Final Report

Barriers to best practice across diverse communities in the rubus industry

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Public summary

This project identified the barriers to the adoption of best practices in the raspberry and blackberry (Rubus) industry and recommends next steps to overcome these barriers. The drivers were the need to improve industry production efficiency, sustainability, and overall capability, particularly within culturally and linguistically diverse communities (CALD).

Social research focused on demographic profiling of the industry, stakeholder engagement (including face-to-face interviews with Sikh Rubus growers in the Woolgoolga region), and identifying and prioritising challenges. This included a contextual analysis of the Woolgoolga farming community, interviews with service providers and growers, and analysis of demographic data.

The work identified key barriers to the adoption of best practices, including lack of financial incentives or finance, complexity in regulatory frameworks for environmental impacts, challenges in engagement, lack of resources (time and labour), and cultural nuances. The recommendations for mitigating these barriers, which can be used to tailor extension activities for CALD horticultural communities are:

Lack of financial incentives or finance

Extension activities should be linked to financial benefits wherever possible, while regulation may be necessary when behavioural change is required without clear financial incentives. Recommendations should be tailored to the financial circumstances of the grower group, with varied options provided for mixed groups. When suggesting new technology, emphasis should be placed on equipment proven to work in the region, along with information on financial risks associated with inferior alternatives. Extension efforts should also consider individual growers' access to premium genetics and the support systems that accompany them.

Complexity in regulatory frameworks for environmental impacts on farms

Communication about regulations should be simple and concise. A single point of contact can help build trust between growers and regulators. Compliance capacity varies by business size, so smaller growers may need support. Trust in regulation develops over time.

Challenges in engagement

To effectively engage growers, especially in culturally and linguistically diverse communities, trust should be built through regular, respectful, and localised face-to-face contact. Communication must avoid assumptions about language or literacy and be timed with sensitivity to growers' routines and cultural practices. Using preferred channels like WhatsApp and informal networks such as temples or clubs can enhance outreach. Clear value propositions are essential when promoting behaviour change or new technologies. Extension activities should also respect the privacy of farms and consider relationship dynamics, particularly in close-knit communities like Woolgoolga.

Lack of resources (time and labour)

Extension activities for adoption of new technology should be targeted at periods of the year when growers have capacity to participate and are rested and more likely to be receptive to new ideas. This period appears to be between February and May for the Woolgoolga region but will vary for different communities across Australia.

Cultural nuances

When planning extension events, consider cultural preferences such as food, calendar dates, and work rhythms. Offer tailored options without enforcing separation. Understand each group's language and communication needs, and identify "cultural connectors" who informally support others with language or networking challenges, as they can be key to effective engagement.

Technical summary

This project aimed to understand the impediments to the uptake of best practice within the Australian Rubus sector, with a specific focus on CALD communities. The methodology comprised a comprehensive literature review, demographic profiling, semi-structured interviews with a range of stakeholders including growers (with a focus on the Sikh community in Woolgoolga), industry service providers, and agribusiness representatives. Qualitative data analysis was conducted to identify recurring themes representing barriers to best practice adoption. These barriers were then categorised and preliminary mitigation strategies were explored.

The project delivered foundational project management documents, a contextual analysis of the Woolgoolga region, and a report detailing the identified barriers and initial recommendations.

Outcomes to overcome these barriers, included:

- Improved capability and an innovative culture, which maximises investments in productivity and demand.
- An improved understanding of the barriers to adoption and opportunities for improvement to overcome barriers and improved use of best practice, particularly in CALD grower groups
- Increased level of knowledge of barriers to adoption of new technology in the region (Woolgoolga / Coffs Harbour)
- Initial engagement of Rubus and other growers in the region and service providers who work day-to-day with the growers.
- Preliminary outcomes of recommendations for mitigating barriers to adoption have been produced, which can be used to tailor extension activities in other culturally and linguistically diverse horticultural communities throughout Australia.

Keywords

Rubus, raspberry, blackberry, best practice, adoption, barriers, diverse communities, culturally and linguistically diverse, CALD, Woolgoolga, Sikh growers, social research, extension.

Recommendations

Lack of financial incentives or finance

1. Extension activities should be clearly linked to financial benefits, where possible.
2. Regulation may be needed where behavioural change is necessary on-farm without clear financial benefits.
3. Recommendations for practice change should be matched to the financial circumstances of the grower group involved, or, if there is a mixed group, have a range of recommendations based on varying financial circumstances.
4. When making recommendations for the adoption of new technology, emphasis should be placed on using equipment that has proven to work under the conditions of the region, and information should be given on the financial and other risks of using inferior equipment.
5. Extension staff should be aware that not all growers have the same access to premium genetics and the ongoing support that goes with that, therefore activities should consider individual circumstances regarding this aspect of grower profiles.

Complexity in regulatory frameworks for environmental impacts on farms

6. Communication activities and resources involving regulatory frameworks should be as simple and concise as possible.
7. Growers may appreciate a central contact for regulatory issues, for simplicity and to allow trust to develop between the regulator and grower.
8. Growers with different sized businesses will have varying abilities to comply with regulations, and smaller businesses

may need some form of assistance with compliance

9. Effective regulation will require building of trust over a period.

Challenges in engagement

10. Prioritise the development of relationships of trust through regular and respectful contact.
11. Avoid any assumptions of language, literacy or familiarity with extension processes.
12. Localise delivery to where growers are located. Face-to-face contact remains central to engagement.
13. Time events with sensitivity to work routines and cultural practices of growers.
14. Use preferred channels of communication. There appear to be many avenues of informal information sharing in the Sikh community, such as sporting organisations, the temple, and clubs. WhatsApp appears to be an effective and widely used online tool.
15. Give clear value propositions when engaging growers in activities designed to change behaviours or encourage the adoption of new technologies.
16. Recognise the sensitivities involved in conducting extension activities on private farms, in that there may need to be a mapping of invites based on relationships for some, while others may be more open to sharing their experiences more generally. This may be the case in the community at Woolgoolga, but it may be particularly important for other culturally and linguistically diverse communities where there may be family dynamics in a close-knit community.

Lack of resources (time and labour)

17. Extension activities for adoption of new technology should be targeted at periods of the year when growers have capacity to participate and are rested and more likely to be receptive to new ideas. This period appears to be between February and May for the Woolgoolga region but will vary for different communities across Australia.

Cultural nuances

18. Consider cultural preferences when planning extension events, for example, provision of particular foods, special days in the calendar or rhythms of work.
19. Offer options to hold events particularly tailored to some cultural groups, but do not enforce segregation.
20. In each cohort of growers, particularly in culturally and linguistically diverse groups, analyse their language needs and communication preferences.
21. There appears to be people in the community that provide informal translation and communication services to others who may have language difficulties or may not be as well networked. These people, “cultural connectors” when identified, could be important channels for engagement.

Introduction

Rationale

The overarching objective of this project was to identify the barriers to the adoption of best practices within the Australian raspberry and blackberry (Rubus) industry and to propose actionable next steps to overcome these obstacles.

The Rubus industry has experienced significant growth; however, it faces challenges such as variable productivity, limited environmental performance data, and inconsistent practices in OH&S, food safety, and biosecurity. These challenges are exacerbated by increasing consumer demand for product integrity and sustainability, as well as the impacts of climate change.

This project directly addresses these issues by investigating the barriers to adoption of best practices of Rubus growers, using the culturally and linguistically diverse (CALD) Sikh community in the Woolgoolga region of NSW as a case study. This case study will generate insights to be used with other CALD horticultural communities across Australia and support related industries such as the strawberry and blueberry industries.

Significance to industry

This project relates specifically to Outcome 3 of the Berry Strategic Investment Plan "Extension and capability" and the strategy "Understand barriers to uptake of best practices including an understanding of the culturally and linguistically diverse (CALD) communities of the berry sector" (Hort Innovation, 2021).

This initiative is crucial for enhancing the industry's productivity, sustainability, and innovative culture and was identified in the Raspberry and Blackberry Fund Annual Investment Plan 2024/25 (Hort Innovation, 2024).

Context and learnings from other projects

The previous project MT18020 "Facilitating the development of the Australian berry industry" identified key focus areas for berry extension, including management of pest and disease, irrigation and nutrition, business and labour. New technology and robots were also identified. Sub sectors of the producer demographic were also identified such as corporates, mid-large, small / agrotourism and CALD. This highlighted that there may be differences or nuances in adoption of best practices in different sectors of the industry.

Recent work by Berries Australia (C7Even Communications, 2024) has identified a number of strengths, weaknesses, opportunities and threats to the berry industry. The report focuses on the Coffs Harbour / Woolgoolga area because of the high concentration of both Rubus and blueberry growers in the district. There were some perceptions of the industry having issues in the areas of labour management, visual amenity of farms, environmental impact and misinformation in the general community about farming practices. Because most berry farmers in the region are from Indian, specifically Punjabi backgrounds, there has been racial undertones in the community conflating practices with family background.

This project focused specifically on the issues surrounding the Coffs Harbour / Woolgoolga Rubus community but the information obtained could be used for other berry growing communities across Australia, or other CALD communities engaged in horticulture.

Methodology

The methodology was divided into 3 stages:

Stage I: Project establishment

A program logic, monitoring and evaluation plan, communications plan, and stakeholder management plan were produced using Hort Innovation templates. A project reference group was proposed and convened.

Stage II: Social research

The steps to complete this research were:

a. Demographic profiling of the industry: Existing census and industry information, and stakeholder estimations were used to create a demographic profile of Rubus growers in the Woolgoolga / Coffs Harbour region. Published literature was used to give historical context to the development of horticulture in the region.

b. Engagement of stakeholders and identifying barriers to adoption: A diverse group of stakeholders were engaged, with a priority on face-to-face engagement with Sikh Rubus growers in the Woolgoolga region. Other stakeholders were engaged by telephone, online or in person. The project reference group and personal contacts within the project team were used to find and screen potential stakeholders.

Stage III: Synthesis and reporting

This involved collating the information from interviews and developing themes around barriers to adoption of best practice and identifying recommendations to overcome these barriers.

Recommendations to overcome barriers were fed back to stakeholders in an iterative process to determine if they could be improved before final recommendations were made. In addition, other extension practitioners in NSW and Queensland engaged with agricultural CALD communities were interviewed to identify their insights and practical experiences of working in these communities.

Results and discussion

Stage I: Project establishment

The program logic, monitoring and evaluation plan, communications plan and stakeholder management plan were produced according to the templates. A project reference group was convened with representatives from Hort Innovation, Berries Australia, the Woolgoolga growing community and the project team. The project reference group met on the 13 September 2024 and the 12 March 2025.

Stage II: Social research

Demographic profiling of the industry

According to the last census in 2021, the population in Woolgoolga was 6,151, while the population of Coffs Harbour was 92,462 (ABS, 2021). The Sikh population is the largest in regional Australia and represents just under 20% of the total population. A more thorough breakdown specific to the Indian / Sikh / Punjabi population is provided in Table 1.

Table 1: Demographics of Woolgoolga and Coffs Harbour

Parameter	Woolgoolga	Coffs Harbour	Australia
Bachelor level degree or above	16.6%	18.8%	26.3%
Ancestry Indian	8.9%	Not reported	3.1%
Country of birth India	10.7%	1.5%	2.6%
Country of birth of Father India	15.5%	2.2%	3.7%
Country of birth of Mother India	16.4%	2.3%	3.6%
Religious affiliation Sikhism	17.2% (1,059 people)	Not stated	0.8%
Language used at home – Punjabi	17.2% (1,056 people)	2% (1,820 people)	0.9%
Industry of employment – berry growing	11.6% (292 responses)	Not stated	0.0%

It can be seen from Table 1 that there is a significant population of Punjabi people in both Woolgoolga and Coffs Harbour, and they are in a minority. In Woolgoolga they play a significant role in the economic landscape of the region through berry growing. This is the largest employer in the Woolgoolga region.

Through interviews with stakeholders in the region approximate numbers of berry and other horticultural growers were obtained. The region currently supports approximately 150 blueberry growers, 30 to 50 Rubus growers, 20 to 35 banana growers, and up to 200 cucumber growers. It was difficult to get precise numbers because of an imprecise boundary around the area, and entrants and exits from the industry year by year. It was reported by stakeholders that Rubus is grown by less than ten Sikh families and a large corporate enterprise. Farms are mostly in the order of 4 to 5 hectares under net or plastic, with blueberries predominantly netted and Rubus growing in poly tunnels.

