



SOUTHERN NSW
Innovation Hub

SUSTAINABLE AGRICULTURE,
LANDSCAPES AND COMMUNITIES

TRACK AND TRACE PROJECT REPORT

The following NSW Department of Primary Industries' project report forms part of the Managing Biosecurity Risks activity, which is funded through the Agricultural Innovation Hubs Program.



Track & Trace Project Report

DEPARTMENT OF PRIMARY INDUSTRIES

Department of Regional NSW



Australian Government
Department of Agriculture,
Fisheries and Forestry



SOUTHERN NSW
Innovation Hub
SUSTAINABLE AGRICULTURE,
LANDSCAPES AND COMMUNITIES

This is part of a joint initiative with the Southern NSW Innovation Hub and forms part of the Australian Government's Agricultural Innovation Hubs Program



NSW
GOVERNMENT Department of Primary Industries



Table of Contents

Executive summary	3
Overview	3
Outcomes and recommendations.....	4
Introduction	6
Proof of concept Contact Track and Trace System.....	6
Track and Trace initiation and development.....	6
Track and Trace industry and on-property engagement.....	6
Track and Trace data collation.....	7
Track and Trace survey results	9
Track and Trace – what worked well and not so well?.....	14
Recommendations and opportunities	15
Extra feedback from participants.....	16
Regional simulation exercise.....	17
Background	17
Exercise aim.....	17
Objectives.....	17
Scope.....	18
Exercise structure.....	18
Exercise evaluation.....	18
How tracing data improves the outcomes.....	22
Exercise case study: financial benefits/impacts.....	23
Risks and Challenges	24
Next steps.....	25
APPENDICES	26
Appendix 1. Track & Trace Project Property Check-In Signage	26
Appendix 2. Workshop flyers	27
Appendix 3. Project Updates	35
Appendix 4. Monitoring & Evaluation Survey Results.....	43
Appendix 5. Simulation Exercise Evaluation Report.....	59

Table of Figures

Figure 1. Total number of participants and workshop participation 7
Figure 2. Check-In Data and Knode from 28/08/22 - 02/06/23 8
Figure 3. Project evaluation stages 21
Figure 4. Data collection methods 21

Executive summary

Overview

New South Wales is the second largest wine producing state that accounts for nearly one third of total Australian output. The NSW wine industry makes a significant contribution to the economy with regard to production, export, agritourism, wholesale, retail, hospitality, business turnover and jobs created.

The NSW Wine Industry contributes \$14 billion to the NSW economy with the annual volume of wine produced being 492,000 bottles. The annual value of NSW wine exports is \$500,000,000 and growing. The NSW wine industry employs approximately 53,000 people and encompasses a land use area of 34,000 hectares. [Source: NSW Wine website].

The NSW wine industry is a vital part of the NSW economy. It is a progressive industry always looking for ways to move with the times and increase preparedness for mitigating and managing any exotic or endemic plant pest that may impact the industry. The NSW wine industry was keen to initiate and support the use of this new tracing technology as part of the Track and Trace Project.

Background

Biosecurity aims to protect the environment, community and economy from the impacts of unwanted pests, diseases and weeds. Under the NSW Biosecurity Strategy 2012 -2021 biosecurity is a shared responsibility between government, industry and the community. This means that everyone has an obligation/responsibility to identify, manage or mitigate risks.

Currently there are few management tools available to quickly and effectively trace or track possible vectors to minimise or manage the biosecurity threats or reduce potential economic impact in the short or long term.

The current gaps identified in existing biosecurity management strategies were:

- access to tools and data management systems that support early detection and rapid response to biosecurity threats.
- understanding the role individuals (anyone not just growers, etc.) can play in prevention and early response of threats.
- adequate knowledge of the value (\$) at risk if prevention and early response strategies are not effective.
- lack of regional knowledge, capacity and systems at a farmer, community and supply chain level.
- Identifying key biological and natural assets and the biosecurity risks associated with them at a regional level.

These gaps provided opportunity to undertake activities to test different approaches to biosecurity management based on new technology. Industry identified as a priority issue, the opportunity to improve biosecurity management and mitigation strategies at the farm, supply chain and community level.

The project focused on two components to address these gaps, being the proof-of-concept Track and Trace System and the regional simulation exercise.

Key objectives

- ***Proof of concept Contact Track and Trace System***

This project piloted the use of new technology using a digital check in/check out App (e.g., QR code systems used during the global coronavirus pandemic) as a proof of concept that demonstrates the value of effectively recording and tracking possible vectors of a biosecurity outbreak and/or threats within the wine (vineyard) industry.

The pilot assessed if this process could be streamlined through access to live tracing data, and the effect of live data on response times, capability and overall impact.

2. Regional biosecurity simulations

The aim was to develop and deliver a simulation exercise to build farmer, supply chain, community and responsible agencies awareness of, and involvement in biosecurity management and create information and tools that support future preparedness activities around biosecurity management.

The simulation exercise (Exercise Sour Grapes) supports the Track and Trace System by applying the data collected in vineyards over the life of the project to an exercise scenario. The exercise was to further build on outcomes from previous Exercise Sour Grapes held in 2019 to compare the absence of live tracing data in 2019 to now having live data in 2023. The purpose was to also evaluate the use of the track and trace technology to collect real-time data to demonstrate if the technology can improve the efficiency and effectiveness of plant biosecurity emergency response planning in the community, producers and across the supply chain.

Outcomes and recommendations

There is a comprehensive list of the outcomes and recommendations outlined in the Phoenix Resilience Evaluation Report. The key ones observed and identified throughout the life of the project and the simulation exercise are captured here.

Track and Trace proof of concept

Operational - response

The track and trace system highlighted to users that having accurate tracing data available early in a response situation could mean the difference between being impacted by a response or not. There can potentially be reduced control measures or movement restrictions placed on growers if the data clearly proves there has been no connection to Infected Premises (IPs) and the grower's property demonstrates no biosecurity risk.

A key outcome of having access to the live data was the identification of outlier properties. This allows for resources to be allocated to that area straight away, supporting more timely surveillance to determine the pest status of those outliers. If this area can be determined to be free from the pest or disease they can return to business as usual (BAU) much quicker, hence reducing the financial impacts to that region.

Alternatively, if investigations result in a positive detection, the timeframe for implementing movement restrictions is greatly decreased, reducing the potential spread of the pest or disease.

The impact on trade through having access to real-time data may provide a degree of proof of freedom which means that market access can be re-established quicker if there is a confirmed no linkage or connection to an IP. The flow on effect from this may be that contractors, cellar doors and tourist operators may be able to re-open for business more quickly if there are no links to IPs. The overall impact on the region may be greatly reduced.

The key factor with having access to live data is the reduced timeframe for trace forward and back movement details to be collected. This means that field crews can be tasked with surveillance and the appropriate level of resourcing can be applied more effectively. This also potentially impacts on budget forecasting, response timeframes, resourcing and regional areas of impact. Timing in a response is a critical factor in limiting the potential spread of a pest or disease.

There are several issues that require further investigation for practical effective implementation of the system. How would government access and use this type of technology going forward and its integration into an existing biosecurity emergency response data management system. How do we engage the majority of industry to consistently use the system in order for it to deliver maximum benefit. Consideration also needs to be given to a legal framework around confidentiality and use of people's data in a response situation.

Adoption and uptake - human element

The resourcing of response staff to conduct tracing interviews with owners directly impacted by the pest or disease will likely be reduced if live movement data is available. In terms of mental wellbeing this a big plus as dealing with growers impacted by a response who are often under a lot of stress, can be difficult. It is a stressful time for both response staff and growers, so the less intrusive the investigation the better.

Access to real time movement data could potentially improve collaboration between property owners and government. Control decisions could be made based on hard evidence which could increase support from industry because the outcomes are clear and able to be backed up and supported by the data.

One of the highlighted outcomes from this project was the need for increased grower uptake and use of the technology. Everyone realised the importance of using the technology but during harvest/vintage (peak biosecurity risk period) usage of the App dropped off considerably. It was hoped the opposite would occur as one of the biggest biosecurity risks identified at the start of the project was machinery and equipment and contractors coming and going during harvest (vintage) but competing priorities resulted in usage declining significantly.

Adoption and use of the technology is a major hurdle to address going forward. To address this hurdle to some extent the Tech Provider has since upgraded the App to support automatic check in/out.

For increased uptake and use of the technology it was highlighted that the App needs to have benefits for other activities on the property. The App currently helps growers meet their Sustainable Wine Growing audit process and if the use of it could be linked to an accreditation program or other incentives this would help with uptake, cost benefit and return on investment for purchasing and using the App.

The provision of training in using the APP would support users in setting up their accounts and feeling comfortable using the App before having to implement it. Ongoing support would be ideal as when people got stuck on something they often didn't seek advice or rectify the issue, they simply stopped using that aspect of the App.

Introduction

This project forms part of the larger Managing Biosecurity Risks project that is part of the Commonwealth's Agricultural Innovation Hubs Program (the Program). The Program provides funding to eight existing Future Drought Fund Drought Resilience Adoption and Innovation Hubs to expand beyond their current remit of drought resilience to broader agricultural innovation activities. The objectives of the program are to support the national agricultural innovation agenda by increasing uptake of innovation by producers, stimulate collaboration in the agricultural innovation system and increase commercialisation outcomes.

The NSW Department of Primary Industries ("NSW DPI"), the NSW Wine Industry Association ("NSW Wine") and the Southern NSW Drought Resilience Adoption and Innovation Hub ("The Hub") partnered with commercial technology providers Onside and Knode in a proof of concept 'Track and Trace' project. The project used this track and trace technology to collect real time data of the movement between properties of people and materials or conveyances that potentially present a biosecurity risk. The aim of the project was to then evaluate how data collected from the track and trace technology could be used in preparedness, planning and response during a biosecurity incident to provide better insights and increase efficiency. This was tested through running a simulation exercise, 'Exercise Sour Grapes' in May/June 2023.

Proof of concept Contact Track and Trace System

Track and Trace initiation and development

The project was initially aimed at the Tumbarumba and Canberra wine growing regions in NSW due to their relative proximity to the NSW, ACT and Victorian borders. The small size of these two regions resulted in inclusion of the Orange and Mudgee wine regions in order to get the participation rate up to 90 properties. The higher number of properties was required to make full use of the check in/out data.

Initial stakeholder engagement involved emailing the regional wine associations with a request to send out project information to all their members. The flyer explained the project and that they were invited to participate and find out more at a regional workshop that was being held in each region on 23/24th August 2022 and 4-6th October 2022. Their participation in the project gave them free access to the Onside App technology for a 12-month period as long as they committed to use the App over the 12 months.

Track and Trace industry and on-property engagement

The project consisted of forty-five (45) growers accounting for the project goal of 90 properties.

Face-to-face workshops were held over the course of the project to continually engage with participants, provide project updates, answer questions and listen to their feedback.

As the project continued it got more difficult to engage with participants, with a significant decline in participants at the 6-month workshop. Reduced attendance at the final workshop was attributed to participants simply being too busy to attend.

Region	Total Number of Growers per Region (45)	Workshop 1 (Aug/Oct 2022)	Workshop 2 (Feb 2023)	Workshop 3 (July 2023)
Tumbarumba	5	6	3	4
Canberra	15	13	3	7
Orange	12	15	4	2
Mudgee	13	15	6	4

Figure 1. Total number of participants and workshop participation

Track and Trace data collation

Data collected using the Onside Check-In App from 28th August 2022 – 2nd June 2023 is detailed below.

The Knode Data Trackers were implemented later in the project to capture grape bin movements during harvest (vintage) from 13.03.2023 - 16.04.2023. A total of 26 bin movements were captured during this time.

Over the nine month period of using the App, a total of 1860 Check-ins occurred, averaging out to 207 Check-ins per month and 46 Check-ins per week. Considering there was 90 properties in the project and 46 growers this Check-in rate should have been higher especially during the busy vintage period.

Dashboard

Your current biosecurity summary and activity.



Department of
Primary Industries

From
28 Aug 2022

To
02 June 2023

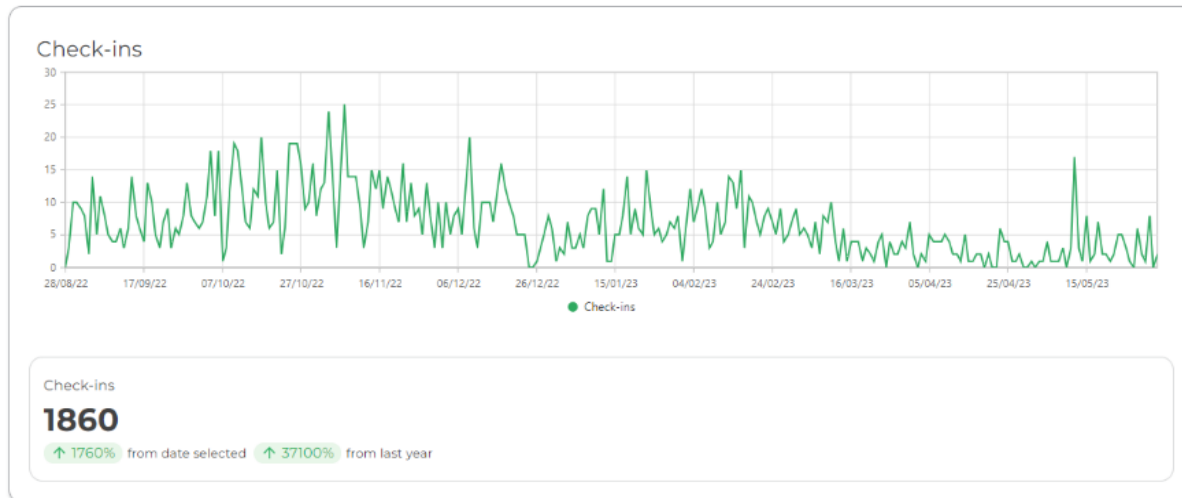
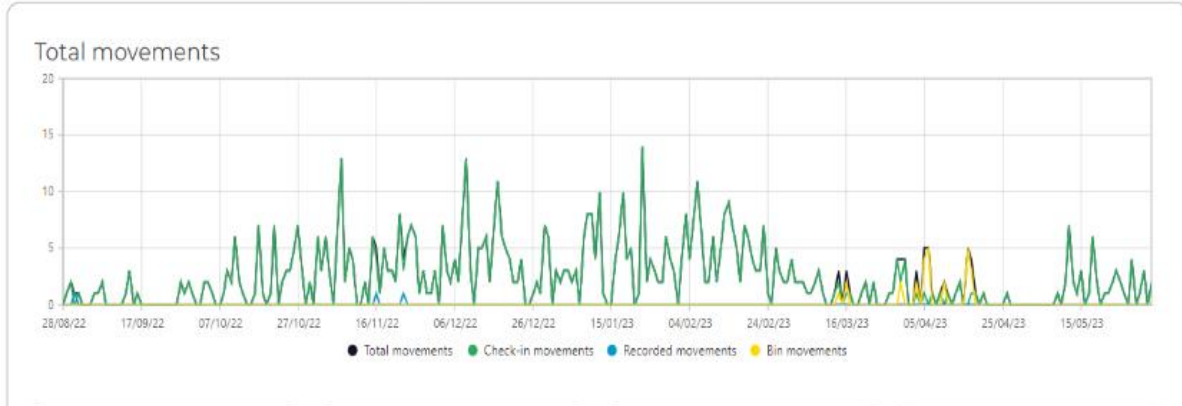
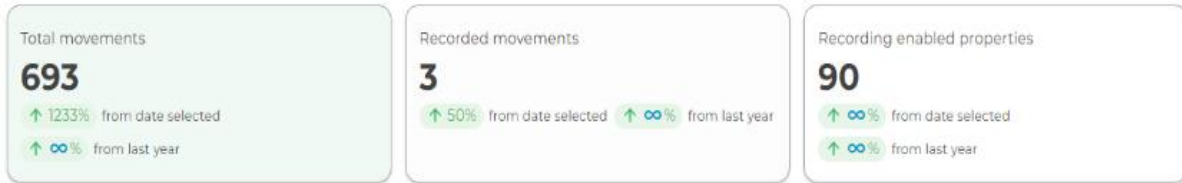


Figure 2. Check-In Data and Knode from 28/08/22 - 02/06/23

Track and Trace survey results

The first Monitoring and Evaluation Survey was conducted in February 2023. A total of 19 participants completed the survey. A second survey was completed in July 2023 at the end of the project.

February 2023 survey results:

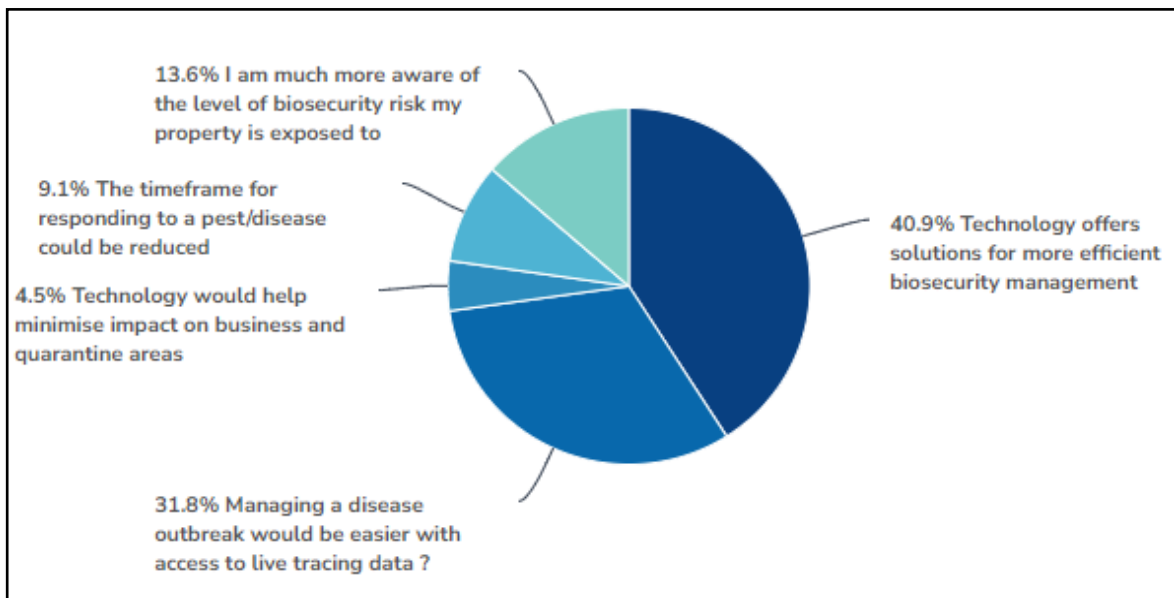
- Age demographic: the survey indicated approximately 67% of participants were over the age of 45.
- In terms of ease of using the App most participants scored between 6 and 10 on a scale of 1 to 10, indicating that generally most people found using the App relatively easy.
- With regard to the perceived benefit of using the App, on a scale of 1-10 (10 being high benefit), 58.8% of participants rated 9-10. There were no middle of the range scores, so it seems that participants had very clear feelings about it being either highly beneficial or of little benefit.
- Use of the App made recording visitor/contractor movements much easier according to 64.7% of participants, while 17.6% said there was no effect, and 17.7% of participants either disagreed or strongly disagreed.
- Alternative uses of the App aside from biosecurity and Check-ins were 64.3% for safety hazards and risk assessment, 57.1% for record keeping, 42.9% for meeting audit requirements, 35.7% for creating a to do list and 7.1% for other uses. This indicates areas that can be focused on in the future to improve usage and uptake of the technology.
- Increased functionality and additional improvements, 58.8% said agree/strongly agree, 35.3% no change and 5.9% strongly disagree. Continuing to look at ways to broaden the range of uses of the technology on farm and what data it could capture would definitely assist with increased uptake and use.
- Human behaviour changes (17 responses):
 - a. 82.3% of participants indicated they have a more positive opinion about use of the technology since the project started in August 2022.
 - b. 64.7% said that their thinking about biosecurity has changed since the start of the project.
 - c. 58.8% indicated their level of awareness of biosecurity practices has increased since starting the project.
 - d. 64.7% of participants have improved their biosecurity preparedness on farm.
 - e. 70.6% of participants now make biosecurity more of a daily part of business as usual.
 - f. 70.6% indicated they are likely to continue to use this technology after the project has finished.
- For those participants that chose not to continue to use the technology beyond the project, 78.6% said they would go back to using a manual system for capturing Check-ins, with 21.4% using a different technology program.
- Some of the limitations or notable changes that would assist with use of the App would be to consider:
 - language barriers with workers
 - making sign in easier for permanent employees and supervising staff

- improving or educating around use of the App when there is limited or no mobile phone service.

Other feedback - they had very good biosecurity practices and preparedness and others have been practicing good biosecurity for many years, the App has just helped to raise the bar and educate visitors about the risks to my property/business.

