Final Report

Chestnut industry communications program

Project leader:

Trevor Ranford

Report authors:

Trevor Ranford, Tanya Edwards and Elke Jasper

Delivery partner:

Chestnuts Australia

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CH22000

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Chestnut industry communications program (CH220000

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Level 7
141 Walker Street
North Sydney NSW 2060

Telephone: (02) 8295 2300

www.horticulture.com.au

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Public summary

The Australian chestnut industry is a small but expanding national industry. There are approximately 300 chestnut growers in Australia: 70-80% of these are in NE Victoria, with other growers in NSW, Tasmania, SA and WA. Effective communication and technical support are necessary for the transfer of technical understanding and up-skilling of the industry, key elements to the growth and development of the chestnut industry.

The aim of this project was to assist the ongoing development of the Australian chestnut industry through a range of communication programs. This project was developed to support implementation of the Australian Chestnut Strategic Investment Plan 2022-2026 and was designed to support the Australian chestnut industry by providing a mechanism to transfer information and technology to all stakeholders, including growers, other industry partners and consumers.

Outputs that were produced throughout the life of the Project included: -

- Maintenance and continual improvement of the Chestnut Australia Inc website – wwwchestnutsaustraliainc.com.au
- Delivery of six (6) industry events
    - Chestnut Orchard Work and Symposium, 11th February 2023, Tumburumba, NSW.
    - Chestnut Field Day and Season Launch, 10th February 2024, Beechworth, Victoria
    - Chestnut Workshop as part of the 2024 Tri-Nut Conference, October 2024
    - Chestnut Nut Rot grower workshop – 20th February 2025, Myrtleford, Victoria
    - Australian Chestnut Congress and Orchard visit -13th and 14th September 2025
    - TAFCO/Indigo Shire weather station launch – 14th September 2025
- Preparation of a total of twelve (12) reports for the Australian Nutgrower magazine
- Preparation and distribution of two (2 'Chestnut Industry News' newsletters each year – total of six (6) across the life of the project. Link: https://www.chestnutsaustraliainc.com.au/newsletters/
- Maintenance of a set of communications methodology to communicate regular and in-time information to the Chestnut industry and associated enquiries. Results across the life of the project are: -
    - Email blasts – sixty-seven (67) of
    - Website uploads – seventy-three (73) of
    - Enquiries via Website/Telephone/Text – three hundred and sixty (360) of.
- Collection and testing of nut samples from three (3) grower sites and preparation of comprehensive reports from two (2) sites over two (2) seasons.
- Preparation of an Excel Spreadsheet Matrix to collect grower data and information on the incidence of Chestnut Nut Rot and commencement of the collection of that information from over the past twenty (20) years.
- Collection, collation of and graphing of historical weather data from seven (7) of the TAFCO weather stations within the NE Region of Victoria with the objective of correlating any linkages with the incidence of Chestnut Nut Rot (Brown Rot).
- Preparation of a DRAFT Nut Rot Protocol document for the Australian Chestnut Industry and the preparation of a DRAFT set of Standard Operating Procedures to assist growers implement the protocol.
- Preparation of the first DRAFT of a Chestnut Nut Rot Predictive Model
- Preparation of an initial list of chemicals and/or active ingredients that have the potential to assist in the management of Chestnut Nut Rot for consideration by the relevant Chestnut Industry Committees.
- Preparation and distribution of Six (6) of the Tech Sheets (3rd of June 2025) with a further three (3) developed for distribution in October 2025.
- An average of fourteen (14) weekly Market reports were prepared and distributed to the industry across each of the three years of the project – in total an excess of forty-two (42) market reports. Summaries of each of the years can be found at the following Link: https://www.chestnutsaustraliainc.com.au/market-data/
- Attendance and participation by members of the CAI Communications and Engagement team at substantial number of different workshops/meetings/events relevant to the Australian Chestnut Industry,
- Ongoing facilitation of technology exchange between growers and industry stakeholders utilising alternative methods of communication.
- Ongoing links with international researchers and industry representatives through the Eurocastanea group in Europe and the USA.
- Collection and collation of Chestnut industry statistics for use in industry publications.
- Annual meetings of the Project Reference Group to review and sign off on relevant Milestone Reports and Work Plans.

Keywords

Chestnut; Communications Officer; newsletter; website; field day; nut rot; chestnut blight; phytophthora; cool chain; best practice; www.chestnutsaustraliainc.com.au; CH22000; Eurocastanea; biosecurity, CAI; Industry Biosecurity Officer.

Introduction

The Australian chestnut industry is a small but expanding national industry. There are approximately 300 chestnut growers in Australia: 70-80% of these are in NE Victoria, with other growers in NSW, Tasmania, SA and WA. Prior to 2006 the industry lacked a formal plan for communicating issues and technical information. Effective communication and technical support were necessary for the transfer of technical understanding and up-skilling of the industry, key elements to the growth and development of the chestnut industry. This project was designed to continue to support the Australian Chestnut industry by maintaining and expanding the transfer of information and technology to all stakeholders, including growers, other industry partners and consumers.

Since 2006, Chestnuts Australia Inc. (CAI), and its R&D and Marketing Committees have undertaken well planned and highly successful communications and technology transfer through the capable human resources of Tanya Edwards (Communications Officer–2006 to 2022) and Trevor Ranford (Industry Development Officer – 2014 to 2022).

This has been undertaken through a range of projects - CH06004, CH09003, CH12000, CH16000 and CH13003 –which have provided a formal mechanism within the industry for dissemination of information. Results, reported in milestone and final reports, together with the findings from the Industry Development Needs Assessment (CH08002) indicate that these projects were extremely effective. More recently, CAI undertook Project CH18000 and no Project CH22000 which both built on the results and expanded the activities from previous projects.

Industry members now have an up-to-date website with links to other sites of interest, a comprehensive newsletter and a focal contact point for all industry enquiries.