According to the Protected Cropping Australia website (Protected Cropping of Australia, 2024) the Coffs Harbour Local Government Area (LGA) and Nambucca Valley Local Government Area have the following areas of protected crop (Table 2). Although these figures do not reflect specific crops; most of the poly tunnels are Rubus or cucumber, most of the net would be blueberries.

Table 2: Protected cropping in the Coffs Harbour / Nambucca Valley LGAs

Places	Glasshouse (ha)	Polyhouse (ha)	Polytunnel (ha)	Net (ha)	Shade (ha)	Total (ha)
Coffs Harbour LGA (includes Coffs Harbour, Woolgoolga, Bucca, Corindi)	0	9	387	1091	3	1489
Nambucca Valley LGA (Includes Macksville)	0	0	4	167	18	188

This table shows that the majority of Rubus (and blueberries) in the area is in the Coffs Harbour LGA, (which includes Coffs Harbour, Woolgoolga, Bucca and Corindi) and there are significant amounts of blueberries in the Nambucca Valley LGA to the South.

Historical context of horticulture and Indian immigration in the region

Sikhs began moving to the Woolgoolga area in the mid 20th Century. Most had already been residing in Australia, in many cases working on cane farms in Queensland and Northern NSW (Milner & Hughes, 2012). They were initially drawn by opportunities in the timber industry (cedar cutting), but most then transitioned to farming, notably bananas. This was the predominant agricultural activity in the region, until banana production in Northern Queensland became the dominant supply region for Australia.

Most members of the community then diversified into growing Blueberries. Even more recently, some farmers have started growing Rubus fruits, such as raspberries and blackberries, capitalising on the favourable climate and their existing expertise in berry cultivation.

This transition from small scale banana farming to blueberries brought with it changes in how the farming was done. Bananas had originally been attractive to Sikh farmers because of the limited start-up costs, and the ability to manage the labour required to be successful within the existing family structure. Blueberries required a greater investment in time and became more difficult to manage alone.

The harvesting, which is done by hand, plucking each individual berry from the plant, is very labour intensive and time consuming. The result has been the formation of larger blueberry cooperatives, changes in the role of women in the Sikh community, and the hiring of migrant labour.

Indians own 95% of the farmland around Woolgoolga, and own rental properties, small businesses, and work as professionals in the town (McCarthy, 2013). There is little doubt that their presence in town is integral to the town's existence, yet there are still tensions between non-Indian residents and their Sikh neighbours.

Further information from stakeholder interviews suggested that characteristically, Rubus growers in the region were well established growers who had been screened by the agribusinesses that provide the genetic material, grower support and marketing so they would likely to succeed because of their assets, skills, land and capital. Rubus farms are now located on land that is relatively flat compared to banana growing land, which was

traditionally steep which assisted with the gravity assisted transport of banana bunches to packing facilities.

Rubus in the region is marketed through a small number of agribusiness firms who control the genetic material, packing and marketing, while the grower transports fruit to the packing and cooling facility. These firms provide agronomic support to their contracted growers. Other technical support in the region comes from input suppliers who have in house agronomists, technical specialists through the NSW Government Local Land Services (LLS) and regulatory bodies. Berries Australia also co-fund a position in the area in conjunction with the NSW Government. Extension events are held by all these support organisations.

Engagement of stakeholders and identifying barriers to adoption

The project team conducted 16 interviews with stakeholders between October and December 2024. Telephone calls, online meetings, face-to-face discussions and on-farm meetings with growers in the Woolgoolga / Coffs Harbour area were conducted. Interviews varied in duration from 30 minutes and two hours.

After this first tranche of stakeholder engagement, the information gathered was reviewed and draft barriers to adoption of technology developed for reporting at the 6 month stage of the project. This process led to changes in the wording and emphasis of the barriers.

In May to June 2025 stakeholders were either re-interviewed and other stakeholders that were identified in the first round of interviews also contacted to test the veracity of the barriers to adoption. These represented the following groups:

Table 3: Number of interviews conducted

Groups	Interviews
Growers	4
Berry related agribusiness / agronomy	13
Government / Industry development	9
Professionals working in other CALD growing communities	3
Total	30

Stage III: Synthesis and recommendations

The social research phase identified five key barriers to the adoption of best practices in the Woolgoolga Rubus growing community. These were:

- Lack of financial incentives or finance
- Complexity of regulatory frameworks for environmental impacts on farms
- Challenges in engagement
- Lack of resources (time and labour)
- Cultural nuances.

These are discussed below.

Lack of financial incentives or finance

Growers often spoke of the need for a business or financial imperative to drive behaviour. They had an interest in the success of their businesses, and were reluctant to spend time and effort on activities that did not contribute to financial success. Falling prices and a meeting of supply to demand have eroded profits from Rubus cultivation, hence, the importance of this financial imperative.

For example, growers were not motivated to attend extension events unless a clear value proposition was identified. Service providers were able to give examples of low turnout to extension activities. For management of environmental impacts like diffuse nutrient runoff, growers said that it was difficult to justify expensive capital

interventions in infrastructure to control runoff with no net benefit.

Other growers may have been restricted from adopting new technology due to a lack of financial capacity.

For example, recent arrivals to the district often lease tunnels from other landowners and typically begin their agricultural business journey by leasing poly tunnels for cucumber production, a relatively low-cost entry point. Over time, these producers may acquire the necessary capital, knowledge, and skills to transition to higher-value crops such as blueberries or Rubus and adopt more sophisticated growing practices. Those who do not achieve financial success may abandon farming for other pursuits.

There were stories of growers buying cheap or inferior products. If the products did not work, then the new technology or practice would be abandoned, when it could have been beneficial if the right equipment was used.

Additionally, access to the premium Rubus genetics depends on growers' circumstances (including financial) and ability to form contracts with the agribusiness firms that control these genetics. For instance, some agribusiness firms have a screening procedure for those people who approach them for access to genetics, while others do not, and will supply genetic material more freely. Access to premium genetics comes at a financial cost that not all growers may be able to bear.

Similar information was identified in a study of Australian growers and their adoption of sustainable practices (McCarthy & Schurmann, 2014) which also found that financial barriers (low profitability and high costs) were a major barrier to adoption of new technology.

Recommendations relating to this barrier are:

1. Extension activities should be clearly linked to financial benefits, where possible.
2. Regulation may be needed where behavioural change is necessary on-farm without clear financial benefits.
3. Recommendations for practice change should be matched to the financial circumstances of the grower group involved, or, if there is a mixed group, have a range of recommendations based on varying financial circumstances.
4. When making recommendations for the adoption of new technology, emphasis should be placed on using equipment that has proven to work under the conditions of the region, and information should be given on the financial and other risks of using inferior equipment.
5. Extension staff should be aware that not all growers have the same access to premium genetics and the ongoing support that goes with that, therefore activities should consider individual circumstances regarding this aspect of grower profiles.

Complexity of regulatory frameworks for environmental impacts on farms

Stakeholders in the Woolgoolga community spoke of several real or perceived environmental issues on local farms such as diffuse nutrient runoff, poor landfill practices, and disturbed visual amenity from abandoned or unused shade house infrastructure. The regulations governing these issues appeared to be unclear or complex, therefore clear behavioural expectations were not established. The existing regulatory frameworks were also perceived as being spread amongst State and local governments and there was perceived difficulty to access clear information on the topic. Furthermore, the complexity of local and state regulation, compounded by a lack of legal literacy within newer migrant groups, reflects a clear gap in compliance expectations. While older growers may have developed a working understanding of planning laws, newer arrivals are reliant on others to manage documentation for them, raising risks of accidental non-compliance.

There may be some benefit in demonstrating clear financial and operational benefits of compliance measures where they are available, but in general, regulatory measures exist where there has been market failure to promote certain behaviours.

To improve grower behaviours on environmental issues, there may need to be refinement of regulatory frameworks to address specific behaviours. Also, central points of contact for regulatory information may be useful.

There are other regulatory frameworks that address on-farm practices such as Freshcare and Fair Farms accreditation that are essential for growers to access markets. These were perceived as cumbersome and time consuming. Larger growers typically manage these requirements more effectively than smaller operators, who struggle with the complexity and cost of adherence, which varies little with enterprise scale. There was also some evidence that current regulators are not trusted by some growers.

Recommendations relating to this barrier are:

6. Communication activities and resources involving regulatory frameworks should be as simple and concise as possible.
7. Growers may appreciate a central contact for regulatory issues, for simplicity and to allow trust to develop between the regulator and grower.
8. Growers with different sized businesses will have varying abilities to comply with regulations, and smaller businesses may need some form of assistance with compliance
9. Effective regulation will require building of trust over a period.

Challenges in engagement

Rubus growers and the people that serve them discussed their experiences with agricultural extension activities and attempts to engage and communicate with growers. Field days and workshops have been scheduled to engage growers in education on best practice, and attendance has been influenced by the perceived value of these events, with poor attendance in some circumstances. There were reports of events where growers attend in good numbers, and these were always of high perceived value. These occurred both online and in-person.

There were reports of increased attendance where there was sensitivity to timing to fit with work routines and cultural practices, for instance, events held at 6pm and provided Indian food were well attended while those held during the day were not. The evening meetings were seen to not interrupt the workday and were early enough so that participants had energy for attendance.

The geographic dispersion of berry farms, which spread along the coast from Macksville, through Coffs Harbour and north to Woolgoolga and Corindi, has complicated attendance at centralised workshops. There was some evidence of cultural reluctance to host workshops on private farms, particularly for non-family members, further limiting opportunities for knowledge sharing. There was also evidence, however, that growers were effective networkers. Temples serve as important hubs where information spreads informally. For younger generations, similar networking occurs through community cricket and hockey leagues, as well as bars and clubs. Most growers were part of one or more WhatsApp groups, which was an important flow of information, especially between the larger agribusiness firms and their contracted growers.

Emails have proven ineffective, and growers interviewed reported that they do not read them. Occasionally, flyers are distributed passively through agricultural retailers to reach growers indirectly.

Extension practitioners from other areas of Australia with long histories of engaging with CALD horticultural communities were also consulted as to their insights regarding challenges in engagement. The major themes they identified were to build relationships and do not assume anything about the target audience; that is, listen carefully, learn respectfully and adapt approaches accordingly. With CALD communities, the practitioners warned of possible offence from enforced segregation of activities from other non-CALD growers, but at the same time acknowledging where differences in needs exist.

Recommendations relating to this barrier are:

10. Prioritise the development of relationships of trust through regular and respectful contact.
11. Avoid any assumptions of language, literacy or familiarity with extension processes.
12. Localise delivery to where growers are located. Face-to-face contact remains central to engagement.
13. Time events with sensitivity to work routines and cultural practices of growers.
14. Use preferred channels of communication. There appear to be many avenues of informal information sharing in the Sikh community, such as sporting organisations, the temple, and clubs. WhatsApp appears to be an effective and widely used online tool.
15. Give clear value propositions when engaging growers in activities designed to change behaviours or encourage the adoption of new technologies.
16. Recognise the sensitivities involved in conducting extension activities on private farms, in that there may need to be a mapping of invites based on relationships for some, while others may be more open to sharing their experiences more generally. This may be the case in the community at Woolgoolga, but it may be particularly important for other culturally and linguistically diverse communities where there may be family dynamics in a close-knit community.

Lack of resources (time and labour)

A significant barrier to adoption of new technology for growers was the lack of personal time and energy.

Managing the technical aspects of farming and a large work force in a labour-intensive industry meant very long hours without breaks over a long growing season. This intensity of activity may preclude investigating and developing new practices or adapting new technology for growers in some instances. This is especially the case for new migrants renting tunnel space, whose farming is often high-effort, low-margin, and transitional. Unlike long-term growers, they may not intend to stay in horticulture, let alone invest in system-wide improvement.

There also appeared to be differences in the management structure of large corporate Rubus enterprises compared to family run farms in the CALD community, with more staffing and a greater spread of responsibilities on the corporate farms, allows more time and energy to invest in new practices. While older families manage multigenerational businesses and have built up operational resilience, the transience and instability of the new cohort — including limited knowledge of Australian systems — creates a structural disadvantage in their ability to adopt or engage. Even among those interested, lack of time, physical exhaustion, and an overwhelming workload prevents capacity-building.

