substitution.

This is an important finding, and was further built on when the major global input providers provided insights to their product suite available and in development in the EU, which indicated a broad suite of solutions, rather than single product offerings based around a narrow but effective chemistry.

Regional comparison: EU (Spain) vs UK vs Australia

A key addition from the study tour is the observed clear distinction between adoption maturity across regions.

Spain / EU – advanced system-level adoption

From the tour observations, Spain represents a more mature model of biological integration, characterised by:

- Strong supply-chain pressure (supermarkets and export markets)
- Reduced access to synthetic chemistry
- Highly developed IPM systems
- Strong advisory capability
- EU legislation

These systems demonstrated that biological adoption can be used even under constrained production environments (poor soils, limited rainfall), with growers reporting that while transition challenges exist, long-term productivity can be maintained.

UK – cautious, transitional market

In contrast, from the tour observations, the UK appeared more aligned with current practice in Australia, with:

- Continued access to synthetic chemistry with limited supermarket pressure
- Lower urgency for system redesign
- More cautious, trial-based biological adoption
- Not legislated ... yet
- Advisor sentiment reflecting “some interest but not necessity”
- Mounting pressure from EU for the UK to comply with food standards.

This would seem to indicate that Australia is not lagging globally, but rather sits within a similar adoption phase to the UK (in a post-Brexit environment).

Australia – current position

Experience from local advisors and growers suggests Australia currently reflects:

- Mixed advisor and grower interest and capability (ranging from very skeptical to eager to embrace)
- Limited local validation data that is independently verified
- Continued reliance on conventional chemistry
- Acknowledgment of reduction in traditional chemistry due to EU legislation
- Resistance due to prior experience aligned with perception of “snake oils”
- Growing interest, but limited system-level adoption with a “its coming attitude”

This positions Australia at an early-to-intermediate adoption phase, with opportunity to build industry capability ahead of any potential stronger market or regulatory drivers. However, this is also recognized that Australia is a very small market for crop protection and nutrition products on a global scale and Horticulture is a complex market with a large number of commodities. Therefore, getting ahead of the curve is likely to take a more proactive and ambitious approach than international peers with scale and proximity advantages.

Advisory capability and ecosystem requirements

The importance of advisory capability was consistently reinforced across both research and field observations.

In markets like Spain, biological adoption is supported by:

- Agronomy networks with specialist IPM skills and biological product confidence
- Strong supplier-advisor collaboration, with major crop input companies working closely with retailers and advisors on product knowledge and capability
- Aligned retail and advisory models

Observations in Spain highlighted that advisors operate with a systems-level understanding, while retail environments are evolving to support biological inputs operationally (e.g. storage, handling of live products). A particularly strong observation was one of the crop input retail stores in Spain had a dedicated large coolroom to store and manage a range of biological products. This type of storage capacity inside a retail store with a large drive-through shed facility provided an insight into potential future retail requirements in Australia if future crop protection and nutrition options continue further down a biological path.

This reinforces that biological adoption is not just a grower decision — it is a whole-of-value-chain capability shift, with implications for all advisory and retail models.

Evidence, confidence and local relevance

The study tour and ongoing discussions within Elders and with growers highlights confidence and evidence as key barriers to adoption of biological products.

Across all markets, including what was observed in Europe and overlaid by Australian experience:

- Repeatability of biological performance remains a challenge and even trial consistency is variable
- Growers require clear return-on-investment data

A consistent theme emerging from the study tour and participant discussions was the importance of product integrity in underpinning industry confidence in biologicals. Concerns were raised around variability in product quality, lack of clarity in labelling (including active organisms, concentrations and function), and the presence of products in the market with limited supporting evidence. These risks are amplified in a market that includes both well-established global suppliers and a growing number of smaller or emerging entrants.

Strengthening product integrity (as a precondition to adoption) through clearer standards, validation, and potentially industry/regulatory frameworks was identified as a critical enabler of advisor trust, retailer confidence and grower adoption.

Importantly, growers and advisors emphasised that international performance does not directly translate to Australian conditions. Local validation is critical to building confidence and supporting adoption decisions. This is consistent with the findings of Elders Hort Frontiers project Innovation at Work (LP2000) and has led to grower and advisors collaborating to run biological demonstrations and trials to establish knowledge and test product performance and fit within local farming conditions.