The industry has had a simple communication plan in place that has been directed toward growers and broader industry stakeholders. This plan distributed information describing best practice post-harvest handling, tree management and production inputs (water, fertiliser, soils) and supported this information with field days and workshops. Other information - concerning sustainability, biosecurity, chemical usage and regulatory requirements - is also distributed using this plan.

A major outcome of the CH08002 was the recognition of the value of maintaining a simple and effective means of interacting with all growers so that changes occurring in the industry could be advised in a timely fashion.

Project CH22000 effectively built on the ‘needs assessment’ and the achievements of the most recently completed communications program CH18000.

This project supported the implementation of the Australian Chestnut Industry Strategic Blueprint 2020 – 2030. Developed in 2020, this plan focused on the Chestnut Industry’s position within six key priority areas:

1. Market Opportunities
2. Product Value
3. Efficient and Sustainable practices
4. Supportive Operational Environment
5. Technology Transfer
6. Managing Industry Effectively

Activities conducted through project CH22000 have closely aligned to the Chestnut R&D program and build on past projects and the Australian Chestnut Growers Handbook.

The project gathered and collated grower data and information relating to the management of a number of diseases including nut rot, phytophthora and chestnut blight utilizing the wealth of practical knowledge and information of growers.

An extension of the current to assist the Communications Engagement Project to offer DISEASE MANAGEMENT TECHNICAL SUPPORT was valuable in supporting and assisting growers with further implementing improved programs and undertaking focused testing.

Methodology

Project CH22000 operated utilizing the following broad methodology: -

- **A Project Reference Group (PRG) will be established to oversee project activities.**

  The PRG meet once a year to review, adjust and approve Annual Operating Plans and yearly KPI's specific to the role. A review meeting will also be held, to include the Hort Innovation Project Manager.

  Over the life of the project a 'communications team' was established and maintained: -

  - Tanya Edwards (throughout the life of the project) – Project Leader from September 2022 to November 2024.
  - Trevor Ranford – Industry Development Officer (throughout the life of the project) – Project Leader from November 2024 to September 2025.
  - Elke Jasper – Team member from November 2024 to September 2025
  - Guy Rischmueller – Team member from November 2024 to September 2025.

- **Develop a national communications platform for the Australian chestnut industry, broker information and develop R&D content for industry publications and electronic media**.

  Over a long period of time CAI has communicated with Australian chestnut growers through surveys, workshops and strategic planning meetings and gathered a large amount of information in relation to on-farm production issues.

  The maintenance of a CAI R&D Subcommittee ensured the industry had been and continued to be focussed on the R&D needs of the industry. Strategies implemented have included:

  - Supporting any new grant applications and reporting outcomes to industry
  - Reporting to industry results/conclusions/research findings from the CAI Industry Development Officer and the CAI Industry Biosecurity Officer

- **Through this project CAI drove the broader industry R&D investment and communicated information on R&D and general information to improve on-farm and business practices.**

- **Maintaining and regularly updating the Chestnuts Australia Inc. Industry website with communication outputs.**

  CAI utilised a three-tiered website

  (1) Chestnut Levy Payers

  (2) CAI members

  (3) General community/consumers

- **Produced and distributed up to two (2) issues per year of the industry newsletter 'Chestnut Industry News' both printed and electronically. The newsletter included technical articles on current issues and updates on relevant R&D.**

  CAI, through the Communications Team, prepared two issues of 'Chestnut Industry News' in March and September utilising both general information and technical/scientific material sourced and supplied. The majority of the newsletters were distributed electronically, but where there were growers with no e-mail/internet then hard copies were posted.

- **Provided updates for the Australian Nutgrower magazine and manage chestnut industry subscriptions to Australian Nutgrower.**

  The Communications Team had responsibility for:

  1) Preparing the quarterly chestnut report for the Australian Nutgrower magazine.

  2) Maintaining the database of growers who have paid their subscription to the Australian Nutgrower as part of their membership to Chestnuts Australia Inc.

- **Conduct a minimum of ONE (1) industry field day per year; and regional grower meetings and workshops as required.**

  CAI undertook the organisation of one field day per - February 2023, 2024 and September 2025.

  The Communications Team had the responsibility of organising venues, program material, distribution and registration for each Field Day and working with the CAI Industry Development Officer and the PRG in developing the technical components of these events.

- **Develop and utilise alternative methods of communication via email blasts or a mini e-newsletter to supplement the 'Chestnut Industry News' newsletter rand ensure relevant and time sensitive news is effectively communicated.**

  In the months between the distribution of the 'Chestnut Industry News' CAI prepared and distributed specific mini e-newsletters when necessary to ensure that relevant, and time sensitive news was effectively communicated. The e-newsletter was prepared and distributed by the Communications Team.

- **Collected, collated and disseminated annual industry statistics, detailing the national planting and production statistics for the industry.**

  CAI recognised that data collection was an important part of the role in assisting the development and expansion of the industry, assisting in planning technical programs, responding to industry, government and community enquiries and allocation of industry resources.

- **Developed and implemented a communications strategy for the project (targeted at all project outputs) including a detailed monitoring and evaluation plan that contained a combination of KPI's measuring outputs and outcomes.**

- **Disease information and formulating new 'grower management protocols'.**

Results and discussion

Project CH22000 achieved all the required Outputs and Outcomes as detailed within the original application and subsequent variations.

The relevant Milestone Reports detailed the achievements during each of the Milestone periods.