However, there were instances of adoption of very complex technology by growers in the CALD community, related to personality, education level and degree of motivation (Guerin, 2000).

A recommendation relating to this barrier is:

17. Extension activities for adoption of new technology should be targeted at periods of the year when growers have capacity to participate and are rested and more likely to be receptive to new ideas. This period appears to be between February and May for the Woolgoolga region but will vary for different communities across Australia.

Cultural nuances

There were some important cultural nuances in the Sikh community to consider in extension engagement.

For example, some minor culturally related issues, for instance, ensuring provision of vegetarian meals for events.

There is also a strong value for work, making a living and contributing to the wider community. According to some interviewees, puts pressure on some growers to keep working hard when margins are low, compared to other growers that might stop working when not making money. One grower also suggested that the tendency to continue to work at very low margins is a Sikh characteristic.

Language was not seen as an issue for most growers. There was some evidence that older growers, or those new to Australia, felt more comfortable speaking with a local Punjabi speaking agronomist (who was also a Sikh). For others, it was related to us that most people in the community, even if their English language skills were not good, knew people who would share information with them in their own language. Practitioners working with other CALD communities in NSW and Queensland added that it was valuable to record growers' language and communication preferences to allow tailoring of engagement.

For those growers in the Sikh community born in Australia, which included most of the major Rubus growers, language was not an issue. Extension practitioners in NSW and Queensland also confirmed that new entrants to the community, particularly from Indian backgrounds, might be reluctant to engage, especially when unfamiliar with the purpose or value of extension.

Other practitioners working with CALD communities in NSW and QLD suggested there may be instances where engagement strategies are designed with the preferences of specific cultural groups in mind, but at the same time it was wrong to assume that groups would want to stay separate, with one instance of a participant asking "where the other growers were?".

Recommendations relating to this barrier are:

18. Consider cultural preferences when planning extension events, for example, provision of particular foods. Other important considerations may include special days in the calendar or rhythms of work etc.
19. Offer options to hold events particularly tailored to some cultural groups, but do not enforce segregation.
20. In each cohort of growers, particularly in culturally and linguistically diverse groups, analyse their language needs and communication preferences.
21. There appears to be people in the community that provide informal translation and communication services to others who may have language difficulties or may not be as well networked. These people, "cultural connectors" when identified, could be important channels for engagement.

Outputs

The tangible products and services (deliverables) produced by the project include:

Table 4: Output summary

Output	Description	Detail
Meeting minutes	Documentation of the initial meeting to commence the project.	Startup meeting minutes and associated actions.
Program logic and monitoring and evaluation plan	A document outlining the project's intended outcomes, the activities to achieve them, and how progress and success will be measured.	A program logic and monitoring and evaluation plan with linkage to Hort Innovation and industry/fund objectives.
Communication plan and stakeholder engagement plan	A set of plans to guide communication and stakeholder engagement for the project.	Project management documents, including communications plan, stakeholder engagement plan, and monitoring and evaluation plan.
6-month milestone report	A comprehensive report synthesizing findings from various research activities.	Report from desktop analysis (contextual analysis of Woolgoolga), 30 face-to-face and online interviews, and community engagement (Themes from qualitative information gathering). Statistical information about the characteristics of the Rubus industry in Woolgoolga / Coffs Harbour region.
Final report	The culminating document of the project, providing a comprehensive analysis and recommendations.	A final report identifying the barriers to adopting better and best practices and recommendations to overcome them.

Outcomes

The intended outcome for this project at the strategic industry level was:

“Improved capability and an innovative culture in the Australian berry industry which maximises investments in productivity and demand”.

The direct outcome of this project was:

“An improved understanding of the barriers to adoption and opportunities for improvement amongst industry members to assist in designing mitigation strategies to overcome barriers and improved use of best practice, particularly in Culturally and Linguistically Diverse grower groups”. This report summarises how this outcome has been achieved.

Table 5: Outcome summary

Outcome	Alignment to fund outcome, strategy and KPI	Description	Evidence
Improved capability and an innovative culture in the Australian berry industry which maximises investments in productivity and demand	Berry Strategic Investment Plan Outcome 3: Extension and capability, Strategy 4: Understand barriers to uptake of best practices including an understanding of the culturally and linguistically diverse (CALD) communities within the berry sector. KPIs: Resources available that outline how to best engage with CALD communities to enhance practice change. Key resources translated into relevant languages. Also aligns with Outcome 2: Industry supply, productivity and sustainability with the strategic intent to accelerate the application of production practices that optimise returns and reduce risk to growers.	This is the intended outcome for this project at the strategic industry level. The strategic intent of Outcome 3 is to enhance knowledge, relationships, systems and processes required to communicate effectively with internal and external stakeholders. Outcome 2 aims to improve industry production efficiency to maintain local and international competitiveness.	This is a strategic industry-level outcome and will likely be evidenced through the impact of future projects informed by this project's findings. However, there have been advances in knowledge to communicate effectively with stakeholders through interviews in the Woolgoolga / Coffs Harbour community. There have also been recommendations made in this report to improve processes of engagement with internal and external stakeholders.

Outcome	Alignment to fund outcome, strategy and KPI	Description	Evidence
An improved understanding of the barriers to engagement and adoption and opportunities amongst the CALD industry members in the Woolgoolga / Coffs Harbour region to assist in designing mitigation strategies to overcome barriers and improved use of best practice in this and other CALD grower communities	Berry Strategic Investment Plan Outcome 3: Extension and capability, Strategy 4: Understand barriers to uptake of best practices including an understanding of the culturally and linguistically diverse (CALD) communities within the berry sector. KPIs: Resources available that outline how to best engage with CALD communities to enhance practice change. Also aligns with Outcome 2: Industry supply, productivity and sustainability with the strategic intent to accelerate the application of production practices that optimise returns and reduce risk to growers.	This is a direct outcome of this project. It involves gaining a better understanding of what prevents growers, especially those from CALD backgrounds, from adopting best practices in the raspberry and blackberry industry and identifying potential solutions. This report is a resource that is available that outlines how to best engage with CALD communities to enhance practice change.	Report on barriers to adoption compiled from qualitative and quantitative data on industry stakeholders. Results from online interviews and face-to-face meetings.

Outcome	Alignment to fund outcome, strategy and KPI	Description	Evidence
Industry stakeholders are informed on barriers to adoption of new technology and, where appropriate, take novel approaches to overcome barriers and improve overall industry performance	Berry Strategic Investment Plan Outcome 3: Extension and capability, Strategy 4: Understand barriers to uptake of best practices including an understanding of the culturally and linguistically diverse (CALD) communities within the berry sector. KPIs: Resources available that outline how to best engage with CALD communities to enhance practice change. Also aligns with Outcome 2: Industry supply, productivity and sustainability with the strategic intent to accelerate the application of production practices that optimise returns and reduce risk to growers.	There are many stakeholders that interact with the Rubus industry in the Woolgoolga / Coffs Harbour region in areas of industry regulation, environmental regulation, input supply, labour provision, packing and marketing, industry development, growing technology and biosecurity. All these sectors have a need for ideas and ways to engage with growers and overcome barriers to adoption of best practice.	A second round of interviews was held with industry stakeholders to present ideas on barriers to best practice and to receive their feedback on five major ideas for barriers. They were able to reflect on these ideas and provide feedback to the team to refine the barriers and ways to overcome them. More could still be done to promote novel approaches to overcoming barriers, including the publication of this report.
Berry growers are engaged and reflect on their own practices and behaviours and take steps to improve the performance of their business	Berry Strategic Investment Plan Outcome 3: Extension and capability, Strategy 4: Understand barriers to uptake of best practices including an understanding of the culturally and linguistically diverse (CALD) communities within the berry sector. KPIs: Resources available that outline how to best engage with CALD communities to enhance practice change.	Berry growers are engaged through the process and reflect on their own barriers to adoption of best practices, how they have overcome them and how they might still have barriers that they have not overcome in improving their business.	Interviews with Rubus growers showed their success in adopting best practices, especially in crop husbandry and new irrigation technology. They did identify barriers in time and energy due to running very large and complex businesses. They did identify very successful training interventions that helped their businesses, and helped the team recognise complexity in the regulatory environment.

Monitoring and evaluation

A monitoring, evaluation, and reporting plan was developed for the project, reflecting its short time frame and using a hierarchy of evaluation from inputs to outcomes. Key evaluation questions focused on the effectiveness of the project in increasing understanding of barriers and improving industry performance, the relevance of the

project to the needs of beneficiaries, the appropriateness of engagement processes, and the efficiency of the project. Data collection methods included meeting minutes, reports, recordings of interviews, and questionnaires. Due to the short-term nature, collecting data on practice change was acknowledged as difficult. Monitoring and evaluation results were reported in the six-month and final reports.

Table 6: Key Evaluation Questions

Key Evaluation Question	Project performance	Continuous improvement opportunities
Effectiveness: To what extent has the project achieved its expected outcomes?		
To what extent has the project increased understanding of barriers to adoption of new technology amongst Rubus growers in the Woolgoolga / Coffs Harbour Region?	The project has achieved an increased level of knowledge of barriers to adoption in the Woolgoolga region and initial engagement with growers and service providers.	There were two main areas of possible improvement, there were actual barriers to adoption and challenges to engagement with growers. Addressing both will be necessary for adoption of best practice
To what extent has the project improved performance of the Rubus industry in relation to best practice?	Recommendations have been made for removal of barriers to adoption of new technology for Rubus growers.	The recommendations should be used and tested for their relevance to overcome barriers to adoption of best practice and refined through further practice.
To what extent has the project led to the design of mitigation strategies to overcome barriers to the adoption of new technology in the Rubus industry?	Mitigation strategies have been designed through the production of 21 recommendations for overcoming barriers.	Although mitigation strategies have been designed through consultation with stakeholders, it remains to be tested in practice with CALD and other Rubus communities throughout Australia.
Has the project led to an improved understanding of opportunities for improvement where there are gaps between current and best industry practice?	The project has identified several areas where there may be gaps between current and best industry practice in areas of environmental management, plant nutrition, chemical use and labour management.	Rubus growers specifically were generally thought of as early adopters of best practices, while other sectors of the horticultural community or less experienced growers were more in need of efforts to overcome adoption of best practices.
Relevance: How relevant was the project to the needs of intended beneficiaries?		
To what extent has the project lowered industry risks?	There are still several risks that the industry must deal with regarding product quality and public perception. This project would not have lowered these risks to any extent.	This project has identified strategies to engage with growers to work toward lowering risks, but this is a long-term process that will require cooperation amongst industry stakeholders.
To what extent did the project align with the immediate needs and priorities of Rubus growers?	The project was more aligned with the needs of industry to engage with Rubus growers and has identified that Rubus growers are aware of the issues in their industry for adoption of best practices and are active in working toward lowering industry risks.	The project has identified some of the needs of Rubus growers, particularly around communication of value of adoption of new practices, and increased understanding of environmental regulations which can be addressed by stakeholders in the industry over time.

Key Evaluation Question	**Project performance**	**Continuous improvement opportunities**
How well did the project address the specific challenges faced by Rubus growers in adopting best practices?	The project has identified some of the challenges faced by Rubus growers, but addressing the challenges was not part of the scope.	Further work is necessary to deal with specific challenges as outlined in the recommendations.
Process appropriateness: How well have intended beneficiaries been engaged in the project?		
To what extent has the project engaged Rubus growers to reflect on their own behaviours and practices?	The project has allowed interviewed Rubus growers to reflect on their own behaviours and practices in positive ways.	It would be beneficial for all Rubus growers in the region to reflect on their behaviours and practices, and this was not achieved during this project. There was a reflection from one of the suppliers of genetic material for the Rubus industry that they should take a more active role in encouraging their growers to engage and reflect.
Have regular project updates been provided through linkage with the industry communication project?	Project updates have been through the Reference Group, which met twice through the project, and Milestone reports. The industry development officer for the area was met with three times during the project.	It would have been beneficial to brief the industry communication project at more regular intervals during the project.
Process appropriateness: To what extent were engagement processes appropriate to the target audience/s of the project		
Did the project engage with industry levy payers in culturally appropriate ways?	Milestone report 103 highlighted the contextual analysis on the Woolgoolga community, including its demographics and the Sikh religion, to inform engagement. The project team also includes a member fluent in Punjabi to assist with engagement.	The project found that only a small subsector of the community in the region had cultural or language requirements for interaction that were different to mainstream Australia. For Rubus growers specifically, there were no special engagement strategies necessary.
Efficiency: What efforts did the project make to improve efficiency?		
What efforts did the project make to improve efficiency?	The project endeavoured to engage with stakeholders via electronic means where possible. It was realised early that there were times of the year that were more appropriate for engaging stakeholders and this was used for the second round of interviews.	For engagement of growers in the Woolgoolga / Coffs Harbour region, the best time in Autumn to early winter, after the season is finished, overseas travel to India has been finalised and before the start of the winter season.
Were outcomes delivered on time and on budget?	Outcomes were delivered on time and budget.	N/A

Recommendations

The practical application of the project findings are below as recommendations 1-21.

