

# Horticulture Impact Assessment Program

## CT19003 Case Study

June 2026



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# CT19003 Citrus Postharvest Program

Allen Jenkin

Table 1 BA21003

|             |                                                                                                    |
|-------------|----------------------------------------------------------------------------------------------------|
|             |                                                                                                    |
| Stakeholder | Allen Jenkin                                                                                       |
| Business    | Vertically integrated mandarin grower and exporter, with an in-house packhouse.<br>Ironbank Citrus |
| Location    | Mundubbera, Queensland                                                                             |

## What was the research about?

CT19003 – The Citrus Postharvest Program worked to inform the Australian citrus industry on postharvest best practice and to support widespread adoption of best practice. Postharvest is an integral component of the supply chain, with packhouses linking growers to consumers, supporting the maintenance of fruit quality from farm to table. CT19003 sought to ensure the continual improvement of fruit quality through the provision of new information and technologies to industry. Beyond improvements to fruit quality, the investment also sought to reduce postharvest fruit losses and improve market access.

This research is timely, with the Australian citrus industry growing considerably over the last decade. During this period total output has increased by 47%, from roughly 554,000 tonnes in 2012-13 to 816,000 in 2022-23.<sup>1</sup> The gross value of citrus produced was \$977.1 million in 2022-23, over the decade there has simultaneously been increased demand for citrus exports, which as of 2022-23, accounted for 45% (\$441.1 million) of total production.<sup>2</sup>

To meet rising demand, new packhouses have entered the citrus supply chain. These new entrants, and the growing levels of exports, have heightened the importance of CT19003 and the role the project has played in supporting adoption of best postharvest practices for citrus, ensuring fruit quality is maintained and the risks of cross contamination are reduced.

## Allen’s background in the citrus industry

Allen Jenkin and his wife Susan Jenkin own and operate Ironbark Citrus. Since its establishment in 1990, Ironbark Citrus has grown and exported premium mandarins from their farms in Mundubbera, Queensland. Their orchards span over 220 hectares (3 farms) and includes around 88,000 trees, producing more than 8,000 tonnes of mandarins annually. The mandarins are sold in both domestic and international markets, with export destinations reportedly spanning over 30 countries.

Ironbark Citrus operates vertically integrated farms where mandarins are grown, packed, and exported. This gives Allen visibility and familiarity with the full supply chain. Ironbark Citrus’ operations include an inhouse postharvest packhouse, where fruit is washed, sorted, treated and packed for distribution.

<sup>1</sup> Hort Innovation (n.d.). Australian Horticulture Statistics Handbook 2024/25. Accessed at: <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/australian-horticulture-statistics-handbook/>

<sup>2</sup> Ibid.

Allen had multiple touch points with the project, through his roles on the project reference group (PRG), the Citrus strategic Investment Advisory Panel (SIAP), and as the chairman of the Citrus Exporters Group. In addition to these, Allen is also a part of the Export Marketing Committee at Citrus Australia.

### Allen's involvement in the project

Through his roles, Allen worked with the lead researcher on a number of project elements for CT19003, including research for mandarins and fruit supply, the industry's response to the Omethoate issues picked up in Thailand, and the provision of guidance to the researchers through his role on the PRG.

Allen was kept abreast of the project's activities and emerging findings through the provision of consistent PRG updates by the research team and published research findings in publications such as Citrus News.

Allen commended the design of the project, specifically in relation to its adaptability, timing and influence. The research was viewed as highly adaptable and responsive to the emerging needs of industry, with resources pivoting to high-risk issues such as the removal of Omethoate residues in exports, testing the impacts of increased transport times on fruit and the prevalence of chilling industry, and testing private enterprise products prior to wider industry adoption. The latter 2 examples, supported grower confidence in two ways, by:

1. Demonstrating the longevity of citrus, during transport to market, using current postharvest best practice. This gave growers the confidence to maintain their prior levels of fruit supply and exports despite the impacts of COVID-19 on time in transport.
2. Testing and endorsing effective new chemistries developed through private enterprise. Given the lead researcher's longstanding history in the sector, positive reputation and perceived lack of bias, growers and packhouses were confident in adopting and using the chemistries endorsed by the researcher. This led to greater adoption of best-practice and effective new chemistries as they come to market.