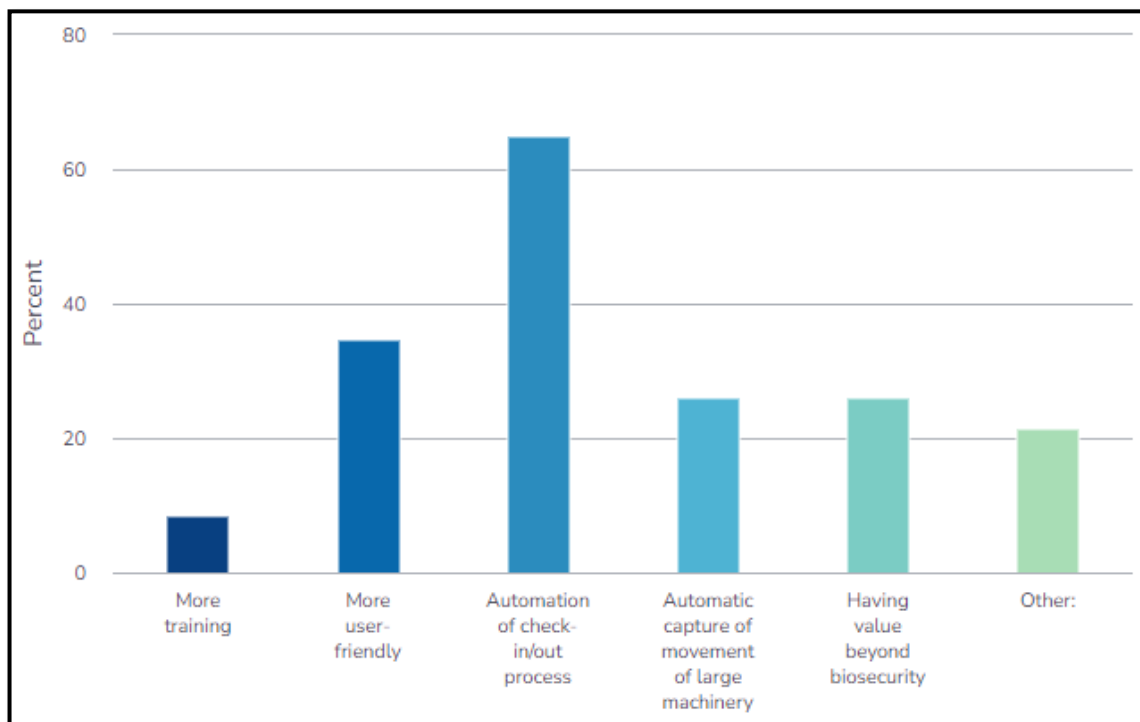
July 2023 survey results:

- How useful the project has been in progressing a more effective approach to biosecurity (needs and managing outbreaks) with scoring from 0-10 with 10 being very useful. Eighty seven percent of participants scored 5 or higher which suggests that the project has changed participant’s perspective and on farm practices to be more focused on biosecurity preparedness.
- Question 2 comments and participant feedback.
 - ✓ Love the idea just need to put it into practice. Our lack of internet service makes it difficult to track.
 - ✓ I didn't appreciate there were many facilities I could have used.
 - ✓ Could be quite useful, if everyone is actually using the system long term. But otherwise it makes zero sense.
 - ✓ It was mainly just me in the vineyards. The only crew I had come in didn't speak good English and were unable to use the check-in feature.
 - ✓ Not widely accepted by contractors.
 - ✓ I have few contractor/worker movements on my vineyard but the software was easy & effective.
 - ✓ I think the framework is great but a bit too much in our personal situation. We need to get some in-house things improved first.
- The key take away messages from the project and/or biosecurity management are:



- What level of importance do you think farm-level Apps could have in assisting businesses monitor on/off farm movements? A high 73% of participants scored 6 or higher. This suggests that further research into the use of on-farm Apps and how they can effectively be integrated into everyday business as usual would be worthwhile. The increased level of biosecurity awareness at the grower level can only enhance the capacity of industry to prepare for and manage exotic and endemic pests and diseases.
- Question 5 comments and participant feedback:
 - ✓ For tracking contractors, it is great as small business it probably isn't that relevant.
 - ✓ They could be very important for larger operations, less so for smaller operations. Only as successful as their implementation though.
 - ✓ We don't have a big enough operation to need it.
 - ✓ It is getting support by visitors to use the system that is critical - and making it easy and fast for them to use.
 - ✓ It's another expense to business and the Onside costs are high for us guys that manage most of the business ourselves.
 - ✓ Very good for larger businesses - too big an overhead for small businesses

- In terms of what would make the App more user friendly and/or useful for business. [*Note: Onside have since made the Check-in/out process automated*].



- What impact has participating in this project had on your business? The key message from this is that the project has increased people's attention to managing on farm biosecurity practices. This was the highest scoring value as indicated by 59.1% of participants. This was closely followed with 40.9% being more aware of biosecurity risks and requirements, and 40.9% had increased confidence that biosecurity threats will be better managed at industry level. Implementing more on-farm biosecurity practices scored 31.8% and only 4.5% of people thought they were currently doing enough on farm to manage biosecurity risks.
- In terms of direct benefits that you have seen already to your businesses in terms of biosecurity already, 27.3% said yes with 72.7% saying no.
- Direct benefits seen already - comments and participant feedback:
 - ✓ Bin tracking
 - ✓ Get staff aware of the need for tracking and hazard reduction
 - ✓ It was fantastic for our sustainability audit
 - ✓ All the staff are now conscious of how valuable Biosecurity is
 - ✓ Understanding movement Having activity logged
 - ✓ Contractors are paying more attention.
- Will participants continue to use the App post project completion, 60.9% answered yes.
- Question 11 (yes) comments and participant feedback: The main reason for continued use of the App is that it improves biosecurity and reduces risks, 85.7%, meets Sustainable Winegrowing Audits (50%), equally, helps meet General Biosecurity Duty (GBD) and assists government

agencies with response efforts if/when required both scored 28.6%, staff management was 14.3% and 7.1% said other.

- Question 11 (no) comments and feedback: Most people will continue to use their existing systems whilst 25% of people will look for alternatives.
- Participant comments:
 - ✓ Lack of uptake from management failed to encourage the team and contractors to use.
 - ✓ Ongoing system being offered is too expensive.
 - ✓ It's a cost benefit analysis point for us, we don't use very much contract labour, we like the ease the app gives us for when we do, but currently cost outweighs the benefit.
 - ✓ Need something that suits the scale of our operation.
- Overall project participant comments:
 - ✓ We struggled with the time and difficulty of the check in process but we also need to do this well.
 - ✓ An excellent tool.
 - ✓ Was unable to attend the workshop but I support the whole concept and am keen to continue – it just needs to be simple, practical and inexpensive, otherwise broader support cannot be achieved.

Track and Trace – what worked well and not so well?

The initial face to face engagement workshops with growers seemed to be effective at explaining the project and engaging participants in the project. At the start there was some angst among growers thinking this project was going to be an invasion of their privacy. Once that was clearly identified as not being the purpose of the project and that the data was theirs and would only be shared with NSW DPI for the purpose of a simulation exercise everyone relaxed. Continued ongoing face to face workshops and training around the use of the technology is essential.

The project timeframe of 12 months was good as a shorter project would not have allowed for the level of data capture required. One entire growing/production season/year was needed in order to see the change in use during high-risk times of the year.

The visual project property check-in signs assisted with notifying people that there were biosecurity requirements in place. Most participants did not want them near their cellar doors and did not use the App for any cellar doors throughout the project. The aim was for vineyard use only and not cellar doors or tourism aspects.

The ongoing contact and grower support provided by Onside was greatly appreciated by participants. One on one communication can never be overlooked in a project. The ongoing persistence from Onside got our participation rate up to the 90 properties that we wanted to be engaged.

Introducing the Knode Data Trackers into the project added a second dimension of being able to trace the grape bins used during harvest/vintage. This highlighted where the grape bins were being transported to/from. Grape bins were identified as one of the major risk factors for the spread of phylloxera so this additional data capture was important and focusing more on equipment and vehicle/machinery tracking into the future will be key items to focus on.

The collaboration between the project team consisting of NSW DPI, NSW Wine, AWRI (Craig Elliot), CSU - The Hub, Onside, Phoenix Resilience and Orange Council was great. There was always lots of discussion and great ideas and support being put forward. Everyone participated and worked well together.

What didn't work so well was that over the life of the project it became harder to keep participants engaged with using the App, attending workshops and communicating with the project team. Ongoing workshops were conducted to get a feel for how the project was progressing and to gather valuable feedback from the participants. Attendance levels were down for the final regional workshops.

The check-in process and lack of internet service presented issues for users which was noted and feedback sent to Onside, which they have since fixed. During harvest/vintage when we expected to see a large increase in the number of check-ins, the opposite occurred. The level of risk increases dramatically with machinery and people movement, but people just got busy and their biosecurity concerns were not a priority. This was disappointing but clearly showed the emphasis people do or don't put on biosecurity. This needs to be noted going forward for future projects. Project participation and engagement needs to ensure that the technology is used during high-risk activities otherwise capturing the essential tracing data is missed.

It was also disappointing at the lack of attendance from participants for the simulation exercise. It was expected that most participants would attend to find out how their data had been used and what benefits could come from having access to live data during a response situation.

Recommendations and opportunities

Over the life of the project as people used the App more and became more familiar with it they began to see some of the other benefits the App could offer. In terms of the overall usefulness of the App in addressing or managing biosecurity risks and outbreaks with scores of 5 or higher there was an increase of 16.4% in participants going from February – 70.6% to July – 87%.

The importance of this project was in identifying movements on and off farm within and between different wine growing regions within NSW. This data highlighted just how far movements can occur and most importantly identified the movement transport routes and any outlier vineyards for contact tracing. If this live data was able to be used in the first days of a potential response situation, planning could immediately allocate the required level of resourcing to inspect those outliers for symptoms of the pest or disease and confirm quickly whether that area is a concern or not moving forward in the response.

Normally this information could take weeks to access through a series of conversations and phone calls back and forth with the property owner/manager which is often stressful for all involved and time consuming. It is also a huge task for some owners to re-trace all their movements over the last 12 months to possibly 5 years. Time is of the essence in a response as the earlier the area of infestation can be delimited and locked down, the less likely the impact and there is less risk of further spread.

Overall having access to live tracing data means:

- businesses in those outlier areas may be able to get back to business as usual much quicker.
- planning can be a lot more strategic with resource allocation.
- surveillance can be more targeted and specific.
- ongoing routine surveillance can be done in higher risk pathways as identified by the data which may lead to earlier detection and improved preparedness.
- decision making that is influenced by real data may gain more support from Industry.
- putting a realistic timeframe on how long the pest or disease has been in the area may be facilitated based on the real time tracing data.
- accurate data that supports a response plan may also assist with suitable funding for; a) a response into the future, b) ongoing surveillance programs.

The use of technology into the future has merit and should be continued to be investigated. The big question is how to best capture and store the data and how can we use it to get the most out of it for preparedness through early detection and response purposes?

Thought needs to go into once we have the data what do we do with it for it to be of use. Tracking of individual machinery and equipment etc. is going to become more important. These could be tracked with either the use of attachable computers that scan or have readable barcodes and this work warrants a second project to further investigate what is now available. Technology has changed even in the twelve months since this project started and there are a number of agricultural technology providers in the marketplace who all offer different aspects of data capture.

How external data is captured and then integrates into the NSW DPI data management system needs to be considered going forward for any future response efforts. There is merit in investigating this type of track and trace technology further. The benefits are notable and will be both cost saving and time saving.

Extra feedback from participants

- *'I was extremely pleasantly surprised by the workshop and the project. I think it's an amazing initiative and I'm actually quite proud of our government for considering the threats of our industry in a potential outbreak/crisis'.*
- *'I am glad to hear that people are thinking in terms of precautions and 'what ifs' rather than the typical scenario being 'lets neglect the situation and hope nothing comes of it'.*
- *'I think if we can get all farmers/growers on board with this project, our industry will be better off. We just need to normalize it as the way the covid check in apps were normalized'.*
- *'Just wanted to say thanks for the invitation to Exercise Sour Grapes last week. It was great to review the Onside trial and have more interaction with DPI staff in a simulation. It really hit home how important collaboration is between industry and government. Once again – really appreciate being involved'.*

Regional simulation exercise

Background

The exercise concept document provides an overview of a proposed biosecurity emergency response exercise and acts as an initial planning document to confirm the scope, aim and focus of the exercise.

The NSW Department of Primary Industries (“NSW DPI”), the NSW Wine Industry Association (“NSW Wine”) and the Southern NSW Drought Resilience Adoption and Innovation Hub (“The Hub”) partnered with commercial technology providers Onside and Knode in a ‘track and trace’ project. The project used Onside and Knode technology (the ‘trace and track technology’) to collect real time data of the movement between properties of people and materials or conveyances that present a biosecurity risk. The aim of the project was to evaluate how data collected from the track and trace technology could be used in preparedness, planning and response during a biosecurity incident to provide better insights and increase efficiency.

The track and trace technology, in part, enables property managers to map their property and manage the biosecurity and other risks created by visitors and incoming risk material through a digital check-in and risk assessment and communication system. The data collected can then be analysed within the Onside platform to identify linkages between properties and consequently assist in planning responses to pest or disease outbreaks.

The purpose of the exercise was to support the project by applying the data collected in vineyards from the track and trace technology in four NSW wine growing regions to an exercise scenario.

This exercise built on a previous exercise. In October 2019, NSW DPI and NSW Wine conducted Exercise Sour Grapes with the aim “to educate industry participants about biosecurity risks and explore the process that would be applied for escalation, management and recovery from a significant biosecurity incident”. The two-day discussion exercise focused on a simulated grape phylloxera outbreak. The scenario used in this 2019 exercise formed the basis of the scenario for this exercise with the additional focus in 2023 of also looking at impacts on supply chains and communities from an incursion.

Exercise aim

To evaluate the use of the track and trace technology to collect real-time data and to determine if the technology can improve the efficiency and effectiveness of plant biosecurity emergency response planning in the community, by producers and across the supply chain.

Objectives

1. Applying track and trace data collected from local NSW Wine producers in the project to a simulated outbreak scenario to provide a comparative basis for response planning across NSW DPI, producers, supply chain and community (with the intent to trial with and without, the data)
2. Analysing the data to identify:
 - a. key linkages and networks between properties within the scenario
 - b. the effective size of biosecurity control areas (i.e. Restricted Areas and Control Areas) for movement controls
 - c. priorities for surveillance activities
3. Assessing the potential change in the scale of response operations, and subsequent effect on producers and supply chains and response resourcing, by utilising the data to plan surveillance and movement controls in a biosecurity emergency response.

4. Identify gaps, issues and opportunities for growers to utilise the data to assess their biosecurity risks and ability to respond to a biosecurity incident.
5. Promoting the value of collaboration between wine growers, contractors, government, industry bodies and the community to improve response outcomes.

Scope

In scope

- Analysis of tracing data (tracing and surveillance planning) collected by the track and trace technology and software to achieve the Exercise Objectives
- Development of movement controls or determination of Control Area / Restricted Area zones
- User identification of the value of the data and technology to support 'on property' and supply chain biosecurity risk management during a biosecurity incident.

Out of scope

- National or State Government decision-making processes under EPPRD and strategic response decision-making
- Control Centre functions other than tracing and surveillance planning and setting Control Areas or Restricted Areas as per the 'In Scope' points
- Field and other operational response activities
- User-friendliness of, and experience with, the technology and software

Exercise structure

Exercise participants comprised grape growers, wine producers, wineries and representatives of NSW Department of Primary Industries, the Southern NSW Innovation Hub, Wine Australia, NSW Wine, Local Council and Onside.

To measure the impact of the tracing data on a biosecurity response, the exercise was divided into two parts over two days.

- On day 1, biosecurity responders were presented with a scenario involving phylloxera detection. The biosecurity responders were asked to formulate a biosecurity response without any tracing data being available.
- On day 2, wineries and growers were included, and participants were presented with the same scenario, but now they could use the tracing data to formulate a response.

Exercise evaluation

The following information is taken from the documents, “NSW DPI Exercise Evaluation Proposal” and “Exercise Evaluation Report” provided by Phoenix Resilience. Phoenix Resilience were engaged to provide evaluation services for the project to:

- develop the exercise evaluation methodology and tools

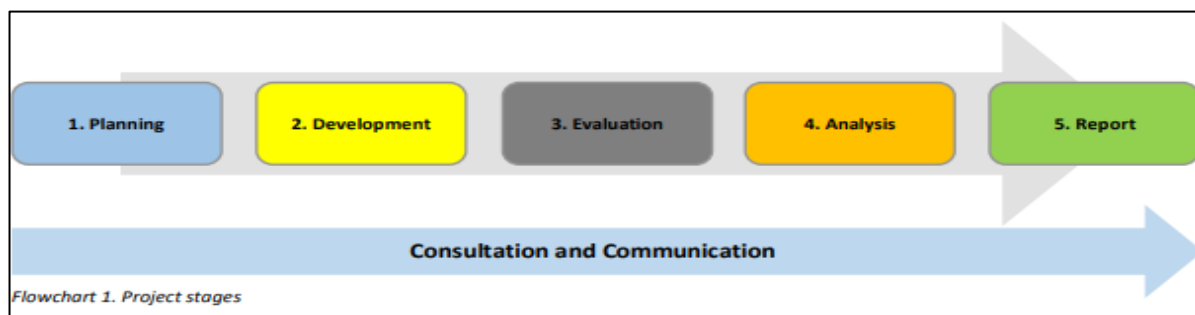
- evaluate the exercise in person for the one-day exercise
- provide a comparative analysis of the effect of the technology on the response times/effectiveness and producer operational recovery time/point, based on quantitative and qualitative data
- provide the final exercise report.

Evaluating the simulation was a key part of assessing and testing the usefulness of the technology in a response situation. Various data collection methods were applied during the exercise, and to assist with validating the data from the exercise, a workshop was held with planners from NSW DPI as well as an interview with a subject matter expert in implementing tracing technology into the agriculture sector.

The evaluation was designed to meet all relevant standards and plans in the development and delivery of their services. Some of these were:

- Biosecurity Emergency Management - Biosecurity Incident Management System
- Biosecurity Emergency Management – Response Planning Guide
- PLANTPLAN
- Australian Institute for Disaster Resilience (AIDR) - Managing Exercises Handbook
- AIDR – Lessons Management Handbook
- ISO 22301:2019 Security and resilience — Business continuity management systems — Requirements
- ISO/IEC 27001:2013 Information technology — Security techniques — Information security management systems — Requirements
- Business Continuity Institute (BCI) Good Practice Guidelines 2018
- ISO 22317:2015 – Societal security — Business continuity management systems — Guidelines for business impact analysis (BIA)
- Australasian Inter-service Incident Management System (AIIMS) 2017
- ISO 31000:2018 Risk Management – Principles and Guidelines

Evaluation methodology



SN#	Stage	Objective	Activities	Deliverables
1	Planning	Achieve common agreement among the exercise planning team and stakeholders on the evaluation methodology.	<ul style="list-style-type: none"> • Conduct a scoping meeting • Consult with key stakeholders, including the technology provider • Develop the relevant metrics for quantitative analysis • Confirm the qualitative analysis components • Confirm the evaluation methodology • Develop the evaluation plan • Submit for endorsement • Finalise evaluation plan 	Evaluation Plan
2	Development	Develop the evaluation products that are required to successfully deliver the exercise.	<ul style="list-style-type: none"> • Develop evaluation products • Confirm any needs for measurement technology • Obtain endorsement and approval for all evaluation documents and process any changes where required. 	<ul style="list-style-type: none"> • Evaluator sheets as per OILL method • Participant feedback forms in MS Forms
3	Evaluation	Ensure the evaluation plan is successfully executed and all data is captured.	<ul style="list-style-type: none"> • Brief the evaluation team • Observe all activities • Conduct measurements 	Evaluation records: <ul style="list-style-type: none"> • Measurements of response times and effectiveness • Completed evaluation documents • Participant feedback data Excel file
4	Analysis	Process the evaluation data.	<ul style="list-style-type: none"> • Process the quantitative data and produce an application performance report • Process participant feedback and produce the outcomes in a 	<ul style="list-style-type: none"> • Application performance report • Participant feedback report

SN#	Stage	Objective	Activities	Deliverables
			PowerPoint presentation, including graphs and summaries of outcomes • Formulate initial findings and recommendations for endorsement	• Initial findings and recommendations
5	Report	Provide a written description of the exercise and its findings/ recommendations.	• Capture the performance evaluation outcomes in a report against the set exercise objectives. • Describe the exercise conduct and activities	Final exercise report

Assumptions:

1. NSW DPI will provide access to key stakeholders (internal and external) for consultation
2. NSW DP will provide an exercise evaluator to deliver internal perspectives to the evaluation
3. NSW DPI will provide access to all relevant documents

Figure 3. Project evaluation stages

Exercise evaluation methodology

Evaluation data was collected using both qualitative and quantitative analysis techniques throughout the life of the project. Quantitative analysis was sought between day 1 and day 2 of the exercise as well as being captured through a small hypothetical case study focused on the Orange wine growing region. The purpose of this case study was to try and identify the potential financial impacts on the Orange wine growing industry and surrounding regional businesses and the potential cost savings or efficiencies that could be improved through the use of the Track and Trace Technology in the event of a phylloxera response.