Lack of financial incentives or finance

1. Extension activities should be clearly linked to financial benefits, where possible.
2. Regulation may be needed where behavioural change is necessary on-farm without clear financial benefits.
3. Recommendations for practice change should be matched to the financial circumstances of the grower group involved, or, if there is a mixed group, have a range of recommendations based on varying financial circumstances.
4. When making recommendations for the adoption of new technology, emphasis should be placed on using equipment that has proven to work under the conditions of the region, and information should be given on the financial and other risks of using inferior equipment.
5. Extension staff should be aware that not all growers have the same access to premium genetics and the ongoing support that goes with that, therefore activities should consider individual circumstances regarding this aspect of grower profiles.

Complexity in regulatory frameworks for environmental impacts on farms

6. Communication activities and resources involving regulatory frameworks should be as simple and concise as possible.
7. Growers may appreciate a central contact for regulatory issues, for simplicity and to allow trust to develop between the regulator and grower.
8. Growers with different sized businesses will have varying abilities to comply with regulations, and smaller businesses may need some form of assistance with compliance
9. Effective regulation will require building of trust over a period.

Challenges in engagement

10. Prioritise the development of relationships of trust through regular and respectful contact.
11. Avoid any assumptions of language, literacy or familiarity with extension processes.
12. Localise delivery to where growers are located. Face-to-face contact remains central to engagement.
13. Time events with sensitivity to work routines and cultural practices of growers.
14. Use preferred channels of communication. There appear to be many avenues of informal information sharing in the Sikh community, such as sporting organisations, the temple, and clubs. WhatsApp appears to be an effective and widely used online tool.
15. Give clear value propositions when engaging growers in activities designed to change behaviours or encourage the adoption of new technologies.
16. Recognise the sensitivities involved in conducting extension activities on private farms, in that there may need to be a mapping of invites based on relationships for some, while others may be more open to sharing their experiences more generally. This may be the case in the community at Woolgoolga, but it may be particularly important for other culturally and linguistically diverse communities where there may be family dynamics in a close-knit community.

Lack of resources (time and labour)

17. Extension activities for adoption of new technology should be targeted at periods of the year when growers have capacity to participate and are rested and more likely to be receptive to new ideas. This period appears to be between February and May for the Woolgoolga region but will vary for different communities across Australia.

Cultural nuances

18. Consider cultural preferences when planning extension events, for example, provision of particular foods, special days in the calendar or rhythms of work.
19. Offer options to hold events particularly tailored to some cultural groups, but do not enforce segregation.

20. In each cohort of growers, particularly in culturally and linguistically diverse groups, analyse their language needs and communication preferences.
21. There appears to be people in the community that provide informal translation and communication services to others who may have language difficulties or may not be as well networked. These people, “cultural connectors” when identified, could be important channels for engagement.

Adoption activities that would ensure full value from the project’s findings for industry could include

- Development of a booklet or practical guidelines for engagement with CALD communities in Australia
- Development of simplified guidelines for environmental regulations in berry growing regions.

Refereed scientific publications

N/A

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Intellectual property

'No project IP or commercialisation to report'

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Appendices

Project Monitoring and Evaluation Plan including Program Logic

Project M&E Plan

September 2024

Project and delivery partner details

Project title	*Rubus industry – barriers to best practice across diverse communities*
Project code	*RB23003*
Delivery partner	*Pinion Advisory*
Lead researcher	*Stuart Smith*
Date completed	*2nd September 2024*

1. Program logic

Relevant SIP outcome(s)	***Improved capability and an innovative culture in the Australian berry industry which maximises investments in productivity and demand***				
End-of-project outcomes	*An improved understanding of the barriers to engagement and adoption and opportunities amongst the CALD industry members in the Woolgoolga / Coffs Harbour region to assist in designing mitigation strategies to overcome barriers and improved use of best practice in this and other CALD grower communities*				
Intermediate outcomes	*Industry stakeholders are informed on barriers to adoption of new technology and, where appropriate, take novel approaches to overcome barriers to improve overall industry performance*		*Berry growers are engaged and reflect on their own practices and behaviours and take steps to improve the performance of their businesses*		
Outputs	*Report on barriers to adoption compiled from qualitative and quantitative data on industry stakeholders*		*Presentations on the results of findings of barriers to adoption of new technology to stakeholders*		*Project management documents and milestone / final reports*
Activities	*Social research: demographic profiling of the industry, engaging stakeholders and interviews to identify the challenges*		*Synthesis and reporting of findings: Collating the data, identifying barriers, reporting and presenting recommendations for next steps*		*Project management: Creating risk, logic, M & E , communication and stakeholder engagement plans, regular project team and stakeholder meetings*
Foundational outputs	*Data from MT18020 "facilitating the development of the Australian Berry Industry" and the experiences and intelligence of Berries Australia and Industry Development Officers. Contract and milestone descriptions, industry databases and statistics, project team insights and experience.*				
Foundational activities	*Project administration*	*Baseline data collection*	*Establishing partnerships*	*Project planning*	*Funding*

2. Project M&E scope

Key evaluation questions

Table 1: Project key evaluation questions

Key evaluation questions	Project-specific questions
Effectiveness	
1. To what extent has the project achieved its expected outcomes?	To what extent has the project increased understanding of barriers to adoption of new technology amongst Rubus growers in the Woolgoolga / Coffs Harbour region?
	To what extent has the project improved performance of the Rubus industry in relation to best practice?
	To what extent has the project led to the design of mitigation strategies to overcome barriers to the adoption of new technology in the Rubus industry, especially in CALD communities?
	Has the project led to an improved understanding of opportunities for improvement where there are gaps between current and best industry practice?
Relevance	
2. How relevant was the project to the needs of intended beneficiaries?	To what extent has the project lowered industry risks? To what extent did the project align with the immediate needs and priorities of Rubus growers? How well did the project address the specific challenges faced by Rubus growers in adopting best practices?
Process appropriateness	
3. How well have intended beneficiaries been engaged in the project?	To what extent has the project engaged Rubus growers to reflect on their own behaviours and practices?
	Have regular project updates been provided through linkage with the industry communication project?
4. To what extent were engagement processes appropriate to the target audience/s of the project?	Did the project engage with industry levy payers in culturally appropriate ways?

Key evaluation questions	Project-specific questions
Efficiency	
5. What efforts did the project make to improve efficiency?	What efforts did the project make to improve efficiency?
	Were outcomes delivered on time and on budget?

3. Performance expectations, data collection and analysis

Table 2: Project monitoring plan

Logic level	What to monitor	Performance expectation (KPIs) and/or monitoring questions	Data collection – method (e.g. survey) and source (e.g. growers)	Timing of, and responsibility for, data collection
Foundational activities	Formation of project team and establishment of work	Start- up meeting with HIA. Start-up meeting with Project Reference Group. Internal project timeline established.	Minutes of start up meeting with HIA and project reference group. Project timeline document.	Project leader August – September 2024
Activities and outputs	**Social research** Demographic profiling of the industry, engaging stakeholders, conducting interviews to identify the challenges. Report on barriers to adoption compiled from qualitative and quantitative data on industry stakeholders. **Synthesis and reporting of findings** Collating the data, identifying barriers, reporting and presenting recommendations for next steps. Presentations on the results of findings of barriers to adoption of new technology to stakeholders. **Project management** Creating risk, logic, M&E, communication and	Report produced on demographics and one-on-one interviews. Final report produced analysing collected data and providing recommendations Presentation given on project findings.	Reports received by HIA. Project management documents received by HIA. Agenda and minutes of project meetings. Recordings of interview notes.	Project leader and team September 2024 – July 2025

Logic level	What to monitor	Performance expectation (KPIs) and/or monitoring questions	Data collection – method (e.g. survey) and source (e.g. growers)	Timing of, and responsibility for, data collection
	stakeholder engagement plans, regular project team and stakeholder meetings. Project management documents and milestone / final reports.			
Intermediate outcomes	Level of industry stakeholder knowledge on barriers to adoption of new technology. Engagement of Rubus growers and their willingness to reflect on their own practices and behaviours and take steps to improve the performance of their businesses.	To what extent has the project engaged Rubus growers to reflect on their own behaviours and practices?	Industry stakeholder questionnaire. Grower KASA questionnaire.	September 24-January 25. Project team.
End-of-project outcomes	Understanding of the barriers to adoption. Opportunities for improvement amongst industry members to assist in designing mitigation strategies to overcome barriers and to improve the adoption of best practice, especially in CALD communities.	To what extent has the project increased understanding of barriers to adoption of new technology amongst Rubus growers? To what extent has the project improved performance of the Rubus industry in relation to best practice? To what extent has the project led to the design of mitigation strategies to overcome barriers to the adoption of new technology in the Rubus industry? Has the project led to an improved understanding of opportunities for improvement where there are gaps between current and best industry	Final report. Reflections of the project reference group.	End of project for Final Report (Project leader) July 2025

Logic level	What to monitor	Performance expectation (KPIs) and/or monitoring questions	Data collection – method (e.g. survey) and source (e.g. growers)	Timing of, and responsibility for, data collection
		practice?		

4. Reporting, learning and continuous improvement

Monitoring and evaluation results will be reported at the six-month report and the final report (as an Appendix. The findings from the 6-month stage will be used to guide the final stages of the project, as appropriate.

Communication Plan

Communications plan

RB23003 – Rubus Industry – barriers to best practice across diverse communities

Purpose

The objectives of this communications plan are to support:

- Effective communications among the project team, including Hort Innovation, Pinion Advisory, Enablers of Change and Tiny Revolutions.
- Gathering information for the demographic profiling of industry.
- Communication with stakeholders (approx. 50) to inform identification and prioritisation of industry challenges, through interviews.
- The sharing of project progress reports and updates with industry groups.
- The development of communication outputs.
- Development of opportunities for the project findings to be incorporated into existing extension and adoption programs in the Rubus industries.

Current situation

The Rubus industry has been growing strongly over the last decade in both volume and quality, with a shift from several small growers concentrated in a few areas to larger enterprises located across the country, primarily in Tasmania, Victoria and NSW.

There are a range of practices with the raspberry and blackberry industries that currently affect their performance. These relate to production practices, work health and safety, supply chain, market research and risk and business management. Emerging issues also present risks to the industries and need to be addressed.

This project aims to identify the key barriers to adopting better and best practices in these areas and the steps required to address these barriers to enable to industries to thrive. The main focus will be on the culturally and linguistically diverse (CALD) Rubus Growers in the Coffs Harbour / Woolgoolga area, with the information learned used to inform engagement with other CALD communities across the Rubus growing areas of Australia.

At the completion of this project the raspberry and blackberry industries will have a clear understanding of the key barriers to the adoption of best practice which if addressed would lead to an improvement in production efficiency, viability of of supply, as well as increased consumer confidence in product integrity and sustainability.

Audiences

The following target audiences have been identified as being relevant to the project:

- Raspberry and blackberry producers, especially in the Coffs Harbour / Woolgoolga region, including corporate businesses, mid-large businesses, small/agritourism businesses and culturally and linguistically diverse producers.
- Berry industry development officers.
- Horticultural advisors.
- Distributors.
- Retailers.
- Other service providers to the Rubus industry.

