

Final report

Project title:

Banana Industry R&D Coordination

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Delivery partner:

Australian Banana Growers' Council

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BA20002

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Public summary

The R&D Coordination project (BA20002) played an important role in helping the Australian banana industry address major challenges affecting profitability, productivity and sustainability, while also supporting opportunities for innovation. With ongoing threats such as *Fusarium* wilt TR4, effective research, development and extension (RD&E) remains essential to long-term disease management, containment and industry resilience.

The industry also faces significant issues in biosecurity, particularly the risk of imports, as well as fruit quality, limited diversification, waste management and workforce pressures. For this reason, it was critical that the industry had access to technical and R&D adoption expertise to guide the banana R&D program and work closely with Hort Innovation.

The project was delivered by the Australian Banana Growers' Council, which employed the full-time R&D Manager, Dr Rosie Godwin, in the R&D coordinator role. The role supported timely delivery of a valued, relevant and integrated research program for the Australian banana industry. The primary objectives of BA20002 were to collaborate with Hort Innovation and others to strategically:

- lead and coordinate R&D delivery for the Australian banana industry;
- integrate R&D, extension and communication investments;
- improve the relevance and quality of industry R&D;
- increase the pace and impact of banana R&D; and
- maximise the collective value of R&D investments.

BA20002 contributed to improved industry productivity, profitability and sustainability by enabling better, more relevant and faster innovation in banana industry priority areas. Key outcomes included:

- stronger networking, coordination and collaboration across the national and international R&D program;
- greater awareness and integration between RD&E and communication projects; and
- improved extension and communication of R&D developments across the banana industry, including supply chains and stakeholders.

The project delivered significant value by coordinating major R&D investments, strengthening communication and extension, supporting the scientific programs at the 2023 and 2025 Science Symposia and Banana Industry Congresses, and brokering knowledge across research projects and advisory groups. Key activities included:

- establishing and coordinating major projects in research, development and extension, e.g. Biosecurity, pest and disease surveillance, automation and waste initiatives;
- improving communication of R&D, technical and industry information to growers and stakeholders;
- supporting strong participation in the 2023 and 2025 Science Symposia and Banana Industry Congresses through expert presentations, panels, poster pitches and presentations;
- facilitating knowledge sharing through reference groups, SIAP membership and stakeholder meetings; and
- providing technical advice on TR4, biosecurity, pest and disease management, crop protection, clean planting material, varieties and sustainable practices including automation, food waste, plastic recycling and benchmarking.
- providing industry and subject matter expertise to assist Hort Innovation with activities such as input to investment recommendations, tender panel evaluations and strategic investment plan development.

Overall, BA20002 delivered better coordination of the banana R&D program, stronger collaboration across projects, and enhanced extension and communication across the industry.

The project also contributed to the Australian Banana Strategic Investment Plan 2022–2027 priorities, including improved pest and disease management and biosecurity, enhanced extension and capacity, and initiatives that support industry efficiency, sustainability and profitability.

Keywords

Banana, *Fusarium oxysporum f.sp. cubense*, Panama disease, Tropical Race 4, TR4

R&D, Pests and disease, Biosecurity

Introduction

Bananas are Australia's number-one selling supermarket product (in volume), with over five million eaten daily, and all of which are grown in Australia. The Australian banana industry is one of the largest in the horticultural sector. In 2024/25 banana production was 369,000 tonnes with an estimated farm gate value of around \$700 million annually and contributing \$1.3 billion to the national economy (including indirect benefits). Ninety-four percent of Australia's 13,000 ha of banana production occurs in NQ, around Tully, Innisfail, Kennedy, Atherton Tablelands and Lakeland. Production occurs to a lesser extent in New South Wales, Western Australia, Southeast Queensland, and the Northern Territory.

The need to have a skilled resource to accelerate the coordination, development and implementation of key R&D projects aligned to industry priorities has been identified since 2012 and resulted first in the HAL project BA11027 Banana Industry Extension and Research & Development (R&D) Management. This need became even more pressing in March 2015, when the destructive fungal disease Panama TR4 was confirmed on a farm in the Tully Valley. Hort Innovation then funded BA14012 Coordination of Banana Industry R&D (Panama TR4) which was focused primarily on coordinating and building knowledge and capacity within the industry to manage and contain TR4. These projects delivered excellent results in project coordination, project development, technical advice and support, and since then, the Banana Industry Strategic Investment Advisory panel (SIAP) have supported continued investment in Banana Industry R&D Coordination projects BA17002 and the current project, BA20002, to build on this valuable work.

The need for BA20002 was driven by the necessity to find solutions to major challenges which threaten the profitability, productivity and sustainability of the industry as well as take advantage of opportunities that might otherwise be missed without a dedicated resource for R&D coordination. Given the severity of ongoing problems such as Fusarium wilt TR4 plus a range of issues including the threat of imports, poor fruit quality, lack of diversification, waste management, and chemical access, effective RD&E is vital in ensuring long-term sustainability of the industry. It was considered critical that industry had technical and R&D adoption expertise to provide input to the banana industry R&D program and work closely with Hort Innovation.

Effective RD&E is vital in ensuring long-term viability of the industry. Furthermore, the industry wished to ensure that

- all R&D was well-coordinated so tangible, adoptable outcomes could be delivered for growers
- it was kept informed on technical matters relating to all important issues e.g. other significant pests and disease not mentioned above, chemicals, or any relevant innovations.

The SIAP agreed that BA20002, implemented by an appropriately skilled scientist and focused on priority areas was essential for the banana industry in providing that coordination and technical/scientific advice.

The outcomes of BA20002 have contributed to delivery of the Australian Banana Strategic Investment Plan 2022-2027 priorities including improved pest and disease management and biosecurity, enhanced extension and capacity and any other initiative to support industry efficiency, sustainability and profitability.

Methodology

The objective of BA20002 'Banana Industry R&D Coordination' was to improve industry productivity, profitability, and sustainability through better, more relevant and quicker banana industry innovation in the areas that industry has prioritised.

ABGC re-engaged Dr Godwin to deliver BA20002 to deliver R&D Coordination services to all levy payers in the national Banana Industry. With her existing strategic relationships and relevant technical expertise, she was able to provide leadership and coordination of Banana industry R&D Investments and, where opportune, integrate projects across banana industry RDE&C programs, both Hort Innovation funded and non-funded. The aim of her role was to ensure the timely delivery of a highly valued, relevant and integrated industry research program by providing a central point of contact for banana industry R&D and its internal and external stakeholders. The key deliverables were to

1. Improve networking, coordination and collaboration of the banana industry R&D Program nationally and internationally.
2. Increase awareness, networking, coordination and collaboration between banana Research and Development, Extension and Communication (R&D, E,C) projects.

3. Enhance extension and communication of R&D developments with and amongst all sectors of the banana industry including its supply chain and stakeholders.

A wide range of activities were undertaken to deliver the required services, and these were prioritised annually through workplans. The types of activities undertaken are described in detail below.