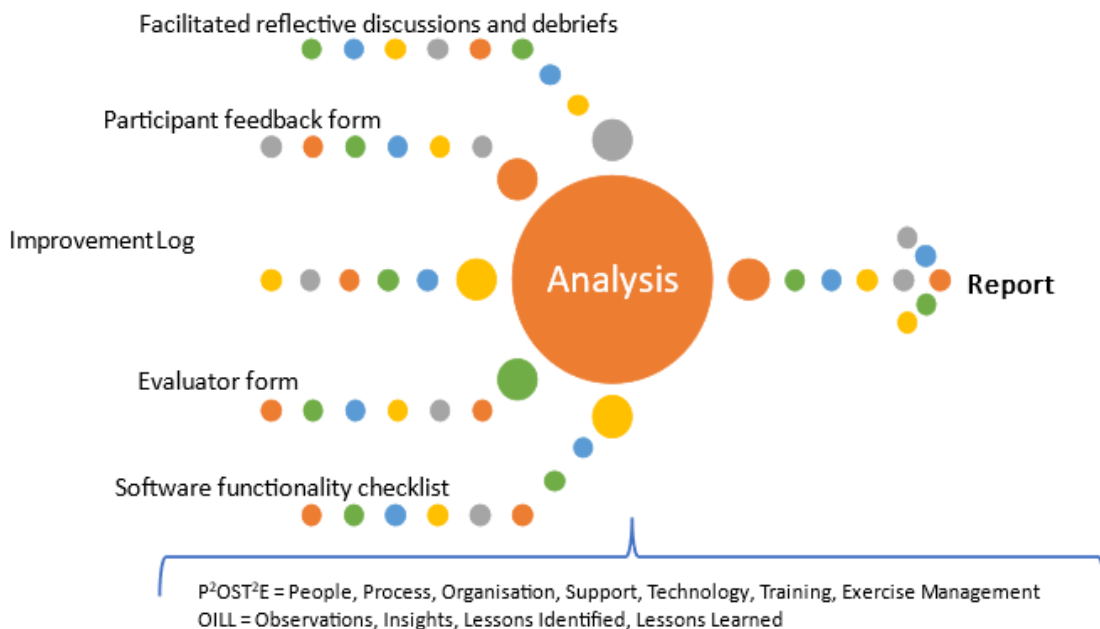


Figure 4. Data collection methods

Qualitative data was also collected through the use of surveys, results of which are included in the Track and Trace Survey Results section of this document. In addition to these surveys Phoenix Resilience conducted interviews, engaged in debriefs, collected logs and feedback forms.

Various data collection methods were used during the exercise as indicated below. (Can be found as Figure 1. on page 4 of the Exercise Evaluation Report). Extensive Exercise Evaluation Data is available in the Exercise Report, this is purely a snapshot of the methods used for capturing data.

How tracing data improves the outcomes

This is covered in the Exercise Evaluation Report. A general summary is included below.

Operationally for growers (technology end users) and the community:

- Growers may request to be exempt from control measures if the data proves no connection to IPs and the property presents NO biosecurity risk.
- Potential costs savings as can return to business as trade as usual sooner.
- Less impact of stress on the grower and family.
- Growers can receive real time alerts of any biosecurity questions not answered correctly by visiting contractors etc,
- Can assess where the potential risks may have come from through easily tracing movements.
- Biosecurity questions, property rules and information may be updated at any time as changes occur to reflect real time activities.
- Less stress on growers having to suddenly find up to several years' worth of movement and tracing data, receipts and details. This information would already be captured in the App and would greatly reduce the stress on the growers having to find these details in a short time frame.
- Biosecurity emergencies and natural disasters have a flow on effect on people and the local communities in those areas. Any measure that can increase the effectiveness of a response and reduce the impact on people and the community is worth further investigation.

Government impact:

- Accurate data may assist with proof of freedom claims and market access.
- Growers should be able to return to normal trade quicker if data supports this.
- Government can identify potential outliers. This in turn allows for more accurate planning and resource allocation.
- Long term budget forecasting may be improved with accurate data at the beginning of a response. The potential size of the problem may be identified much earlier in a response.
- Less stress for response staff not having to conduct tracing interviews with growers who are directly impacted by the response and are already under a lot of pressure and stress.
- Data would assist with routine pest/disease surveillance into areas identified as higher risk areas or potential transport entry pathways.

Exercise case study: financial benefits/impacts

The final evaluation report by Phoenix Resilience outlines a small case study based on the Orange Wine Growing Region within NSW. The case study addresses possible staff savings during a response, the potential financial impact to the Orange Wine Region and the Australian economic impact.

This is a brief summary of the findings taken from that case study by Phoenix Resilience. For full details of the case study please refer to Appendix 5. Final Exercise Evaluation report.

- **Response staffing**

The case study used a scenario based on a reasonable sized response with 10 staff conducting tracing activities, if no tracing data was available as opposed to only 2 tracing staff being required for tracing activities if data for all properties was available.

The potential cost savings over a two-week period was estimated to be \$25,316.65. An additional tracing cost that would be saved would be staff travel expenses.

The above figure is indicative of tracing staff only during a response. In addition to tracing staff cost saving and travel expenses, the response timeframe itself could significantly be reduced based on the findings and accuracy of the tracing data. This would significantly reduce overall response staffing (operations, planning etc.) numbers and the amount of time they would be required.

- **Industry financial impact**

If a movement control order was issued for the Orange Wine Region and prevented the annual grape crush, then the loss of a harvest would have a devastating financial impact on industry. The case study focused on the Orange Region and tracing technology could potentially enable continuation of the harvest (if the data supported the area was free of the pest or disease in question or could isolate a single property).

The Australian grape growing sector produces an estimated \$3.9 billion in annual direct and indirect regional output for business turnover. NSW contributes 30.1% which is an estimated \$1.3 billion.

If the Orange Region were to lose one entire annual grape crush, the loss is estimated to be \$6,684,362.00.

The loss prevention across NSW would equate to the value of the State's grape crush for 2023, which was \$899,835,480 (518,040 tonnes at \$1,737 per tonne).

- **Economic impact**

This scenario is based on the loss of the entire NSW grape crush as absolute worst-case scenario. The value of NSW Wine export is \$500 million with additional impacts due to tourism and the impacts on cafe's, restaurants, cellar doors, museums/galleries and motel accommodation.

In NSW, up to 53,000 employees could be impacted. In the Orange region this would include 1,514 employees. (Figures, sourced from Orange Economic Profile 2017).

In summary

Overall, the case study indicates:

- the financial impacts would be significant in the event of a phylloxera outbreak in the Orange Wine Region.
- that potential cost savings to the grower, industry and government could be made through the use and implementation of this tracing technology.
- response timeframe could be greatly reduced.
- overall response staffing numbers may be greatly reduced, not just tracing staff.
- the shorter the response time the greater the cost saving.

Risks and Challenges

- The risks and challenges of using this technology are getting widespread uptake and use of the technology across industry. Unless there is widespread use of the same technology across an industry there will always be gaps in the data. These gaps will still require landholders to be contacted directly by phone and for Government to continue to conduct tracing phone calls and investigations.
- Data confidentiality is also a concern for people and gaining access to their data may prove difficult especially where the data or rather technology is held by a private third-party organisation.
- For data to be useful in a response it needs to be compatible with NSW DPI data management programs and software. This would need to be investigated further.
- Not everyone within an industry wants to use this technology let alone pay for a subscription to it. Again, uptake and use of the technology is a key hurdle to overcome.
- Rate of increase of available technology. Technology is increasing at a daily rate as to what it is capable of. As new uses become available are they able to be incorporated into the existing technology people have subscribed too? New technology needs to be investigated further.
- Data tampering, (data breach) is this possible for people to do or once it is captured it is not able to be altered?
- The data will not capture abandoned vineyards, vines in nurseries or vines within people's backyards. How do you overcome this?
- There needs to be strong industry engagement from the key industry bodies to implement, support and encourage the uptake of technology as required.
- An industry supported and endorsed property accreditation program for growers may be a way of rewarding growers for implementing the technology. This has its own set of challenges for industry to consider.
- Data only leads people to the property not the exact location of issue. A large-scale surveillance program may need to be conducted on the property to find the actual location of the pest/disease.
- It needs to be discussed going forward how NSW DPI will use the data and then access it in a response situation.

Next steps

1. Submit the final project report to finalise this project.
2. Accept feedback from the Federal Government and The Hub about the outcomes of the project and about the possibility of future funding or additional research into the use of tracing technology.
3. Protocols and agreements need to be in place for the use and application of the data.
4. Government needs to discuss internally the potential pathway forward for implementing the use of technology on farm that incorporates biosecurity and other more direct benefits to growers.
5. Government/Industry need to consider how to communicate the use of technology and it's benefits to further assist with uptake and adoption and use of the technology. Widespread lack of use of the technology was one of the bigger issues we encountered during the project.

APPENDICES

Appendix 1. Track & Trace Project Property Check-In Signage



Appendix 2. Workshop flyers



26/07/2022

RE: Viticulture Track & Trace pilot project

You are invited to participate in this groundbreaking Track & Trace pilot project – a viticulture industry initiative which aims to better manage and mitigate biosecurity risks.

NSW Department of Primary Industries, in partnership with NSW Wine and Onside has funded the Track & Trace project to address increasing levels of concern about biosecurity threats and the impact they pose to NSW and Australian viticulture.

This is a joint initiative with the Southern NSW Drought Resilience Adoption and Innovation Hub and forms part of the Australian Government's Ag Innovation Program.

As a member of the Canberra District Wine Industry Association, the Viticultural Society of the Canberra District or Tumbarumba Vignerons Association we invite you to the introductory workshops in Tumbarumba and Canberra during the week of the 22 August 2022.

Project background

The aim of the project is to test how well digital technology can help manage biosecurity risks to deliver a profitable, productive, and sustainable viticultural industry. The effectiveness of this new technology, the Track & Trace App, will be tested by wine grape growers in the Tumbarumba and Canberra Wine Growing Regions. By participating in the pilot project, you are provided full access to all the App features free for a 12-month period.

This new technology offers growers:

- support in meeting your general biosecurity duty
- increased biosecurity awareness and compliance (property rules, check-in questions and visitor records)
- ability to meet the Sustainable Winegrowing Australia certification criteria
- capability for managing tasks and improving day to day efficiency in the vineyard
- OH&S reporting
- incident management
- capacity to map individual blocks
- improved data management relating to increasing biosecurity risks and threats
- a tracing app which can detect areas of potential higher risk based on routine movements
- an accurate data management and record keeping system for equipment, machinery, and people movements within and between vineyards and winery sites
- a tracing app which can help better prepare and equip biosecurity agencies and industry in rapidly responding to biosecurity threats and apply resources where required.

The success of this project lies in using the Onside Check-In app daily to fully incorporate its use as part of your routine farm management. As a participant in the project, you will be asked to use the app for a 12-month period.

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Innovation Hub
SUSTAINABLE MANUFACTURE,
TECHNOLOGY AND CLIMATE

NEW SOUTH WALES
wine



Introductory grower workshop

The workshop aims to:

- explain the aim and structure of the project and its benefit to you
- assist you in setting up and using your Onside account
- clearly explain how your data will be confidentially used and stored for the duration of the project
- answer any questions you may have
- register you as part of the project.

Your participation in this project is crucial for its success and we would genuinely appreciate your involvement. The aim is to test the technology in a real-life scenario. The more people who participate, the more robust the data and more valuable the test results.

Ongoing technical support and information will be provided to you throughout the project by Onside, NSW Wine and NSW DPI.

Tumbarumba Workshop:

Date: Tuesday 23 August 2022

Time: 8:30am – 12:30pm

Venue: Tumbarumba Motel, 2 Albury Ct, Tumbarumba NSW 2653

Catering: Morning tea will be provided (please let us know if you have any special dietary requirements).

RSVP: Friday 12th August to leonie.martin@dpi.nsw.gov.au

Canberra Workshon:

Date: Wednesday 24 August 2022

Time: 12:00noon – 4:00pm

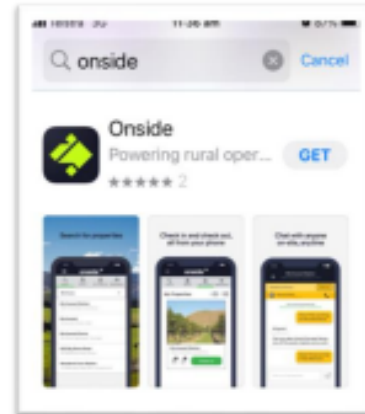
Venue: Murrumbateman Town Hall, then Clonakilla, 3 Crisps Lane, Murrumbateman NSW 2582

Catering: Lunch will be provided (please let us know if you have any special dietary requirements).

RSVP: Friday the 12th August to leonie.martin@dpi.nsw.gov.au

The Workshop - What you will need

- ✓ Prior to attending the workshop, you will need to download the Onside App onto your phone or ipad.
- ✓ You will need to bring your phone, ipad or laptop (preferable) with you
- ✓ Wear enclosed footwear as we will be entering vineyards via a decontamination footbath
- ✓ Read and sign the confidentiality and project agreement, before or at the workshop



For information on how to download the App or register with Onside see attached link:

<https://info.onside.co.nz/knowledge/how-to-register-with-onside>

If you would like to find out more or participate in this project, please RSVP your attendance to either workshop by Friday the 12th August to leonie.martin@dpi.nsw.gov.au for catering and administration purposes. If you can please provide your name, address and contact details it would be appreciated.

You are also able to register at the workshop if you would prefer to find out more about the project prior to signing up. Alternatively, if you have any questions about the Onside app technology and its use prior to the workshop please contact guy@getonside.com

Thank you. We look forward to seeing you at one of the workshops.

Kind regards



Leonie Martin
Plant Biosecurity Officer NSW DPI
105 Prince St,
Orange NSW 2800
Ph: 0428 569 822.
E: leonie.martin@dpi.nsw.gov.au



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LANDSCAPES AND COMMUNITIES

NEW SOUTH WALES
wine



09/09/2022

RE: Viticulture Track & Trace pilot project

You are invited to participate in the Track & Trace pilot project – a viticulture industry initiative which aims to better manage and mitigate biosecurity risks.

NSW Department of Primary Industries, in partnership with NSW Wine and Onside has funded the Track & Trace project to address increasing levels of concern about biosecurity threats and the impact they pose to NSW and Australian viticulture.

This is a joint initiative with the Southern NSW Drought Resilience Adoption and Innovation Hub and forms part of the Australian Government's Ag Innovation Program.

The project is available to a limited number of people. By participating in this pilot project, you will gain free access to the full commercial features of the Onside app for 12 months.

Project background

The project aims to test how well digital technology can help manage biosecurity risks to deliver a profitable, productive, and sustainable viticultural industry. The effectiveness of the Track & Trace app will be tested by wine grape growers in the Tumbarumba, Canberra, Orange and Mudgee Wine Growing Regions.

This new technology offers growers:

- ability to meet the Sustainable Winegrowing Australia certification criteria
- capability for managing tasks and improving day to day efficiency in the vineyard
- WH&S reporting
- incident management
- capacity to map individual blocks
- improved data management relating to increasing biosecurity risks and threats
- a tracing app which can detect areas of potential higher risk based on routine movements
- support in meeting your general biosecurity duty
- increased biosecurity awareness and compliance (property rules, check-in questions and visitor records)
- an accurate data management and record keeping system for equipment, machinery, and people movements within and between vineyards and winery sites
- a tracing app which can help better prepare and equip biosecurity agencies and industry in rapidly responding to biosecurity threats and apply resources where required.

The success of this project lies in using the Onside Check-In app daily to fully incorporate its use as part of your routine farm management. As a participant in the project, you will be asked to use the app for a 12-month period.

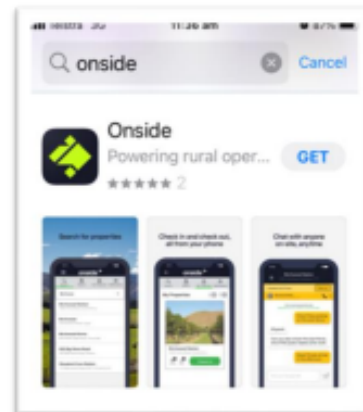


Your participation in this project is crucial for its success and we would genuinely appreciate your involvement. The aim is to test the technology in a real-life scenario. The more people who participate, the more robust the data and more valuable the test results.

Ongoing technical support and information will be provided to you throughout the project by Onside, NSW Wine and NSW DPI.

To Participate in the project - What you will need to do:

- ✓ You will need to download the Onside App onto your phone or iPad.
- ✓ Create an Onside Account. Once you have done that please email: guy@getonside.com to confirm your account creation so he can unlock you and give you full access.
- ✓ Read and sign the confidentiality and project agreement and return to me via email.



For information on how to download the App or register with Onside see attached link:
<https://info.onside.co.nz/knowledge/how-to-register-with-onside>

We will be in Orange the 4/5th October and Mudgee 5/6th October to run some localised workshops, outline the project and answer your questions. If you would like one-on-one assistance in using the app, please contact us and we can organise a separate time with you.

If you have any questions about any of this before joining the project, please don't hesitate to contact me.

Kind regards

Leonie Martin
Plant Biosecurity Officer NSW DPI
105 Prince St,
Orange NSW 2800
Ph: 0428 569 822.
E: leonie.martin@dpi.nsw.gov.au



Project Update:

The Track and Trace project started in August 2022 and since then there has been a great deal of interest and engagement from growers. To date we have more than 80 vineyards participating in the project from four wine growing regions in NSW. There has been more than 1200 visitor and contractor movements recorded on and off these vineyards, with 351 movements connecting between vineyards. This is a great outcome which we hope will increase even more over the coming months with vintage occurring. The number of movements captured show that people in the project are routinely using the Onside App, whilst the connecting movements highlight just how much interaction there is between properties - which is how a pest or disease such as Phylloxera would spread if it ever got into these regions.

Vineyard Walks and Track & Trace Pilot Project Update

Please note you will be put through a foot bath at every property prior to entering vineyards.

Canberra/ Murrumbateman

Venue: Clonakilla, 3 Crisps Ln, Murrumbateman NSW 2582

Date: Monday 13th February 2023

Time: 5pm onwards

Catering: Sausage sizzle will be provided

RSVP: Friday 10th of February to maggie.jarrett@dpi.nsw.gov.au

Tumbarumba

Venue: Johansen Wines, 90 Black Range Rd, Tumbarumba NSW 2653

Date: Tuesday 14th of February 2023

Time: 4pm-6pm

Catering: Sausage sizzle will be provided

RSVP: Friday 10th of February to maggie.jarrett@dpi.nsw.gov.au

Orange

Venue: OAI, 1447 Forest Road, Orange, NSW 2800

Date: Wednesday 15th of February 2023

Time: 4pm-6pm

Catering: Sausage sizzle will be provided

RSVP: Friday 10th of February to maggie.jarrett@dpi.nsw.gov.au

Mudgee

Venue: Lowe Wines, Tinja Ln, Mudgee NSW 2850

Date: Thursday 16th of February 2023

Time: 4:30-5:30pm

RSVP: Friday 10th of February to maggie.jarrett@dpi.nsw.gov.au

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Track & Trace Project - Final Catch up.



Leonie Martin

To: info@yeateswines.com.au; d.zinga@bigpond.com; sam@viniferawines.com.au; wine@tractorlessvineyard.com.au; ckieily@tamburlaine.com.au; rhus@swingingbridge.com.au; info@strawhousewines.com.au; springrangewines@gmail.com; jeff.ensault@skimstone.com.au; **+42 others**
Cc: Mark Bourne President NSW Wine Industry Assoc; Shane Hetherington; Louise Rossiter; Annabelle Bushell; ben.brown@getonside.com; Bernadette York; Ryan Higgs; Connagh Wellington; Jeff Coutts; Lisa Cameron de Vries; tboland@orange.nsw.gov.au; Ryan Higgs; Ned

You forwarded this message on 26/06/2023 9:46 AM.



As you know, we recently ran Exercise Sour Grapes in Orange at the end of May as a key part of the Track and Trace project. This exercise used the data you have been capturing over the last nine months as part of this project. This project is now coming to an end.

I would like to take this opportunity to invite you all to attend a final workshop in your region. Please see invite attached with all the workshop details.

The workshop is to provide an update on what the final data looked like and how it was used in the simulation exercise, to say thankyou for your participation in the project and to gain some feedback from you.

Catering will be provided.

I hope as many of you as possible are able to attend these brief two hour workshops.

If you could please RSVP by return email that would be appreciated and thankyou again for your participation.

Kind regards

Leonie Martin | Acting Leader Plant Pest Preparedness
Plant Biosecurity Prevention & Preparedness
NSW Department of Primary Industries | Biosecurity and Food Safety
105 Prince Street | Orange | NSW 2800
M: 0428 569 822 | E: leonie.martin@dpi.nsw.gov.au





Final Project Update:

The Track and Trace project started in August 2022 and we recently conducted the mock simulation, Exercise Sour Grapes to test the data you have been collecting over the last nine months. In total ninety vineyards engaged in the project with several thousand movements recorded during this time. Your participation in this project has been greatly appreciated and it could not have occurred without your participation.

This final workshop is to catch up with everyone, say thank you, provide you with an overview of what the final data looked like and some of the initial outcomes from the simulation exercise. We would also value your feedback on the project

I would like to cordially invite you all to attend this final workshop in your region on the following dates. Please RSVP by return email.

Track & Trace Pilot Project Update

Canberra/ Murrumbateman

Venue: Clonakilla, 3 Crisps Ln, Murrumbateman NSW 2582

Date: Thursday 20th July 2023

Time: 3:30pm – 5:30pm

Catering: Afternoon tea will be provided

RSVP: Monday 17th July to leonie.martin@dpi.nsw.gov.au

Tumbarumba

Venue: Tumbarumba Motel, Conference Room

Date: Friday 21st July 2023

Time: 3:30pm – 5:30pm

Catering: Afternoon tea will be provided.