Communication method, activities, and platforms

Date	Announcement/ opportunity	Communication method	Who is responsible?
Ongoing	Project management resources	Smartsheet workplan to be developed, and shared with all project team members SharePoint folder to be used for filing all project resources Minutes (action items) to be generated from all project team meetings	Project manager
Sep/Oct 2024	Communication with industry organisations for Demographic profiling	Email Phone	Lauren Rowlands/Jo Jones/Stuart Smith
Oct/Nov 2024	Deep-dive interviews	Email invitations and phone call follow up. Zoom online meeting platform Face to face interviews	Stuart Smith/James West/Jo Jones/Lauren Rowlands / Bharath Dinakaran
Jan 2025	Industry progress update	Industry organisation newsletters or workshops/field days	Industry development officers

Attribution and approval requirements

The attribution statement 'Supported by industry through Hort Innovation' will appear on all public facing communication, as well as the Hort Innovation logo.

Where practical, Hort Innovation will be tagged in social media content related to the project. Social media handles include:

- Facebook: facebook.com/hortinnovation/
- LinkedIn: linkedin.com/company/hort-innovation/
- X: @Hort_Au

All media activity will receive prior review and approval from the Hort Innovation Media Manager via communications@horticulture.com.au

Evaluation

Progress on communications achievements will be reported in the progress report and the final report, and any communications gaps identified. Examples of communications updates, will be provided to Hort Innovation as part of milestone reporting.

Stakeholder Engagement Plan

Project code: RB23003 Project title: Rubus Industry – Barriers to Best Practice Across Diverse Communities

STEP 1 Stakeholder identification and relationship classification	STEP 2 Partnership role and contribution	STEP 3 Partnership constraints and required actions	STEP 4 Engagement strategies and frequency	STEP 5 What resources are required?	STEP 6 Responsibility for actions
A. Grower groups, associations, peak industry bodies					
Berries Australia Rachel Mackenzie (CEO) Gaius Leong (IDO Coffs Harbour) Jen Rowling (Berries Extension Project) Helen Newman (IDO WA) Sandra Shaw (IDO Vic and SA)	Project reference group membership Project guidance Source of grower contacts Source of information for demographic profiling	Privacy constraints with grower details	Invitation to Reference Group	Information for Demographic profiling Existing reports/information relevant to barriers to best practice	Stuart Smith (Project manager)
Fruit growers Tasmania Ella Roper	Host of Berry Industry IDO Source of information for demographic profiling	Privacy constraints with grower details	Leverage on existing relationship	Information for Demographic profiling Existing reports/information relevant to barriers to best practice	Stuart Smith (Project manager)
Raspberries and Blackberries Australia	Project guidance Source of grower contacts Source of information for demographic profiling	Privacy constraints with grower details	Telephone or email. Leverage off existing relationships.	Information for Demographic profiling Existing reports/information relevant to barriers to best practice	Stuart Smith (Project manager) and team
B. R&D organisations (including key personnel)					
Hort Innovation Australia Jane Wightman	Funding body representative and member of Reference Group		Regular communication through project reports, and Reference group	Existing reports/information relevant to barriers to best practice Links to relevant industry bodies or representatives	Stuart Smith (Project manager)

6 Month Milestone Report

Milestone report

Rubus Industry: Barriers to Best Practice Across Diverse Communities

Project code:

RB23003

Milestone number:

103

Project leader:

Stuart Smith

Delivery partner:

Pinion Advisory

Report author/s:

Stuart Smith, John James, James West, Bharath Dinakaran, Jo Jones

Date:

15th January 2025

Report confidentiality:

Is the report confidential?

No

Disclaimer:

Funding statement:

Levy funds – R&D projects

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Public summary

The following activities, outputs and outcomes were delivered during the first six months of this project:

Key activities during the reporting period

A contextual analysis on background information was conducted which summarises the characteristics of the community of Woolgoolga that may influence their behaviour in adoption of new technology. It also scopes out the demographics of the community, particularly regarding the Indian and Sikh population. It also summarises the characteristics of the Sikh religion, with important beliefs and practices. A summary is given of general issues in Rubus and berry growing that may be affected by new technology developments. The cultural and community issues in Woolgoolga are also given, as described by previous scholarly articles, which have been studied over a period greater than 50 years.

Phone interviews were conducted with service providers to broaden the input of information of the current situation in the Woolgoolga / Coffs Harbour region regarding Rubus and berry growing in general. This was important as there has been little scholarly publication in the last 10 years.

Deeper in-person interviews were then held on site in the Woolgoolga / Coffs Harbour region with service providers to the Rubus / berry community and growers, to obtain even more detail of the state of the industry in the region with regard to development and adoption of new technology.

Statistics on the region were collected through the Australian Bureau of Statistics and Protected Cropping of Australia websites, and numbers checked on site with stakeholders in the Woolgoolga area.

Key outputs during the reporting period

Project management documents, including stakeholder management, monitoring and evaluation, communications plans and a project risk register were developed.

Other documents that were developed as part of the investigation included a

A contextual analysis on farming and culture in the Woolgoolga area, including a summary of demographics.

A thematic report on barriers to adoption of new technology.

Key outcomes during the reporting period

The key outcome from the reporting period was an increased level of knowledge of barriers to adoption of new technology in the region. Also achieved was a level of initial engagement of Rubus and other growers in the region, and service providers who work day to day with the growers.

Preliminary outcomes of recommendations for mitigating barriers to adoption have been produced, which can be used to tailor extension activities for this region and used as guidance for extension activities in other culturally and linguistically diverse horticultural communities throughout Australia.

Achievements

Table 1 (below) shows the achievements of the project to date.

Table 1. Achievements

Achievement criteria	Delivery partner assessment: • Achieved • Partially achieved • Not achieved	Justification
Report on focus groups, surveys, demographics and one on one interviews	Achieved	It was decided after the first reference group meeting that it would be very difficult to engage growers in a focus group scenario, given it was the height of the berry season from the time of project signing through to the end of January. A new approach was taken that analysed background research and literature on the region, conducted telephone interviews with stakeholders and then conducted in-depth interviews with mostly non-growers from the Woolgoolga / Coffs Harbour region, encompassing interviews with growers where possible. Also during this stage, a review of the available demographic data was made. This includes estimates from growers, companies, agribusiness, Berries Australia, Census data and the Protected Cropping of Australia web site. After a number of interviews the state of the industry in the Woolgoolga region was clarified, and many aspects relating to the operation of the Sikh community in the area confirmed.

Outputs

Table 2 shows the outputs for the project to date.

Table 2. Output summary

Output	Listed in M&E Plan: • Yes • No	Description	Evidence and data
Project management documents	Yes	Program logic, workplan, communication plan, risk management plan, stakeholder engagement plan to guide project progress	Documents complete and signed off in Milestone 102.
Report on contextual analysis of the Woolgoolga area	No	A summary report on the literature and media describing the Sikh community at Woolgoolga, using published reports and television documentaries. This includes demographic information on the growing community in the area.	Report attached as Appendix.
Report on barriers to adoption compiled from qualitative and quantitative data on industry stakeholders	Yes	A summary report of telephone and face-to-face interviews with farming community stakeholders from the Coffs Harbour / Woolgoolga region and an assessment of the barriers to adoption of new technology and recommendations for barrier removal.	Report attached as Appendix.

Outcomes

Table 3 (below) shows a summary of progress toward project outcomes.

Table 3. Outcome summary

Outcome as listed in M&E Plan	Progress to achieving outcome	Evidence and data	Progress: • On track • Off track
Establishment of Reference Group to guide project direction and provide input into results interpretation	Bring together representatives to guide and advocate for the project.	• Project Reference Group TOR • Minutes from meetings	Achieved
Level of industry stakeholder knowledge on barriers to adoption of new technology	Online interviews as well as face-to-face meetings in Woolgoolga have informed a measure of current level of knowledge about barriers.	• Results from online interviews • Results from face-to-face meetings	On track
Engagement of Rubus growers and their willingness to reflect on their own practices and behaviours and take steps to improve the performance of their businesses	Rubus growers were approached to participate in meetings on-farm. Due to busy production timing, 3 interviews were conducted. Meetings with the main Rubus retailing companies were also held, which provided valuable insights into growers practices and barriers from the retailers perspective.	Raw data from interviews Reports summarising data	On track
Understanding of the barriers to adoption	The telephone and face-to-face interviews gave insights into the barriers to adoption of best practice, that are analysed and documented in the report on barriers to adoption.	Report on barriers to adoption	On track
Opportunities for improvement amongst industry members to assist in designing mitigation strategies to overcome barriers and to improve the adoption of best practice, especially in CALD communities.	Recommendations for mitigation strategies to overcome barriers and improve the adoption of best practice have been made.	Report on barriers to adoption	On track

Refereed scientific publications

None to report.

Intellectual property

There are confidentiality issues with the content of interviews. The themes of interviews as they relate to the project, specifically barriers to adoption, are discussed in reports, but the actual notes from the interviews have sensitive and confidential information.

Issues and risks

During the conduct of the project, it became apparent that there was sensitive and confidential information that was being shared with the project team, that, if shared, could lead to a lack of trust or possible adverse business outcomes for some participants. There were participants that sought assurances of confidentiality. It was decided to add a line on the risk register for handling sensitive information.

Risk

Sharing of sensitive information from interactions with stakeholders with those who do not need to know.

Potential risk causes

Inadvertent sharing of sensitive information from interactions with stakeholders by forwarding on written materials to those who do not need to see them.

Potential risk impacts

Loss of trust with the stakeholders and interviewees.

Possible business impacts from sensitive information.

Creating offence with stakeholder or loss of reputation for project team.

Risk controls

Reminders of the team to keep all primary notes from interviews confidential.

Deidentification of individuals or businesses from all reports where possible.

Risk likelihood with controls in place

Unlikely

Risk consequence with controls in place

Insignificant

Treated risk assessment

Low

Risk evaluation

Risk acceptable with controls.

Person responsible

Project manager with cooperation from the project team.

Other information

No additional information to report.

Appendices

Appendix 1: Contextual analysis.

Appendix 2: Themes from qualitative information gathering.

Appendix 1: Contextual analysis

Rubus industry: Barriers to best practice across diverse communities

Contextual analysis

James West, Bharat Dinakaran and John James

Contents

Introduction

This document summarises the available social science research among Sikh growers in Woolgoolga, NSW. Alongside academic journals, several ABC documentaries, assorted historical literature, news reports, and strategy guides were also reviewed.

From their origins as workers on banana farms, the Sikh population has gradually become the largest blueberry producers in Australia, and many have recently diversified into Rubus production as raspberries and blackberries become more valuable.

Most of the growers in the area come from the Indian region of Punjab and are members of the Sikh religion. Along with common issues facing all farmers, like pest and disease management and labour management, there are also issues around local community engagement that are explored in depth in the literature. Many of these issues come from cultural clashes, like the local curry festival and integrating new arrivals from the Punjab

This document outlines the main issues that have emerged from the review of the literature and other sources. These studies use a range of data gathering techniques including structured interviews, observations and ethnography.

The primary limitation of this review is that the most pertinent literature only extends up to 2015, resulting in a lack of robust observational data from the past decade. For example, we know the COVID period had a large effect on the Australian farming community and the culture in general, but is not covered in this document. It also predates the switch from blueberry to Rubus growing, so while there is a lot of conversation about blueberries there is no mention of Rubus.

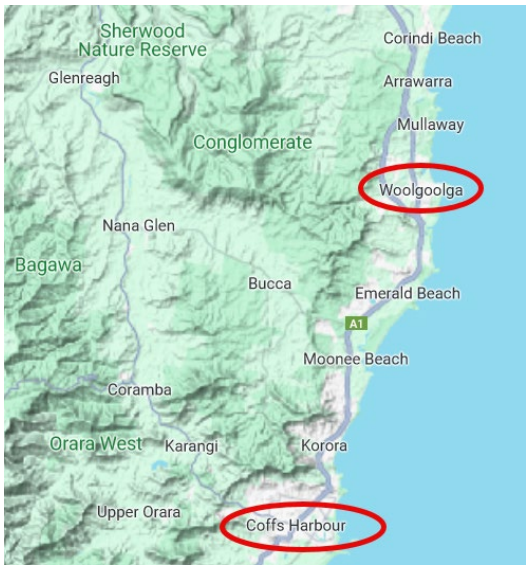
To fill this gap in knowledge and ensure access to up-to-date information, further research will be conducted within the Woolgoolga community. To ensure good representation, the stakeholders will be divided into three groups for the online and phone interviews.

Following these initial interviews, on ground visits will be conducted in Woolgoolga to interview people on farms and conduct a short survey. The output from this data gathering will be used to develop recommendations for engaging with the Sikh farmers in the Rubus industry, and with other agricultural communities in Australia, in particular, those who have elements of cultural and linguistic diversity.