1. **Improve national and international networking, coordination and collaboration for the banana industry R&D Program.**

The R&D Manager advised the banana industry and Hort Innovation on managing, developing and coordinating the R&D Program. Services included:

- Acting as the central contact for R&D matters by leading industry discussion, sharing information nationally, maintaining communication channels, facilitating and attending meetings, field days, workshops and reference groups, and being available for consultation.
- Maintaining knowledge of banana R&D projects.
- Maintaining researcher networks to identify collaboration, resource-sharing and efficiency opportunities.
- Engaging regularly with leaders of major R&D projects, including Varieties and IPDM.
- Connecting with growers to progress research needs, encourage on-farm experimentation, link farmers with researchers and support networks.
- Keeping current with Australian and international banana research through literature, industry publications, conferences and meetings.
- Aiming to undertake two trips over the five-year project, subject to Covid impacts, such as attending the 2023 International Conference on Plant Pathology in Lyon, France.
- Leading and supporting formal collaborations, whether enduring or opportunistic.
- Leveraging partnerships and resources to deliver research needs efficiently.
- Coordinating R&D concepts and opportunities aligned with strategic investment priorities and exploring funding options.
- Reviewing and providing technical input, including scientific, R&D and risk advice, into ABGC and government banana biosecurity plans.
- Providing technical and industry advice to:
 - The Banana Industry R&D Strategic Investment Advisory Panel and project reference groups.
 - Hort Innovation teams and key staff to support R&D project development and resolve program issues.
- Providing technical advice on TR4, production, supply chains, intellectual property, minor-use permits, market access and other RD&E issues to support evidence-based industry innovation.
- Managing and advising on the QBAN clean planting material scheme with Greenlife Industry Australia.
- Reviewing and reporting on the Panama TR4 Program and other emergency plant pests affecting bananas.
- Providing technical, extension and communication support to R&D service providers as needed.

2. **Increase awareness, networking, coordination and collaboration between banana RD&EC projects.**

Serving on banana RD&E project PRGs and providing technical, scientific and industry input to reduce duplication, improve cross-pollination and strengthen connectivity.

- Keeping current with Australian and international banana research through literature, industry publications, conferences and meetings.
- Developing productive collaborations with government bodies and service providers, including Biosecurity Queensland, AgriScience Queensland and Plant Health Australia.
- Collaborating with extension and industry development projects to ensure R&D outcomes are fit for purpose and integrated into adoption programs.
- Facilitating exchange between growers, researchers and extension providers to support efficient information sharing and field-based projects.
- Building international research collaborations that benefit Australian banana RD&E.

3. **Work with extension and communication projects to ensure R&D developments are timely, accurate, fit for purpose and integrated into adoption programs.**

Effective extension and communication of R&D outcomes support practice change, adoption and the banana industry's

productivity, profitability and sustainability.

Activities included:

- Developed a stakeholder engagement and communications plan with national extension and communication projects to improve industry access to R&D information.
- Assisted Hort Innovation to optimise RDE&C delivery.
- Communicated R&D updates to stakeholders and considered their views, including Hort Innovation, growers, service providers, agribusiness managers, nurseries and supply chain members.
- Supported national extension and communications projects to provide timely, accurate R&D information and help industry engage with RDE&C projects.
- Collaborated nationally with other banana projects where R&D could be extended.
- Worked with R&D service providers where support was useful, including field days, roadshows, workshops, scientific exchanges and expert meetings.
- Led and supported development and delivery of the scientific program, including the Science Symposium, at the 2023 and 2025 Banana Congress.
- Sought industry advice on R&D needs and shared R&D outcomes and issues at regional grower meetings.
- Shared project updates with all levy payers, highlighting the value of their investment.
- Represented industry-wide banana R&D at relevant forums, government departments and agencies, including:
 - AgriScience Queensland stakeholder events, scientific exchanges, R&D planning workshops and other relevant forums.
 - Banana R&D Project Reviews.
 - Biosecurity Queensland's Panama TR4 Program, providing advice on surveillance, containment and management protocols to help contain TR4.
 - State biosecurity authorities to strengthen pest surveillance, grower engagement and banana biosecurity resilience under projects BA17005, BA18000, BA21003 and BA21004.
 - Interstate biosecurity agencies, including NSW, WA and NT, on pest and disease, market access, incursions and surveillance issues.
 - Plant Health Australia industry forums, meetings and committees.
 - Consultative Committee for Emergency Plant Pests, representing and advising on incursions affecting the banana industry.

4. General services

ABGC delivered the general services specified in the RFP, including:

- Accountability to Hort Innovation for services and deliverables under the services plan and agreement.
- Use of robust, transparent methodology, processes, procedures and documentation capable of independent scrutiny.
- Provision of a single point of contact for service delivery.
- Escalation of issues requiring Hort Innovation consideration or decision, with resolution options, project impacts and recommended action.
- Timely action to support effective issue resolution.
- Project monitoring and evaluation in line with the M&E plan.
- Feedback and information to Hort Innovation on industry issues and opportunities.
- Support for Hort Innovation's Objectives and Strategies as required.
- Support for industry R&D and marketing objectives and strategies.
- Application of Hort Innovation acknowledgement and branding to project outputs, in line with the Publications Guide.
- Provision of information for Hort Innovation's project management system.
- Preparation of milestone and final reports.
- Communication of all project-funded events, including workshops and conferences, to Hort Innovation.

Results and discussion

The Project activities of BA20002 successfully delivered a wide range of outputs and outcomes including:

- extensive industry engagement and communication to a range of industry stakeholders.

- Strong coordination of the banana R&D Program Scientific leadership at the banana congresses and Science symposia.
- Provision of high value technical advice, and development of new R&D opportunities.
- The project helped establish or supported major initiatives in biosecurity, pest and disease management, clean planting materials, waste reduction and recycling, automation and robotics, benchmarking and data analytics, variety improvement.

Further detail can be found in the outputs, outcomes, monitoring and evaluation and the appendices.

Many of the most valuable outcomes of BA20002 occur behind the scenes, including project prioritisation, funding development, biosecurity preparedness, committee participation and stakeholder coordination. These activities are difficult to quantify through traditional metrics.