This reinforces the priority for Australia to invest in locally relevant, credible trial and validation programs.

Broader system trends: automation and labour

A key additional insight from Fruit Logistica was the strong focus on automation, labour efficiency and processing technology, which complements the biological narrative.

The growers on the study tour and other Australian growers met at Fruit Logistica demonstrated a strong appetite for automation, precision tools, new horticultural seed varieties and technologies that reduce labour reliance while improving consistency and quality. Their interest spanned both operational machinery and advanced monitoring systems, indicating a shift toward integrated, technology-enabled production systems.

Participants identified global top of class examples of:

- Planting and harvesting technologies
- Non-drug (non-chemical) weed and pest control options (including mechanical, laser, pest monitoring and trapping)
- Automation of grading and sorting, within increasingly enhanced AI-driven models and data management systems

This highlights that biologicals should be viewed as part of a broader shift toward integrated, technology-enabled production systems, where labour efficiency, consistency and system resilience are key drivers.

While the growers who attended have already adopted or developing systems to integrate many cutting-edge technologies (such as laser weeders and mechanical harvesters, autonomous tractors), it was identified that many of the global leading brands and technologies were accessible with machinery able to be observed and tested at Fruit Logistica.

The opportunity now lies in helping growers translate these innovations into practical, commercially viable adoption pathways — from packhouse automation to disease-monitoring intelligence and value-added processing.

Global Policy Context

An important overlay, which provides context to many of the infield observations is the policy context facing European growers. Engagement with Australian Government officials in the EU during the desktop research phase of this project provided rich insights to the complex policy and regulatory landscape, summarised below.

Regulatory pressure remains a dominant force shaping the evolution of crop input markets across Europe. Central to this is the EU Green Deal and Farm to Fork Strategy, which set ambitious targets to reduce chemical input use and nutrient losses by 50% by 2030. In practice, this policy environment has already resulted in a significant contraction of the available crop protection toolbox. According to CropLife Europe, since May 2019 European growers have experienced a net loss of 89 crop protection solutions, spanning both conventional pesticides and biopesticides, with no new conventional active ingredients approved over the same period.

More recently, widespread grower protests over the past 12 months have prompted a shift in regulatory tone. European policymakers, led by the European Commission, are now pursuing an “omnibus” deregulation agenda aimed at simplifying legislation and reducing administrative and compliance burdens. Within this framework, the Food and Feed Safety Omnibus package prioritises faster market access for new bioactive substances. Despite representing only around 10% of the current EU crop protection market, biological control products (derived from natural sources) are seen as strategically important; however, industry stakeholders continue to highlight that slow and complex approval processes risk diverting investment away from the EU.

This growing policy and market emphasis on biologicals is reinforced through broader strategic frameworks, including the 2025 EU Bioeconomy Strategy. This strategy identifies targeted measures to stimulate both demand and investment in bio-based fertilisers and plant protection products, including regulatory simplification, evaluation of the Fertiliser

Products Regulation, and strengthening of the Common Agricultural Policy (CAP) Network. Alongside these policy settings, the EU and industry are committing substantial capital to research, development, and commercialisation of biopesticides. CropLife Europe members alone have pledged €4 billion in R&D investment by 2030, with €2.4 billion already deployed by late 2024. Complementing this are EU-funded initiatives such as the CROPSAFE project (€4.9 million) and NextGenBioPest (over €6 million), as well as broader Horizon Europe investments, including €170.7 million allocated under the Circular Bio-based Europe Joint Undertaking for 2026.

Key implications for Australian horticulture

Bringing together both desktop research, participant experience and study tour findings, several clear implications emerge:

- Biologicals represent a structural shift (for all parts of the ecosystem), not a niche input category
- Adoption may be driven by market and regulatory pressure, not just innovation uptake
- Success requires system-level integration, not product substitution
- Advisory capability is a critical enabler
- Local evidence and validation are essential to adoption
- Australian production systems will increasingly integrate biologicals, automation and data-driven decision-making – the unknown is the timescale and process

A further insight is that biological solutions are not directly transferable across regions. Differences in climate, pest and disease pressures, production systems, and regulatory settings mean that successful products and practices in Europe require adaptation for Australian conditions. The opportunity is not simply to import solutions, but to translate them into locally relevant systems that deliver measurable outcomes. With a small market in Australia, direct and proactive engagement with global crop input supply companies will be required to ensure Australia is not last in the queue for new technologies.