Background on farmers Woolgoolga, NSW

Woolgoolga, a town on the north coast of New South Wales, is located 25 km north of Coffs Harbour. It is known for its significant Sikh community, which is among the largest in the country. It is described by the Lonely Planet series of guidebooks as the "Sikh and Surf" coast. This community has a rich history tied to agriculture, particularly blueberries and then more recently the cultivation of Rubus fruits, including raspberries and blackberries.

Historical background



The Sikh community in Woolgoolga began to form in the early 20th century when Sikh migrants from Punjab, India, moved to the area. They were initially drawn by opportunities in logging, but most then transitioned to farming, notably banana farming. This was the predominant agricultural activity in the region, until it was overtaken by banana production in Northern Queensland.

Most members of the community then diversified into growing Blueberries. Even more recently, some farmers have started growing Rubus fruits, such as raspberries and blackberries, capitalising on the favourable climate and their existing expertise in berry cultivation.

This transition from small scale banana farming to blueberries brought with it changes in how the farming was done. Bananas had originally been attractive to Sikh farmers because of the limited start-up costs, and the ability to manage the labour required to be successful within the existing family structure. Blueberries required a greater investment in time and became more difficult to manage on one's own.

The harvesting, which is done by hand, plucking each individual berry from the plant, is very labour intensive and time consuming. The result has been the formation of larger blueberry cooperatives, changes in the role of women in the Sikh community, and the hiring of migrant labour.

Indians own 95% of the farmland around Woolgoolga, and own rental properties, small businesses, and work as professionals in the town. There is little doubt that their presence in town is integral to the town's existence, yet there are still tensions between non-Indian residents and their Sikh neighbours.

Ethnic breakdown

According to the last census in 2021, the population in Woolgoolga is 6,151. The Sikh population is the largest in regional Australia and represents just under 20% of the total population. A more thorough breakdown specific to the Sikh population is provided in Table 1 below.

Table 1: Demographics of Woolgoolga

Parameter	**Woolgoolga**	**Australia**
Bachelor level degree or above	16.6%	26.3%
Ancestry Indian	8.9%	3.1%
Country of birth India	10.7%	2.6%

Country of birth of Father India	15.5%	3.7%
Country of birth of Mother India	16.4%	3.6%
Religious affiliation Sikhism	17.2% (1059 people)	0.8%
Language used at home – Punjabi	17.2% (1056 people)	0.9%
Industry of employment – berry growing	11.6% (292 responses) top answer	0.0%

While a significant part of the local community is Sikhs, they are by no means the majority in the region. However, they play a disproportionately large role in shaping the cultural and economic landscape of the region. Berry growing is the largest economic activity in the region, rivalled only by tourism. The cultural issues this creates will be explored at length later in this document.

The Sikh religion

The Sikh religion, known as Sikhism, was founded in the late 15th century in the Punjab region of South Asia by Guru Nanak Dev Ji and subsequently developed through the teachings of ten successive Sikh Gurus. It is now the world's fifth-largest religion. Here are some key aspects of Sikhism and cultural sensitivities to consider when engaging with Sikh communities:

Key beliefs

One God: Sikhism is a monotheistic faith, emphasizing the belief in one God.

Equality: All human beings are considered equal, regardless of caste, race, or gender. The concept of universal brotherhood is central to Sikh beliefs.

Community service: Selfless service (Seva) to the community and helping those in need are important aspects of Sikh practice.

Honest living: Sikhs are encouraged to live an honest life without exploitation of others.

Religious tenets

1. **Religious symbols**: The five Ks are important religious symbols worn by initiated Sikhs:
    - **Kesh** (uncut hair), which is usually covered by a turban for men and a headscarf for women.
    - **Kara** (a steel bracelet).
    - **Kanga** (a wooden comb) tucked into the hair.
    - **Kacchera** (cotton undergarments).
    - **Kirpan** (a ceremonial sword).
2. **Respect for the turban**: The turban is a critical aspect of Sikh identity. It is worn to manage the unshorn hair (Kesh) and as a symbol of sovereignty, dedication, self-respect, and courage. Always show respect for the turban and never ask a Sikh to remove it.
3. **Language and greetings**: When greeting Sikh men and women, "Sat Sri Akal" (immortal God is true) is a respectful greeting. However, "Hello" and "Hi" are also perfectly acceptable.

4. **Dietary practices**: Many Sikhs are vegetarian, and even those who are not typically abstain from 'Kutha' meat, which is meat obtained from rituals or religious sacrifices. It is considerate to offer vegetarian options when hosting Sikh individuals.
5. **Gender equality**: Gender equality is a fundamental principle in Sikhism. Men and women are seen as completely equal, though there are traditional roles for both sexes.
6. **Religious observances and practices**: Sikhs pray regularly and visit the Gurudwara (temple). The Gurudwara is open to people of all faiths, and everyone is welcome to partake in the Langar. A community meal is served to anyone attending the temple, to uphold the principle of equality.

The Gurudwara

A group of Sikhs gathered for worship is called a Sangat (prayer meeting). If they are together in front of, and in deference to the Guru Granth Sahib (holy book), then it is known as a Gurudwara (temple). The Guru Granth Sahib is always placed on a takht (an elevated throne), and all worshippers must be lower than the holy book.

A Gurudwara can be informal or have a permanent structure. The Guru Granth Sahib is organised poetically, and so services involve a kirtan (call and response song). There are recitations from the holy book, often accompanied with musical instruments. These services are run by a Granthi, the keeper of the temple. The Gurdwara is open to people of all religions and Hindus often attend services alongside Sikhs.

All permanent Gurudwara have a Langar Hall, where people can eat free vegetarian food served by volunteers. They may also have a medical facility room, library, nursery, classroom, meeting rooms, playground, and sports facilities.

The first permanent Australian Gurudwara was opened in Woolgoolga in 1968. The management committee consisted of nine men, three of whom were leaders of the Anglo-Australian community in Woolgoolga and the rest were Sikhs. This seems to have been a deliberate decision, an attempt to bridge the distance between Indians and the local community. The second permanent Gurudwara is also in Woolgoolga and was opened in 1970.

Traditional agricultural practices

The Punjab region is a fertile, alluvial plain with excellent water sources, and has two harvesting seasons. Historically Sikhs have prided themselves on being farmers, something that has become an important part of their identity on a global scale.

Punjabi farmers are known for their innovative practices and sustainable approaches to farming. They often integrate traditional knowledge with modern agricultural techniques to optimise yield and ensure sustainability. This dynamic between traditional agricultural practices and modern innovation is a defining characteristic of the Sikh farming community in Woolgoolga, making it a unique example of cultural and professional integration in rural Australia.

Knowledge of this attachment to the land and interest in better farming techniques should form a key aspect of the agricultural extension work in the region, helping to spread successful farming methods throughout the community. Persuading the community to behave in a certain way will rely on an understanding of their cultural norms and being engaged with the way they view the world.

Berry growing in the Woolgoolga region

The region currently supports approximately 150 blueberry growers, 30-50 Rubus growers, 20-35 banana growers, and up to 200 cucumber growers according to stakeholders in the area. It was difficult to get precise numbers, because of an imprecise boundary around the area, and entrants and exits from the industry year by year. The Rubus growers are predominantly concentrated amongst less than ten Sikh families and a large corporate enterprise. Farms are mostly in the order of 4-5 hectares under net or plastic, with blueberries predominantly netted and Rubus growing in poly tunnels.

According to the Protected Cropping Australia website (Protected Cropping of Australia, 2025) the Coffs Harbour Local Government Area and Nambucca Valley Local Government Area have the following areas of protected crop (Table 2). Although these figures do not reflect specific crops; most of the poly tunnels are Rubus or cucumber, most of the net would be blueberries.

Table 2: Protected cropping in the Coffs Harbour / Nambucca Valley LGAs

Places	**Glasshouse (ha)**	**Polyhouse (ha)**	**Polytunnel (ha)**	**Net (ha)**	**Shade (ha)**	**Total (ha)**
Coffs Harbour LGA (includes Coffs Harbour, Woolgoolga, Bucca, Corindi)	0	9	387	1091	3	1489.66
Nambucca Valley LGA (Includes Macksville)	0	0	4	167	18	188

Many Rubus farms are now located on land that was previously grazed and relatively flat compared to the land in the Coffs Harbour and Woolgoolga, which is steep and good for growing bananas as harvested bunches were transported using gravity to packing sheds via pulleys, but inconvenient for berry cultivation.

Smaller growers in the region, who have been here for many years and are on steep ground, tend to renew blocks, or shift from growing in the soil to growing in substrate on their farms. About 5 years ago there was a movement of new people into the area that moved to cheaper and flatter land around the Nambucca Valley / Macksville area. Because of decreasing margins in blueberries, the only way to make money was to move to a bigger scale (10-15 ha farms).

For protected cropping, blueberries are grown out in the open or under nets, Rubus are grown under polytunnels and cucumber are grown under low tunnels. There is some verbal information from stakeholders that suggests that there have been 2000 tunnels installed in the last 12 months.

Rubus in the region are marketed through a small number of agribusiness firms who generally control the genetic material, packing and marketing, while the grower transports product to the packing and cooling facility. The agribusiness firms typically back up the licensed use of genetic material with technical and agronomic support. Other technical support in the region comes from input suppliers, who have in-house agronomists, technical specialists through the NSW Government (Local Land Services) and regulatory bodies. Extension events are held by all these stakeholders, with varying levels of farmer attendance and engagement. Berries Australia also co- fund a position in the area in conjunction with the NSW Government.

Most blueberries are grown and marketed for a grower cooperative, predominantly owned by people of the Sikh community.

Innovation and technology

From the general literature and individual grower engagement, several priority issues regarding new technology for adoption have emerged. Below is a short summary of the key priority areas identified and some of the adoption practices that could improve grower practice. This is general for Rubus growing in Australia but could be applied to all areas in Australia. Some are specific to Woolgoolga as mentioned in the text, and this comes from stakeholder interviews in the area.

Protected cropping: The adoption of high tunnels and polytunnels can help lengthen the production period as it shields crops from bad weather, pests, and diseases. Tunnels are produced in the UK, primarily Scotland, and some are now using some out of China. Some growers have constructed their own from local materials with varying levels of success.

Robotic harvesters: Labour shortages are a challenge in the berry industry, so adoption of automation can significantly reduce the reliance on labour. Different robotic harvesters of berries are being developed and tested for blueberries and strawberries. There are some mechanical harvesters in the Woolgoolga / Coffs Harbour area, some are being used while

some growers who have them are not using them and have returned to manual labour for harvesting.

Smart farming technologies: Sensors, installed to monitor real-time soil moisture, nutrient levels, and current weather, can deliver data to be analysed to help growers make better decisions regarding water usage, pest control, and fertiliser application.

Genetic innovation: Breeding programs can develop new varieties of berries that would be more tolerant to pests and diseases and climate fluctuation. Because of expensive labour, new genetics will be focussed on picking crops quickly with exposed fruit, so pickers will not have to hunt inside bushes for fruit. Driscolls has the most planted genetics in the area. Mountain Blue have been supplying blueberry genetics for a while and now have Rubus genetics. Perfection Fresh also have Rubus genetics, including blackberries. Other emerging variety suppliers are T & G (NZ) and Falls Creek (USA).

Business management

Supply chain integration: Working with retailers and supply chain logisticians can help get berries to market faster with less loss. It is also critical to meet consumers' demand for cleaner and better products that come from environmentally responsible sources. Growers will need to use traceability technologies to ensure supply chain transparency.

Market diversification: This is important for Australian berry growers as domestic demand can be quite variable, providing uncertainty from outside competition. The existing Australian blueberry and raspberry varieties are attracting Asian buyers, which can be a new business area for farmers.

Labour management: Labour is one of the highest operating costs for berry growers, with seasonal labour shortages exacerbated by restrictions to travel and visa issues. Utilising digital labour management platforms can help ensure better optimisation by matching supply and demand.

Integrated Pest and Disease Management (IPDM), including pollination

Biological control: Growers need to adopt more integrated biological practices. For instance, predatory mites can be employed for controlling two-spotted spider mites in berry crops. This reduces the need for chemical pesticides that negatively impact pollinators, as well the wider ecosystem.