The following is an overview of the achievements during the last four months of the Project: -

- Continued collection and testing of nut samples from three (3) grower sites and preparation of comprehensive reports from two (2) sites.
- Continued commencement of the collection of anecdotal data and information of the incidence of Chestnut Nut Rot over the past twenty (20) years.
- Ongoing development to the DRAFT Nut Rot Protocol document for the Australian Chestnut Industry and the DRAFT set of Standard Operating Procedures to assist growers implement the protocol.
- Development and presentation of the first DRAFT of a Chestnut Nut Rot Predictive Model
- Ongoing work on a list of chemicals and/or active ingredients that have the potential to assist in the management of Chestnut Nut Rot for consideration by the relevant Chestnut Industry Committees. This led to eight chemicals/actives being evaluated through in-vitro experiments by Agriculture Victoria and to the selection of two chemicals to be formally field trialed as part of Project CH25002.
- Four (4) new Tech Sheets have been developed and are to be distributed in early October 2025. They include:
    - CA-07 Botrytis/Grey Mould
    - CA-08a and CA-08b Intro to Bot Canker/More on Bot Canker Dieback
    - CA-09 Pezicula in chestnut orchards
- All methods of the current communications platform have been utilised effectively to communicate with industry, including. -
    - Email blasts – 6 of
    - Nutgrower Newsletter article – 2 of
    - Telephone/Text - 5 of.
- Ongoing maintenance and expansion of the industry website through regular updates.
- Fourteen (14) weekly 2025 Market reports have been prepared and distributed to the industry commencing from Friday 21st March and concluding on the 29th of August 2025.
- Attendance and participation by members of the CAI Communications and Engagement team at thirty-four (34) different workshops/meetings/events relevant to the Australian Chestnut Industry,
- Ongoing facilitation of technology exchange between growers and industry stakeholders utilising alternative methods of communication.
- Ongoing links with Eurocastanea group in Europe and the USA.
- Preparation and presentation of the 2025 Australian Chestnut Congress held over the period of the 13th and 14th September 2025 in Wangaratta. A total of thirty-four (34) delegates attended through the two days.
- Partnering the TAFCO/Indigo Shire launch of a new weather station in Stanley, Victoria on Sunday 14th September 2025.

The following is an overview of the Outputs that were produced across the life of the Project: -

- Maintenance and continual improvement of the Chestnut Australia Inc website – wwwchestnutsaustraliainc.com.au
- Delivery of six (6) industry events
    - Chestnut Orchard Work and Symposium, 11th February 2023, Tumburumba, NSW.
    - Chestnut Field Day and Season Launch, 10th February 2024, Beechworth, Victoria
    - Chestnut Workshop as part of the 2024 Tri-Nut Conference, October 2024
    - Chestnut Nut Rot grower workshop – 20th February 2025, Myrtleford, Victoria
    - Australian Chestnut Congress and Orchard visit -13th and 14th September 2025
    - TAFCO/Indigo Shire weather station launch – 14th September 2025
- Preparation of a total of twelve (12) reports for the Australian Nutgrower magazine
- Preparation and distribution of two (2 'Chestnut Industry News' newsletters each year – total of six (6) across the life of the project. Link: https://www.chestnutsaustraliainc.com.au/newsletters/
- Maintenance of a set of communications methodology to communicate regular and in-time information to the Chestnut industry and associated enquiries. Results across the life of the project are: -
    - Email blasts – sixty-seven (67) of

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    - Enquiries via Website/Telephone/Text – three hundred and sixty (360) of.
- Collection and testing of nut samples from three (3) grower sites and preparation of comprehensive reports from two (2) sites over two (2) seasons.
- Preparation of an Excel Spreadsheet Matrix to collect grower data and information on the incidence of Chestnut Nut Rot and commencement of the collection of that information from over the past twenty (20) years.
- Collection, collation of and graphing of historical weather data from seven (7) of the TAFCO weather stations within the NE Region of Victoria with the objective of correlating any linkages with the incidence of Chestnut Nut Rot (Brown Rot).
- Preparation of a DRAFT Nut Rot Protocol document for the Australian Chestnut Industry and the preparation of a DRAFT set of Standard Operating Procedures to assist growers implement the protocol.
- Preparation of the first DRAFT of a Chestnut Nut Rot Predictive Model
- Preparation of an initial list of chemicals and/or active ingredients that have the potential to assist in the management of Chestnut Nut Rot for consideration by the relevant Chestnut Industry Committees.
- Preparation and distribution of Six (6) of the Tech Sheets (3rd of June 2025) with a further three (3) developed for distribution in October 2025.
- An average of fourteen (14) weekly Market reports were prepared and distributed to the industry across each of the three years of the project – in total an excess of forty-two (42) market reports. Summaries of each of the years can be found at the following Link: https://www.chestnutsaustraliainc.com.au/market-data/
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- Ongoing links with international researchers and industry representatives through the Eurocastanea group in Europe and the USA.
- Collection and collation of Chestnut industry statistics for use in industry publications.
- Annual meetings of the Project Reference Group to review and sign off on relevant Milestone Reports and Work Plans.

Outputs:

Table 1. Output summary

Output	Description	Detail
Newsletters	'Chestnut Industry News' newsletter was prepared and distributed twice a year – March and September. While not part of the project CAI prepared 'Nuts and Burrs' to supplement and complement the newsletter communication to growers.	The September 'Chestnut Industry News' was prepared and distributed. A link to the newsletter is as follows: - https://www.chestnutsaustraliainc.com.au/chestnut-industry-news-edition-2-september-2025/ The data on the early grower access to the newsletter is attached as ***Appendix A*** to this Final Report
Website	The CAI website has three sections (1) Chestnut Levy Payers (2) CAI members (3) General community/consumers with are regularly updated.	The most recent updates to the website were the presentations from the 2025 Chestnut Conference held on the 13th and 14th September. A link to these updates is as follows: - https://www.chestnutsaustraliainc.com.au/2025-australian-chestnut-industry-congress-presentations-saturday-13th-september-sunday-14th-september-wangaratta-victoria-2/
Email Blasts	A number of communications tools have been used during this Project including the use of e-mail blasts.	During the last milestone reporting period there have been nineteen (19) email blasts circulated during the period of this milestone. E-blasts: - • 2025 Chestnut Congress (3 of) • Chestnut Levy Proposal and ballot (2 of) • Nut Rot Survey • Victoria Food Safety Regulation Review • Twelve (12) editions of the 2025 Market report.
Enquiries	Phone/Text/Website/Email	Five (5) relevant enquiries were attended to and followed up in a timely manner during this Milestone reporting period.
Statistics – Chestnut Industry Collection of Annual Statistics - Crop	Throughout the Project, CAI has continued to collect industry data for use in a number of ways.	Chestnut data was supplied to the Hort Statistic Handbook service provider for use in the 2025 Handbook. Data was also supplied to: - • ANIC for use in their 'Growing for Success' publication. • Hort Coalition of SA for use in the SA Primary Industries Scorecard. A copy of the 'Growing for Success' publication is attached as ***Appendix B*** to this Final Report.
Statistics - Comparison against levy collection	Throughout the Project, CAI has continued to liaise with Levy Revenue Service (LRS) and Hort Innovation in relation to levy collection.	The data collected in relation to Chestnut Levies has been utilized recently to discuss aspects of a change to the Chestnut Statutory Levy amount and split. Recently a document has been prepared and circulated to chestnut growers/levy payers detailing a proposal to change the levy.