Another key learning is the importance of advisory capability and ecosystem support. Growers work closely with agronomists, input suppliers, and research organisations to optimise product selection, timing, and application of any suite of products suited to a crop, production system and environment. Biologicals can be more knowledge-intensive than a narrow range of highly impactful chemistries, with performance influenced by environmental conditions and management practices. As a result, trusted advisory networks and strong supplier relationships are essential to unlock value and reduce risk.

Most importantly, the key strategic question for Australia is not whether biologicals should be adopted immediately, but whether the industry is building capability early enough to embrace the change and respond when adoption becomes necessary at scale.

Outputs

Output	Description	Detail
Management of delegation – international study tour (EU/UK) Tangible Outputs: - Final itinerary with site visit objectives and planned engagements - Regular (daily) Elders project team member meetings to discuss trip progress against objectives – highlights informing written report - Regular review meetings with growers assessing insights against objectives – highlights informing written report - Structured meeting notes from global suppliers, researchers, and farm visits – highlights informing written report - Post-trip debrief, including synthesis of grower insights and identified adoption barriers/opportunities – highlights informing written report Success Criteria: - All meetings occur as scheduled (or documented alternative arrangements) - Debrief demonstrates participant knowledge gain aligned with KASA principles	A targeted international study tour involving Australian horticultural growers and advisors, designed to expose participants to biological crop inputs, regulatory frameworks, and advanced production systems in Europe and the UK.	The study tour was delivered across Germany, Spain and the UK, including attendance at Fruit Logistica 2026. Site visits to commercial farms, research sites and global crop input suppliers occurred in both Spain and the UK providing unique comparisons. Engagement occurred through structured meetings, field visits and technical sessions. Grower participation and feedback sessions at regular intervals throughout the trip and post-return through surveys, one-on-one and group conversations provided qualitative evidence of engagement and knowledge gain. Insights from each element of the tour were captured in written notes and recordings in some situations. While the majority of industry site visits and meetings went to plan, the travel arrangements had to be adapted with rail travel, flights and some accommodation revised mid-trip due to weather-related flight cancellations.
EU/UK market scan and Australian opportunities report Tangible Outputs: - Analysis of biological crop inputs from at least three major global suppliers (current and pipeline products) – written report - Review of EU/UK regulatory frameworks and implications for Australian adoption – written report	A structured assessment of biological crop inputs from a range of international suppliers, available in international markets, including current products, pipeline technologies and regulatory frameworks.	Market intelligence was gathered through direct engagement with global suppliers, supported by desktop analysis. Findings were synthesised into a written report, including exploration of biological opportunities and implications for Australian adoption. Additional commercial product information collated and provided in-confidence to Hort Innovation.
	Analysis of EU/UK regulatory frameworks and comparison to Australian conditions to identify	Insights were captured through discussions with global suppliers, researchers and government

- Assessment of Australian opportunities, including prioritised biological inputs and emerging agtech with domestic relevance – written report - Grower and Elders advisor insights, gathered from structured engagement and knowledge-transfer sessions – summary in written report - Case studies from field visits (Corteva, Bayer, UK farms) Success Criteria: - Delivered as part of written report to Hort Innovation - Includes clear prioritisation recommendations, opportunity mapping, and evidence-based rationale relevant to Australian industry - Feedback captured from attendees included in report	key enablers and barriers to biological adoption. Qualitative insights capturing attitudes, perceptions, and responses of Australian growers and advisors to biological inputs and emerging technologies.	representatives, and integrated into the final report. This output provides guidance on regulatory considerations and highlights areas requiring further validation or support for Australian adoption. Insights were collected through structured discussions, interviews and daily debrief sessions during the study tour. Follow-up surveys and interviews have supported post-trip learnings. Participant feedback provides evidence of changing attitudes, identified barriers, and potential adoption pathways.
Project planning and design Tangible Outputs: - A documented program methodology, including study tour rationale and structure - A risk register outlining operational, travel, engagement, and research risks - A stakeholder engagement plan identifying global suppliers, advisers, researchers and growers to be met Success Criteria: - Submitted as a consolidated section of the written report - Risks and engagement actions completed before travel	Final written report - A comprehensive report consolidating all project findings, including methodology, market scan, regulatory analysis, case studies, and adoption opportunities. Industry presentation and briefings - Various formal presentations and discussions have been provided to share projects insights and learnings.	Delivered to Hort Innovation. Final report includes practical insights and recommendations to support informed decision-making and future investment. Tailored presentations have been provided for various Elders team updates, Hort Innovation and most growers presented findings to their internal business partners. Panel discussions have been held at major industry forums, including EvokeAg (February 2026 - https://www.evokeag.com/evokeag-2026/) and Hort Connections (confirmed for June 2026 - https://hortconnections.com.au/). Further presentation opportunities will be sought and learnings from this project built into ongoing project design and used to support advisor-grower engagement when exploring biological product adoption.