Outputs

Table 1. Output summary

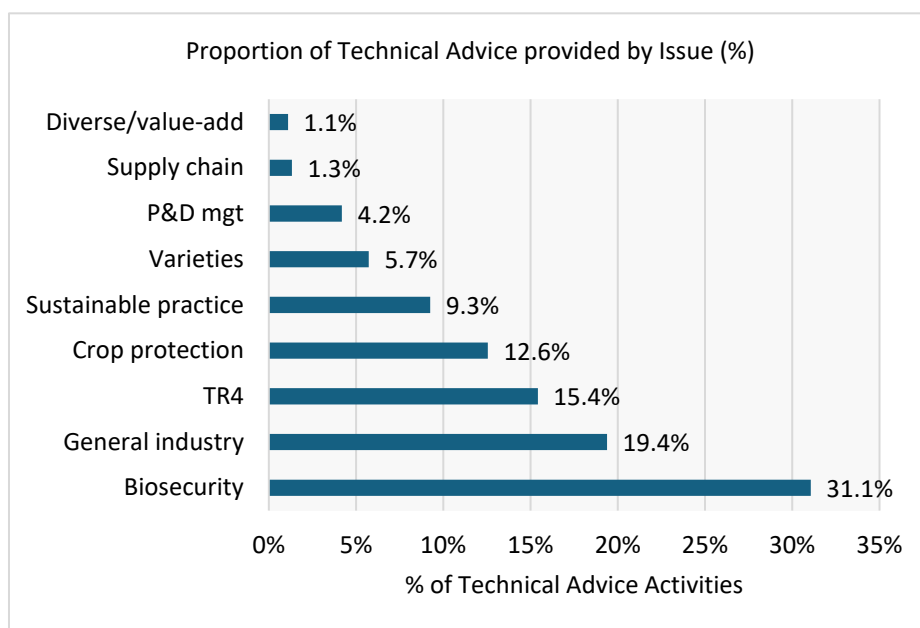
Output	Description	Detail																																								
1. Enhanced extension and communication of R&D development, with and amongst all sectors of the banana industry, including its supply chains and stakeholders	At least 2599 activities (which may have involved multiple stakeholder groups or individuals) were conducted over 4.5 years of this project through the following extension/ communication channels. An average 578 activities/ year. (excluding emails): <table><tr><th>Channel</th><th>No. of Activities</th></tr><tr><td>Phone</td><td>1175</td></tr><tr><td>Online meeting</td><td>956</td></tr><tr><td>F2F meeting</td><td>324</td></tr><tr><td>Magazine article</td><td>56</td></tr><tr><td>E-bulletin</td><td>52</td></tr><tr><td>Event</td><td>36</td></tr><tr><td>Grand Total</td><td>2599</td></tr></table> Nb An additional 17 E-bulletins and 8 magazine articles to which the R&D Manager had input were produced in the first year of the project and were not included in the spread sheet analysis. All extension /communication outputs are detailed in Appendix 1. Activities were directed towards the following banana industry stakeholder groups: Note many activities were directed to multiple stakeholders. <table><tr><th>Stakeholder Group</th><th>Activities</th></tr><tr><td>Internal (ABGC) teams</td><td>1,447</td></tr><tr><td>External project teams</td><td>636</td></tr><tr><td>Funders</td><td>494</td></tr><tr><td>Policy & regulators</td><td>291</td></tr><tr><td>Growers</td><td>512</td></tr><tr><td>Industry service providers</td><td>366</td></tr><tr><td>Other national researchers</td><td>324</td></tr><tr><td>Industry leadership bodies</td><td>183</td></tr><tr><td>Other horticultural industries</td><td>132</td></tr><tr><td>International researchers</td><td>43</td></tr><tr><td>Community</td><td>26</td></tr></table>	Channel	No. of Activities	Phone	1175	Online meeting	956	F2F meeting	324	Magazine article	56	E-bulletin	52	Event	36	Grand Total	2599	Stakeholder Group	Activities	Internal (ABGC) teams	1,447	External project teams	636	Funders	494	Policy & regulators	291	Growers	512	Industry service providers	366	Other national researchers	324	Industry leadership bodies	183	Other horticultural industries	132	International researchers	43	Community	26	The outputs from the last 4.5 years (Mar 2022 – Jun 2026) have been captured from outlook calendar and phone diary entries then tabulated in excel. This has been an effective way to collect evidence of engagement with intended stakeholder s and record the type, focus, issue, and objective of each activity. The outputs for the first 6 months of BA2002 (up to milestone 102) were compiled anecdotally through notebooks and diary entries.
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	Extension and communication activities were directed to the following issues.: Note, many activities were directed to multiple issues. <table><tr><th>Issues (incl. 2nd issue)</th><th>No of Activities</th></tr><tr><td>General industry</td><td>713</td></tr><tr><td>Biosecurity</td><td>702</td></tr><tr><td>Pest and disease management</td><td>562</td></tr><tr><td>Sustainable practice</td><td>292</td></tr><tr><td>TR4</td><td>283</td></tr><tr><td>Crop protection</td><td>182</td></tr><tr><td>Varieties</td><td>155</td></tr><tr><td>Diverse/value-add</td><td>38</td></tr><tr><td>Labour</td><td>36</td></tr><tr><td>Supply chain</td><td>23</td></tr></table>	Issues (incl. 2 nd issue)	No of Activities	General industry	713	Biosecurity	702	Pest and disease management	562	Sustainable practice	292	TR4	283	Crop protection	182	Varieties	155	Diverse/value-add	38	Labour	36	Supply chain	23															
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2. Increased awareness, networking, coordination, collaboration, and integration between RDE&C projects And 3. Improved networking, coordination, and collaboration of the industry R&D program nationally and internationally	Activities were conducted for the following objective/purposes: <table><tr><th>Objective / purpose</th><th>No. of Activities</th></tr><tr><td>Increase R&D pace & impact</td><td>1209</td></tr><tr><td>Improve R&D relevance & quality</td><td>901</td></tr><tr><td>Project mgt OTHER (mainly BA21003 and BA24003)</td><td>566</td></tr><tr><td>Lead & coord R&D</td><td>446</td></tr><tr><td>Integrate R,D,E&C investments</td><td>302</td></tr><tr><td>Project mgt BA20002</td><td>104</td></tr></table> The focus of these 2599 activities was on: (Note- that many activities may have more than one focus): <table><tr><th>Output focus (incl. 2nd focus)</th><th>No. of Activities</th></tr><tr><td>Project management</td><td>578</td></tr><tr><td>Industry representation</td><td>416</td></tr><tr><td>Technical advice</td><td>454</td></tr><tr><td>Collaboration</td><td>438</td></tr><tr><td>Extension</td><td>207</td></tr><tr><td>Project coordination</td><td>241</td></tr><tr><td>Networks</td><td>164</td></tr><tr><td>Industry leadership</td><td>203</td></tr><tr><td>Project development</td><td>152</td></tr><tr><td>Project initiation</td><td>129</td></tr></table> The R&D Manager has led the levy funded projects (BA18000, BA17005, BA21003 & BA24003) in addition to her own project. Leadership of these projects adds value to the R&D coordinator role by providing real-time intelligence of the problems and opportunities being experienced in the NQ and subtropical industry. Involvement in	Objective / purpose	No. of Activities	Increase R&D pace & impact	1209	Improve R&D relevance & quality	901	Project mgt OTHER (mainly BA21003 and BA24003)	566	Lead & coord R&D	446	Integrate R,D,E&C investments	302	Project mgt BA20002	104	Output focus (incl. 2 nd focus)	No. of Activities	Project management	578	Industry representation	416	Technical advice	454	Collaboration	438	Extension	207	Project coordination	241	Networks	164	Industry leadership	203	Project development	152	Project initiation	129	As above
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these two projects also provided direct access to staff working with growers and allowed staff to share the R&D Manager's contact details with them.

Technical advice was provided on a range of issues during BA20002 as shown below: Note 'General industry' usually addressed multiple industry issues.

Issue	No. of Activities
Biosecurity	141
General industry (or multiple issues)	88
TR4	70
Crop protection	57
Sustainable practice	42
Varieties	26
Pest and disease management	19
Supply chain	6
Diverse/value-add	5
Total Technical Advice Activities	454



Key Insights

- Biosecurity dominates** the technical advice provided, nearly 1 in 3 technical advice activities addressed biosecurity issues
- The top three issues**, Biosecurity, General industry, and TR4 accounted for **66%** of all technical advice activities
- Disease-related focus**: Combining Biosecurity, TR4, and pest and disease management = **230 activities (51%)** of technical advice.

4. Better, more relevant, innovation areas identified by

Over the past four and a half years, 901 activities improved R&D relevance, with 70% focused on industry representation, technical advice and stakeholder collaboration. Biosecurity accounted for 30%, followed by sustainable practice and general industry priorities. Key examples include:

- Collaborating with ABGC staff and external teams to align and strengthen

As above

the banana industry.	shared work. - Sharing industry needs and gaps with service providers and stakeholders e.g. chemical companies. - Supporting research delivery through levy-funded and non-levy funded projects, partnerships and external initiatives, including Fight Food Waste CRC, Food Waste Australia, Greencollar, ARM Hub, Hort Frontiers Funds and the Federal Government. - Contributing to QUT's Australian Economic Accelerator grant by securing industry input for evaluation of QCAV4 in NQ and SEQ. - Guiding banana projects through participation in the Banana Strategic Reference Group (BSRG) and other PRGs e.g. ACIAR Hort/2018/192 - An Integrated Management Response to the spread of Fusarium wilt of Banana in south-east Asia, Banana Industry Benchmarking project and QUT's genome editing platform targeting TR4 resistance project. - Representing industry on national biosecurity committees, including Consultative Committee for Emergency Plant Pests (CCEPP) and Plant Industry Biosecurity Committee (PIBC), to keep emergency responses targeted and relevant and strengthen the overall plant biosecurity system. - Providing industry leadership and technical advice on the National Banana Freckle Eradication Program and TR4 control program, both critical to protecting production, fruit quality and the sustaining the Australian banana industry. - Addressing crop protection chemical gaps for bunch pests by helping funders expedite solutions and supporting Hort Innovation with AgVet grant applications. - Influencing current and proposed research to ensure industry relevance e.g in relation to imported bananas, new varieties, TR4 resistance, diagnostics, pest and disease management, crop protection and biosecurity.	
5. Project governance	- A program logic and M&E Plan - A project risk register and risk management plan. - A stakeholder engagement /communication plan. 9 X milestone reports 5 x Annual work plans - This final report	Provided at 6-monthly milestone reports and this end of project Final Report .