RSVP: Monday 17th July to leonie.martin@dpi.nsw.gov.au

Orange

Venue: NSW DPI Head Office Level 3 West, Room 15H, 105 Prince St Orange, NSW 2800

Date: Monday 24th July 2023

Time: 10am – 12:00noon

Catering: Morning Tea will be provided

RSVP: Monday 17th July to leonie.martin@dpi.nsw.gov.au

Mudgee

Venue: Lowe Wines, Tinja Lane, Mudgee NSW 2850


Date: Monday 24th July 2023

Time: 3:30-5:30pm

Catering: Afternoon tea will be provided

RSVP: Monday 17th July to leonie.martin@dpi.nsw.gov.au

Appendix 3. Project Updates



TRACK & TRACE PILOT PROJECT – UPDATE #1

Welcome to the first Track & Trace Pilot Project update. You are receiving this as you have signed up to participate in the Track and Trace Pilot Project. From time to time we will send out project updates with helpful tips and articles on how to improve the usage of your Onside App over the coming months.

Have you returned your Expression of Interest Form?

A quick reminder that if you are already participating in the project and have not yet signed and returned your EOI form can you please do so as soon as possible. This acknowledges your agreement to participate in the project and is a requirement of participation. You are welcome to simply photograph it and either text it to my mobile: 0428 569 822 or email: leonie.martin@dpi.nsw.gov.au

Having difficulty with the Check-In process?

One of the questions raised recently was that because of poor internet connectivity people were finding it hard to **Check-in** to the vineyard? How do I overcome this issue without having to provide a guest wi-fi setup or give people the wi-fi password?

Technical information provided by Onside is: if people scan the QR code and don't have the app, it takes them to a web-based check in process which is reliant on internet connectivity. Two ways to get around this is:

1. Get people to download the app ahead of time, as the app can work offline
2. [Set up an Onside Kiosk](#), which can be connected to your WiFi. This can be set up at your central entrance point and means people can check in without needing the internet on their own devices. The link takes you to the Onside website and provides a simple and easy explanation and a video to assist you do this.

The Onside website has some fantastic information that is simple and easy to use. There are printable documents and great videos covering most aspects of using the App.

Participating in the Project

Your participation in this project is genuinely appreciated but please remember that for this project to provide the key information that we are aiming to test you need to ensure that the check-in process is being used. It is a quieter time of the year at the moment, but over the coming months please remember to get everyone checking-in as much as possible. The App is provided free of charge, for this purpose and we appreciate your ongoing support. If you are having any issues with the check-in process or any other aspect, please don't hesitate to contact Guy and he will walk you through the process.

Track & Trace Project – Update #1 1



TRACK & TRACE PILOT PROJECT – UPDATE #2

You are receiving this as you have signed up to participate in the Track and Trace Pilot Project. From time to time we will send out project updates with helpful tips and articles on how to improve the usage of your Onside App.

Improved Check-In questions.

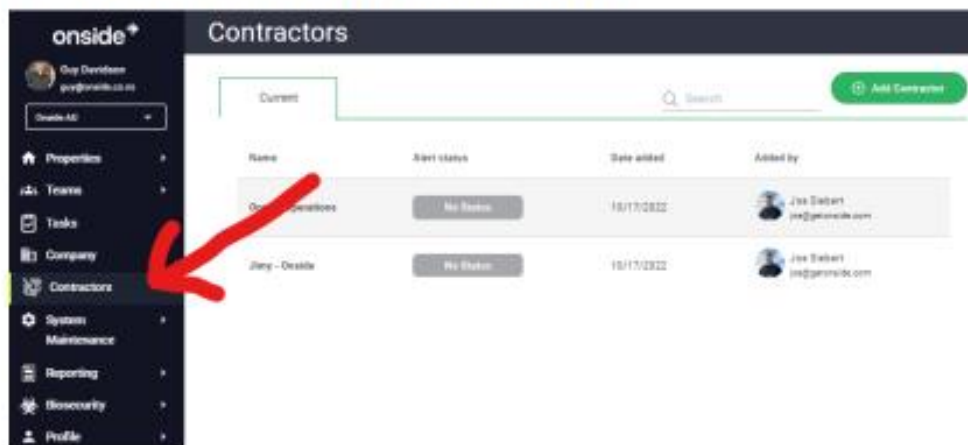
We have listened to your feedback and Guy has updated the check-in questions to try and minimise the number of alerts being triggered. We appreciate your feedback and will make the necessary changes where we can. Please feel free to continue to provide feedback at any time throughout the life of the project.

NEW features to invite Contractors to use Onside.

Onside have just released a new feature within their web portal that enables you to easily invite contractors to use the App when Checking In to your vineyard. This will hopefully encourage everyone within the region to start using the App and make it easier for contractors to engage with properties. Below are screenshots provided by Onside on how to use this feature.

1. Log into the [Onside web portal](#)

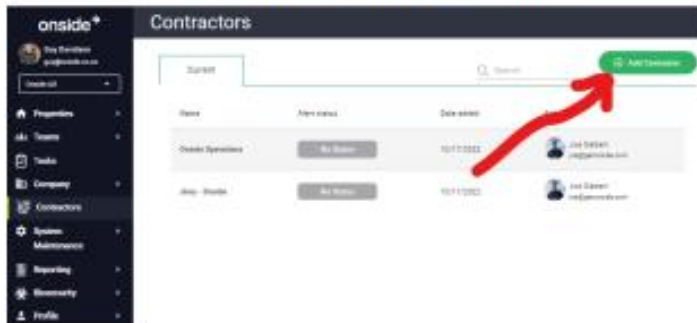
2. Click the "Contractors" tab on the left hand side menu



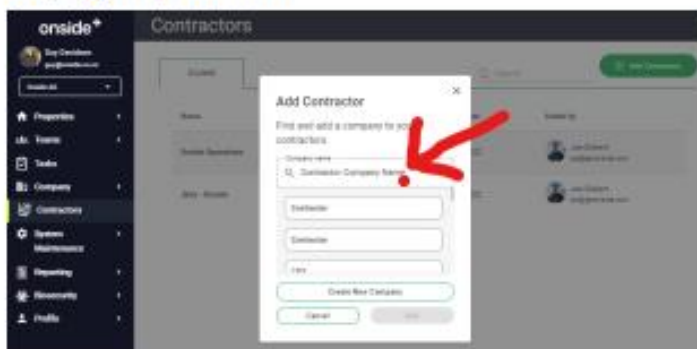
Name	Alert status	Date added	Added by
Contractors	No Status	18/11/2022	Jon Doherty jrd@onside.com
Jany - Onside	No Status	18/11/2022	Jon Doherty jrd@onside.com



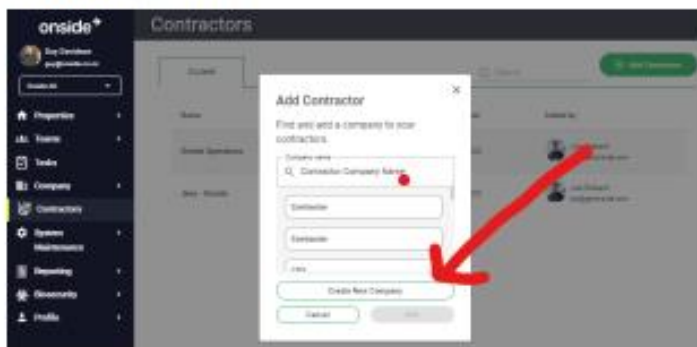
3. Click "add contractor" in the top right hand corner



4. Type in the contractors company name in the search bar to see if they already have their company set up in Onside



5. If the contracting company doesn't have an existing profile in Onside, click the "create new company" button





6. Enter the contracting company's name and the contact details for a key contact at the company that you want to create their profile in Onside

7. click "create and invite" and it will send the contractor an invite to join Onside

Have you returned your Expression of Interest Form?

A quick reminder that if you haven't done so to please sign and return your EOI form as soon as possible. This acknowledges your agreement to participate in the project. You are welcome to photograph it and text it to me: 0428 569 822 or email: leonie.martin@dpi.nsw.gov.au

Participating in the Project

Your participation in this project is genuinely appreciated but please remember that for this project to provide the key information that we need to test you need to ensure that the check-in process is being used.

Over the coming months please remember to get everyone checking-in as much as possible. The App is provided free of charge, for this purpose and we appreciate your ongoing support. If you are having any issues with the check-in process or any other aspect, please don't hesitate to contact Guy and he will walk you through the process.



TRACK & TRACE PILOT PROJECT – UPDATE #3

Welcome to the project team!



We would like to introduce you to Connagh Wellington from Onside. Connagh will be assisting Guy in staying in touch and providing technical support and advice to all participants in the project.

NEW Express Check-in feature

The new "express check-in" feature remembers your previous answers to speed up the check-in process if you're always doing the same job and your answers to the questions are the same. This makes the check-in process more streamlined for people regularly checking into the same sites to do the same thing, i.e. harvesting, spraying etc.

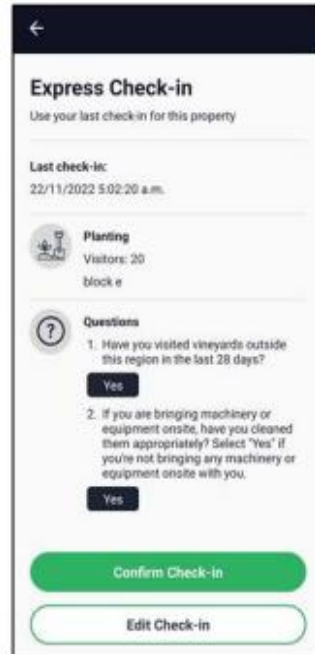
Remember to record and capture movement data!

It is important as activities on vineyards at this time of the year start to increase, to remember to record machinery, equipment and plant/soil material being brought onsite. This includes reminding all contractors to record movements as well.

If you are having any issues with the check-in process or any other aspect, please don't hesitate to contact Guy: guy@getonside.com or Connagh: connagh@getonside.com and they can assist you.

Masterclasses Jan/Feb 2023

We are planning to run a masterclass in each of the four wine regions (Tumbarumba, Canberra, Orange and Mudgee) early next year. These masterclasses will be run by Guy and Connagh to help you get the most out of Onside during the upcoming vintage. We will confirm dates and locations over the coming weeks. This will be a great opportunity to reconnect in the new year, ask any questions and get help directly from the Onside team. Drinks and food will be provided.





Have you returned your Expression of Interest Form?

There are still some outstanding forms that haven't yet been returned. If you haven't done so, please sign and return your EOI form as soon as possible. This acknowledges your agreement to participate in the project. You are welcome to photograph it and text it to me: 0428 569 822 or email: leonie.martin@dpi.nsw.gov.au

Merry Christmas

On behalf of the project team, I would like to thank you for your ongoing participation in this project, it wouldn't be possible without you.

*Wishing you all a safe and Happy Christmas and
Best Wishes for the New Year*





TRACK & TRACE PILOT PROJECT – UPDATE #4

Last week's vineyard walks and workshops

We would like to thank those of you who were able to make it to last week's vineyard walks and workshops, it was appreciated. It has been great to understand how the project has been progressing from the growers' perspective.

Preparing for a successful vintage!!!!

The team at Onside wanted to share two tips for setting yourself up for success in preparation for vintage:

- The App can remind you to check into and out of a property when you cross the property boundary. This can be an extremely powerful way of reminding yourself and others. Use the following link to go to, "How do I turn on check-in/out reminders" - [Check-in/check-out reminders can be set through this link](#)
- Additionally, you can invite contracting companies and users to use Onside before they even arrive at your property. You can do this [through the app](#) or [via the web portal](#)

Project feedback – please complete the short survey

We are now halfway through the project and we would like to get some feedback from each of you about your thoughts since first starting in the project. If you can please scan the QR Code with your phone and answer the short questionnaire it would be appreciated. If you have already completed the questionnaire at one of the workshops last week, please disregard unless you have some additional feedback you would like to add.

This is an important part of the project so please find the time to complete the short survey. It will only take you a minute or two to complete. You can either click on the URL link below or scan the QR code.

<https://survey.alchemer.com/s3/7209798/SNSW-Hub-Managing-Biosecurity-Risks-Program-Track-Trace-Project-Feedback-Survey>

QR Code:





Important - record and capture movement data!

As you prepare for vintage, some of you may have already started it is important to remember to record machinery, equipment and plant/soil material being brought onsite. This includes reminding all contractors to record movements as well. See preparing for vintage tips above.

If you are having any issues with the check-in process or any other aspect, please don't hesitate to contact Guy: guy@getonside.com or Connagh: connagh@getonside.com and they can assist you.

Have you returned your Expression of Interest Form?

There are still some outstanding forms that haven't yet been returned. If you haven't done so, please sign and return your EOI form as soon as possible. This acknowledges your agreement to participate in the project. You are welcome to photograph it and text it to me: 0428 569 822 or email: leonie.martin@dpi.nsw.gov.au

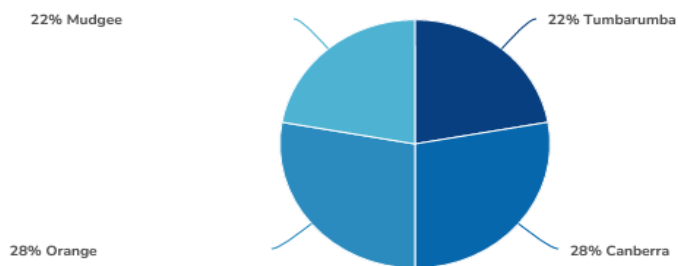
Appendix 4. Monitoring & Evaluation Survey Results

SURVEY RESPONSES FEBRUARY 2023

Response Counts



1. Region



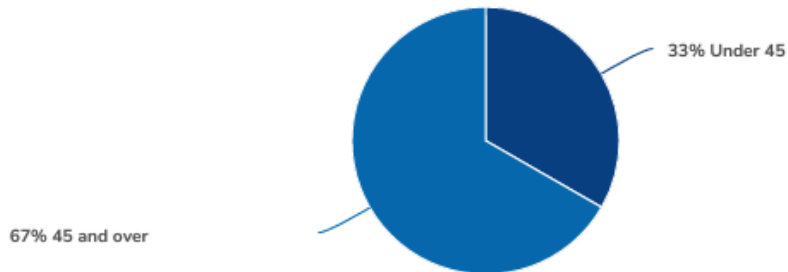
Value	Percent	Responses
Tumbarumba	22.2% <div style="width: 22.2%;"><div style="background-color: #004a87; height: 10px;"></div></div>	4
Canberra	27.8% <div style="width: 27.8%;"><div style="background-color: #004a87; height: 10px;"></div></div>	5
Orange	27.8% <div style="width: 27.8%;"><div style="background-color: #004a87; height: 10px;"></div></div>	5
Mudgee	22.2% <div style="width: 22.2%;"><div style="background-color: #004a87; height: 10px;"></div></div>	4

Totals: 18

Statistics

Skipped	1
Total Responses	18

2. Age group

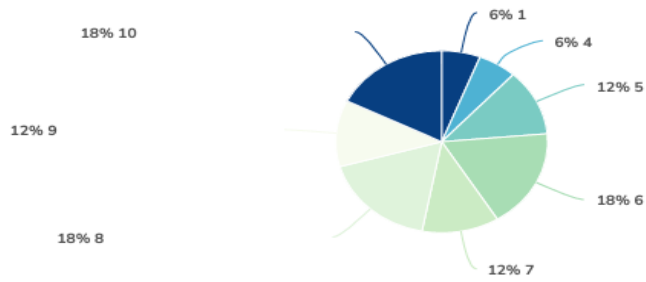


Value	Percent	Responses
Under 45	33.3%	6
45 and over	66.7%	12
		Totals: 18

Statistics

Min	0
Max	45
Sum	540.0
Average	30.0
StdDev	21.2
Skipped	1
Total Responses	18

3. How easy have you found it to use the App:

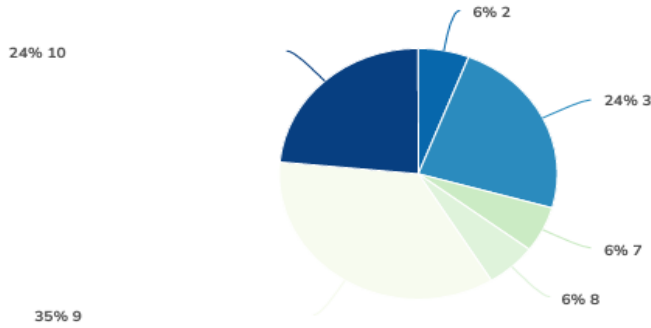


Value	Percent	Responses
1	5.9%	1
4	5.9%	1
5	11.8%	2
6	17.6%	3
7	11.8%	2
8	17.6%	3
9	11.8%	2
10	17.6%	3
		Totals: 17

Statistics

Min	1
Max	10
Sum	119.0
Average	7.0
StdDev	2.4
Skipped	2
Total Responses	17

4. How beneficial do you believe widespread use of this technology would assist in managing biosecurity risks and outbreaks?



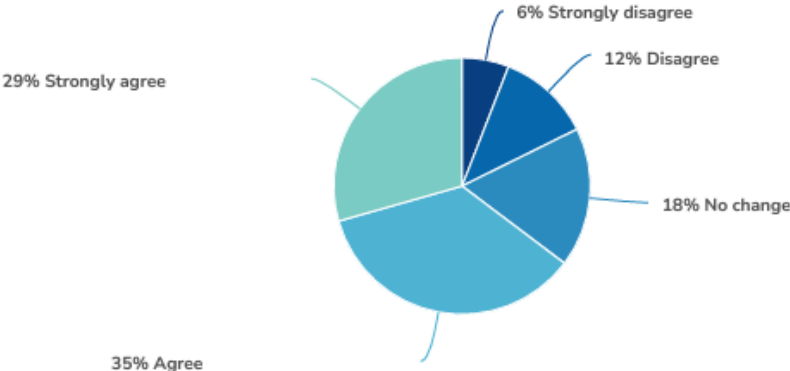
Value	Percent	Responses
2	5.9%	1
3	23.5%	4
7	5.9%	1
8	5.9%	1
9	35.3%	6
10	23.5%	4

Totals: 17

Statistics

Min	2
Max	10
Sum	123.0
Average	7.2
StdDev	3.0
Skipped	2
Total Responses	17

5. Using this App has made recording visitor/contractor movements much easier than how I used to record movements?

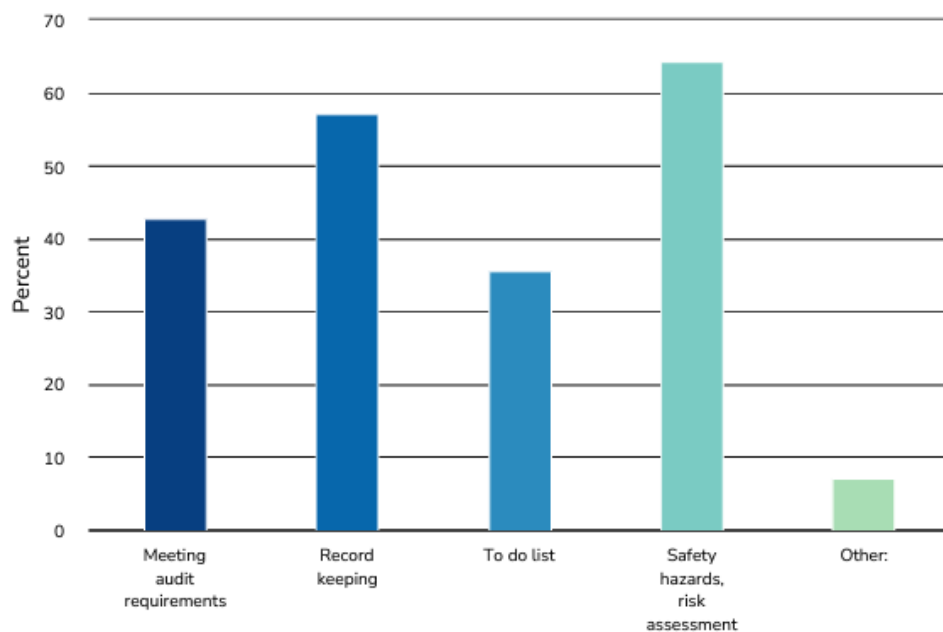


Value	Percent	Responses
Strongly disagree	5.9%	1
Disagree	11.8%	2
No change	17.6%	3
Agree	35.3%	6
Strongly agree	29.4%	5

Totals: 17

Statistics	
Skipped	2
Total Responses	17

6. Other than Check-ins what else have you used the App for?

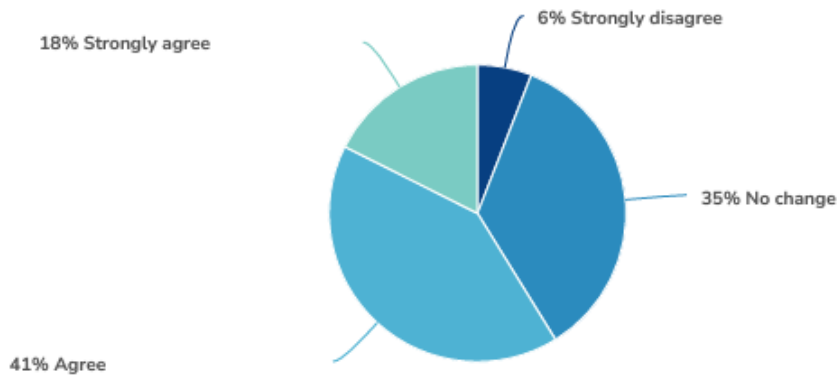


Value	Percent	Responses
Meeting audit requirements	42.9%	6
Record keeping	57.1%	8
To do list	35.7%	5
Safety hazards, risk assessment	64.3%	9
Other:	7.1%	1

Statistics

Skipped	5
Total Responses	14

7. I would like to see additional functionality and improvements made to the App.



Value	Percent	Responses
Strongly disagree	5.9%	1
No change	35.3%	6
Agree	41.2%	7
Strongly agree	17.6%	3
		Totals: 17

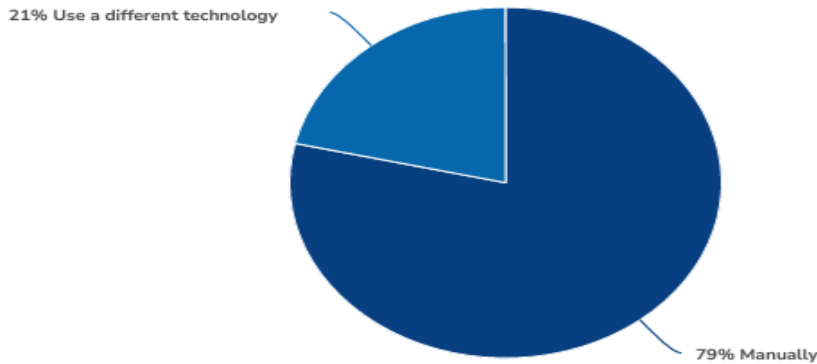
Statistics

Skipped	2
Total Responses	17

8. Please rate your level of agreement with the following statements:

	Strongly disagree	Disagree	No change	Agree	Strongly agree	Responses	Average
a. I have a more positive opinion about the use of this technology since the project started Count	0	2	1	10	4	17	0.0
b. My thinking about biosecurity has changed since starting this project Count	0	3	3	7	4	17	0.0
c. I am more aware of biosecurity practices since using the App Count	0	2	5	8	2	17	0.0
d. We have improved our biosecurity preparedness on farm Count	0	0	6	8	3	17	0.0
e. Biosecurity is now more of a daily part of business as usual Count	0	1	4	9	3	17	0.0
f. We are likely to continue to use the technology after the project has finished Count	1	2	1	9	4	17	0.0
Totals							0.0
Total Responses						17	

9. If I don't continue to use this technology beyond the project, I will capture property movements how:



Value	Percent	Responses
Manually	78.6%	11
Use a different technology	21.4%	3
		Totals: 14

Statistics

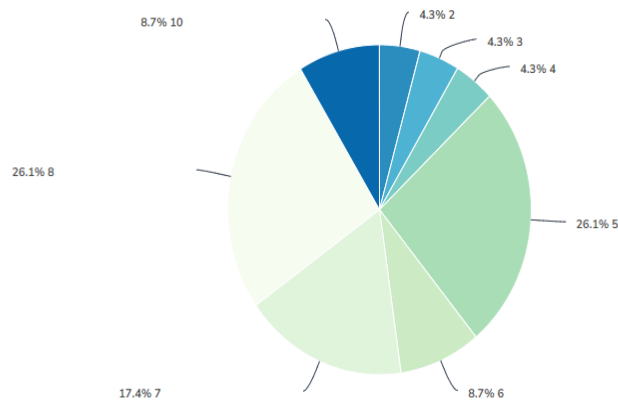
Skipped	5
Total Responses	15

10. Please make any comments in relation to any of your answers or about the technology, changes needed and/or project in general.