Outcomes

Outcome	Alignment to fund outcome, strategy and KPI	Description	Evidence
Increased knowledge of biological crop inputs among growers and advisors	Aligns with Hort Innovation objectives to build industry capability and improve decision-making; supports the Horticulture Sustainability Framework	The project delivered a demonstrable uplift in knowledge and capability across participating growers and Elders advisory staff. Exposure to EU/UK production systems and direct engagement with global suppliers improved understanding of biologicals within IPM systems, regulatory drivers, and commercial research through to retail pipelines. Through subsequent internal engagement, these insights have begun to extend across the Elders retail and agronomy network, supporting broader capability development.	Evidence captured through structured debrief sessions, site visit discussions, and post-tour reflections. Consistent improvement in participant understanding observed across the program, with insights subsequently shared through internal Elders briefings and team discussions.
Shift in attitudes and confidence toward biological adoption	Aligns with Hort outcomes relating to translation of R&D into practice and adoption of sustainable production systems	The project contributed to a clear shift in attitudes, with participating growers and advisors moving from cautious or uncertain perspectives toward a more confident, system-based understanding of biologicals (albeit, still requiring validated local evidence before adopting within own business). Participants increasingly recognised biologicals as part of integrated production systems rather than standalone products, with several identifying immediate or near-term opportunities for on-farm evaluation and trialling. This insights have been communicated more broadly through Elders advisory engagement.	Qualitative feedback during structured engagement sessions, including debriefs and informal discussions throughout the tour. Participants articulated specific use cases and integration opportunities, with further reinforcement through post-tour presentations and internal knowledge-sharing within Elders.
Identification of practical adoption pathways for Australian horticulture	Aligns with Hort Innovation focus on enabling adoption pathways and supporting industry transition to sustainable production systems	The project identified practical and actionable pathways for integrating biologicals into Australian horticulture systems, including through industry-advisor-supplier relationships, local trials and demonstration sites to inform localised education and confidence. These pathways reflect both international best practice and Australian constraints, providing a foundation for future trials, extension programs and advisory support across Elders' network.	Evidence based on synthesis of desktop analysis, supplier engagement (including multiple global crop input companies), and grower observations. Documented barriers and enablers, provide structured and industry-relevant pathway guidance.