Outcomes

A summary of the project's outcomes is shown in the table below. Details of monitoring data collected to provide evidence of outcomes as per the project's M&E Plan are also described.

Table 2. Outcome summary

Outcome	Alignment to fund outcome, strategy and KPI	Description	Evidence
1.Enhanced extension and communication of R&D developments, with and amongst all	BA20002 is aligned across a broad range of priority strategies and outcomes including improved pest and disease management and	Priority R&D developments have been communicated through appropriate channels to the banana industry and stakeholders. Information on a wide range of topics was exchanged between different stakeholder groups to raise awareness and understanding of the	Project milestone data, stakeholder feedback and project documents were used to assess progress and methods.

<u>sectors of the banana industry,</u> including its supply chains and stakeholders	biosecurity, enhanced extension and capacity and any other initiative to support industry efficiency and sustainability and profitability.	industry, its R&D, and industry challenges and opportunities. The most dominant issues across the life of the project were Biosecurity and pest and disease management (including TR4). The 2023 and 2025 Scientific symposiums and Congresses were highlights for the extension and communication of R&D developments	Monitoring records and stakeholder engagement observations were captured as part of the project, with evidence detailed under outputs. Extension and communication materials involving R&D Coordinator input are listed in Appendix 1. Post-Science Symposium and Congress survey feedback and attendance records are evidence successful communication of R&D developments across the banana industry. See MS reports and case studies in Appendix 2.
2.Increased awareness, networking, coordination, collaboration, and integration between RDE&C projects And 3.Improved networking, coordination, and collaboration of the industry R&D program nationally and internationally	As above	The R&D Manager networked with a range of relevant stakeholders and service providers nationally to improve integration, collaboration, and coordination of RDE and C projects. Collaboration was fostered between ABGC, funding bodies, delivery partners and private companies to develop new R&D projects to address priority areas such as pest and disease management, biosecurity preparedness, and sustainable practices – e.g. Plastic recycling, Banana de-handing project, Multi-pathogen diagnostic project. Effective collaboration between ABGC and service providers and Hort Innovation on chemical issues e.g., Crop protection and pest and disease management, bunch pests, mites and fungal diseases and chemical reviews and permits. Collaboration with other horticultural industries and state regulators on the TR4 program, Banana Freckle Response, Torres Strait Fruit Fly, and in BA21003 and BA24003 the Multipest	Evidence is provided by project activity records and observations from extensive stakeholder engagement undertaken as a part of this project- See Outputs section for further detail and case studies in Appendix 2.

		surveillance project. Awareness among different stakeholders has been enhanced regarding banana imports, biosecurity, pest and disease management and crop protection issues, varieties and sustainable practice within the banana industry. This includes chemical companies, Hort Innovation, growers, other peak bodies, and delivery partners. Further details may be found under outputs or in the Appendices	
4. Better, more relevant innovation areas identified by the banana industry	As above	As mentioned above, the R&D Manager assisted with the establishment of new projects and investigated being involved in a range of opportunities and stakeholders and aligned to industry priority areas. Some examples are included in Case studies in Appendix 2	For further detail, see outputs section and case studies in Appendix 2.
5. Project Governance	As above	The R&D Manager delivered a well-managed and industry-engaged project, with feedback and input from a diverse industry stakeholder groups, and ongoing metrics captured of the activities delivered for the industry.	Evidence is provided by project activity records and observations from extensive stakeholder engagement undertaken as a part of this project- See Outputs section for further detail and case studies in Appendix 2.

Monitoring and evaluation

Table 3. Key Evaluation Questions

Key Evaluation Question	Project performance	Continuous improvement opportunities
1. Effectiveness 1) To what extent has a) coordination of the banana industry R&D delivery been improved? b) banana R&D, extension and	The R&D Manager accelerated project development by catalysing action and partnerships, and by connecting growers, researchers, policymakers and industry. This has increased awareness and adoption of R&D outputs, including on-farm biosecurity and improved management of leaf spot, bunchy top, TR4 and banana freckle. The role translates technical information into clear industry guidance, supporting better-informed R&D investment decisions. Working closely with the National Development and	Consider identifying and incorporating pathways-to-impact into the development and delivery of any new R&D projects. This would maintain momentum in the R&D program and avoid projects falling off the

communication investments been integrated? c) relevance and quality of banana R&D been raised with the banana industry? d) pace and impact of banana R&D been increased? e) The collective value of industry R&D investments been maximized? 2) What would be different if this role did not exist?	Extension Project and Banana Industry Communications Project, the R&D Manager has developed grower resources and used ABGC's communication channels to rapidly share R&D information across the industry. Without BA20002, the industry would likely have: • no central banana R&D contact • slower responses to grower R&D questions • weaker foundations for future research and policy • less researcher–industry collaboration and cohesion across research activities • fewer opportunities to access innovation and alternative R&D funding and technologies • less effective communication, extension and overall achievement. The R&D Manager is also viewed as the first point of call for technical advice on banana industry and R&D matters, including TR4, molecular biology, tissue culture, experimental design, diagnostics, chemical review and registration, genetics and plant breeding. As a neutral third party, BA20002 has helped broker agreements, expedited the contracting and progress of new and existing projects, improved understanding between groups, and prevented disagreements from delaying work to address industry challenges.	'funding cliff'.
2. Relevance 1) How did the Banana Industry R&D Coordination work meet the needs of growers and industry, research providers, policy and decision makers, other industry stakeholders? 2) What was the highlight or key benefit from this project to the different project audiences?	Feedback from R&D providers, growers, government, and other industry stakeholders demonstrates that this project was very relevant to their needs and has had a significant impact on the banana industry. This was highlighted in the independent mid-term review by GHD which found that BA20002 is highly relevant to the needs of the Australian banana industry, as it provides a central coordination function that strengthens links between research, extension, growers, policy makers and funders. The project aligned well with the Banana Strategic Investment Plan 2022–2026 and supported industry priorities including biosecurity, pest and disease management, innovation, sustainability and improved R&D adoption. Stakeholder feedback indicated that the R&D Manager role is strongly valued for translating technical information into practical industry outcomes and for improving collaboration across the R&D portfolio. The fact that the R&D Manager has an overview of all banana research domestically and internationally, allows the role to take a holistic view about managing challenges faced by industry and influencing research and biosecurity stakeholders accordingly.	To further strengthen relevance, future reporting could more clearly demonstrate the project's reach across the broader industry and regional grower groups.
3. Appropriateness How well have intended beneficiaries been	The appropriateness of the project approach and strategies for BA20002 is evidenced by the many outcomes delivered by the project and detailed in this report, and by the findings of the mid-term review. The methodology was successfully	Improve visibility, better define and communicate the scope of the R&D