		A copy of the Discussion Paper is attached as ***Appendix C*** to this Final Report. A formal ballot has commenced and is open until the 31st of October 2025.
Market Reports	Throughout the three years of the Project members of the Project Team have collected and collated data from the Wholesale Markets and presented this information in weekly reports from March to August.	The final 2025 Market report has been prepared and distributed to the industry on Friday 29th August 2025. Including the one on the 21st of March 2025 a total of fourteen (14) Market Reports were prepared and distributed. A copy of the Final Weekly Market Report is attached as ***Appendix D*** to this Final Report. A copy of the complete 2025 Season Market Report is attached as ***Appendix E*** to this Final Report
Grower activities	Regular grower activities have been an important part of this Project and have included Workshops, Symposiums, Farm visits and Orchard Walks.	The final set of grower activities included: - • 2025 Australian Chestnut Congress held over the 13th and 14th September 2025 in Wangaratta, Victoria. • Orchard visit and the official launch of the TAFCO/Indigo Shire weather station at Stanley, Victoria on the 14th of September 2025. The Congress program included the following activities: - • Presentation and Workshop by the internationally acclaimed speaker in John Stanley. • Presentations on new technology and nut rot (Saturday afternoon). • Conference Dinner • Additional Conference presentations (Sunday morning) • Orchard visit and launch of new weather station. A copy of the Conference Program is attached as ***Appendix F*** to this Final Report. A copy of the Conference Workshop material is attached as ***Appendix G*** to this Final Report. Copies of all of the presentations can be found at the following link: - https://www.chestnutsaustraliainc.com.au/2025-australian-chestnut-industry-congress-presentations-saturday-13th-september-sunday-14th-september-wangaratta-victoria-2/
Liaison with Eurocastanea in Europe	During the latter part of the project CAI established links with Eurocastanea in Europe and the Michigan State University in the USA to assist in gathering international information on Chestnut Nut Rot.	Trevor Ranford, Industry Development Officer with Chestnuts Australia Inc, attended a meeting of Eurocastanea in January 2025. This activity was reported within Milestone 107. Since that time Trevor Ranford has continued to liaise with Eurocastanea and the relevant researchers and industry representatives. Relevant information has been built into the development of relevant programs for the Australian Chestnut Industry in relation to the management of Chestnut Nut Rot. Through this work and in conjunction with other CAI projects the following have been developed: - • Draft Australian Chestnut Nut Rot Protocol – attached as ***Appendix H*** to this Final Report.

		• Draft Chestnut Nut Rot Predictive Model – attached as ***Appendix I*** to this report.
Technical Information	One of the methods in communication is through the development and distribution of technical information in the form of 'Tech Sheets". The initial focus has been on orchard sanitation and pests and diseases.	Preparation of a number of Tech sheets CA-01 to CA-06 were presented as part of Milestone 107. Since that time the following have been prepared and are in the process of being distributed to the industry: - • CA-07 Botrytis/Grey Mould • CA-08a and CA-08b Intro to Bot Canker/More on Bot Canker Dieback • CA-09 Pezicula in chestnut orchards Copies of the following Tech Sheet are attached as ***Appendices J, K, L and M*** to this Final Report. In addition, CAI prepared the 2025 Chestnut Biosecurity Statement and supplied to Plant Health Australia as part of the industry's requirements as a signatory to the Emergency Plant Pest Response Deed. A copy of the Chestnut Biosecurity Statement is attached as ***Appendix N*** to this Final Report.
Enhanced communication and sharing of knowledge and information of technical developments in the chestnut industry	Two-way communications have been an integral part of the project and is reflected not only by communications and engagement with the growers and industry but also through communications with other industries, government agencies, researchers and overseas growers and researchers. From these meetings and/or events information is passed back to the growers/industry.	The activities and meetings undertaken through the life of this Project have been reported within each of the previous Milestone Reports. A list of activities/meetings that have been undertaken by the communications and engagement staff over the past period (June to September 2025) are listed within ***Appendix O*** to this Final Report
Collection and testing harvested nuts.	Collection of harvested nuts to test for the presence/absence of both diseases and chemical residues continued through the latter part of the Project.	The process of collecting and testing harvested nuts for both disease and/or chemical residues continued during the harvest period and utilized in the relevant reports and ongoing discussions related to chemical management for Chestnut Nut Rot.
Gather historical and anecdotal information on Nut Rot.	Collection of historical anecdotal data and information of the incidence of Nut Rot over the past 20 years.	The Excel spreadsheet that was detailed in Milestone 107 has been distributed to growers and data is being collected across September/October 2025. A summary of the data will be tabled as part of the new Communications and Engagement Project – CH24002.
Gather and review historical weather data.	Collection of historical weather data from the network of TAFCO Weather Stations with the	While the past collection of weather data was detailed in Milestone 107 the ability to collect more data has improved and increased with two new weather stations with NE Victoria being installed. The TAFCO network now has seventeen (17)