Generation and dissemination of new industry-relevant knowledge and insights	Aligns with Hort objectives to generate and share knowledge for industry-wide benefit and inform future R&D investment priorities	The project consolidated global insights into biologicals, regulation and production systems into a structured format accessible to Australian industry. Knowledge has been disseminated through multiple channels, including internal Elders briefings, grower engagement, and industry presentations such as EvokeAg (February 2026) and Hort Connections (June 2026). This extends the reach of the project beyond direct participants into the broader industry ecosystem.	Evidence includes delivery of the final report, multiple internal Elders briefings, and external presentations. Engagement across these forums demonstrates active knowledge transfer and amplification through Elders' national footprint and industry platforms.
Strengthened industry capability through collaboration and knowledge transfer	Aligns with Hort Frontiers strategy to build collaborative capability; supports People & Enterprise pillar	The project strengthened connections between growers, advisors, and global suppliers (including Corteva, Bayer and UPL), enabling direct exchange of technical insights and strategic perspectives. These relationships, combined with structured internal engagement, have supported knowledge transfer beyond the study tour, contributing to capability uplift across Elders' agronomy and retail network.	Evidence includes structured engagement with multiple global suppliers, participation of growers and Elders staff in the study tour, and ongoing internal dissemination. Participant-led knowledge sharing and continued discussions indicate sustained engagement beyond the project period.
Establishment of a foundation for future validation, extension and investment activities	Aligns with Hort Innovation priorities to support ongoing R&D, extension and innovation pipelines; contributes to long-term delivery of the Sustainability Framework	The project has established a clear and actionable foundation for future work, including identification of priority areas for local validation trials, development of adoption frameworks, and extension activities. Several participants and Elders representatives have identified opportunities to progress on-farm trials and further evaluation of biologicals in localised Australian conditions, providing momentum beyond the project.	Evidence includes recommendations within the final report, participant feedback identifying next steps, and alignment with existing Elders and industry initiatives. The project has directly informed planning for future validation and extension activities. It is also envisaged the project provides a new model for collaboration with Hort Innovation, advisor/retail businesses and major global suppliers – connecting a much broader ecosystem and delivering more than any one party can achieve alone.
Early-stage commercial engagement and validation activity initiated	Aligns with Hort Innovation objectives to translate R&D into commercial practice	The project has directly contributed to initiation of grower-led trials, enhanced supplier/retailer engagement and early-stage commercial evaluation of biological products within Australian systems.	Evidence includes grower commitments to trial activity, follow-up discussions with global suppliers, and integration of biological considerations into agronomy advisory engagement.

Industry Outcomes

In addition to knowledge generation and capability uplift, the project has resulted in a number of early-stage commercial, advisory and industry outcomes.

1. Grower-led validation and trial activity

- Multiple participating growers have identified biological products and are progressing on-farm trials (more practical focused exploration, rather than scientific validation approaches) in Australian conditions.
- These activities represent a transition from awareness to practical evaluation and are expected to generate locally relevant information.
- These trials add to the benefit from Elders existing trial network, including specific horticultural trials that have been informed and influenced by this project. Further, this project has helped contribute to internal alignment and improved planning on biological trials between broadacre and horticulture portfolios.

2. Advisor engagement and capability uplift within Elders

- Insights from the study tour have been actively disseminated across the Elders agronomy and rural product retail network through internal briefings, discussions and presentations. Note, Elders' national agronomy network includes more than 200 agronomists and advisers, providing a significant platform for delivering local validation, extension and grower engagement at scale across Australian horticulture.
- These insights alone do not drive a practice change, but add further context and stimulate activity with advisors who are keen to explore consideration of biological product considerations into agronomic conversations, particularly where linked to resistance management and/or soil health and plant performance.
- These discussions have been complemented by further Integrated Pest Management training for horticultural agronomists as part of Elders Hort Frontiers project Innovation at Work (LP2000).
- This represents an early shift toward system-based advisory models, aligned with international models observed in the EU.

3. Strengthened engagement with global crop input suppliers

- The project has strengthened direct relationships with various global suppliers (including those involved directly in the project and also others who have engaged with Elders on emerging biological products since the tour).
- Follow-up discussions have focused on:
 - Australian relevance of global biological pipelines – including focused discussions on horticultural crops
 - potential pathways for product registration and local introduction
 - alignment of trial and validation opportunities (including both directly with Elders and discussions around broader industry collaboration such as Charles Sturt University BioSolutions Hub).
- These engagements position Australian industry to be more proactive in accessing and assessing emerging technologies, rather than remaining a passive recipient.

4. Identification of commercial and strategic opportunities

- The insights from the project and deeper understanding of the changing landscape has led to further work within Elders to refine internal product assessment processes and potential retail supply partnership opportunities – ensuring the retail and agronomy advisory networks are better prepared for the changing market (including both assessment of large global suppliers, but also emerging new suppliers).

5. Industry awareness and knowledge dissemination beyond participants

- Project insights have been shared through industry events (e.g. EvokeAg, Hort Connections) and internal Elders channels. This has extended project impact beyond the immediate study tour participants to a broader national audience.
- Continued dissemination is supporting early-stage industry readiness for biological adoption.

Collectively, these outcomes demonstrate that the project has progressed beyond knowledge generation, contributing to tangible shifts in behaviour, engagement and early-stage commercial activity across the horticulture ecosystem, including through Elders extensive agronomy advice and retail network.