engaged in the project?	implemented, and activities suitably pitched to the different stakeholders and organisations. Industry representative and stakeholder feedback highlighted the R&D Manager's significant role in establishing networks, including the Banana Strategic Reference Group and national/international linkages R&D Manager works in true partnership with stakeholders, is easy to deal with, and makes genuine use of feedback when issues are brought to her attention. The R&D Manager then drives the initiation and conduct of new projects to solve these issues.	Manager role so it is better understood by all stakeholders. The appropriateness of the project could be better demonstrated through case studies or that document how R&D concepts progress from identification through to funded projects and industry outcomes.
To what extent were engagement processes appropriate to the target audience/s of the project?	The engagement and communication processes were appropriate and valued and included: • an approachable, partnership style. • conduit of research information to and from growers • provision of content to Comms and extension projects e.g. magazine articles, e-bulletins, Web sites. • organisation of R&D content and sessions at Congress and the Science Symposium • organisation of guest speakers for ABGC Board meetings • the R&D Manager's engagement skills and contributions, were noted as key drivers of industry R&D.	
4. Efficiency What efforts did the project make to improve efficiency	The project was efficient at implementing agreed activities according to agreed schedules and budgets. Comprehensive Information was gathered for six-monthly milestone reports and this final report BA20002 has been highly efficient at delivering value for money. This is demonstrated by the large number of useful outcomes delivered within budget to industry as detailed in this report and earlier milestone reports. The efficiency of the project is further supported by the findings of the independent mid-term review which provided a favourable assessment of the first half of this 5-year project.	

Recommendations

The following recommendations aim to accelerate progress of the R&D program toward the Banana Industry goals.

Recommendation 1: Continue BA20002's banana R&D coordination work over the medium term (5+ years), as stakeholders highly value its outcomes.

Recommendation 2: Develop a succession plan to maintain the R&D Manager's critical skills, experience, knowledge and relationships.

Recommendation 3: Expand the banana R&D portfolio by securing new funding, collaborations, partners and projects.

Recommendation 4: Align the follow-on project agreement, M&E plan and workplans to accurately measure outputs, outcomes and pathways to impact.

Recommendation 5. As suggested in the mid-term review of BA20002 (by GHD), continue to include case studies in M&E reporting to highlight how components of the R&D Coordination project align with key outcomes.

Refereed scientific publications

Not applicable.

Intellectual property

No project IP or commercialisation to report.

Acknowledgements

ABGC would like to acknowledge the helpful contributions to this project from the many growers, research providers, and Hort innovation particularly Mr Stephen Spear, Mr Stewart Lindsay, Ms Tegan Cavallaro, Prof Andre Drenth, Prof Elizabeth Aitken, Mr Matt Reynolds and Ms Sarah Strutt. A special mention to the invaluable and generous advice provided by the ABGC board and growers in NQ, NSW and WA.

The R&D Manager would also like to thank Ms Leanne Erakovic for her strong leadership and the whole team at ABGC for their ongoing support in making this project a success.

Appendices

Appendix 1: Extension / Communications materials produced during the 5-year R&D Coordination Project

During the 5-year life of BA20002 R&D Coordination project, a wide range of extension and communication materials were produced and a variety of channels were used to disseminate R&D information. These are detailed below. Also note that as project leader of BA21003 and BA24003, the R&D Manager also had input into all media (YouTube videos, magazine articles and e-bulletins) on Banana Bunchy Top Disease and provided constructive feedback to staff to enable their continued professional development in this area.

E- BULLETINS (69 items)		
Subject	Date	Issue
APVMA updates	22-Jun-2026	Crop protection
Update on the APVMA review of uses of Paraquat and Diquat	13-Jun-2026	Crop protection
Crop protection and chemical access	02-May-2026	Crop protection
Mancozeb permit extended	27-Feb-2026	Crop protection
New Bunchy Top education video	13-Feb-2026	P&D mgt
Bunchy Top Project job opportunity	09-Dec-2025	P&D mgt
Keep your eyes peeled for disease	21-Nov-2025	Biosecurity
Chemical update on Chlorpyrifos	21-Nov-2025	Crop protection
Putting freckle in the conversation	08-Nov-2025	Biosecurity
Chemical reminder	08-Nov-2025	Crop protection
Survey on post-entry quarantine for banana varieties	03-Sep-2025	Biosecurity
Banana Freckle response update	27-Jun-2025	Biosecurity
Chemicals	22-May-2025	Crop protection
Chemical review	10-Jan-2025	Crop protection
Chemical review	14-Oct-2024	Crop protection
Chemical review	11-Oct-2024	Crop protection
Chemical review	23-Aug-2024	Crop protection
Bunchy top inspector recruitment	23-Aug-2024	P&D mgt
Chemical review	02-Aug-2024	Crop protection
Chemical updates: Dimethoate and Sulfur Dust	11-Jul-2024	Crop protection
Carbonovia results	11-Jul-2024	Diverse/value-add
Chemical update	19-Jun-2024	Crop protection
Free carbon calculator for growers	19-Jun-2024	P&D mgt
ABGC win at Hort Connections	07-Jun-2024	Sustainable practice
Strike Out WP – no further production	07-Jun-2024	Crop protection
Chlorpyrifos update	13-May-2024	Crop protection
Chemical update	09-May-2024	Crop protection
Free farm business tool! Data analytics to help grow profit	09-May-2024	Sustainable practice
Food Waste Action Plan	09-May-2024	Sustainable practice
Data analytics to improve your business profitability – OptimolQ	15-Apr-2024	Sustainable practice
Banana Food Waste Action Plan	27-Mar-2024	Sustainable practice
Chemical update	27-Mar-2024	Crop protection
Genetically modified banana (QCAV-4)	20-Feb-2024	Varieties
De-handing robot prototype in the works	20-Feb-2024	Labour
Chlorpyrifos submission	01-Feb-2024	Crop protection

Chlorpyrifos - have your say	16-Jan-2024	Crop protection
Chlorpyrifos - what you need to know	09-Jan-2024	Crop protection
Chlorpyrifos proposal	18-Dec-2023	Crop protection
Your input needed: Identify pest, weed and disease control priorities in the banana industry	17-Nov-2023	Crop protection
Changes to Post Entry Quarantine for bananas	03-Nov-2023	Varieties
NSW: Free Bunchy Top training	17-Oct-2023	P&D mgt
Strikeout WP update	29-Sep-2023	Crop protection
Grower survey reducing waste in the banana industry	16-May-2023	Sustainable practice
GM banana submission to OGTR and FSANZ	12-May-2023	Varieties
Update on chemical reviews	11-May-2023	Crop protection
New video on bunchy top tips	11-May-2023	P&D mgt
Back a grower	04-May-2023	General industry
Research is ready to roll at the Banana Scientific Symposium	07-Mar-2023	General industry
Banana freckle update	11-Jul-2022	Biosecurity
Country of Origin Food Labelling	11-Jul-2022	Supply chain
Chlorpyrifos permit extended pending review	08-Jul-2022	Crop protection
Is Talc under review?	28-Jun-2022	Crop protection
Joint Media Release on banana freckle detection	02-Jun-2022	Biosecurity
Chemical Update	24-May-2022	Crop protection
Minimise your carbon footprint	18-May-2022	Sustainable Practice
Grower input sought into sustainable energy co-operative	04-May-2022	Sustainable Practice
Online Workshop: de-handing automation	21- Apr-2022	Sustainable Practice
New video showcasing Bunchy Top tips and tools	01-Mar-2022	P&D mgt
Grower survey on Black Soldier fly technology	07-Feb-2022	Sustainable Practice
Ag Chemical Update	21- Jan-2022	Crop protection
Outcomes from TR4 review - Part 2	16-Nov-2021	P&D mgt
TR4 scientific review	28-Oct-2021	P&D mgt
Plastic recycling solution in NQ	28-Oct-2021	P&D mgt
Ag Chem Update	08-Oct-2021	Crop Protection
Bunchy Top control zone changes	17-Sep-2021	P&D mgt
FNQ banana waste project	17- Sep -2021	Sustainable Practice
Changes within the Bunchy Top Control Zone	14- Sep -2021	P&D mgt
New Bunchy Top video	03-Sep -2021	P&D mgt
Tree crop map win.	03-Sep -2021	General Industry