	NE region of Victoria	weather stations. CAI has and continues to work with TAFCO and CropX to gain the maximum information from the individual weather stations and the overall network in general. The information will become integral to the proposed new Chestnut Nut Rot Predictive Model that is currently in the first DRAFT stage.
Nut Rot Protocol for Australian Chestnut Growers	Commencement of the development of a Chestnut Nut Rot (Brown rot) protocol for the Australian Chestnut Industry.	While presented as part of Milestone 107 the process has continued with the development of a DRAFT Chestnut Nut Rot Predictive Model. The first presentation of this Model was at the 2025 Chestnut Conference held in Wangaratta, Victoria on the 13th and 14th September.
Chemical products for the management of Chestnut Nut Rot	Establish a list of chemicals/active ingredients that are known to or have the potential to assist in the management of Chestnut Nut Rot	The Project Team has continued to gathered information on chemicals and active ingredients from Europe, USA and Australia that have potential to assist in the management of Chestnut Nut Rot (Brown Rot). Through this process a report on the chemical positions was prepared by the Project Leader and presented to the CAI R&D Committee and the Chestnut SIAP. A copy of the Chemical Situation Paper is attached as ***Appendix P*** to this Final Report. From that, eight chemicals and/or chemical actives have been/continue to be tested by Agriculture Victoria as part of an in-vitro trial. From this work the Chestnut SIAP have selected two chemicals to be taken forward in replicated grower trials as part of Project CH25002.

Outcomes

Table 2. Outcome summary

Outcome	Alignment to fund outcome, strategy and KPI	Description	Evidence
Presentation of practical and new technology through Field Day events	**OUTCOME 3:** Improved capability and an innovative culture in the Australian chestnut industry mazimises investments in productivity and demand. **STRATEGY 1:** Deliver communications capability to support positive change. **STRATEGY 2:** Facilitate innovation by providing opportunities for business engagement between and across industry members	At least one Grower event was held each year of the Project with the objective of increasing and improving grower awareness and learning: - - Best Practice - Biosecurity - Pest and Disease Management	The last Grower event was the 2025 Australian Chestnut Congress held over the 13th and 14th September 2025 in Wangaratta, Victoria. Details on the event are covered in Table 1 – Outputs. A copy of the evaluation of that activity is attached as **Appendix Q** to this Final Report.
Collating industry information and disseminating through an effective website.	As above **OUTCOME 3:** **STRATEGIES 1 and 2:**	Maintain Website; access to new information for business decision making	A total of seventy-three (73) documents have been uploaded onto the CAI website in the members only/levy payers only sections across the life of the project. A summary of the website utilization is attached as ***Appendix R*** to this Final Report.
Gathering current material and distributing through a regular Newsletter.	**As above** **OUTCOME 3:** **STRATEGIES 1 and 2:**	Conduit for timely information provided for all Stakeholders; relevant to all aspects of chestnut growing	The September 'Chestnut Industry News' was prepared and distributed. A link to the newsletter is as follows: - https://www.chestnutsaustraliainc.com.au/chestnut-industry-news-edition-2-september-2025/ The data on the early grower access to the newsletter is attached as ***Appendix A*** to this Final Report
Distributing in-time information and 'calls to action' to the industry through e-mail blasts	**As above** **OUTCOME 3:** **STRATEGIES 1 and 2:**	Conduit and timely information provided for all Stakeholders	A total of sixty-seven (67) e-mail blasts were made during the life of this project and the information has been regularly reported within the Milestone Reports.

Managing industry and community Chestnut enquiries	**OUTCOME 1:** Demand creation **STRATEGY 1:** Increase domestic consumer demands for Australian chestnuts through improving knowledge, attitudes and purchase intents.	Resourced conduit for industry information	A total of three hundred and sixty (360) industry/community enquiries were received across the life of the project.
Preparing and formatting relevant production and industry information into practical and grower friendly 'Tech Sheets'	**OUTCOME 2:** Industry supply, productivity and sustainability. **STRATEGY 1:** Develop and optimize fit-for-purpose pests and disease management strategies (especially nut rot, Phytophthora root rot and chestnut blight). **STRATEGY 3:** Develop and implement orchard BMPs	Preparation of a number of Tech sheets has concluded and the final Tech Sheets distributed.	A total of nine (9) Tech Sheets were prepared with six (6) previously distributed to the Chestnut Industry and a further three (3) to be distributed in October 2025.
Maintenance of two-way Communications and Engagement across the Chestnut production and supply chains		Two-way communications is an integral part of the project and is reflected not only by communication and engagement with the growers and industry but also through communications with other industries, government agencies, researchers and overseas growers and researchers.	A full list of communication and engagement activities undertaken by the Communications and Engagement Team are detailed in the Output section above.
Development of a set of industry protocols and technical documents that	**OUTCOME 2:** Industry supply, productivity and sustainability.	Development of a set of industry protocols and technical documents to	Commencements of activities relating to disease information and formulating new 'grower management protocols' including: - • Collection and testing of harvested nut for disease presence and/or chemical residues.

give growers a sound set of guidelines within to operate.	**STRATEGY 1:** Develop and optimize fit-for-purpose pests and disease management strategies (especially nut rot, Phytophthora root rot and chestnut blight).	assist growers to better understand and manage the various fungal disease problems.	• Gathering historical and anecdotal information of the presence of Chestnut Nut Rot over the past 20 years. • Collection and detailing weather data from the NE Region of Victoria to correlate against the presence/absence of Chestnut Nut Rot • Drafting of an Australian Chestnut Nut Rot (Brown Rot) Protocol and associated Standard Operating Procedures. Establishment of a list of potential chemicals and/or active ingredients that could be used as part of the broad Protocol.