### Why is this research important for citrus growers, exporters and the industry more broadly?

Packhouses are an integral part of the citrus supply chain, however, Allen noted that as non-levy payers, packhouses lack support from industry beyond R&D funded postharvest projects (CT15010, CT19003, and CT23009).

The project filled gaps in packhouse knowledge and provided hands on guidance and oversight to packhouses. This support helped to avoid adverse outcomes, which if left unchecked, could have resulted in increased claims by importers (financial losses) and reputational damage which would have negatively impacted demand. Allen pointed to examples of this in other industries where poor practice in packhouses had led to severe incidents such as listeria outbreaks. This support and guidance are particularly pertinent in the current market as demand for citrus increases and new packhouses that have not previously processed citrus to enter the supply chain.

Allen believes that the citrus industry's continued willingness to pay for postharvest projects further down the supply chain, demonstrates the value growers give to packhouse capability and capacity uplift.

Allen also noted the additional importance of the project to growers, with its provision of options for practice change during the growing stage that help to ensure the longevity and quality of fruit postharvest.

### How has the research impacted your practice?

While the project was primarily targeted at packhouses and postharvest, Allen spoke to the impacts he'd experienced as a grower interacting with the research.

Allen noted the impact of the research pertaining to pre-harvest best practice and how adoption has

supported the longevity and quality of fruit. He acknowledged the utility he had derived from the research regarding regulated deficit irrigation, gibberellic acids ability to extend the shelf life of fruit, and the research into waxes, venting and flavour enhancement.

As Allen's farms follow traditional growing seasons, his packhouse is only active for 5 months of the year, remaining dormant for the remaining 7 months. Due to the extended dormancy, his packhouse was deep cleaned regularly limiting the need for the new sanitation techniques put forward through the project. However, when building a new packhouse, he reported the use of spore monitoring technology made available through R&D investments, which were able to confirm the alignment of their practice with best practices.

Beyond practice change, the research provided Allen with confidence to continue exporting mandarins to international markets during COVID-19, despite delays to shipping. This was enabled through the research's findings which demonstrated the efficacy of existing practice on sustaining the quality of fruit and mitigating the risk of chilling related injuries while being shipped to market.

### How has the research impacted other growers and packhouses?

While the impacts of the postharvest research for Ironbark Citrus were limited, Allen noted that there were considerable impacts for other packhouses. These impacts included:

- reductions in cross-contamination of fruit within packhouses by providing packhouses with effective, non-time-intensive sanitation and cleaning practices
- the reduction and removal of chemical residues from fruit such as Omethoate
- negating issues of resistance to chemistries by advising on, and supporting adoption of, effective multi-action alternatives
- reductions in the prevalence of chilling injury for fruit.

### What were the enablers when adopting the recommendations coming from this research?

Allen identified the primary strength of the project as being its ability to engage packhouses in a targeted manner. The investment engaged a specialist researcher, with extensive expertise and experience in postharvest practice, who worked closely with packhouses to strengthen adoption of best practice and build the capacity of the packhouse workforce.

Allen also commended the work of the research team on outreach, industry engagement and availability. Throughout the project the lead researcher made himself available to industry members for further support, he attended all industry forums and consistently publishes articles in industry publications. These outreach efforts aided widespread adoption of best postharvest practice across industry.

### What were the challenges with adopting the recommendations coming from this research?

Allen acknowledged that there was some upskilling required for early adopters of new chemistries, with his farm learning as they went when using heated fungicide solutions. He noted that this was a technological adoption issue, as opposed to issues with the research. He advised that these adaptation issues were experienced for a full growing season before being resolved. These delays in technological adoption likely impacted the immediacy of impact across industry, though, would be less prevalent for future adopters who could learn from the experiences of first adopters.

### Is there a part of the project that could have been improved?

There was one project specific improvement identified by Allen, for consideration moving forward. This was:

- Cyclical engagements/visits with all citrus packhouses across Australia, reviewing practice in person and

maintaining best practice approaches into the future. Allen acknowledged this would be a large undertaking but believed it could be achievable through a rolling cycle of packhouse visits, thereby reaching each packhouse once every few years.