MAGAZINE ARTICLES (64 items)		
Subject	Date	Issue
Pest surveillance and grower engagement snapshot	01-Apr-2026	P&D mgt
What does it take to bring a new chemical to market?	01-Apr-2026	Crop protection
QBAN list	01-Apr-2026	Biosecurity
Put Freckle into your conversation	31-Dec-2025	P&D mgt
QBAN Scheme Facilities	31-Dec-2025	Biosecurity
Basalt on Bananas: Pioneering trials in NQ	31-Dec-2025	Sustainable practice

Congress Carnarvon Style	31-Dec-2025	General industry
Dodging banana diseases is value for money	31-Aug-2025	P&D mgt
The Science Symposium	31-Aug-2025	Biosecurity
Turning banana waste into treasure	31-Aug-2025	Diverse/value-add
Banana Freckle management supported by official control	31-Aug-2025	Biosecurity
ABGC maintains its commitment to Bunchy top containment and control, and pest management in NQ.	31-Aug-2025	P&D mgt
Countdown to withdrawal of chlorpyrifos	01-Apr-2025	Crop protection
Decades of dedication to battling bunchy top	01-Apr-2025	P&D mgt
Data-driven insights from benchmarking	01-Apr-2025	Sustainable practice
Improving QBAN testing	01-Apr-2025	Biosecurity
Bunchy top team expands messaging	01-Apr-2025	P&D mgt
QBAN facilities	01-Dec-2024	Biosecurity
Chemical review	01-Dec-2024	Crop protection
Outline of benchmarking project	01-Dec-2024	Sustainable practice
Information about QCAV4	01-Dec-2024	Varieties
QBAN facilities	01-Aug-2024	Biosecurity
Food waste project	01-Aug-2024	Sustainable practice
Mort Johnston Scholar	01-Aug-2024	General industry
QCAV-4 approved	01-Apr-2024	Varieties
Banana Freckle update	01-Apr-2024	Biosecurity
Diazinon review outcome	01-Apr-2024	Crop protection
Optimo IQ revolutionizing data	01-Apr-2024	Sustainable practice
Awareness grows from face-to-face interaction	01-Apr-2024	P&D mgt
Decades on and still growing strong	01-Apr-2024	P&D mgt
Dehanding robot prototype in the works	01-Apr-2024	Labour
National Banana Freckle Response	01-Apr-2024	Biosecurity
QBAN list	01-Dec-2023	Biosecurity
Changes to Post Entry Quarantine	01-Dec-2023	Varieties
Banana Freckle response	01-Dec-2023	Biosecurity
Banana benchmarking project	01-Dec-2023	Sustainable practice
Share your pest priorities	01-Dec-2023	Crop protection
Bunchy Top battle continues	01-Dec-2023	P&D mgt
South American visitors' TR4 tour	01-Dec-2023	TR4
Chlorpyrifos countdown	01-Dec-2023	Crop protection
Bunchy Top team out and about	01-Aug-2023	P&D mgt
QBAN list	01-Aug-2023	P&D mgt
Banana benchmarking project begins	01-Aug-2023	Sustainable practice
Banana Scientific Symposium	01-Aug-2023	General industry
QBAN listing	01-Apr-2023	Biosecurity
Top end Freckle response continues	01-Apr-2023	Biosecurity
Scientific Symposium	01-Apr-2023	General industry
Results are in: On- farm biosecurity remains a key focus	01-Apr-2023	Biosecurity
Industry steps up fight against food waste	01-Dec-2022	Diverse/value-add
Pest and disease project protects the industry	01-Dec-2022	P&D mgt

QBAN listing	01-Dec-2022	Biosecurity
Chlorpyrifos review	01-Aug-2022	Crop protection
Project finishes on (Bunchy) top	01-Aug-2022	P&D mgt
Sustainable Energy Co-Op	01-Aug-2022	Sustainable practice
Robotic revolution	01-Aug-2022	Labour
QBAN listing	08-Jul-2022	P&D mgt
BBTV the Way forward	01-Apr-2022	P&D mgt
Chemical review update	01-Apr-2022	Crop protection
QBAN Listing	01-Apr-2022	Biosecurity
Ag Chemical update.	01-Dec-2021	Crop protection
Become a farm plastics champion.	01-Dec-2021	Sustainable practice
Findings from the TR4 Scientific review.	01-Dec-2021	P&D mgt
Chemical Update	08-Aug-2021	Crop protection
One page of articles on bunchy top project activities.	08-Aug-2021	P&D mgt

Oral Presentations: The R&D manager was invited and gave 16 presentations at the following meetings.

Presentation	Year
R&D Coordination presentation (R&D SIAP)	2025
4 th Scientific symposium joint Chair (180 attendees)	2025
Poster Pitch session Chair at the Banana Industry Congress	2025
Short oral presentation at BAgMan meeting Chlorpyrifos Review	2024
‘Panama TR4 transition and issues with data sharing’ at the joint Plant Health Committee and Plant Industries biosecurity committee workshop.	2024
Joint podcast with Melissa Smith from End Food Waste Australia published by Food Waste Matters. Food Waste - ‘There is a story behind every banana’ https://foodwastematters.com.au/presentations/theres-a-story-behind-every-banana/April 2024	2024
Oral presentation at the Plant Biosecurity Research Initiative Symposium (Cairns) Multipest Surveillance and Grower Education’.	2024
Oral presentation to QDAF Vegetable team Monitoring and evaluation in industry development projects.	2024
ABGC Webinar series – 1. Carbonovia - Presenter: Jon Lorraine - 33 Views. (Feb) 2. GM Banana QCAV-4 - Presenter: James Dale - 19 Views (Mar) 3. Benchmarking - Presenter: Eric Schluter - 10 Views (Apr)	2024
Banana Biosecurity Lecture - a 50 min lecture delivered to final year and honours students who are majoring in Biosecurity at the UQ Gatton Campus 8-10 attendees.	2023
3 rd Scientific Symposium. Joint chair. On 17 th May 2023. (118 attendees)	2023
ABGC Webinar series Chlorpyrifos review Update Presenter: Rosie Godwin - 123 Views	2023
Sep 2021 Industry Presentations - QUT School of Biology & Environmental Science. Talk entitled “Banana Biosecurity - Why it matters!” 8-10 attendees	2021
Dec 2021 Wine and Grape Australia’s industry liaison officer workshop. Talk entitled “The banana industry’s experience in managing disease incursions” .	2021
Dec 2021 Joint government industry surveillance workshop. Talk entitled “Banana Bunchy Top Virus - An unrelenting risk!”	2021
Dec 2021 Toowong community garden – topics included the National banana industry and banana diseases e.g. bunchy top virus.	2021

Interviews: The R&D Manager gave 10 interviews on behalf of the banana industry to the following stakeholders.