Monitoring and evaluation

Table 3. Key Evaluation Questions

Key Evaluation Question	Project performance	Continuous improvement opportunities
Grower Activity: *"To what extent were engagement processes appropriate to the target audience/s of the project.* *"How accessible were extension events to industry levy payers?'*	A member of the Project Team prepared an overview of the 2025 Australian Chestnut Congress covering the relevant points. The Conference overview is attached as ***Appendix Q*** to this Final Report. The evaluation of the 2025 Australian Chestnut Congress is attached as ***Appendix R*** to this Final Report.	The following were comments relating to improvement: • **Attendance**: "more growers" / "need more attendees". • **Format**: avoid a full weekend; several asked for shorter blocks (for example, Friday half day + Saturday). • **Content requests**: co-ops/processing and central processing options; continue the current mix of technical, marketing and networking.
Website: *"How well have intended beneficiaries been engaged in the project?"* *"How regular project updates been provided through linkage with the industry communications project?'*	The CAI website has been seen as a major communication tool for growers, so the maintenance of the website has been seen as an integral component of the project. The objective has been to ensure growers have access to new and relevant information for business decision making.	A summary of the website utilization is attached as ***Appendix S*** to this Final Report. While the utilization of the website is strong as part of the new Project – CH24002 – an independent review of the website will be undertaken to see what improvements/changes are required to make the website even more effective and valuable. A total of seventy-three (73) documents have been uploaded onto the CAI website in the members only/levy payers only sections across the life of the project.
Newsletters: *"How well have intended beneficiaries been engaged in the project?"* *"How regular project updates been provided through linkage with the industry communications project?"*	Conduit and timely information provided for all Stakeholders; relevant to all aspects of chestnut growing through: - a) Twice yearly 'Chestnut Industry News'. b) Quarterly Chestnut reports presented in the Australian Nutgrower magazine	The September 'Chestnut Industry News' was prepared and distributed. A link to the newsletter is as follows: - https://www.chestnutsaustraliainc.com.au/chestnut-industry-news-edition-2-september-2025/ The data on the early grower access to the newsletter is attached as ***Appendix A*** to this Final Report
E-mail blasts: *"How well have intended beneficiaries been engaged in the project?"* *"How regular project updates been provided through linkage with the industry communications project?"*	Conduit and timely information has been provided to all Stakeholders utilizing e-mail blasts.	A total of sixty-seven (67) e-mail blasts were made during the life of this project and the information has been regularly reported within the Milestone Reports.
Enquiries: *"How relevant was the project to the needs of intended*	The Project has continued to be a conduit for industry information by responding to	A total of three hundred and sixty (360) industry/community enquiries were received across the life of the project.

beneficiaries?" *"To what extent has the project met the needs of industry levy payers?"*	industry/community enquiries received through the website, via e-mail or by telephone.	Each enquiry was responded to in a timely manner and reported in the relevant Milestone reports.
Technical Information: *"How well have intended beneficiaries been engaged in the project?"* *"How regular project updates been provided through linkage with the industry communications project?"*	Preparation of an initial set of Tech sheets has been undertaken to deliver relevant technical information to growers/levy payers on appropriate topics. concluded and the final Tech Sheets distributed.	A total of nine (9) Tech Sheets were prepared with six (6) previously distributed to the Chestnut Industry and a further three (3) to be distributed in October 2025. Going forward it is intended to produce many more Tech sheets either as part of the next Communications and Engagement Project or other Projects managed by Chestnuts Australia Inc.
Communications and Engagement:	Two-way communications is an integral part of the project and is reflected not only by communication and engagement with the growers and industry but also through communications with other industries, government agencies, researchers and overseas growers and researchers.	A full list of communication and engagement activities undertaken by the Communications and Engagement Team are detailed in the Output section above.
Development of a set of industry protocols and technical documents: *"To what extent has the project achieved its expected outcomes?"* *"To what extent has the project increased the adoption of the industry best practice guidelines?"* *"What efforts did the project make to improve efficiency?"* *"How did the update of new technologies assist with communicating with levy payers, delivering efficient ROI?"*	Development of a set of industry protocols and technical documents to assist growers to better understand and manage the various fungal disease problems.	Commencements of activities relating to disease information and formulating new 'grower management protocols' including: - • Collection and testing of harvested nut for disease presence and/or chemical residues. • Gathering historical and anecdotal information of the presence of Chestnut Nut Rot over the past 20 years. • Collection and detailing weather data from the NE Region of Victoria to correlate against the presence/absence of Chestnut Nut Rot • Drafting of an Australian Chestnut Nut Rot (Brown Rot) Protocol and associated Standard Operating Procedures. Establishment of a list of potential chemicals and/or active ingredients that could be used as part of the broad Protocol. All of this information has assisted in: - a) Development of the first DRAFT of a Chestnut Nut Rot Predictive Model b) Permit application for two chemicals finalized and submitted to APVMA for the management of Chestnut Nut Rot. c) Agreement on two new chemicals to be field trialed through Project CH25002.

Recommendations

GENEREAL RECOMMENDATIONS:

An accessible/knowledgeable conduit for growers/researchers/general public/Government departments and Hort Innovation is critical to the everyday functions of Chestnuts Australia.

This funded project was a means to manage three of the industries key priority areas: -

- a supportive operational environment,
- managing industry effectively, and
- providing a consistent point of contact.

It is highly recommended by chestnut industry stakeholders to further fund a communications program.

CONFERENCE FORMAT:

The following are some of the recent recommendations/actions that have come from Chestnut growers to improve future grower events in future:

- **Hands-on clinics** — Run short, practical field demos on tensiometers, data-to-action irrigation timing, and UAV basics.
- **Processing/co-ops explainer** — One-pager on options, costs and first steps; invite interest for a follow-up working group.
- **Keep it tight** — Trial a compressed format (for example, half-day + one full day) to reduce fatigue and lift attendance.
- **Tech to action** — Curate "first steps on your block" summaries for AI-assisted QA, record-keeping and grader/camera checks.

WORKSHOP ACTIONS/PRIORITIES:

The following are some actions/priorities resulted from the industry workshop on the 13th of September 2025 that can form the basis for the new Communications and Engagement Project – CH24002: -

- **Educating children on the nutritional benefits of chestnuts for long term industry future**

  Introducing chestnuts into schools builds knowledge and consumption habits in future generations.

- **Eliminate nut rot and maintain quality**

  Addressing nut rot is the most pressing priority to secure both production and consumer confidence.