Monitoring and evaluation

Key Evaluation Question	Project performance	Continuous improvement opportunities
Was the project effective in achieving its objectives?	Yes. The project successfully brought together industry, growers, retailers and global crop input suppliers to explore the changing use of biologicals in the EU and UK and implications for Australian horticulture.	Greater opportunities exist to integrate knowledge pathways between growers, advisors and global crop input companies.
Was the project and study tour design appropriate?	Yes. Qualitative methods enabled contextual understanding of grower ambitions, constraints, and perspectives. The trip also provided a wide variety of farming regions, crop types, regulatory and supply chain environments – which was important to provide context and contrast.	Fruitlogistica provided a very unique experience and exploration of a wide range of leading Horticultural innovation, including marketing approaches, varieties, farming solutions and processing machinery. There are other project topics that would also be suitable to build around future Australian delegations to Fruit Logistica.
Were the findings relevant to industry needs?	Yes. The approach addressed assumptions around farming systems and environments in the EU and UK landscape. While some assumptions were confirmed, overall the broader learnings of the farming systems and overall integration of biologicals within a system was a critical insight.	

Recommendations

Collectively, these recommendations position biological crop inputs as a core component of future horticultural production systems, requiring coordinated investment in validation, capability, and adoption pathways to ensure Australian growers remain globally competitive.

Recommendation	Rationale	Considerations
1. Invest in local validation trials for biological products (High priority 0-3 years)	A key barrier identified through the study tour was lack of confidence in product efficacy and return on investment under Australian conditions. While international examples demonstrate strong potential, performance is highly dependent on local environmental and production factors.	- This work would be accelerated and more impactful if designed and delivered in collaboration with major crop input supply companies, local retailers and advisors. - There may also be a role for Hort Innovation in working with industry partners to establish agreed trial protocols to help underpin a consistent approach. This is a critical foundational piece of work that will underpin the value in any subsequent trial work. - Hort Innovation would need to consider strategic positioning of various pathways (such as head-to-head product comparisons vs product farming system fit trials). - There is also benefit in continuing accessible, smaller scale on-farm trials and demonstrations for growers, grower groups and advisors to provide exposure to biological products, as happens with many Research and Extension projects. - This should also be aligned with an uplift in advisor and extension product and category knowledge
2. Support development of clear adoption frameworks for biological integration (High priority 0-3 years)	The study highlighted that successful global adoption is driven by systems integration rather than product substitution. Australian advisors and growers require clear guidance on how biologicals fit within spray programs, nutrition strategies, seasonal management, or full Integrated Pest Management systems.	- This work would be accelerated and more impactful if designed and delivered in collaboration with major crop input supply companies, local retailers, advisors and extension providers. - A true systems-design approach will help build confidence in the biological product category over time, ensuring the right products are chosen for the right reason within the right overall farming systems approach (rather than simple product substitution). - Alignment with existing industry activity, such as Fertiliser Australia's Biostimulant Code of Practice will be important. - The industry challenges of product labelling and confidence of retailers, advisors and growers is also an important element to be addressed through this work. - This could potentially align with other Federally funded programs, such the Future Drought Fund (FDF) Long-term Trials program, by developing clear adoption frameworks alongside on-farm trials, ensuring that insights generated through long-term experimentation can be translated into practical, system-level guidance for growers.

3. Improve clarity and pathways for regulatory approval in Australia (Medium priority 0-5 years)	Regulatory uncertainty was identified as a key barrier to adoption and commentary from crop input suppliers overseas (such as comments about labeling products for crop nutrition rather than pest management claims made overseas). Differences between EU/UK and Australian regulatory systems may delay access to new products and limit industry responsiveness.	• Alignment with existing industry activity will be important, as well as engagement with both large global crop input suppliers and smaller local businesses. • Product integrity and ensuring biological products are clearly defined, accurately represented, and supported by evidence was identified as a critical enabler of confidence, underpinning advisor recommendations, retailer credibility, and grower adoption. • Alignment with existing industry activity, such as Fertiliser Australia's Biostimulant Code of Practice will be important (noting that it is voluntary in nature). • Cross-commodity collaboration, with industries such as grains, will be important to achieve scale of impact.
4. Continue international benchmarking and knowledge exchange, facilitating stronger collaboration across the value chain (Medium priority 0-5 years)	Biological technologies are evolving rapidly, with significant investment and innovation occurring globally. Continued exposure is critical to keeping Australian industry informed and competitive.	• Building of global networks between Hort Innovation and global crop input partners would add value in keeping up to date on global trends and implications for Australian growers.
5. International benchmarking and knowledge exchange should also occur for machinery and automation (Medium priority 0-5 years)	Given the scale and variety of farming in the EU, it has a leading position in development of machinery and automated equipment for both on-farm and processing.	• The growers each saw machinery at FruitLogistica that they would look to research further and implement at Fruit Logistica. • A tailored approach would deliver more value than what could be incorporated into this biologicals-focused project.