Interviews	Year
Media interview with ABC online and The Country Hour. - New automation project on de-handing.	2024
ABC Radio (various, across Australia) – Rosie Godwin (GM bananas)	2023
The Australian (plastic credits scheme)	2023
ABC North QLD Rural Report (and various) – Rosie Godwin (Partnership with GreenCollar on the Plastics Credits Scheme) <u>Plastics credit scheme (Rosie Godwin) - https://www.abc.net.au/news/2023-05-30/plastic-credits-scheme-targets-banana-industry-waste/102355104</u>	2023
The Guardian Online interview on the Freckle incursion in the NT https://www.theguardian.com/australia-news/2022/jun/16/devastating-banana-freckle-disease-found-in-northern-territory	2022
ABC Landline/Country Hour interview on the Freckle Incursion in the NT . Also picked up by other media channels e.g NT independent. https://ntindependent.com.au/stressful-time-banana-freckle-discovered-in-the-territory-again/	2022
Verra Auditors - about the farm Plastics Credits project being delivered by Greencollar.	2021
IP Australia - for reforms to the IP system in Australia	2021
ACIAR impact assessment of project HORT/2012/097 Integrated management of Fusarium wilt of bananas in the Philippines and Australia.	2021
Freshcare member value - being conducted by Macquarie University.	2021

Appendix 2 BA20002 Final Report Case Studies

Case Study Area	Description and year
1.Strategic planning, coordination, industry engagement and networking.	Problem/Opportunity Identification (2021/22 and 2025/26): Strategic planning is of great importance because it defines an industry's long-term vision, sets objectives, and outlines how to achieve them. It aligns resources, funders, delivery partners and other stakeholders around the shared priorities. The main benefits include: • Optimisation of resources directing them to high-value initiatives that are aligned with strategic goals. • Alignment and focus: Helps funders and delivery partners understand the vision and how their work contributes to it. • Risk and opportunity management: Identifies market opportunities and potential roadblocks early so they can be used to advantage or avoided. • Accountability and measurement: Tracks progress, measures results, and supports accountability. Project development: The banana industry R&D Manager played an active role in industry consultation and prioritization of industry challenges and opportunities with Hort Innovation for the development of strategic plans to guide levy investments and industry development. R&D Manager's made a significant contribution to the development of the following Outcomes: • Australian Banana Growers' Council (ABGC) Strategic Plan 2021–2026 and the • Hort Innovation Banana Fund Strategic Investment Plan (SIP) 2022–2026 and the • <i>Banana Investment Roadmap 2026–2031.</i> Without BA2002, the strategic planning process would have taken longer, would not have been as relevant to the needs of growers and stakeholder engagement, and industry insights would have been less extensive. This means the R&D program would be less likely to deliver tangible outcomes targeted to industry needs.
2.New Opportunities to address profitability and sustainability	During the life of BA20002, a wide range of new opportunities aligned with industry priority areas were identified, pursued and developed in collaboration with key parties. Without the R&D Manager many of the opportunities would be missed. Two case studies are outlined below. A. Automation. Problem/Opportunity Identification (2022): Banana production is highly labour intensive, with labour costs and access to skilled workers key challenges. To address this the R&D Manager • explored automation opportunities across the production process. • She built relationships with new delivery partners, including Arm Hub and QUT Centre for Robotics. Project development (2022-2024) • The R&D Manager then helped initiate and coordinate BA21005 'A study to review automation of banana de-handing'. She provided industry representation and advice, served on the PRG, assisted in identifying collaborating farms, assembled interested growers for participation in workshops and as PRG members and helped disseminate project outcomes through industry communication and extension channels. BA21005 assessed opportunities and challenges for robotics and automation through a time-and-motion study in an operational banana processing facility. The project was successfully completed

	in 2024 and identified de-handing as the best candidate for automation, with potential to cut processing costs and reduce manual handling injuries. Information published in the final report provided as basis for further development of the concept. Concept to working prototype (2024-2025) Building on BA21005, follow-on project BA22003 'Banana De-handing Prototype Development' was then established to build and test a functional de-handing prototype. The \$2 million project, led by QUT and funded through Hort Innovation, Future Food Systems CRC, ARM Hub and BNL Industrial Solutions, successfully produced a working TRL4 de-handing prototype using computer vision and machine learning. The R&D Manager promoted the project, served on the PRG and provided opportunities for outcomes to be communicated to the banana growers. Working prototype to commercial reality (2026-future) The industry now could progress the development of a robotic de-hander through a future project through design refinement, field evaluation, commercial testing and industry adoption. B. Reducing on-farm food waste Problem/Opportunity Identification (2022): Food waste is a major challenge across the Horticulture sector and around 30% of fruit is lost on banana farms. Reducing food waste would have a significant positive impact on farm profitability and sustainability, people and the environment. Project development (2022): To address this issue, the R&D Manager identified and built new relationships with End Food Waste Australia and other delivery partners who were interested to develop a Horticulture Sector Action Plan. As little was known about food waste in the banana industry, the R&D Manager secured involvement in food waste project as well as securing a specific banana industry sub-project. 1.Development of the Food Waste Action Plan and strategies (2022-2023) In 2023-2024 The Horticulture Sector Action Plan project with sub-project on the Banana Industry Sector Action Plan was conducted. The projects were led by CQU and involved minimal funding from the Banana R&D levy fund as industry funding was further leveraged- by End Food Waste CRC as well as the Australian Government. A comprehensive report was produced where food waste in the banana supply chain was quantified, root causes identified and nine strategies to tackle the issue were determined. These were backed up by targeted actions and clear measures of success. The R&D Manager assisted in assembling a PRG of industry representatives (including small and large growers and members of the supply chain) to guide the Food Waste Sector Action Plan projects and was an active participant in meetings, workshops and extension/ communication channels. The success of the project was recognized at Hort Connections 2024 where End Food Waste Australia, ABGC and Melon's Australia were jointly awarded the Butler Market Gardens and Sustainability award for the project. Since 2024 the R&D Manager has maintained contact with End Food Waste Australia and other delivery partners to establish further projects to build on the outcomes of the Sector Action plans. 2. A new project, 'Reducing On-Farm Food Waste: Unlocking Value for Profitability & Sustainability' (2026 -2028) was contracted and established. The project is a national initiative led
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	by End Food Waste Australia, Hort Innovation, and End Food Waste CRC research partners and involves a range of commodities including bananas. The project is underway and encompasses four main strategies to address food waste: • Consumer Expectations: Investigates cosmetic standards and their impact on waste, with consumer surveys and trials. • Value-Added Pathways: Develops case studies and assesses environmental and economic viability. • Animal Feed: Identifies waste streams suitable for feed, evaluates nutritional and logistical factors. • Soil Amendments: Explores organic waste management, composting, and soil health benefits through case studies and trials. The R&D Manager has joined other key horticulture industry representatives on Project Advisory Group (PAG) for this project to assist in driving project progress and ensuring relevance to the banana industry. The above project is the next step in finding solutions for food waste reduction in the banana industry. ----- Many other problems and opportunities have been explored and progressed over the last 5 years (2021-2026) including: • Australia Economic Accelerator Program QUT to demonstrate the deregulated Cavendish GM banana QCAV4 has broad spectrum field disease resistance to multiple pests such as TR4 and leaf spot of banana. In progress and nearing completion. • ARC mid-career industry Fellowship with La Trobe University To establish a sustainable framework for recycling and reusing agricultural and fisheries plastic waste (AFPW) across Australia. Unsuccessful in obtaining funding – other sources being investigated. • QUT PHD project Turning Banana Waste into Treasure – Unlocking the Hidden Value of Cavendish Banana Inflorescence. Completed. Potential for future work and funding sources to be investigated. • Spin off company La Foundary. Waste green bananas and peduncles. La Foundary's innovation is in transforming Agri-industrial waste into home-compostable foam materials. Potential for this work and funding sources for development were investigated. • Multi-pathogen surveillance and monitoring as well as data recording and surveillance for TR4 with the UNE National Tree Crop project. In progress. • Data gathering requirements and methodology for proof of area Freedom claims with the ARC Biosecurity Training Centre. Still at the concept phase. • Options for value adding using waste bananas were explored with Lyte Gro (a UK biotech company that converts waste bananas into BacLyte, a supplement designed to enhance industrial fermentation) and Carbonovia (a UK-based early-stage company focused on sustainable alternatives to food and fuel crop utilization, developing sustainable animal feed from agricultural and food waste, as well as carbon capture and utilization concepts). Proof of concept studies to be completed. • Use of sodium hypochlorite as a post-harvest treatment for Sooty blotch. (QDPI) further investigation underway with Hort Innovation. • Investigation of new solutions to chemical access and gaps with a chemical company including Bayer and Corteva.
3.Improved networking, coordination & collaboration of the industry R&D program	The R&D Manager participated in a range of national and international meetings, attended domestic and International conferences and organized events to facilitate networking and collaboration and coordination across the R&D program. Two case studies are presented. A. International Workshop on TR4 (2023) Problem/Opportunity Identification: Fusarium Wilt TR4 is a significant issue threatening banana