- **Educating retail**

  Retail staff and buyers need clear guidance on correct handling and storage of chestnuts.

- **Guarantee our product quality**

  Setting clear standards across the industry will ensure consumers consistently receive high-quality nuts.

- **Identify varieties e.g. easy peeling/boiling/roasting**

  Improving variety selection for peeling and cooking will reduce consumer barriers.

- **Health benefits**

  Promoting nutritional advantages is central to chestnuts' value proposition.

- **Educate / market to increase demand**

  Sustained campaigns are needed to grow awareness and sales.

- **Establish threshold for acceptable level of nut rot → grower + wholesaler**

  Clear quality thresholds will guide both growers and wholesalers, improving consistency.

- **Identify varieties that are resistant to nut rot**

  Breeding and selecting resistant varieties is a long-term solution to disease pressure.

- **Identify timing of spore release for optimal management**

  Understanding disease epidemiology is critical for predictive models and effective spray timing.

- **Processing (co-op)**

  Shared facilities will allow efficient use of lower-grade nuts and consistent supply for new markets.

- **Respond to climate change → varieties (not red)**

  Futureproofing through variety adaptation and climate-smart practices is necessary.

- **Educate (post-harvest) consumer & retailer – nutrition & "how to"**

  Practical education reduces waste and frustration, supporting repeat purchases.

- **Convenience packed microwave ready chestnuts plus other value adding products**

  Developing ready-to-use formats will attract new consumers who value convenience.

- **Solve nut rot & QA issues**

  Industry-wide action is needed to ensure product reliability and trust.

- **Use of AI to improve production & quality management**

  New technologies such as AI can support orchard monitoring, predictive disease management, and postharvest quality control.

NUT ROT PROGRAM:

A summary of the anecdotal Nut Rot data, collected from grower, be tabled as part of the new Communications and Engagement Project – CH24002.

TECH SHEETS

The four (4) new Tech Sheets to be distributed in early October 2025. They include:

- CA-07 Botrytis/Grey Mould
- CA-08a and CA-08b Intro to Bot Canker/More on Bot Canker Dieback
- CA-09 Pezicula in chestnut orchards

Referred scientific publications.

No referred scientific publications were prepared or submitted for publication.

A number of industry technical sheets were prepared and distributed and have been presented as appendices to either Milestone Reports or this Final Report.

References

There are no references to be tabled but a number of industry technical sheets were prepared and distributed that may include references, but they have been presented as appendices to either Milestone Reports or this Final Report.

Intellectual property

No project IP or commercialisation to report.

Acknowledgements

The Project Team would like to acknowledge the support, guidance and input of the following: -

- CAI Executive Committee
- CAI R&D Committee members.
- Members of the Chestnut SIAP Committee
- Tanya Edwards, Elke Jasper and Guy Rischmueller.
- Tom and Judy Robertson and Louie Sgambelloni.
- Sharon Watt, Eloise Mason, Dumi Mhlanga, Claud Warren and Magdel Mellet at Hort Innovation.
- The relevant laboratories that undertook the analysis of samples.
- Professor Celeste Linde, Lucas Shuttleworth and Dean Metcalf.
- Growers who attended and actively participated in the relevant project meetings.
- Michigan University Extension Service and researchers.
- All chestnut growers/levy payers who have attended industry events, completed the relevant surveys and contributed to this Project.

Appendices

Appendix A: Report on the 'view' of the September 2025 'Chestnut Industry News'

Appendix B: Growing for Success (ANIC Publication with Chestnut statistics)

Appendix C: Discussion Paper on future of Chestnut Industry Levies

Appendix D: Final Weekly Market Report (29th August 2025)

Appendix E: 2025 Season Market Report Summary

Appendix F: 2025 Chestnut Conference Program

Appendix G: Report from the 2025 Conference Workshop

Appendix H: DRAFT Australian Chestnut Nut Rot Protocol

Appendix I: DRAFT Chestnut Nut Rot Predictive Model

Appendix J: Tech Sheet CA-07 – Botrytis/Grey Mould

Appendix K: Tech Sheet CA-08a – Intro to Bot Canker

Appendix L: Tech Sheet CA-08b – More on Bot Canker Dieback

Appendix M: Tech Sheet CA-09 - Pezicula in Chestnut Orchards

Appendix N: Chestnut Biosecurity Statement

Appendix O: Communications Team report on activities/meetings attended.

Appendix P: Chemical Situation Paper

Appendix Q: 2025 Australian Chestnut Congress Review Report

Appendix R: Evaluation Survey Results – 2025 Conference

Appendix S: Summary of the website utilization

September 2025 'Chestnut Industry News' Initial Email performance:

September 22, 2025 - September 23, 2025

Open rate

34.2%

55 opened

Click rate

21.1%

34 clicked

Bounce rate

1.2%

2 bounced

Unsubscribe rate

0%

0 unsubscribed

Additional email details

Deliveries

98.8%

Total opens

120

Last opened

Sep 24, 2025 8:17 am

Forwarded

0

Clicks per unique opens

61.8%

Total clicks

224

Last clicked

Sep 23, 2025 6:25 pm

Abuse reports

0

AUSTRALIA'S TREE NUT INDUSTRY

SNAPSHOT 2025

Growing for Success

TOWARDS 2030

ANIC
australian nut industry council

The Australian Nut Industry Council

Formed in 1988, the Australian Nut Industry Council (ANIC) is the federation of seven tree nut growing industries. ANIC is a not-for-profit organisation, led by a board representing the seven nut sectors and an Executive Officer. Collectively, the board and Executive Officer design and implement a wide range of activities to grow the Australian nut industry.