Pollination: Pollinators are crucial for Rubus crops as they ensure effective pollen transfer, which leads to larger, higher-quality fruits. Without sufficient pollination, these crops produce smaller, misshapen berries, directly impacting yield and commercial value. Wild insects, such as hoverflies (Syrphidae), along with managed honeybee hives, are a possibility for Australian berry crops.

Precision spraying: Adopting the use of drones with infrared sensors can significantly improve efficient pest management. This also reduces the chemical load and saves money on pesticides. This approach is especially useful in limiting pesticides from drifting and harming neighbouring crops.

Irrigation and nutrient management

Drip irrigation: This is an efficient water use technology popular among berry growers in Australia. It is a proven system for targeting water directly to a plant's root zone based on requirement and wastage catch.

Fertigation systems: Fertigation is the way nutrients are supplied via irrigation systems and need-based application is increased when the nutrient is not present in sufficient quantity. Adopting this technology ensures plants are given the right amount of nutrients and to prevent under and over-fertilisation.
Hydroponic systems: Hydroponic farming is increasingly used in Australia's berry industry. Hydroponic systems do not use soil but cultivate plants directly in nutrient-rich water amongst a substrate, which reduces water use and gives the growers a chance to influence nutrient uptake. This system of growing also considerably reduces the risk of soil-borne diseases, a common threat in traditional berry farming. The complicated growing systems tend toward a higher level of analysis. At present, blueberries are 15% hydroponic while Rubus is 99% hydroponic.

Use of recycled water: Some growers are using recycled water for their irrigation, a crucial step toward sustainability in those regions with limited water resources.

Cultural and community issues in Woolgoolga

Much of the current research literature specific to Woolgoolga comprises ethnographic studies. These range from a period of several weeks (e.g. during Curryfest) to a 9-month study living with the community. The purpose of most of the studies was to better understand Australian multiculturalism in a local context and examine issues of integration in local communities. There were also two ABC documentaries, one from the mid-1980s and one in 2024, which are reviewed as part of this process.

Almost all studies relied on informal and semi-structured interviews, along with observational data drawn from the local community and at Woolgoolga's two Sikh Gurudwaras, or research undertaken during major Sikh festivals.

The research covered two distinct Sikh populations, the older generation and the under 35s. There is also some evidence of a newer wave of Indian immigrants, which is discussed below, but most of the studies identified in this phase stop at around 2013, so there is little direct data available about more recent views and beliefs.

These generational differences are found in debates within the Sikh community about the importance of maintaining a "mother tongue" and a relationship with their ancestral homeland in the Punjab. There are also tensions within the community around food and dress, the roles open to men and women, and decisions about university and marriage.

Alongside these generational differences within the Sikh community there are also tensions in their interactions with the wider community. Several research papers mention that the Sikh community feels both inside and outside of community life. The berry industry in Woolgoolga is a huge part of the economy for that area which means that they have more influence than population statistics would suggest.

The Sikh community is quite unique in that it has been in the Woolgoolga / Coffs Harbour area for over 100 years. The questions remain, how have they kept their cultural identity separate and what does this economic strength mean for the wider community?

This is partly to do with geography, as most of the farms are situated outside of Woolgoolga, so there is less of the urban mixing seen in larger cities. There is also a general feeling that the local Australians and Sikhs don't mix well. Some of these differences (both within the Sikh community and outside it) are explored in more detail below.

Connection to Punjab and Khalistan

One source of internal conflict within the community is related to the view of Punjab and the establishment of an independent state, called Khalistan. This has recently created international headlines when the Canadian government expelled Indian diplomats, after the assassination of the Sikh leader, Hardeep Singh Nijjar in British Columbia.

Older generations of Sikhs hold a much stronger emotional connection to Punjab and there are tensions within this generation about the idea of an independent Sikh state. Similarly, there are varying degrees of connection expressed toward Punjab. There is a desire to hold on to ancestral lands, plan return trips, and arrange marriages with Punjabi spouses. When talking about Punjab, there is at times a deep sense of longing and nostalgia. Simultaneously, some members of Woolgoolga's Sikh community are selling their land in Punjab to further invest in properties in Australia, while others are reluctant to travel to Punjab to visit relatives.

Conversely, younger generations of Sikhs demonstrate much less emotional connection to Punjab and have little knowledge about the independence movement. Those who are familiar with the Khalistani movement seem to have romanticised notions about the struggle and are more likely to support claims that Sikhs are mistreated in India and require their own state.

From a practical point of view, it is important to remember that much of the fundraising for this independence movement comes from the Sikh diaspora community. This means that money directed towards the community needs to be carefully accounted for. There are also potential issues around newer immigrants and their political and cultural views.

Curryfest

The Woolgoolga Curryfest was first held in Woolgoolga in 2006, and has since expanded to become a major tourist attraction. The festival draws a significant crowd and has become more and more popular over the years, and over 15,000 people attended in 2022. It is held every year on a Saturday close to 13 April, to coincide with Vaisakhi, the traditional Sikh festival of the religion's founding, and the most significant date in the Sikh calendar.

While it started to promote the region and was organised by the local Chamber of Commerce, it was incorporated in 2009. While there is Sikh representation on the committee, it is run exclusively by non-Sikh business owners from Woolgoolga.

This is a source of contention for both sides, where organisers feel they are helping the Indian community with positive press and exposure, but are getting nothing in return. Meanwhile, many Sikhs feel like their role is "selling Sikhism" and they are only required to show up and cook. Others feel like they are merely on display for the mostly white audience, and do not feel like the festival represents either Punjabi culture or Sikhism.

Punjabi "students"

Probably the most controversial issue mentioned in most of the research papers is the arrival of large numbers of native Punjabis to the area. They are referred to collectively as "Students," or FOBs (fresh off the boat), although none of them are officially enrolled in school. They are mostly young Punjabi men working as agricultural labourers, especially on blueberry farms. Their lack of experience and cultural understanding for Australia has created tension with both Sikh families living in the area, and the wider community.

Several practical and cultural issues are identified in the research. Although some of the workers have spouses with international visas, there are questions about the legal working status of others. There are also many complaints from the local population about rental leases and overcrowding in rental units, in violation of rental leases, and local laws. Many of these rental homes in Woolgoolga are owned by the local Sikh community, further exacerbating tensions.

Several research papers also mention a feeling both within the Sikh community and with the locals that these young men were disrespectful, particularly to women. There was a widespread feeling that young men spoke suggestively about young women. Several young women, from both communities, said they felt "unsafe" when they were around, especially at the beach. On more than one occasion, members of the Sikh community have been asked to intervene and speak to the "students" about their expected behaviour in town.

Other refugees

Another issue mentioned in the literature was the arrival of 63 Sudanese refugees in Woolgoolga, as part of a national program of refugee placement in 2013, with more expected to follow. This was a new development, but it was noted there was suspicion from both Sikhs and locals about this settlement. There is some evidence that they have become involved in the local culture and have been invited to have food and cultural stalls at Curryfest.

It would be worth exploring how this situation has developed over the last 10 years and if they have become more integrated into the local community, and especially within the agricultural sector.

The learnings are that the Sikh community in Woolgoolga are culturally distinct, and their economic strength in the local community can create barriers with the local community. While there is broad acceptance, this cultural separation may affect engagement and technology adoption, raising questions about how to better bridge these differences.

Conclusion

Understanding the religious, cultural and historical background is an important way of understanding the best ways to communicate with the Sikh community. Knowing the importance of community, equality and the central place of the Gurudwara and the Granthi in the Sikh diaspora, provide different ways of promoting workshops or other important sources of information.

As stated, several times, there seems to be a paucity of studies after 2015 which means that some of the knowledge outlined here could be dated. For example, while tensions no doubt exist within the communities of Woolgoolga, the recent ABC Compass documentary shows scenes of the local RSL club hosting Bollywood style musicals which seems at odds with some of the tensions outlined in the research.

To ensure an up-to-date and accurate picture of the farming community in Woolgoolga and to focus more particularly on Rubus growers, we will be conducting online interviews and arranging visits to meet with farmers to explore the current business and cultural issues. Stakeholders have been organised the stakeholders Into the following groups based on their availability for the next stage of the research, their relationship and relative importance to the rubus growing community and recommendations of the project reference group.

Group	Description	Examples	Technique
Service providers	Directly interact with local Sikh community around farming	Agribusiness, input suppliers, Berries Australia, Government	Interviews
Supplementary services	Others who engage with the Sikh community but not around farming	Gurudwara	Interviews, in person visits
Growers	Direct contact with the farming community	Rubus growers	Farm visits, sponsorship, survey

Once this data gathering has been completed, we will have a much clearer idea of how to communicate more effectively with this growing community. This information will allow us to create more persuasive messages, workshops and materials, and understand the best times and places to deliver these messages for maximum impact.

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Appendix 2: Themes from qualitative information gathering

Rubus industry: barriers to best practice across diverse communities

Themes from qualitative data gathering phase

James West, Bharat Dinakaran, John James and Stuart Smith

Contents

Introduction

The first phase of the project "Rubus industry: barriers to best practice across diverse communities' was a contextual analysis of the publicly available literature and media outputs relevant to the Rubus industry in Australia. The contextual analysis summarised background information on the demographics of the Woolgoolga / Coffs Harbour area, characteristics of the Sikh community and some of the challenges which arise due to the cultural diversity.

To build on this initial information gathering through the contextual analysis (Appendix 1), the project team conducted an extensive series of interviews with a wide range of stakeholders between October and December 2024. Phone calls, online meetings, face-to-face discussions, and on-farm visits occurred with stakeholders within the Woolgoolga/ Coffs Harbour region. The interviewees represented a cross-section of the agricultural ecosystem, including an industry development officer (IDO), leading agribusinesses in the Rubus industry, as well as NSW Local Land Services (LLS), horticultural suppliers, local agronomists, and growers themselves.

The issues identified in these interviews have been grouped below into themes that relate to the structure and function of the horticultural community in the Woolgoolga / Coffs Harbour area. Discussion includes how these barriers relate to the desired outcome of the project, which is "an improved understanding of the barriers to adoption and opportunities for improvement amongst industry members to assist in designing mitigation strategies to overcome barriers and improved use of best practice".

The five key barriers which emerged from the data analysis are:

1. Lack of financial incentives or finance.
2. Lack of a well developed regulatory framework for environmental impacts on farms.
3. Challenges in knowledge sharing.
4. Lack of resources (time and labour).
5. Cultural constraints.

This report provides a brief overview of each barrier and a summary table containing direct quotes obtained during the qualitative research which align with each barrier. Possible solutions and best practice advice which will inform the final stage of the project are also reported.

This report is part of the six-month Milestone project report and therefore has detailed views and recommendations for further work on the final phase.

Barrier 1 – Lack of financial incentives or finance

Growers often spoke of the need for a business or financial imperative to drive behaviour. Growers we spoke to, and their service providers, clearly had an interest in the success of their businesses, and were reluctant to spend time and effort on behaviours that did not contribute to financial success. Falling prices and a surplus of fruit means that Rubus growing is not as profitable as it once was, hence, the importance of this financial imperative.

For example, growers were not motivated to attend events unless there were clear financial benefits for them, and there were examples from service providers of low turn out to extension activities. For management of environmental impacts like diffuse nutrient runoff, growers said that it was difficult to justify expensive capital interventions with no financial benefit.

Other growers may have been restricted in adopting new technology or behaviours due to a lack of financial capacity.

For instance, recent arrivals to the district often lease tunnels from other landowners and typically begin their agricultural business journey by leasing poly tunnels for cucumber production, a relatively low-cost entry point. Over time, these producers may acquire the necessary capital, knowledge, and skills to transition to higher-value crops such as blueberries and Rubus, and adopt more sophisticated growing practices. Those who do not achieve financial success may abandon farming for other pursuits.

To save money, there were stories of growers buying cheap or inferior products. If these did not work, then the new technology or practice was abandoned, when it could have been beneficial if the right equipment was used.

Additionally, access to some premium Rubus genetics depends on growers' circumstances (including financial) and ability to form contracts with the agribusiness firms that control these genetics. For instance, some agribusiness firms have a screening procedure for those people who approach them for access to genetics, while others do not, and will supply genetic material more freely. All access to premium genetics comes at a financial cost that not all growers may be able to bear.