Based on project findings and early industry response, these recommendations also represent the highest-priority investment opportunities for Hort Innovation and industry partners. These pathways are designed to accelerate translation of global insights into commercially relevant outcomes for the Australian horticulture industry.

Intellectual property

No project IP or commercialisation to report.

This project primarily involved the collection and synthesis of publicly available information, observational insights, and stakeholder perspectives gathered through study tour activities. Care has been taken to ensure that all findings presented in this report are generalised and do not disclose any confidential, commercially sensitive or proprietary information shared by participating organisations or individuals.

Engagements with global crop input suppliers, growers and advisors provided valuable context and directional insights; however, no specific product-level data, unpublished research findings or commercially sensitive information have been included in this main report. Some commercially sensitive specific product information that is not suitable for public release has been provided directly to Hort Innovation with approval from the companies.

Acknowledgements

The project team would like to acknowledge and sincerely thank all organisations and individuals who contributed their time, expertise and insights to the successful delivery of this project. In particular, we would like to recognise the growers who joined us in this project and generously provided their time and business insights throughout the tour and subsequently upon return. It will be forward-thinking and innovative growers who continue to ensure Australian horticulture remains globally competitive, adaptable and positioned at the forefront of sustainable production systems.

Australian horticultural growers play a critical role in driving industry innovation and resilience. Their willingness to engage with new technologies, challenge existing practices and participate in collaborative initiatives is essential to keep Australian horticulture at the cutting edge and able to respond to evolving regulatory, environmental and consumer expectations. The insights and leadership demonstrated by participants in this project have been instrumental in translating global learnings into practical opportunities for the Australian industry.

We extend our appreciation to Hort Innovation for their support and investment in this initiative, and for their commitment to building capability and advancing sustainable practice across the Australian horticulture sector. This project provided an opportunity to model a new approach of collaboration with growers, RDCs, retailers, global crop input companies, and it will be through innovative partnerships such as these that will help drive systems-level innovation and change for the Australian horticulture sector.

We would also like to thank our key crop input industry partners, including Corteva Agriscience, Bayer and UPL, and also retailer peers in the UK, Hutchisons, for their generous engagement and willingness to share technical knowledge, product insights and strategic perspectives. The depth of engagement provided by these organisations was critical in enabling participants to develop a practical understanding of biological crop inputs and their role in modern horticulture systems.

Finally, we acknowledge the many growers, advisors, researchers and businesses across Europe and the UK who welcomed the delegation and openly shared their experiences. The willingness of these stakeholders to provide honest insights into adoption challenges, regulatory pressures and on-farm performance of biologicals was invaluable. Their contribution has played a significant role in shaping the learnings and outcomes of this project, and in supporting the Australian industry to better understand global innovation pathways.

Appendix 1 – Delegation Details

Elders

Richard Haynes, Customer Solutions Manager

Carlos Rahme, Customer Solutions Manager

David McKeon, Head of Thomas Elder Sustainable Agriculture

Georgia O'Shea, National Crop Protection Manager

Growers

Daniel Niceforo, Niceforo Farms

Brett Dolling, Dolling Produce

Ben Poole, Mitolo Group

Nicole Eatwell, Mitolo Group

Jason Kirk, Farmer Group

Nathan Plant, SA Potato

Various other growers joined for parts of the Fruit Logistica conference

Crop input suppliers

Nick Weckert, Corteva Agriscience

Hort Innovation

Ashley Zamek, Head of Biosecurity R&D

Appendix 2

Appendix 2 – Biological product pathways has been completed and provided to Hort Innovation as a confidential appendix. This appendix contains supplier-specific product portfolio summaries, pipeline insights and regulatory considerations and is not intended for public release.