ResponseID	Response
1	Language barrier with workers
4	Make sign in easier for permanent employees and supervising staff
7	NA
8	Hard without mobile service
9	Hard to use when you don't have mobile phone coverage.
18	I have had very good biosecurity practices and preparedness
19	I have been practicing Safe Biosecurity on my property for many years! the app has just help me raise the Bar and educate visitors about the risks to my property / business'

SURVEY RESULTS JULY 2023

2. Overall, how useful have you found the pilot project in progressing a more effective approach to addressing biosecurity needs and managing outbreaks?



Value	Percent	Responses
2	4.3%	1
3	4.3%	1
4	4.3%	1
5	26.1%	6
6	8.7%	2
7	17.4%	4
8	26.1%	6
10	8.7%	2

Totals: 23

Min	Max	Sum	Average	StdDev	Skipped	Total Responses
2	10	147.0	6.4	2.0	0	23

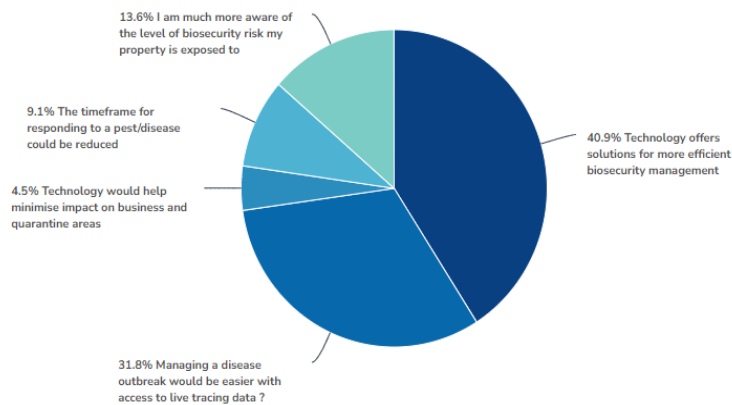
Skipped	Total Responses
1	22

3. Overall, how useful have you found the pilot project in progressing a more effective approach to addressing biosecurity needs and managing outbreaks? - comments

[Hide Responses](#) ▾

ResponseID	Response
	Love the idea just need to put it into practice. Our lack of internet service makes it difficult to track.
	I didn't appreciate there were many facilities I could have used
	Could be quite useful, if everyone is actually using the system long term. But otherwise it makes zero sense.
	it was mainly just me in the vineyards. the only crew I had come in didn't speak good english and were unable to use the check-in feature
	Not widely accepted by contractors.
	I have few contractor/worker movements on my vineyard but the software was easy & effective
	I think the framework is great but a bit too much in our personal situation. We need to get some in-house things improved on first.

4. What is the main message that you are taking away from the workshop about the pilot project and/or biosecurity management?

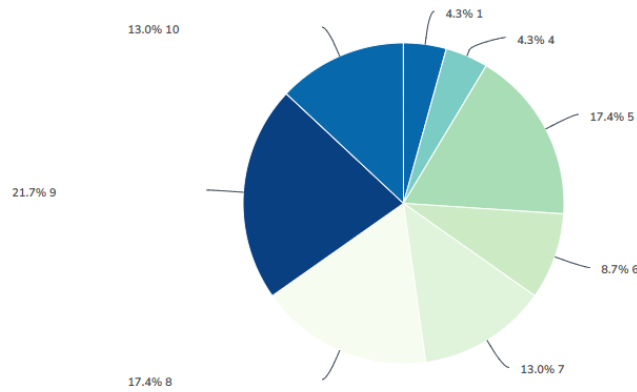


Value	Percent	Responses
Technology offers solutions for more efficient biosecurity management	40.9%	9
Managing a disease outbreak would be easier with access to live tracing data ?	31.8%	7
Technology would help minimise impact on business and quarantine areas	4.5%	1
The timeframe for responding to a pest/disease could be reduced	9.1%	2
I am much more aware of the level of biosecurity risk my property is exposed to	13.6%	3

Totals: 22

Skipped	Total Responses
1	22

5. How important do you think farm-level Apps could be in assisting businesses in monitoring movements on and off their farms?



Value	Percent	Responses
1	4.3%	1
4	4.3%	1
5	17.4%	4
6	8.7%	2
7	13.0%	3
8	17.4%	4
9	21.7%	5
10	13.0%	3
Totals: 23		

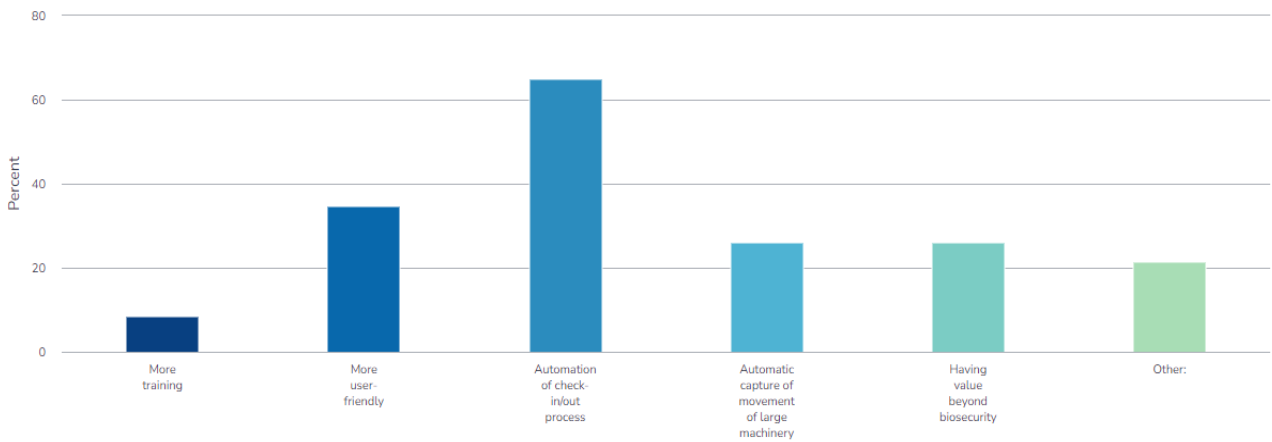
Min	Max	Sum	Average	StdDev	Skipped	Total Responses
1	10	165.0	7.2	2.2	0	23

6. How important do you think farm-level Apps could be in assisting businesses in monitoring movements on and off their farms? - comments

[Hide Responses](#)

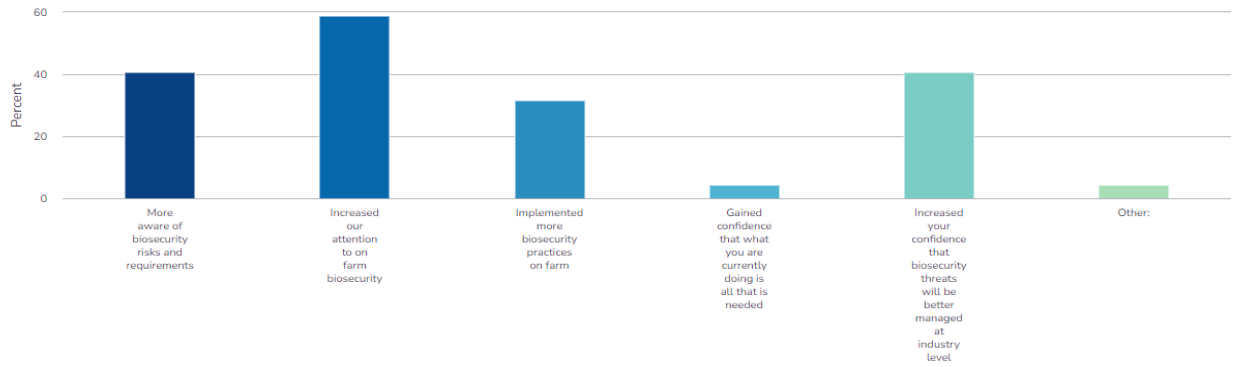
ResponseID	Response
	For tracking contractors it is great as small business it probably isn't that relevant.
	They could be very important for larger operations, less so for smaller operations. Only as successful as their implementation though.
	we don't have a big enough operation to need it
	It is getting support by visitors to use the system that is critical - and making it easy and fast for them to use.
	It's another expense to business and the onsite costs are high for us guys that manage most of the business ourselves.
	Very good for larger businesses - too big an overhead for small businesses

7. What would be needed to make the Apps more useful/useable for business? [Tick all that apply]



Value	Percent	Responses
More training	8.7%	2
More user-friendly	34.8%	8
Automation of check-in/out process	65.2%	15
Automatic capture of movement of large machinery	26.1%	6
Having value beyond biosecurity	26.1%	6
Other: (click to view)	21.7%	5

8. As a result of participating in this pilot project, what impact has it had (if any) on you or your business? [Tick all that apply]



Value	Percent	Responses
More aware of biosecurity risks and requirements	40.9%	9
Increased our attention to on farm biosecurity	59.1%	13
Implemented more biosecurity practices on farm	31.8%	7
Gained confidence that what you are currently doing is all that is needed	4.5%	1
Increased your confidence that biosecurity threats will be better managed at industry level	40.9%	9
Other: (click to view)	4.5%	1

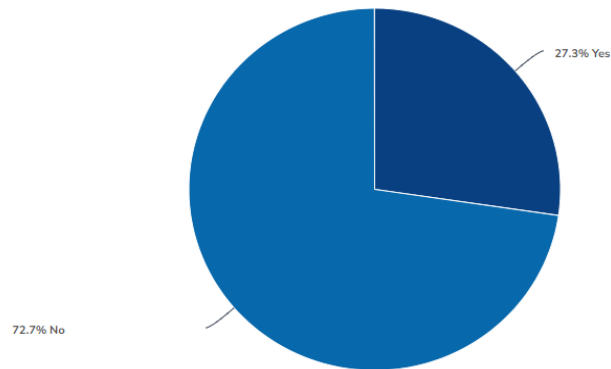
Skipped

Total Responses

1

22

9. Have you seen any direct benefits to your business already in relation to biosecurity or more generally?



Value	Percent	Responses
Yes	27.3%	6
No	72.7%	16
Totals: 22		

Skipped

Total Responses

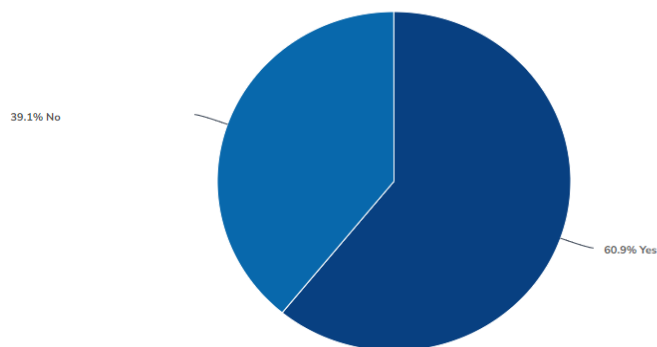
10. If Yes, what benefits?

[Hide Responses](#)

ResponseID	Response
2	Bin tracking
4	Get staff aware of the need for tracking and hazard reduction
5	It was fantastic for our sustainability audit
8	All the staff are now conscious of how valuable Biosecurity is
10	Understanding movement Having activity logged
13	Contractors are paying more attention.

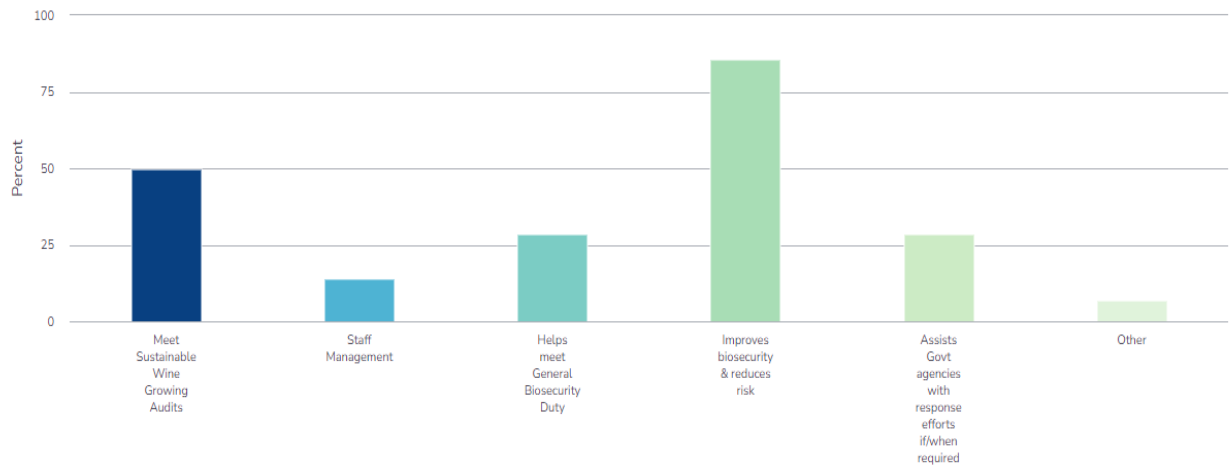
[Previous Page](#) [Next Page](#)

11. Do you plan on continuing to use check-in/tracing technology post this project?



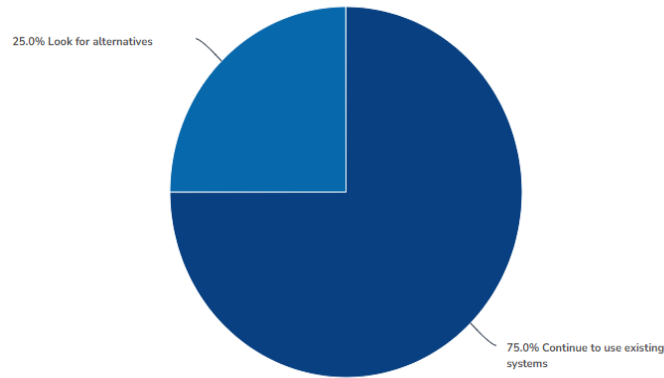
Value	Percent	Responses
Yes	60.9%	14
No	39.1%	9
Totals: 23		

12. If yes, what are the reasons?



Value	Percent	Progress Bar	Responses
Meet Sustainable Wine Growing Audits	50.0%	<div style="width: 50%; background-color: #003366;"></div>	7
Staff Management	14.3%	<div style="width: 14.3%; background-color: #0070C0;"></div>	2
Helps meet General Biosecurity Duty	28.6%	<div style="width: 28.6%; background-color: #4DB6AC;"></div>	4
Improves biosecurity & reduces risk	85.7%	<div style="width: 85.7%; background-color: #81C784;"></div>	12
Assists Govt agencies with response efforts if/when required	28.6%	<div style="width: 28.6%; background-color: #A5D6A7;"></div>	4
Other (click to view)	7.1%	<div style="width: 7.1%; background-color: #C8E6C9;"></div>	1

14. If no, will you continue to use your existing systems or look for alternatives?



Value	Percent	Responses
Continue to use existing systems	75.0%	6
Look for alternatives	25.0%	2
Totals: 8		

Hidden	Skipped	Total Responses
14	1	8

15. If no, will you continue to use your existing systems or look for alternatives? - comments

[Hide Responses](#)

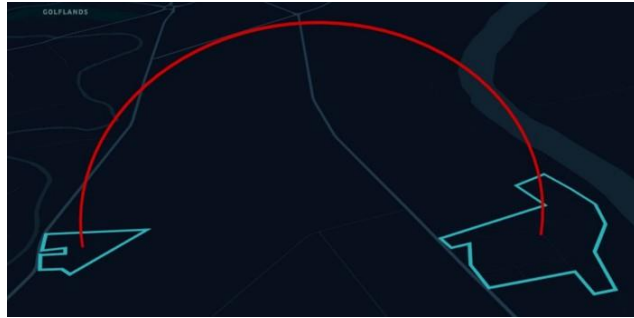
ResponseID	Response
	Lack of uptake from management failed to encourage the team and contractors to use
	Ongoing system being offered is too expensive.
	It's a cost benefit analysis point for us, we don't use very much contract labour, we like the ease the app gives us for when we do, but currently cost out weighs the benefit
	Need something that suits the scale of our operation

13 - No comments captured.

16. Please make any other comments about the project or biosecurity needs

[Hide Responses](#)

ResponseID	Response
3	Na
4	We struggled with the time and difficulty of check ins but we also see the need to do this well
8	An excellent tool
12	N/a
15	I haven't completed the questions above re the recent workshop as I was unable to attend. I support the whole concept and am keen to continue - it just needs to be simple, practical and inexpensive, otherwise broader support cannot be achieved.



Exercise Report - Exercise Sour Grapes

“Protecti

”



Wine
Australia
for
Australian
Wine



Table of Contents

Introduction.....	2
Exercise Aim.....	2
Exercise Objectives.....	2
Exercise Scope.....	3
Exercise Structure	3
Exercise Evaluation Methodology	4
Scenario.....	5
What we need to Protect	7
NSW Wine Industry – An Overview	7
Wine Operations from Grape to Glass.....	8
NSW Biosecurity Response and the Importance of Tracing Data.....	9
Biosecurity Response.....	9
Biosecurity Response Strategy Decision-making.....	9
Impact of a Biosecurity Emergency on the Wine Industry.....	9
Knowledge Acquired through Accessing the Tracing Data	10
Wine Growers	11
Contractors	11
Government/Industry Bodies.....	11
Data Optimisation in the Future.....	12
How Tracing Data Affects the Response.....	13
Decision-making Considerations	13
Human/Social Impacts Mitigated by Tracing Data	15
How Tracing Data improves Outcomes	16
Impact on Producers and Processors – Operational Continuity.....	16
NSW Economic and Trade Impact	16
Impact on Communities.....	16
Impact on Collaboration	16
Financial benefits – Exercise case study	17
Response cost saving - staff	17
Industry financial impact	17
Economic impact.....	18
Risk and Challenges.....	20
Where to From Here – Key Success Factors	20
Conclusion	21
Overall Recommendations	21
Exercise Management	22
Exercise Planning.....	22
Annexure A. Detailed Participant Feedback	23

Introduction

Smarter business operations and managing risk simultaneously – can it be done?

NSW DPI, the NSW Wine Industry Association (“NSW Wine”) and the Southern NSW Drought Resilience Adoption and Innovation Hub (“the Hub”) partnered with commercial technology providers Onside and Knode in the “track and trace” project.

The project used Onside and Knode’s technology (“track and trace technology”) to collect real time data of movements between properties of people and materials or conveyances that present a biosecurity risk. The project’s aim was to evaluate how data collected from track and trace technology can be used in preparedness, planning and response during a biosecurity incident to provide better insights and increase efficiency.