nationally and internationally.	production globally. Solutions will only be found by collaborative efforts internationally. FAO approached ABGC and the University of Queensland to host a group of Central and South American researchers and industry representative to deliver a joint learning exercise. This was an ideal opportunity to network with international community at no/little cost to the Australian industry. Progress to projects (2024): The R&D Manager and Professor Elizabeth Aitken (UQ) jointly conceptualized, planned, organized and successfully delivered the workshop 'How Australia is managing TR4' The workshop was fully funded by the International Atomic Energy Agency and involved hosting 10 Central and South American researchers on a 7-day fact-finding tour about TR4 containment and management. As well as series of farm visits in NQ, mini TR4 symposia were held in both Brisbane and South Johnstone in which researchers delivered talks and exchanged information in discussion groups. Outcomes (2024): International collaboration and networking and information exchange were achieved through the delivery of 7-day workshop, leading to a greater understanding of the status of TR4 in those countries and containment strategies being deployed. The Workshop also led to further information exchange between participants subsequently. B. National workshop on TR4 (2025) Problem/Opportunity Identification: As TR4 is spreads at an increasing rate in the Australian industry, growers will find it progressively more challenging to contain and manage the disease. As industry leaders, the ABGC Board asked if the efficiency of TR4 containment and management could be improved to meet the future needs of the industry? Progress to projects (2025): To address the above issue, the R&D Manager and Dr Tony Pattison (QDPI) jointly planned, organized and successfully convened a 1-day Panama Disease TR4 Workshop. The purpose of the workshop was to consult with industry members, investigate containment strategies for Panama disease TR4 in NQ, and identify strengths, weaknesses and opportunities for improvement of the current strategies used in TR4 management. The workshop was fully funded through the Banana Industry Biosecurity Levy and there were 15 participants (2 growers from infested properties, 4 ABGC staff including Chair, CEO, R&D Manager, Project Leader of TR4 Program, 2 BQ staff; 6 AgriScience Qld staff, 1 Univ of Qld. The workshop focused on ways to improve containment protocols for TR4 in banana production. Outcomes (2025 - 2026): A workshop report was produced which highlighted participant's views, recommendations for effective management strategies, effective protocols and areas for improvement. Findings from the workshop have informed future policy direction and determined what areas of TR4 management and containment protocols could benefit from further research. Specifically, the workshop findings also contributed to the development of a new ACIAR project HORT/2025/126 'Agroecological Management for Resilient Smallholder Banana Systems' which is currently being contracted to UQ and international partners in the Philippines Laos, Indonesia and Pakistan. The R&D Manager secured involvement in the new project with ABGC as a partner organisation. This new project facilitates the adoption of agroecological principles by diverse smallholder banana systems while strengthening collaboration between Australian and regional research and advisory organisations.
4.Extension and communication of R&D outcomes	Problem/Opportunity Identification: The Science Symposium and Banana Congress are signature events for the extension and communication of R&D outcomes to all members of the banana

to all members of the banana industry and its stakeholders.	industry and its stakeholders. Progress to Projects: Science Symposium 2023 and 2025 The Banana Industry Science Symposium was held in conjunction with the Australian Banana Industry Congress in 2023 and 2025. The R&D Manager conceived the idea of running a 1-day Science Symposium aligned with the Banana Congress prior to the 2023 Congress and support was obtained from the Congress planning committee. The goal was to : (1) increase awareness and understanding of banana R&D across a greater range of industry stakeholders including growers and service providers (previous Science Symposia were only open to researchers). (2) provide greater value to researchers in attending the Banana Congress since at the symposium, a greater number of banana researchers could deliver more detailed presentations on their research than was typically available in the main congress program. (3) general exchange of ideas and networking. The 2023 and 2025 symposia were full-day programs comprised of a series of 10-minute presentations with facilitated Q&A sessions after themed blocks of presentations. R&D themes included topics such as genetics, varieties, biosecurity, diagnostics, pest and disease management, soil health, fruit quality and production challenges. The R&D Manager conceived the Scientific Symposium in this one-day format, coordinated and delivered each event and contributed \$5,000 in project funds from BA20002 per symposium. The National Extension Project Leader (Tegan Cavallaro) provided valuable assistance to both symposia - prior to the event in planning and organizing the program of talks, pre-event media, briefing colleagues, and on the day, in the operation and chairing of sessions and conducting the evaluation. The ABGC Comms Manager, (Amy Spear) who was the main Congress Coordinator also provided significant assistance at each event. The 2023 post-event evaluation showed that: Attendance was strong, with 118 participants, around double the expected number. It featured around 20 short research presentations. Researchers made up the largest group, followed by growers, retail/supply chain representatives, and other industry stakeholders. Evaluation feedback was highly positive: • Approximately 75 attendees completed the evaluation • 100% of respondents said their knowledge of banana R&D benefited from attending. • 84% gained new contacts. • 100% said they would attend again. Qualitative feedback praised the diverse program, organisation and networking value, while suggestions for future improvements focused mainly on allowing more time for networking. “The Science Symposium” contributed to better outcomes for the Australian industry through having a dedicated and well-coordinated R&D-focused session at the last two Banana Congresses (2023 & 2025). The 2025 post-event evaluation showed that: • There were 182 attendees, up from 118 in 2023. • It featured 18 short research presentations.
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	• An international guest presentation was delivered by Professor Altus Viljoen from Stellenbosch University, adding a global perspective on banana Fusarium wilt research. • The event was organised and facilitated by Rosie Godwin and Tegan Cavallaro, with logistical support from the ABGC communications team and sponsorship from Woolworths Group and ACIAR. Evaluation results were very positive showing that: • 97 attendees completed the evaluation. • 100% said their knowledge of banana R&D benefited from attending. • 98% said they would attend again. • Overall event ratings were strong, with most respondents rating it 4 or 5 out of 5. • The most popular session theme was “Mites, flights and things that keep you up at night”, followed by “Gene Scene and Variety Show” and “Ground truths”. Qualitative feedback was very positive attendees highlighting the event as well organised, well structured, diverse, professionally run, and valuable for networking. The symposium was considered a success and achieved its aim of raising awareness of banana R&D across the industry.
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