Lessons to learn from this barrier include:

- Extension activities should be clearly linked to financial benefits, where possible. This is not always going to be possible, especially where there might be environmental but non-monetary benefits. In these cases, regulation may be necessary.
- Recommendations made for practice change should be matched to the financial circumstances of the grower group involved, or, if there is a mixed group, have a range of recommendations based on varying financial circumstances.
- When making recommendations for adoption of new technology, emphasis should be placed on using equipment that has proven to work under the conditions of the region, and information should be given on the financial and other risks of using inferior equipment.
- Extension staff should be aware that not all growers have the same access to premium genetics and the ongoing support that goes with that, therefore activities should consider individual circumstances regarding this aspect of grower profiles.

Barrier 2 – Lack of a well-developed regulatory framework for environmental impacts of farms

Stakeholders in the Woolgoolga growing community spoke of several real or perceived environmental issues on farm such as diffuse nutrient runoff, poor landfill practices, and disturbed visual amenity from abandoned or unused shade house infrastructure. The regulations governing these issues appeared to be unclear or undeveloped, therefore clear behavioural expectations were not established. The existing regulatory frameworks were also perceived as being spread amongst State and local governments and were difficult to access clear information on or understand.

There may be some benefit in demonstrating clear financial and operational benefits of compliance measures where they are available, but in general, regulatory measures exist where there has been market failure to promote certain behaviours.

To improve grower behaviours on environmental issues may need an improvement in the regulatory frameworks to address specific behaviours. Also, central points of contact for regulatory information may be useful.

There are other regulatory frameworks that address on-farm practices such as Freshcare and Fair Farms accreditation that are essential for growers to access markets. These are often perceived as cumbersome and time consuming. Larger growers typically manage these requirements more effectively than smaller operators, who struggle with the complexity and cost of adherence, which does not vary depending on the size of the enterprise. A “trusted business support provider” approach may be required to help smaller and / or new growers to engage with regulatory processes such as these as well as environmental ones. There was some evidence from interviews that current regulators are not trusted by some growers, therefore trust may need to be built over a period.

Lessons to be learnt from this barrier include:

- Communication activities and resources involving regulatory frameworks should be as simple and concise as possible.
- Growers may appreciate a central contact for regulatory issues, for simplicity and to allow trust to develop between the regulator and grower.
- Growers with different sized businesses will have varying capacity to comply with regulations, and smaller businesses may need some form of assistance.

Barrier 3 – Challenges in knowledge sharing

Field days and workshops are often scheduled to engage growers, but attendance is contingent on the perceived value of these events, with poor attendance common. There were events where growers did attend in good numbers, and these were always of high value to grower operations. These occurred both online and in-person.

The geographic dispersion of berry farms, which are spread along the coast from Macksville, through Coffs Harbour and north to Woolgoolga and Corindi, complicates attendance at centralised workshops. There was some evidence of cultural reluctance to host workshops on private farms, particularly for non-family members, further limiting opportunities for knowledge sharing. There was evidence, however, that growers were effective networkers. Temples serve as important hubs where information spreads informally. For younger generations, similar networking occurs through community cricket and hockey leagues, as well as bars and clubs. Most growers were part of one or more WhatsApp groups, which was an important flow of information, especially between the larger agribusiness firms and growers who use their genetic material and are part of their supply chain.

Emails have proven ineffective, as growers we interviewed reported that they do not read them. Occasionally, flyers are

distributed passively through agricultural retailers to reach growers indirectly.

Most Rubus growers are IT-literate and use tools like WildEye and Hunter. WildEye is a farm management tool designed to provide real-time monitoring and insights into irrigation systems and water usage. It enables growers to track water flow, soil moisture, and weather conditions to optimise irrigation practices and improve water efficiency. Hunter is similar but focuses on crop protection and pest management. It allows growers to monitor pest populations, track disease outbreaks, and implement integrated pest management (IPM) strategies. Potential exists to utilise these types of platforms for sharing information with growers, or combining activities so that growers are drawn in by the interesting information such as novel farm management software, and then receive important industry updates at the same activity.

The lessons for this barrier include:

- U se preferred channels of communication. There appear to be many avenues of informal information sharing in the Sikh community, such as sporting organisations, the temple, and clubs. WhatsApp appears to be an effective and widely used online tool .
- G ive clear value propositions when engaging growers in activities designed to change behaviours or encourage the adoption of new technologies.
- Recognise the sensitivities involved in conducting extension activities on private farms, in that there may need to be mapping of invitees based on relationship for some, while others may be more open to sharing their experiences more generally. This may be the case in the community at Woolgoolga but may be particularly important for other culturally and linguistically diverse communities where there may be particular family dynamics in a close knit community.

Barrier 4 – Lack of resources (time and labour)

Labour availability and cost remain significant challenges for Woolgoolga's Rubus producers. The workforce is predominantly composed of migrant workers from countries such as Vietnam, Malaysia, Japan, South Korea, and Taiwan as well as family members. The Pacific Australia Labour Mobility (PALM) scheme offers a degree of stability by enabling growers to retain trained staff for longer periods, but it also requires adherence to stricter worker protection standards. Labour efficiency varies, with younger workers often regarded as more effective.

Large-scale operators manage thousands of workers but face ongoing challenges related to housing and labour management. There are no labour hire licence arrangements in NSW for labour hire contractors, but there are several labour hire agencies in that State. The only States that require licensing for labour hire firms are Victoria, South Australia and Queensland.

The largest barrier to adoption of new technology for growers appeared to be the lack of personal time and energy, in that managing the technical aspects of farming as well as a large work force for some operators meant very long hours without a break during a long growing season. These constraints often preclude investigating and developing new practices or technology.

Lesson to be learned from this include:

- Extension activities for adoption of new technology should be targeted at periods of the year when growers have capacity to participate and are rested and more likely to be receptive to new ideas. This period appears to be between February and May for the Woolgoolga region but will vary for different communities across Australia.

Barrier 5 – Cultural constraints

There were some cultural nuances that seemed to be apparent in the Sikh community that resonated with what was found with the background material.

Traditional roles within farming families could influence communication strategies. Typically (but not always), men manage farming operations, while women handle picking and business management. Engaging women during different times may provide additional opportunities to disseminate information. Women rarely attend workshops or farming practice meetings. Also, farming businesses rely heavily on accountants to oversee the business aspects of their farms, which could be an opportunity to engage with the accounting community to share information relating to business or environmental compliance with regulatory frameworks.

There were some minor issues that were culturally related, for instance, ensuring provision of vegetarian meals for events.

There is a strong value for work, making a living and contributing to society in the Sikh community. According to some interviewees, this does put pressure on some growers to keep working hard when margins are low, compared to other growers that might stop work when not making money. Also, to save money, there may be some cultural pressure for business owners to keep working themselves very hard, often to a point of exhaustion, rather than employing new staff to share the load. This contrasted with corporate farms in the same region that tended to have larger groups of professional staff to run the operations, spreading the load wider than would occur on a family farm. One grower suggested that the tendency to continue to work at very low margins is a Sikh characteristic, and that needs to be confirmed with a larger cohort.

Language was not seen as an issue for most growers. There was some evidence that older growers, or those new to Australia, felt more comfortable speaking with a local Punjabi speaking agronomist (who was also a Sikh). For others, it was related to us that most people in the community, even if their English language skills were not good, were well networked with others who would share information with them in their own language. For those growers in the Sikh community born in Australia, which included most of the major growers, language was not an issue.

Lessons to be learned from this include:

- Consider cultural preferences when planning extension events, for example, provision of particular foods. Other important considerations may include special days in the calendar or rhythms of work etc.
- In each cohort of growers, particularly in culturally and linguistically diverse groups, there may or may not be language barriers. Each group should be analysed for their language needs before engaging with them. For the Woolgoolga community, there is a large group of Sikhs who have English as their first language and they would not need special services in this area, but there appears to be other sub-groups of the Sikh community that would prefer to communicate with someone who speaks their native language.
- There appears to be people in the community that provide informal translation and communication services to others who may have language difficulties or may not be as well networked. These people, when identified, could be important channels for extension information.

Examples of responses

The following table gives some examples of stakeholder responses that relate to the barriers to adoption of best practice.

Barrier	Examples	Possible solutions identified	Identified by
Lack of financial incentives or finance	"It costs $100,000 to set up catchment dams to manage runoff. It's hard to justify that when there is no income generated" "The new growers in town might lease out a tunnel and grow for a year. If it doesn't work out, they will just leave, and no one will find them." "There is a perception that growers may not like to get into debt and therefore are less likely to try new things or take risks." "Rubus are high risk and take a lot of investment to get into them. A few years ago, they were very profitable, and now they are not as profitable as more supply has come onto the market" "Barriers to entry for blueberries are relatively low, while for Rubus it is very expensive to set up. It costs ~$400,000 a hectare to set up a Rubus crop. This contrasts to about $100,000 a hectare to set up a blueberry crop." "When Rubus first started, the entire investment could be paid off with the first crop. It is a lot harder now."	"The growers tend to prefer to attend events where there is a focus on production and bottom lines to improve business returns, rather than on water quality issues where there may not be a payoff."	Ag supplier Government agency Agronomist

Barrier	Examples	Possible solutions identified	Identified by
Lack of a well-developed regulatory framework for environmental impacts on farms	"But to capture the runoff the grower would lose money, so there is no motivation to do it. Capturing runoff doesn't pay the bills." "One of the big deficiencies is the time and effort farmers have taken to set up their farms and plan out the structure of the farm." "All farmers have to jump through the accreditation schemes, like HARPS, Sedex – Fair Farms and Freshcare, so that should be the base that all farms are working from. Audits are a struggle to get through and arrange."	"In the cotton industry there are guidelines for best practice readily available and have been available for years, but the materials have not caught up for the berry industry in this region, and they are being created."	Agronomist Government agencies

Barrier	Examples	Possible solutions identified	Identified by
Challenges in knowledge sharing	"WhatsApp is popular amongst the growers. Each genetic supplier (Perfection Fresh, Driscoll's, Mountain Blue and OzGroup) would have a WhatsApp group." "Emails are ineffective and growers have directly said that they do not read anything that is sent." "We had an IPM field day on-farm and nobody attended."	"Berries Australia had an online event for the Varroa mite incursion that was very well attended because everyone wanted and needed to know what to do. There are not many online events, but that is an opportunity probably" "DPI and Driscoll's paid for me to do an online Delphy course from the Netherlands (https://delphy.nl/en/services/trainings/) and it was fantastic. It was run from 6-8 pm, therefore was convenient at the end of the day (they finish at 4 every day)." "The firm we get our raspberry genetics from has a post-season meeting with a run down of what went well and didn't go well, and that is good and everyone attends". "All the growers are on WhatsApp groups. Information spreads like wildfire." "Young growers usually do very good research, will attend meetings, listen to podcasts and follow agronomist programs."	Growers Government agencies Agronomist

Barrier	Examples	Possible solutions identified	Identified by
Lack of resources (time and labour)	From August to January growers work 12 hours a day, close to 7 days a week, so they are exhausted and cannot be bothered going to anything that doesn't have an immediate benefit." "There are some growers that use the PALM scheme; the main advantage of that is to keep trained staff for a longer period. The PALM scheme has a lot of protections." "Labour and its performance are a big risk for growers."	"If planning events, winter months are good, even if some growers travel during this time.	Government agencies Growers Agronomists
Cultural constraints	"There are roughly 10 large family groups in the district. Some of the grandparents are now getting old. There are hierarchies within these family groups." "There was a bus tour arranged with both Sikh and non-Sikh growers, and they did not tend to mix much"	"Most growers talk to each other and would catch up at the temple and share information. Some people colloquially call the temple the conference centre" "These new growers seem to be more comfortable with speaking with our Punjabi speaking agronomist."	Growers Ag supplier

Conclusion

The Woolgoolga Rubus production community presents significant opportunities for innovation and growth, but barriers to best practice were identified around financial incentives or finance, challenges in knowledge sharing, lack of a well-developed regulatory framework for environmental impacts on farms and lack of resources and cultural constraints.

Targeted strategies that emphasise clear value propositions, build trust within the community, and align with the cultural and operational realities of growers are essential.

The next phase of this project will have two main parts:

- Build on the solutions identified in this document and create recommendations for improving farming practice within the Woolgoolga Rubus growing community
- Test these proposals with farmers in the Woolgoolga area to determine their practicality or likely impact.