Track and trace technology, in part, enables property managers to map their property and manage biosecurity and other risks created by visitors and incoming risk material through a digital check-in, risk assessment and communication system. This data has operational benefits but can also be analysed within the Onside platform to identify links between properties and consequently assist in planning responses to pest or disease outbreaks.

The exercise purpose was to support the project by applying data collected in vineyards from the track and trace technology in southern NSW to a scenario. It also built on a previous exercise. In October 2019, NSW DPI and NSW Wine conducted Exercise Sour Grapes with the aim “to educate industry participants about biosecurity risks and explore the process that would be applied for escalation, management and recovery from a significant biosecurity incident.” The two-day discussion exercise focused on a simulated grape phylloxera outbreak. The scenario used in 2019 formed the basis of the 2023 exercise scenario with the additional focus of looking at impacts on supply chains and communities from an incursion.

Exercise Aim

To evaluate the use of the track and trace technology to collect real-time data and demonstrate if the technology can improve the efficiency and effectiveness of plant biosecurity emergency response planning for regulators (NSW Department of Primary Industries), the community, producers and across the supply chain.

Exercise Objectives

Objective		Metric
1	Apply track and trace data collected from local NSW Wine producers in the project to a simulated outbreak scenario to provide a comparative basis for response planning across NSW DPI, producers, supply chain and community (with the intent to trial with and without the data).	Track and trace data is applied to a given exercise scenario. Response planners assess whether the data outputs and analysis are ‘fit for purpose’, efficient and effective for use in response planning.
2	Analyse the data to identify: <ol style="list-style-type: none"> a. Key links and networks between properties within the scenario. b. Effective size of biosecurity control areas (i.e. restricted and control areas) for movement controls. c. Priorities for surveillance locations. 	Technology identifies the links and networks between vineyards and other wine sector parties. Trace forward and back from 1IP (in the scenario) identifies: <ul style="list-style-type: none"> - Priorities for surveillance - Biosecurity control areas Response planners assess whether the data outputs and analysis are ‘fit for purpose’, efficient and effective for use in response planning.

Objective	Metric
<p>3 Assess the potential change in the scale of response operations and subsequent effect on producers, supply chains and response resourcing, by using the data to plan surveillance and movement controls in a biosecurity emergency response.</p>	<p>Comparative analysis of the planning outcomes identifies a change (improvement) in response planning in relation to:</p> <ul style="list-style-type: none"> - Identification of priority surveillance properties that would not be immediately identified without the track and trace data. - Scale and effectiveness of biosecurity control areas (e.g. Control and Restricted Areas). <p>Producers, supply chain and community can access relevant data to self-identify potential biosecurity risks to their property or business.</p> <p>Response planners assess whether the data outputs and analysis are 'fit for purpose', efficient and effective for use in response planning.</p>
<p>4 Identify gaps or issues and opportunities for growers to use the data to assess their biosecurity risks and ability to respond to a biosecurity incident.</p>	<p>Producers, supply chain and community can access relevant data to self-identify potential biosecurity risks to their property or business.</p>
<p>5 Promote the value of collaboration between wine growers, contractors, government, industry bodies and the community to improve response outcomes.</p>	<p>Qualitative assessment through Survey.</p>

Exercise Scope

In Scope

- Analysis of tracing data (tracing and surveillance planning) collected by the track and trace technology and software to achieve the exercise objectives.
- Development of movement controls or determination of Control/Restricted Area zones.
- User identification of the value of the data and technology to support 'on property' and supply chain biosecurity risk management during a biosecurity incident.

Out of Scope

- National or state government decision-making processes under Emergency Plant Pest Response Deed and strategic response decision-making.
- Control centre functions other than Tracing and Surveillance planning and setting Control or Restricted Areas as per the in scope points.
- Infield and other operational response activities.
- User-friendliness of and experience with the technology and software.

Exercise Structure

Exercise participants comprised grape growers, wine producers, wineries and representatives of NSW Department of Primary Industries, the Southern NSW Innovation Hub, Wine Australia, NSW Wine, Local Council and Onside.

To measure the impact of the tracing data on a biosecurity response, the exercise was divided into two parts over two days.

- On day 1, biosecurity responders were presented with a scenario involving phylloxera detection. The biosecurity responders were asked to formulate a biosecurity response without any tracing data being available.

- On day 2, wineries and growers were included, and participants were presented with the same scenario, but now they could use the tracing data to formulate a response.

Exercise Evaluation Methodology

Various data collection methods were applied during the exercise, as indicated in the model below. To validate the data from the exercise, a workshop was held with planners from NSW DPI, as well as an interview with a subject matter expert in implementing tracing technology in the agriculture sector.

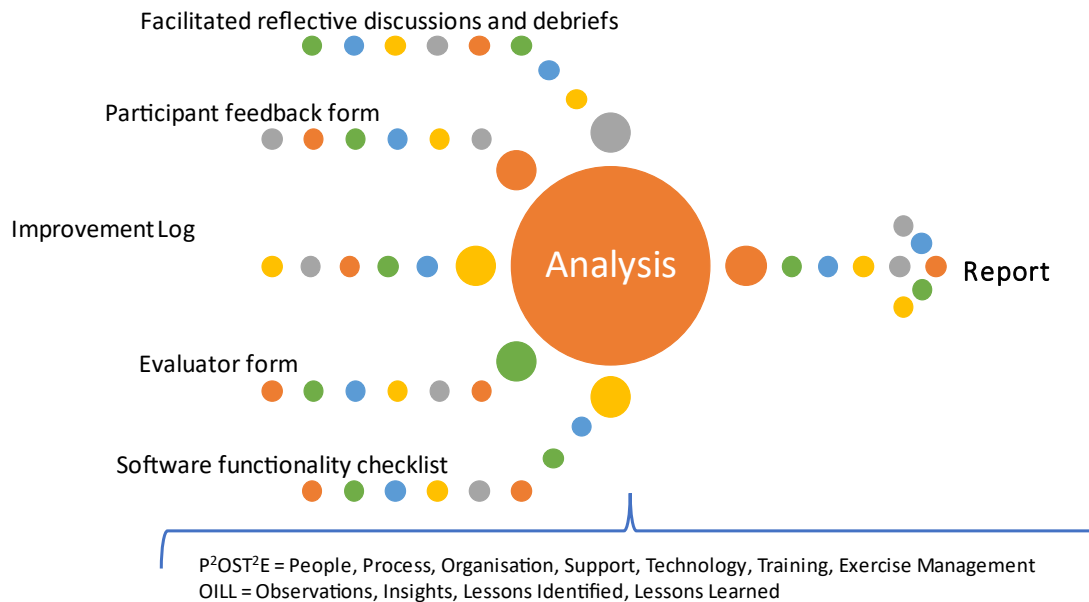


Figure 1. Evaluation methods used

As part of the exercise evaluation, quantitative analysis was sought between day 1 and day 2:

1. What is the difference in the control area?
2. What is the difference in required resources (tracing, etc.)?
3. What is the difference in time to determine the area at risk?

Through these measurements and supported by research, interviews, debriefs, logs and feedback forms, the impact/value of the tracing data was analysed, as well as potential risks and challenges that may need to be mitigated.



By accessing the tracing data what do we know now that we did not know before?

Source: list of data sets from Onside per stakeholder to develop an infographic



How is the data used in the decision-making process

Source: Observe stage 2

How does it inform establishment of the control area, command and control structure, resource planning



How does this information improve the response outcomes:

Measure the difference in time to formulate an effective response
 Measure the difference in # of affected growers and relating businesses (Biosecurity Control Area and Restricted Areas)
 Difference in Infested Premises
 Calculate Economic benefit (calculate the difference in loss of trade, reputation)
 Calculate financial benefit for growers and related businesses (loss reduction)
 Community benefit (qualitative assessment based on consultations)
 Estimated saving in response resources/cost for NSW DPI and the wine industry



Risks and challenges

Source
 Research
 Interview
 Debrief
 Participant feedback form

Figure 2. Evaluation methodology

Underpinning documents:

1. Phylloxera detection guidelines
2. National Phylloxera Management Protocol
3. PLANTPLAN
4. NSW Emergency Plan (EMPLAN)

Scenario

The properties and property owners mentioned in the scenario as IP (Infested Premises) or otherwise connected to an IP were under pseudonyms; however, they were real properties that had collected tracing data for the project duration.

1IP

On 1 February 2023, Justin Case, the owner of a vineyard at Murrumbateman, NSW, notices a decline in several vines in one of his blocks, with increased weed growth compared to others. His immediate thought is that it could be grape phylloxera and, upon digging around the base of two vines in adjacent rows, he finds the roots are deformed and have galls as well as some insects that he suspects are phylloxera. He inspects adjacent vines and finds additional insects.

He collects several of the insects as well as samples of the roots and soil. He takes photos of the affected vines and the insects. He contacts the NSW DPI and arranges delivery of the samples and photos.

Case uses local contractors for pruning and harvesting and has three casual staff who run the cellar door, which is open on weekends. He sends the majority of the harvested grapes to a local winery under a supply contract and retains approximately 20% of the harvest to make wine under his label, which is sold at the cellar door.

Initial examination of the photos was by a DPI entomologist, who strongly suspects the insects are grape phylloxera.

A DPI officer visits the property on 2 February 2023 and conducts further surveillance. He collects additional insects, which he also believes are phylloxera, from an even wider area within the vineyard.

Based on this suspicion, the DPI officer issues a Direction under the *Biosecurity Act 2015* that no machinery, equipment, harvest bins, soil, organic material including plants and fruit, or vehicles may leave the property. The direction also requires the footwear of all persons leaving the property to undergo decontamination.

A morphological identification of the samples collected by Case and the DPI officer confirms the insects as grape phylloxera. Samples are sent to Agriculture Victoria for confirmation and strain typing. This is expected to take up to five days.

The property is designated as 1IP.

2IP

A control area with a 5km radius around 1IP has been declared under the *Biosecurity Act* to support response objectives. This invokes conditions similar to a Phylloxera Infested Zone under the Protocol.

An Incident Controller and Incident Management Team has been appointed. The Planning Officer has begun a situational assessment of the outbreak. Tracing will commence but the priority is on planning surveillance within the control area.

During a chance visit to a vineyard at Nashdale, NSW, by a DPI Officer has also resulted in detection of phylloxera (2IP). Discussions with the vineyard owner has identified a link with 1IP. A Direction under the *Biosecurity Act 2015* has also been issued for this property, prohibiting the movement of any machinery, equipment, harvest bins, soil, organic material including plants and fruit, or vehicles from the property. The Direction also requires the footwear of all persons leaving the property to undergo decontamination.

NSW DPI wishes to set a control area around each IP but, based on the initial review of the tracing data, has recognised that a 5km radius for that is unlikely to be sufficient.

- Control area surrounding 1IP covers 460ha, 35 properties
- Control area surrounding 2IP covers 1945ha, 35 properties

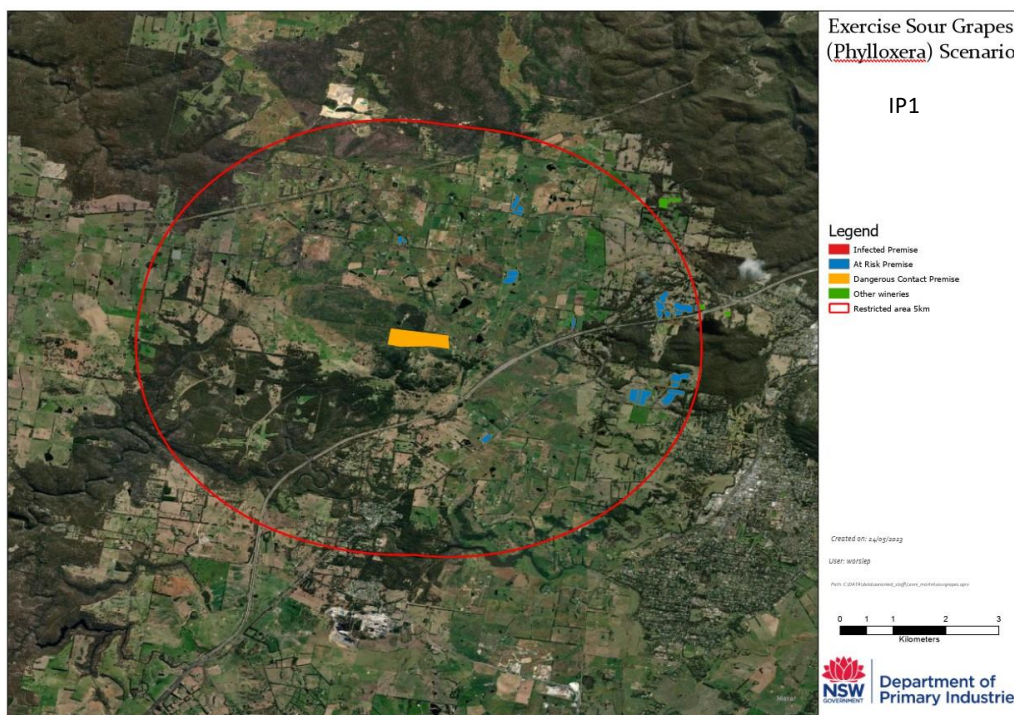


Figure 3a. Control area map

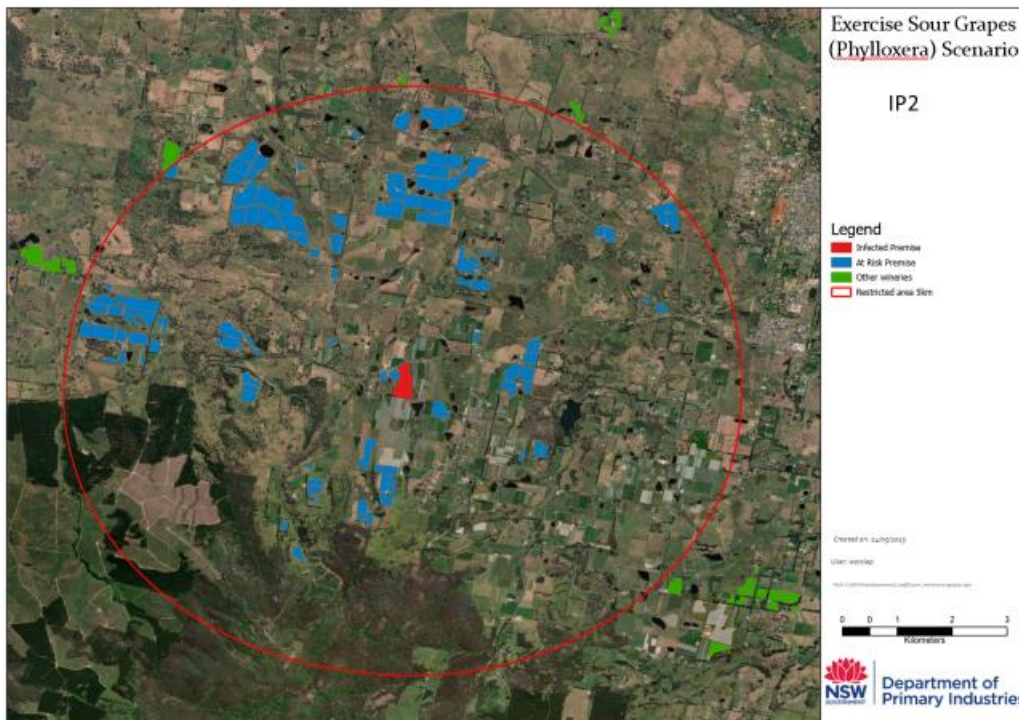


Figure3b. Control area map

What we need to Protect

NSW Wine Industry – An Overview¹

The NSW wine industry makes a significant economic contribution in terms of production, export, agritourism, wholesale, retail, hospitality, business turnover and jobs created.

Tourism is closely linked to the wine industry, driving the local economy through:

- Cellar doors
- Restaurants
- Wine-related tourist activities – hot air balloon tours, vineyard golf and the paddle steamer
- Food, music and wine festivals
- Accommodation for the wine tourists

The NSW wine industry also has a significant social value and family businesses account for more than 75% of the total crush (only 33% of the national wine crush is from family businesses).

From an historic and cultural perspective, NSW is home to five of Australia’s 20 oldest wine companies and/or continuously operating wine brands: Wyndham Estate (1828), Lindemans (1843), Drayton’s Family Wines (1853), Mudgee Wines (1856) and Tyrrell’s Wines (1858).

NSW is Australia’s second largest wine producing state, accounting for nearly one-third of the nation’s output. Consumption is growing in domestic and export markets with significant upside in premium, fast growing Asian markets.

Total value of the Australian wine industry	\$45 billion
Contribution to the economy of NSW wine	\$14 billion

¹ <https://nswwine.com.au/pages/facts-figures>

Annual volume of wine produced	492,000,000 bottles
Annual value of NSW wine exports	\$500,000,000 and growing
Number of people employed by the NSW Wine Industry	53,000
Area of land used for NSW vineyards	34,000 hectares
Total wine producers	484+ (grown from 76 wine producers in 1983)
NSW cellar doors	Over 370 venues

NSW has 14 official wine regions: Canberra District, Cowra, Gundagai, Hastings River, Hilltops, Hunter Valley, Mudgee, New England, Orange, Perricoota, Riverina, Shoalhaven Coast, Southern Highlands, Tumbarumba. The Murray Darling and Swan Hill wine regions also cross into NSW, making 16 wine regions in total.

Wine Operations from Grape to Glass

The process from grape to glass goes through various stages.



Grapes can be picked by hand but are mostly picked through harvesting equipment. Once the grapes are picked, they are collected in bins then transported to the crushing pad. This is where the process of turning grapes into juice and then wine begins.



Figure 4. Grape bins²



Figure 5. Harvesting equipment³

As part of grape growing, picking and processing for the purpose of winemaking, there is activity between producers, suppliers and contractors. This involves movement of people, equipment, materials and produce. In a biosecurity emergency, pests can spread via these movements.

² <https://winefolly.com/deep-dive/how-wine-is-made-in-pictures/>

³ <https://winetitles.com.au/mechanical-harvesting-new-solution-for-mog-nightmare/>

NSW Biosecurity Response and the Importance of Tracing Data

Biosecurity Response

In NSW, a biosecurity response is coordinated by NSW DPI, which is connected to EMPLAN.⁴ For a biosecurity response in the wine industry, the arrangements are laid out in PLANTPLAN,⁵ which is underpinned with specific pest/disease response protocols.

NSW DPI will establish a Local Control Centre (LCC) as a first response and a State Coordination Centre with various LCCs and Forward Command Posts in a major biosecurity emergency if needed.

Biosecurity Response Strategy Decision-making

Upon detection of a biosecurity hazard through laboratory testing or related entomology diagnostic outcomes, the NSW Chief Plant Protection Officer makes the decision to commence a biosecurity response. To inform this response, tracing must take place as a priority. This means working out where the outbreak started, when it started and what movements have taken place between this property and others since that time to potentially identify the source of the outbreak and spread of the pest or disease.

Another important decision that needs to be made is the size of the control area. If it is too small, the outbreak can spread, leading to more significant impacts and potentially not being feasible to eradicate. If it is too big, businesses are unnecessarily disrupted by movement controls, potentially resulting in financial losses, reputational damage and community consequences. For a phylloxera outbreak, the standard size of a control area is set with a radius at 5km surrounding an IP.

To assess the value of tracing technology in a biosecurity response for the wine industry, a scenario was developed across two stages that explored if the tracing data would inform the control area.

Impact of a Biosecurity Emergency on the Wine Industry

A biosecurity emergency has significant consequences for the wine industry. It often means movement controls, which means no contractors, staff, transport companies or tourists can enter the property.

The phylloxera response and recovery in the Yarra Valley was estimated to have cost \$1.2 billion.

Growers

For growers, movement controls can result in an inability to move harvested grapes from the property and, especially given the perishable nature of the fruit, generate revenue. Additionally, if the pest is detected, grapevines must be destroyed. The current cost of replanting onto resistant rootstocks is \$95,000/ha. Movement controls can also create additional burdens on visitors to properties such as the requirement to decontaminate machinery, equipment and clothing or even prohibit the movement of certain items leading to additional costs or the inability to access machinery, equipment or personnel.

Cellars

For cellars, a movement control order potentially means closure until the order is lifted. This equates to no revenue for that period, while overheads continue.

⁴ The NSW State Emergency Management Plan (EMPLAN) provides a 'whole of government' 'all hazards' approach to coordinating emergency responses and includes a 'Biosecurity Sub plan' relating specifically to biosecurity incident response arrangements - www.nsw.gov.au/rescue-and-emergency-management/state-emergency-management-plan-emplan

⁵ The Australian Emergency Plant Pest Response Plan (PLANTPLAN) provides nationally agreed guidelines for responding to an emergency plant pest incident, which may be applied to an incident similar to the scenario - www.planthealthaustralia.com.au/biosecurity/incursion-management/plantplan/

Tourism

During a movement control order, tourists may be deterred from visiting the regions, which will have significant adverse reputational and economic impacts for the region.

Local community

Many jobs and livelihoods are closely linked to the wine industry in the region. An inability to work will have flow on social and economic consequences in the local community.

Knowledge Acquired through Accessing the Tracing Data

The technology provides a solution to improving biosecurity traceability, preparedness and response across all primary industries. This is achieved by collecting movements on and off properties by people, machinery, equipment and plant material and feeding them into live dashboards that can be interrogated in real-time to trace the potential spread of pests and diseases. Underlying the movement data is network science algorithms that can identify key properties within the network to prioritise for surveillance and response, which provides significant cost saving by helping to direct resources more efficiently and having a better chance of containment and eradication.

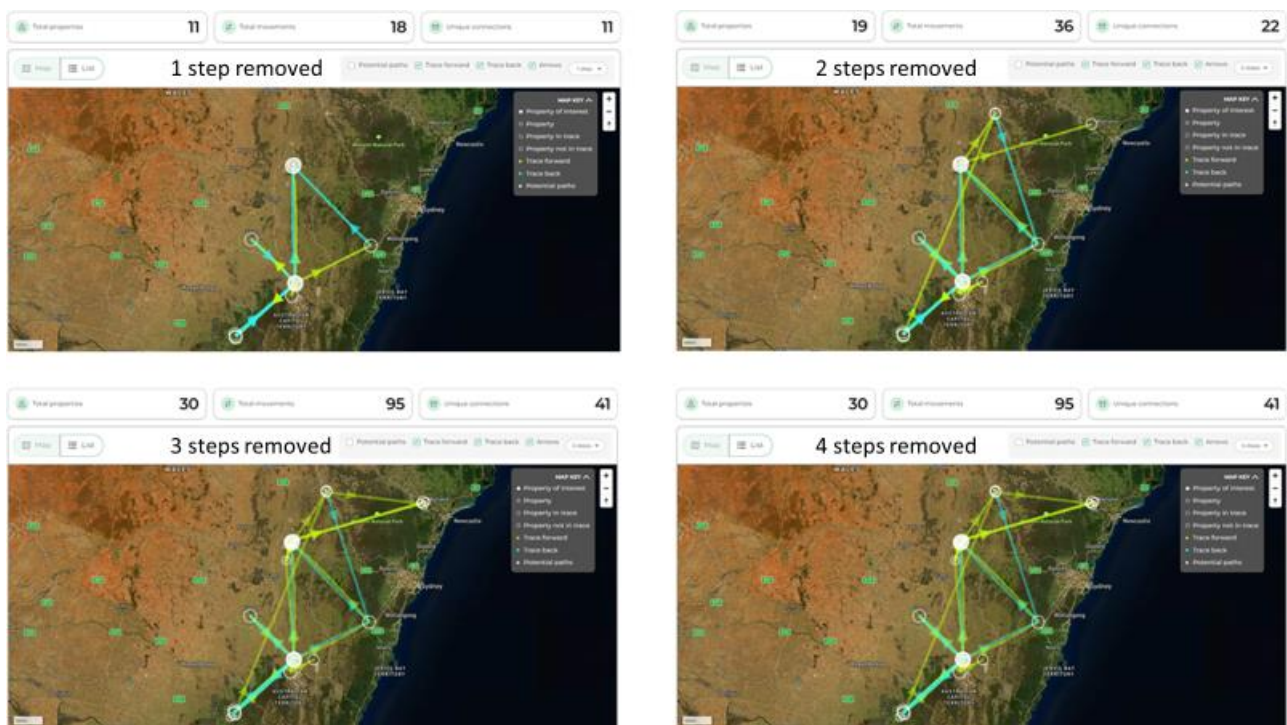


Figure 6. Visual representations of Onside data

The key to successful community engagement in participating with movement data collection is the additional operational value the technology provides to producers and people visiting the vineyards to manage daily operational pain points, such as OH&S management, record keeping for compliance schemes, task management and contractor management. When participating producers were asked why they engage with the Onside app, digital record keeping for the Sustainable Winegrowing Australia certification, the national sustainability accreditation scheme for Australian wine, was the number one reason, alongside OH&S and being notified when someone arrived onsite so they could stop them to inspect vehicles, clothing, etc. to ensure no biosecurity hazards were being brought in. When a solution only has a single value proposition, like a biosecurity specific app (i.e. COVID app), people only use it when they feel under threat or when the biosecurity incursion is on their doorstep. By then it is too late to start collecting data.

Wine Growers

Growers capture all movements in and out of their vineyards through the Onside app. The information they collect includes:

- Name
- Email
- Phone number
- Company
- Date and time of check in and out
- What vineyard they checked into
- How long they were in the vineyard
- If they brought any other people onsite with them
- What job they were doing
- How they answered biosecurity questions
- If they brought any plant material, machinery or equipment onsite with them

Growers can also capture their grape bin movements through the Knode GPS tracking units, which can be integrated with the Onside dashboard. Growers can also put rules, questions and additional information into the Onside app that improves on-farm biosecurity and issue WHS or other warnings to visitors. Use of the app assists growers to meet their biosecurity obligations (general biosecurity duty) under the *Biosecurity Act 2015*.

Growers can view this information live via their mobile app or web portal and can download reports in PDF or .csv format for any of the above information they have captured for their vineyards.

Growers can be invited to opt in to sharing an anonymised view of movements on and off their vineyards to industries or governments through Onside Intelligence.

Contractors

Contractors supply the above information when they check into a vineyard using the Onside app. Most of this information is part of their Onside profile, so it is automatically recorded rather than needing manual input.

Contractors can see where their team has been and how they have answered the above information through their web portal and can download reports of this in PDF or .csv format.

Government/Industry Bodies

Government and industry bodies (i.e. NSW DPI and NSW Wine) that own the Intelligence subscription can invite growers to opt in to sharing an anonymised record of movements on/off their properties to have a top level view of how people, machinery, plant material and other spread risk vectors move around rural industries.

Governments and industry bodies with an Intelligence subscription can also centrally set and manage biosecurity questions, rules and information displayed to anyone checking into properties that have opted in to being part of their Intelligence solution.

In the Intelligence web portal, government and industry bodies can see information from properties that have opted in:

- Total number of movements on/off properties over time
- Total number of connecting movements over time (i.e. one person moving between two properties sharing their information)
- Total number of recorded machinery, equipment or plant material movements over time between properties sharing their information (which can include movements to/from properties outside this monitoring solution)

- Total number of individual machinery, equipment or plant material movements over time (i.e. how many tractor movements, new plant movements, etc.)
- How many properties have been invited to share their information and how many of these have actively opted in to sharing that information

Government and industry bodies can also use the Onside Intelligence Connection Tracing dashboard to set parameters to interrogate the above data for tracing, preparedness and response activities. This information will be presented in a map and list view. The parameters to set are:

- Property or properties of interest to being tracing from
- Tracing risk pathway type (i.e. people, machinery, plant material, etc.)
- Start and end date to view all tracing data between
- Maximum duration between properties to only include relevant movements that could potentially spread the pest/disease based on the pest/disease profile
- Trace back and forward
- Direct connections or connections up to 10 steps removed from the property or properties of interest
- Potential pathways connecting properties of interest

In a response situation, where there is a mandate for government to access more detailed movement information between properties, the appropriate legal framework and data governance are in place to de-anonymise information, provided the intervening body has the appropriate legal basis to act.

Data Optimisation in the Future

Onside is developing algorithms to identify superspreader properties, which could enable a significant decrease in surveillance resource needs or even preventive targeted surveillance to allow early detection.

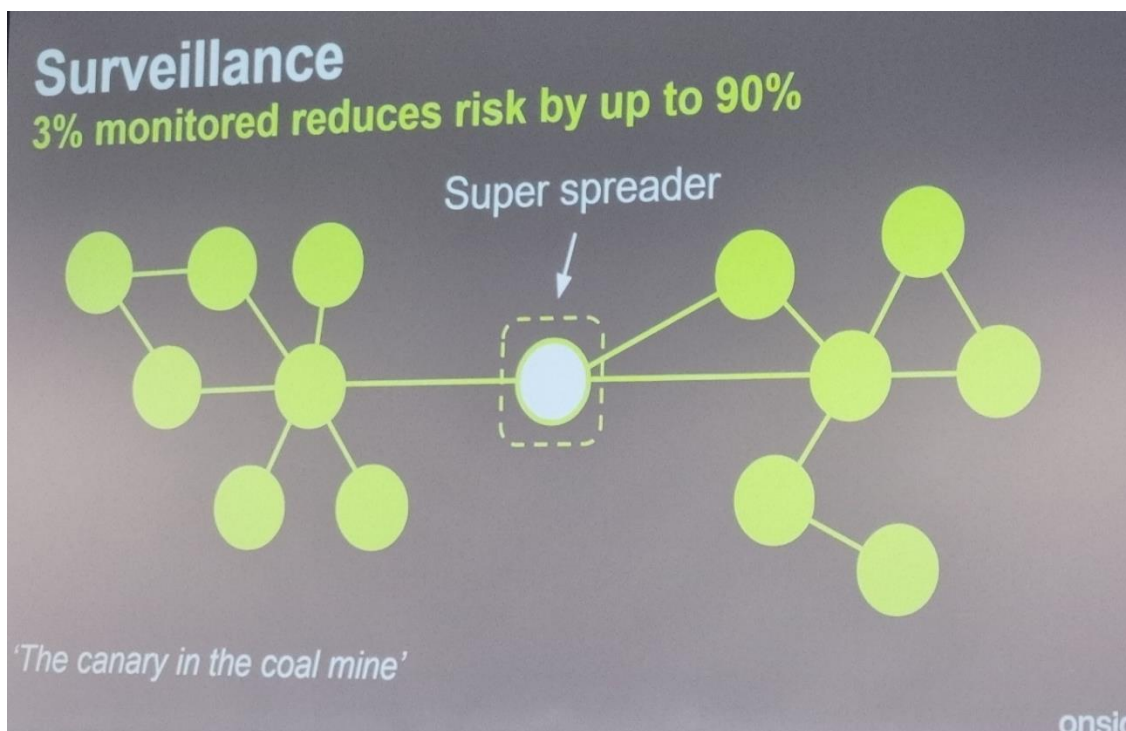


Figure 7. Visual representation of future data analysis opportunities

How Tracing Data Affects the Response

Tracing data provides critical data that informs the response planning process. Data assists in developing situational awareness of the outbreak, which allows for effective and timely allocation of resources.

Without tracing data, the process would be to mobilise the IMT, confirm the tracing methodology, approve tracing questions and commence tracing. The approach would be to contact the IP and attempt to identify what movements of risk material (e.g. people, harvest bins, vehicles) have come onto and off the property for a given period with the property owner or manager. Depending on the nature of the pest or disease, the period of interest could be weeks, months or even years. Following that, the connecting properties would be contacted and the process repeated. It can take a conversation of up to three hours to identify all contacts. At times, this can even involve going through physical records, such as invoices, and relying on individuals' memories.

Using the Intelligence dashboards in a response allows responders to know exactly what relevant movements have happened from the property or properties of interest over any period.

Industry connectivity and movements can be filtered at the click of a button, avoiding the significant manual time and effort that is typically required to collect and understand this kind of data using traditional methods. Real-time connectivity data will inform decisions about movement controls and surveillance activities, meaning interventions will be recommended and implemented faster and be more targeted. This will drive efficiencies and reduce the overall time and cost of any incursion.

The exercise demonstrated that the main benefits of tracing data on the response are:

- Improved shared situational awareness and risk visualisation
- Enhanced evidence-based decision making
- Evidence-based response strategies can be deployed immediately
- Fewer resources required for tracing
- Enhanced ability to conduct risk-based surveillance, potentially reducing surveillance resource needs
- Reduced risk of human error in data gathering, entry and processing
- Reduced risk of data gaps due to poor physical record keeping or recollection at properties at risk/of interest
- Reduced emotional impact on tracers and property owners in tracing engagements

It did not indicate that the control area in the first instance would be smaller, which was not unexpected. The data shows movements are not limited to a 5km radius that is typically used as the control area in a phylloxera response; often movements go to other regions or states. These movements would all need to be considered within the response for containment efforts to be effective as a new IP may be identified as a result of one of those movements. The radius may become larger or smaller, depending on the evidence provided regarding the network of movements between properties.

This section outlines the foundation for these findings.

Decision-making Considerations

1. Control area

Upon detection of a pest, a pre-determined radius for a control area is set.⁶ The radius approach is an agreed strategy under the underpinning response protocols; however, the 5km radius may be discussed with industry and it may be agreed that it should be smaller or larger based on the situation and data provided at that time. Tracing data can be

⁶ Studies in Australia have identified that phylloxera can naturally disperse up to 100-200m per year (but generally about 30m) but there is a lifecycle stage where they can be carried on the wind. So, the 5km zone is meant to provide a buffer given it has been found that infestation is usually detected 5-8 years after incursion. As the tracing data shows, movements can occur over a much wider area and the arbitrary 5km is a useful starting point but provides false confidence.

used to identify priorities within the radius and properties of interest outside the radius. Tracing data is likely to increase the surveillance scope; however, it is now evidence-based and priorities can easily be identified.

2. Time needed to commence evidence-based surveillance

Comparative analysis has been conducted between scenario 1 where no tracing data was available and scenario 2 where tracing data was available.



outlines a significant saving in time to commence evidence-based surveillance. In scenario 1, it would take two to three days to have the tracing data available from the first properties. In scenario 2, it is available immediately for a large quantity of the properties in the control area. Even though surveillance commences immediately, tracing data is needed for evidence-based surveillance.

3. *Impact on tracing resources*

In relation to the impact on quantity of resources, comparative analysis has been conducted of another biosecurity response without tracing data, the NSW varroa mite response. In that response, approximately ten staff were conducting tracing in the early stages of the response. In scenario 1 of this exercise, we would assume those 10 people were dedicated to conducting tracing interviews, site visits, contact centre, data entry and data analysis. In scenario 2, fewer staff would be needed as the only task remaining is to validate the tracing data and assess gaps.

Summary

In this exercise scenario, the tracing data would reduce the time to conduct evidence-based surveillance by three to four days for the properties within the 5 km control area and reduce the tracing resources need by approximately eight staff.

At this stage, there is no legal or regulatory foundation to support decision-making based on tracing data, i.e. reduced controls, but it could form a consideration in the future.

Human/Social Impacts Mitigated by Tracing Data

During the exercise, it was discussed that tracing processes can be highly stressful for the property owner as well as the tracers. Financial or compliance issues may complicate the tracing process and willingness to cooperate.

Growers, processors, contractors, staff and wine producers that have been part of a previous biosecurity emergency or disaster may experience increased psychological consequences.

Having the tracing data would significantly decrease the need to visit premises and physically collect tracing data.

Having access to tracing data may potentially reduce the stress and psychological impacts on not only the property owner/manager but tracing staff within the response. During heightened periods of stress having data at their fingertips and not having to go through boxes of paperwork or files can greatly reduce stress levels and make them feel like things can happen much more quickly within the response.

How Tracing Data improves Outcomes

This section describes how tracing data could affect growers, industry, economy and the community.

Impact on Producers and Processors – Operational Continuity

Potentially, growers can request relief of control measures if the data proves no connection to IPs and the grower's property demonstrates no biosecurity risk. The financial benefit is different for each grower and depends on the timing. It could be the value of an entire harvest if restrictions can be lifted and the harvest can be moved from a grower to a winery.

Agriculture Victoria developed a cost benefit calculator for tracing technology in the wine sector:

<https://www.gs1au.org/what-we-do/standards/traceability/cba-calculator>

Growers can get real time alerts if any of the biosecurity questions are answered incorrectly to stop risky movements before they come onto their property. Growers can also view data collected in real time or download reports of data collected to assess potential risks and trace back to identify where the pest/disease may have come from if their property tests positive and what other movements may have moved the pest/disease off their property to other properties. Growers can also update questions, rules and property information in real-time to reflect the current environment if there is a new incursion, update to movement restrictions, rules, etc.

Contractors and other visitors to properties can see in their Onside app or web portal anywhere they have been to see if they have been to an infected property, and if so, what other properties they may have been to since then that would be at risk of having spread the pest/disease. When checking in to properties, contractors and other visitors will also be presented with rules, questions and information that can help educate and upskill their biosecurity knowledge and practices.

NSW Economic and Trade Impact

Market access depends on proof of freedom. Potentially, market access can be regained quicker if the data proves no connection to IPs.

Producers, contractors, cellars and tourist operators may be authorised to reopen/resume quicker if the data proves no connection to IPs.

Using the real-time data collected through Onside, governments will be able to respond to incursions more quickly and accurately. Governments can also have clear, accurate data about the origin and movement pathways of export goods, providing visibility of provenance when considering international trade.

A prerequisite for these benefits, however, is a legal or regulatory basis for the use of tracing data in this type of decision making.

Impact on Communities

As mentioned in this report, in NSW, 53,000 people are employed in the NSW wine industry and 75% are family businesses. A biosecurity emergency resulting in movement controls will directly affect employment and livelihoods. Evidence from other biosecurity emergencies and natural disasters has shown the social flow-on effects of these situations on people and local communities. Social issues increase and the community fractures. Any measure that can increase the effectiveness of a biosecurity response and reduce the impact is a benefit for communities and people.

Impact on Collaboration

As mentioned previously, tracing interviews can be stressful for tracers and property owners. Avoiding the need to conduct these tracing interviews could enhance the collaboration between property owners and government.

Control decisions would be evidence-based, which could result in increased industry support for these decisions.

Financial benefits – Exercise case study

Response cost saving - staff

In this scenario, 35 properties were in the control area. The tracing activities included contacting/potentially visiting the properties to identify traces via company records. Following that, the tracing data was processed and captured in reports.

In similar biosecurity responses approximately 10 staff conduct tracing activities, if no tracing data was available. In this scenario, it was identified that only two staff would be required for tracing activities if data for all properties was available. Without tracing data, all tracing activities pertaining to one property would take approximately eight hours – multiplied by 35 properties in the control area would equal 280 hours. It would take eight staff approximately 4.6 days (standard 7.6 hours per day) to complete the initial tracing within the control area. As they were identifying traces, the list of properties would increase. Consequently, it would take at least two weeks to follow up all connected traces.

Details	Cost
Without tracing data: Ten staff for two weeks at an annual Clerk 4 Grade salary of \$82,279.12	\$31,645.80
With tracing data: Two staff for two weeks at an annual Clerk 4 Grade salary of \$82,279.12	\$6,329.15
Cost saving per two weeks of tracing	\$25,316.65

An additional tracing cost that would be saved would be staff travel expenses.

Industry financial impact

Tracing data allows for targeted, evidence-based surveillance. This could significantly reduce the time needed to locate, contain and eradicate a biosecurity hazard, resulting in shorter business disruptions.

The annual loss prevention for each business size is:

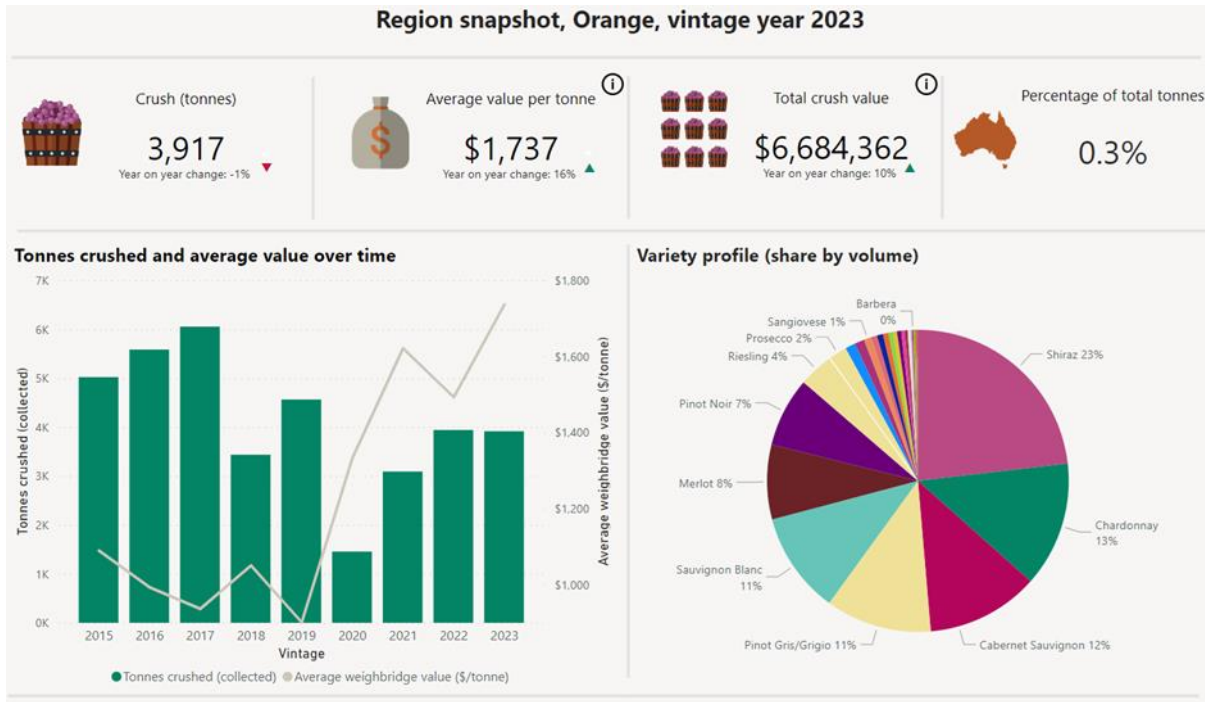
- A small wine making business – average of \$5,000,000 in bottled wine sales revenue
- A medium wine making business – wine sales between 50,000-350,000 cases and between \$5 million and \$20 million in bottled wine sales revenue
- Large wine makers – sales revenue exceeding \$20 million and >200,000 cases

In 2019, the Australian grape growing sector is estimated to produce \$3.9 billion in annual direct and indirect regional output or business turnover. NSW contributed 30.1%, which means an estimated \$1.3 billion.

A movement control order during harvest could lead to a loss of the grape crush. The loss of a harvest would have a devastating financial impact for the industry. The exercise case study focused on the Orange region and tracing technology could enable continuation of the harvest, resulting in loss prevention of the total value of the Orange grape crush at \$6,684,362.

The loss prevention across NSW would equate to the value of the state’s grape crush for 2023, which was \$899,835,480 (518,040 tonnes⁷ at \$1,737 per tonne).

⁷ NSW DPI



Economic impact

Australia

The wine industry's economic contribution is through wine sales/export, hospitality and tourism.

Tourism Research Australia estimated there were 8.3 million visits to wineries from domestic and international travellers in the year ending March 2019. Travellers that visit a winery collectively spent \$9.3 billion in Australia in 2019 and are typically higher spenders with an average spend per trip of \$1,125.

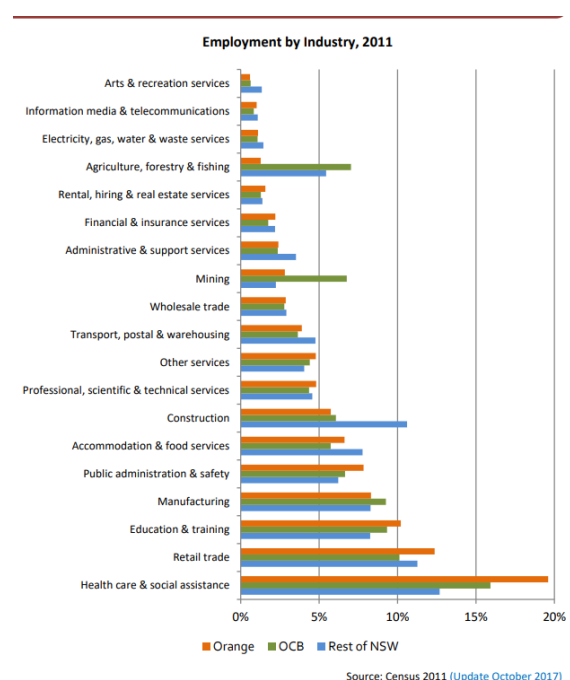
A loss of a harvest could lead to a \$500 million economic loss based on the annual value of NSW wine exports data.⁸

Secondary impacts due to the loss of tourists would be felt by many other businesses, such as restaurants/cafes, museums/galleries and hotels.

Orange

Orange is a wine region located west of Sydney in New South Wales. It has a wide range of elevation (between 376 to 1390m above sea level), which greatly affects the climate. Overall, mild to warm mean temperatures are offset by cool nights during the growing season.

The GI is 3,422km² and comprises a total of 1,075 hectares of vineyards.⁹ The main varieties grown in the region are Shiraz, Chardonnay, Sauvignon Blanc and Cabernet Sauvignon as per NSW Wine data.



⁸ <https://www.dpi.nsw.gov.au/about-us/publications/pdi/2021/wine-grapes>

⁹ <https://www.wineaustralia.com/market-insights/regions-and-varieties/new-south-wales-wines/orange>

In NSW, 53,000 employees could be affected. In Orange, this would include 1,514 employees.¹⁰

In 2016, the Department of Agriculture, Fisheries and Forestry had 19% of the number of employees within the Orange region (1,514 employees from a total of 8,029). The Department has 26% of business distribution in the Orange region with 7% in Orange City.¹¹

Orange Economic Profile 2017

Distribution of businesses

At June 2016 there were than 2,926 businesses registered in the City of Orange¹. Approximately 17% of businesses were in the construction sector although more than 55% of these were sole traders.

Rental, hiring and real estate services accounted for just under 10% of businesses with in excess of 87% being sole traders.

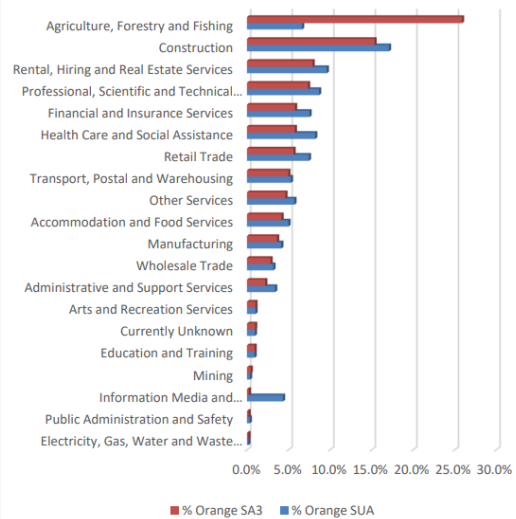
Other sectors contributing a significant proportion of registered businesses in Orange City include:

- Healthcare and Social Assistance (8%);
- Professional, scientific & technical services (8%);
- Retail trade (8%); and
- Agriculture, forestry and fishing (7%).

The broader Orange SA 3 region (similar to the OCB LGA boundary and includes City of Orange) had 5,103 registered businesses at 30 June 2016.

Agriculture is the dominate proportion of businesses in the Orange SA 3 region with 26% of total business numbers. Construction is the next highest in the broader SA 3 region at 15%; however this is primarily because of the large numbers of construction firms in Orange and in the rural residential areas surrounding Orange but in the Blayney and Cabonne LGA.

Distribution of Businesses, June 2016



Source: ABS Cat. No. 8165.0 (Update due February 201)

¹⁰ 2017 Economic Profile, Orange City Council

¹¹ Orange Economic Profile

Risk and Challenges

The exercise discussion and written feedback identified several risks and challenges:

- Industry representatives do not necessarily understand how the control area and property status are determined nor the status of equipment and people. The tracing data only forms part of those decisions, but the initial radius will remain in place.
- The tracing data does not include ornamental or 'residential' vines, abandoned orchards and/or vines in nurseries. It also does not include any movements between these properties.
- The app shows straight lines but does not show where these carriers go or have been. You cannot see how long or where they travelled between properties.
- There is no procedure and guidelines within NSW DPI that describes how data should be analysed and deployed in a biosecurity response nor is there a training program or documentation.
- The potential risk of a data breach and what that means is currently not quantified.
- Project fatigue and complacency are significant risks to success; industry needs to be incentivised to first engage in the use of the technology then continue to use it in the longer-term.
- "The data only leads you to the property, but it does not tell you where to dig," was mentioned by a participant. This means, on a large property, a full-scale surveillance program would need to be executed to identify the extension of the infestation. This is timely and resource intensive but is not related to the availability and use of the data.

'DPI need to get their heads around how to use this.'
– Industry representative

Where to From Here – Key Success Factors

As part of the exercise evaluation, a benchmark study has been conducted of the implementation criteria of tracing data in other agricultural industries.

One of the case studies included the successful implementation and application of the National Livestock Identification System (NLIS) in the red meat industry. One of the reasons this system is adopted across the relevant industry is because it is linked to a property accreditation program that brings many commercial benefits, including marketing, evidence of product quality and market access, and a regulatory requirement for some livestock species under state and territory law. Additionally, since it is adopted across the industry, it can be used for effective decision-making. Finally, protocols and agreements are in place on the use and application of the data.

To summarise, the exercise and study outlined factors for a successful implementation and application of tracing data:

- The system can individually identify each premises and item of interest moved between premises.
- Ideally, it reduces administrative load and has other benefits like increased process efficiencies, optimised business intelligence, improved safety recording, quality control and/or cost savings.
- User-friendly and easy to operate.
- Legislated and mandatory.
- Adopted across industry.
- Subjected to robust information security practices and measures.
- Departments of Agriculture have implemented protocols on how to apply the data in a biosecurity response.
- Response staff are trained.
- Ongoing funding is available to maintain use and application.

"For adoption to be successful, the approach should be a combination of a carrot and stick."

Conclusion

This data is paradigm shifting, thinking of moving beyond or away from arbitrary lines and circles provides a regulatory, communications and political challenge. Tech is challenging this space and the basis for decision-making.

There are many benefits to the tracing data, but legislation and response procedures need to catch up with the possibilities. Without confirming its legal basis for decision making and application in deploying biosecurity response measures its value is limited, as measures like the 5km radius will still be the first measure.

The ability to consider the differences between various pests and diseases is important, e.g. phylloxera is more likely to spread via anything contaminated with soil but others (e.g. some bacteria) might be mainly transferred via infected pruning equipment. There are priority lists of pests and diseases that could assist and is often the 'go to' reference for information but some common materials/ pathways could be covered.

Additionally, industry commitment to capture the data throughout the supply chain must be maintained.

Biosecurity should be a side benefit. The direct, more visible benefits to growers should be commercial, quality, business operations, safety and/or process. For effective adoption, an immediate value proposition is needed.

Overall Recommendations

- R1.** Assess what additional data needs to be captured for optimal effectiveness in a biosecurity response. This could be achieved by sharing previous tracing surveys with Onside.
- R2.** To optimise data analysis and data representation for effective decision-making, establish algorithms to support rapid analysis and presentation of results. Valuable data includes 'superspreaders' or key links in the tracing network and different carriers.
- R3.** NSW DPI to explore and formalise how to optimally use the tracing data in a response. Develop a protocol with 'business rules'. Train people in how to extract, process, analyse and apply the data.
- R4.** Map the requirements for regulatory adoption and confirm the legal arrangements for accessing data.
- R5.** Expand adoption across the wine Explore and optimise business benefits for growers in business-as-usual activities, like site access registration, workplace safety, compliance verification, market access (benchmark NLIS) to support ongoing use of the technology by growers and other parties in the sector. Consider:
 - Avoiding introducing extra costs that do not outweigh the benefits (immediate business benefits as well as potential biosecurity losses)
 - Reducing workload where possible, not increasing it
 - Adding potential benefits in process optimisation, automation, workplace health and safety, legal and regulatory compliance/audit, market access, marketing of product quality/production processes
 - Reducing potential losses as a result of a biosecurity response

The application of 'behavioural science' methods such as 'nudges', social norms and incentives to motivate users and remove barriers should be considered to support adoption and ongoing use of the technology.
- R6.** Automate manual processes to enhance the accuracy of the data, remove the risk of users forgetting to record movement, reduce workload for operators and save time in dispatching vehicles during the harvest.
- R7.** Explore the opportunity for automatic uploads from Onside to the government case management systems to further reduce the efforts and risks associated with manual data entry.

Exercise Management

This was a joint exercise and participants included biosecurity response staff as well as industry representatives. To ensure familiarisation with the technology was supported, a four-person team from Onside was available for the exercise duration.

Overall, participants found the exercise a valuable activity that led to strengthened relationships and constructive insights into the application of tracing technology in the wine industry.

The exercise evaluation identified exercise management insights:

- On day 1 and day 2, the biosecurity response planning team did not have an appointed leader nor did one emerge naturally. This led to some inefficiencies in tasking and setting the direction. This was exacerbated by the lack of planning managers or epidemiologists in the room, as they were deployed to actual biosecurity responses.
- The exercise discussions did not draw out concise data that could be used for a quantitative cost-benefit analysis; however, the follow-up workshop, interview and research filled the gaps.
- On Day 2, the participants needed some time to explore the Onside interface and how to generate datasets for decision making, which slightly affected timings on the day. The presence of the Onside team to assist ensured the learning was quick. This demonstrated the importance of training and development of protocols on how to deploy tracing data in a biosecurity response.
- The NSW DPI exercise participants were learning on the spot, which led to some adverse industry perception regarding competencies.
- For the industry/community activity, participants seemed overwhelmed by the number of sub-tasks. It was intended to reflect a 'morning of requests to an ILO in a Control Centre' but seemed too much and strayed from the exercise objectives. Fewer sub-tasks would have been more appropriate and more facilitation could have assisted.
- There was an assumption that, based on the previous exercise and government-industry engagement, that there was a higher level of industry knowledge and understanding of phylloxera and biosecurity responses.

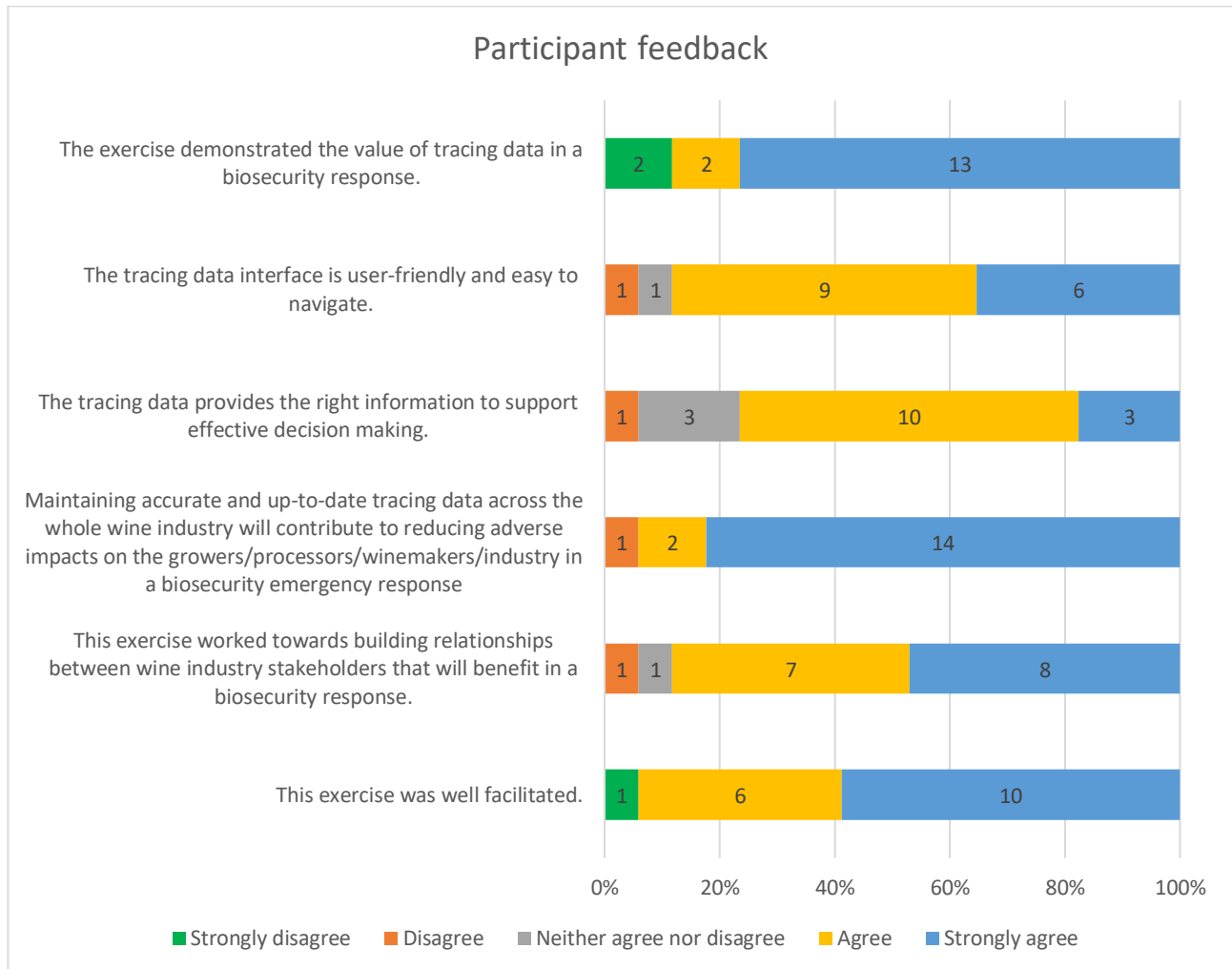
Exercise management recommendations

- R8.** Ensure that people with the right level of knowledge and experience are present to contribute to the exercise.
- R9.** Develop clear instructions for working groups on how to approach the task, including appointing a leader, allocating roles and tasks, and confirming the approach and required end-state.
- R10.** Arrange for future training activities with new processes, scenarios or technology to be conducted in a separate space as the industry representatives and manage any co-located activities closely through facilitators, subject matter experts and exercise control.

Exercise Planning

The planning process and in particular the Exercise Concept Brief proved invaluable in drawing out some unique needs of the exercise partners. For example, the inclusion of 'community' in the exercise to address the requirements of the funding agreement between the Hub and Federal Government was not mentioned in any early planning meetings but was identified and addressed through the concept development phase.

Annexure A. Detailed Participant Feedback



What did you like best about this exercise?

- Bringing new tech to bio security response.
- Having the inside team handy to answer questions.
- It informed me about the process related to an outbreak and what would be next steps and ongoing steps in this outbreak.
- Tech demos.
- Collaborative efforts with all sectors on biosecurity outcomes.
- Visualisation of interactions.
- Many different representatives from a range of functionalities.
- Onside tech is really important.
- Interaction and free flowing dialog between industry and government.
- Updated knowledge.
- On-site demonstration.
- Better understanding of how onside would be used in the event of a pest or disease outbreak.
- Interactive, different interest groups.
- Grower involvement.
- Getting greater involvement from what/who will be key people in a situation.
- Grower and industry rep involvement.
- Networking with wine industry, interaction with app developers.

What do you think are the key benefits of the tracing data?

- Knowing where risks might be.
- Efficiency of response - particularly in the early stages when it's usually an unorganised mess.
- Better than paper records, can narrow down possible spread.
- Informed decisions based on data and quicker responses.
- Hopefully, early pickup of hazard so people can get on with business in the quickest timeframe after managing the threat.
- The visual data.
- More reliable than human memory and allows quicker action.
- Time effective response that can make huge changes in the way a situation pans out from both damage to the industry/\$\$\$.
- Time saving benefit.
- Rapid response opportunity.
- Whatever increases adoption.
- Could help with management of an event and reduce the impact on the individual growers.
- Identifying outlying risk zones.
- Identifying where biosecurity risk is.
- Containing the outbreak. Identification of who/where may or may not be contaminated.
- Being able to target surveillance priorities faster.
- Enhanced situational awareness.

What do you think are the risks and challenges regarding the collection and use of the tracing data?

Public/growers may not be keen (privacy).

Big risk - if I'm a cranky old farmer and I can see that a contractor has done a tick and flick on the check in and spread some sort of biohazard to multiple properties, I'd be pretty cranky - we have seen this with varroa mite recently where threats were made to certain producers who flouted the rules.

Concerning that there might be some liability in that situation.

Gaps, needs everyone to sign on across the state to be highly accurate.

Uptake is critical. App needs to be highly valuable across the wider business with biosecurity an extra benefit.

Sufficient uptake by industry.

Multiple systems to be adopted and need to integrate data.

Having data that goes far enough back to be useful in tracing infestation location.

Getting people using it/incentives to use it.

Making sure the data is verified, consistent with good industry uptake.

Data collection, data security, data ownership, data accuracy (honesty of the person inputting).

Adoption is a major challenge.

Challenging to get people to check in all the time.

Privacy and the perceived risks of sharing this info with government. A risk is not everyone who has signed up to the app not agreeing for their data to be shared in a biosecurity response. How is the legal basis defined? Is it simply a contract that allows government (such as NSW DPI) to access info whenever and not only use in response to a biosecurity incursion but also for preparedness activities, e.g. response readiness may need to be targeted to certain areas based on intel derived from tracing data.

Data is only as good as what's entered, getting good buy in.

Data overload. Needs analytics to define risk.

Nil it is to protect an industry, many industries.

Integration into DPI systems, grower adoption.

What do you think needs to be in place going forward to make the collection and use of tracing data effective?

Grower uptake.
See improvement log.
Broader knowledge across all regions on the benefits of this approach.
Auto check in and out.
Implementing improvements suggested in the workshop, i.e. auto sign in and out for permanent staff
Adoption. Which can be challenging within regions.
Industry cooperation.
Industry enforced legislation.
Benefit to industry on a whole farm level.
Automated check in and out for people, machinery and vehicles.
More than 40 percent adoption industry wide.
Simple to use.
Having immediate solutions for users' problems.
An easy-to-use app and comms.
Greater uptake. More knowledge of why we are doing it and what we are doing.
A contract and agreed parameters of what will be shared and when.
Advanced technology to reduce risk of complacency by users.

Is there anything else we can do to enhance biosecurity preparedness in the wine industry?

Public awareness.
Yes, help industry to adopt greater use of tolerant and resistant rootstocks.
Planting on resistant rootstocks.
Workshop in GIs to share the learnings with growers.
Unsure
Awareness for the little/new growers.
Uptake of biosecurity plans.
Find each stakeholders draw card or need and combine into one product or program. This will ensure each stakeholder remains engaged and all info is stored in one location.
Look for advances in technology that may make detection easier.
Keep educating about importance.
Education.
Continue to educate the public. Run training scenario days for industry.
Bio security warnings on labels - "enjoy but don't destroy."

Do you have any suggestions for us to improve future events?

A bit longer for Q&A.

Would be good to involve a few contractors as well.

With Phylloxera in particular include speakers from Yarra Valley who have been impacted and those who haven't to set scene for importance of this effort.

Automation of check in. Minimise human interaction.

The involvement and access to the insight team was a huge benefit that should be carried on.

To better quantify the benefit of how this program improves tracing, it would have been better to determine what tracing info we would want based on this scenario prior to the exercise or during the first day. Then compare what our needs are and what the program can deliver. It's nice for the participating growers to see what the connections look like for them but it would have been good to compare this to NZ data that is more comprehensive and includes the specific types of movements to properly determine the benefits it provides for tracing info we need.

Product testing of the primary output from the vineyard! No, all good.

GET INVOLVED

We want to hear from investors eager to see Australia's national biosecurity system with regional communities and supply chains actively engaged and participating in local biosecurity preparedness.

For more information

southernNSWhub@csu.edu.au

<https://www.csu.edu.au/research/southern-nsw-drought-resilience-hub/home>



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