The members of ANIC and their representatives (as at July 2025) are:

Almond Board of Australia	Brendan Sidhu (Chair)
Australian Macadamia Society	Clare Hamilton-Bate
Australian Pecan Association	Andrew Waddell
Australian Walnut Industry Association	Andrew Georgiou
Chestnuts Australia Inc.	Trevor Ranford
Hazelnuts Growers of Australia Inc.	Andy Gibson
Pistachios Growers Association Inc.	David Crawford

ANIC
australian nut industry council

Executive Officer, Cathy Beaton

PO Box 586 Loxton SA 5333

P 0417 317 098

E exec@nutindustry.org.au

australian almonds
ALMOND BOARD OF AUSTRALIA

CHESTNUTS AUSTRALIA Inc.

HAZELNUT GROWERS OF AUSTRALIA INC

AUSTRALIAN MACADAMIA SOCIETY

Australian Pecan Association

Australian Walnut Industry Association

Foreword

Growing for Success 2025 offers a timely and detailed snapshot of how Australia's tree nut industry continues to mature, innovate, and prepare for sustained growth. With updated production forecasts and market insights, it provides a sound basis for informed planning and investment decisions across the supply chain.

This report would not have been possible without the active participation and insights from each of the seven Australian tree nut industries. Their cooperation has been essential in capturing a whole-of-industry view that highlights both diversity and shared ambition.

As Chair of ANIC, I commend each group for their contributions and collaboration. This edition reinforces our commitment to working together on common challenges and opportunities, with a united focus on expanding markets, increasing value, and building long-term sustainability.

Brendan Sidhu,
Chair ANIC

The Australian tree nut industry is built on the strength of its individual sectors and their willingness to collaborate. *Growing for Success* 2025 reflects this spirit of cooperation while offering practical insights into market trends, investment potential, and future industry direction.

This edition would not have been possible without the valuable input from each of the seven nut industry sectors —almond, macadamia, walnut, pistachio, pecan, hazelnut, and chestnut. Each has shared data, expertise, and a commitment to ensuring that the sector continues to grow sustainably and competitively.

Their efforts have resulted in a document that not only supports strategic planning and industry benchmarking but also showcases the high-quality and innovation that define Australian-grown nuts. I thank each group for their dedication and collaborative approach to building a vibrant and resilient industry.

Cathy Beaton
Executive Officer, ANIC

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Why Australian nuts?

The Australian tree nut industry is among the most sophisticated, highly mechanised and environmentally aware nut industries in the agricultural world, having developed in a competitive, globally-focused environment. Australia is the seventh largest producing country in the world for tree nuts. Australian nuts are successful - abroad and at home - for several reasons:

IN-SEASON NUTS – ALL YEAR ROUND

Australia provides reliable and premium quality supply in the northern hemisphere off-season. The Australian tree nut crop is timed perfectly to supply northern hemisphere markets for the critical Christmas/religious festivals trade, a shipping schedule that challenges northern hemisphere competitors. The benefit for the international nut trade and consumers is that they now have access to a ready supply of fresh nuts all year round.

CLEAN, GREEN AND SUSTAINABLE

Consumers today not only want foods that are of good quality, but also that have been produced safely and sustainably. Australia is recognised internationally as a 'clean and green' producer, often more so than other nut producing countries. This reputation is constantly being safeguarded by attention to biosecurity and environmental issues by both governments and growers. It is a powerful marketing point of difference.

TOP QUALITY FROM TOP GROWERS AND PROCESSORS

Australian tree nut growers are producing some of the best quality nuts in the world from farms big and small across the nation. All are highly regarded for their freshness, flavor, taste and quality.

Australian processing systems are considered world class and help provide consumers with the confidence that Australian nuts are safe and reliable. Investment in technology and infrastructure means processors are now at the leading edge in world's best practice in cracking, shelling, sorting, grading, scanning, packing, tracking and delivery. They are now also innovating to expand markets through the processing of value-added products.

INVESTMENT IN RESEARCH, DEVELOPMENT AND EXTENSION (RD&E)

Australian growers are at the global forefront for efficiency of inputs, nut yields per hectare and quality – results of their ability to adopt the very latest innovations and practices in production.

Investment in RD&E across all sectors of the tree nut industry is significant, resulting in world leading practice in new varietal development, water efficiencies, nutrition, biological controls, harvesting and post-harvest. The understanding and practice of growing high quality nuts in Australian conditions is constantly improving.

The nut industries have utilised the Australian Government RD&E and marketing levy models in partnerships which have assisted in the rapid growth in productivity and export earnings over the last decade. For example, tree nut industries have been long term active partners with Australia's research and development corporations like Hort Innovation and AgriFutures Australia.

EXPORT FOCUSSED

Due to Australia's relatively small population, farmers here are acutely aware of the need for, and needs of, export markets and the importance of supplying reliable lines of high quality product.

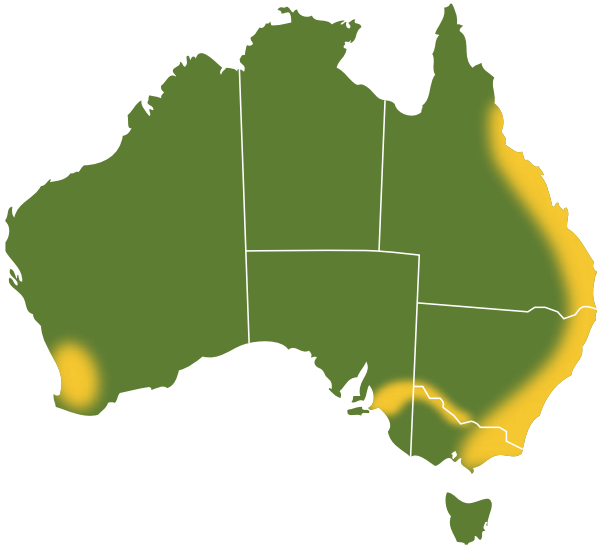
STRONG LEADERSHIP

Australia's tree nut industries have strong, well-organised industry associations which support growers in delivering RD&E and marketing initiatives, as well as providing informed representation and advocacy. All have a focus on ensuring growers have the best advice, as well as working to expand markets, both domestically and overseas.

The Australian Nut Industry Council works collectively with government at a national level to help development international markets further.

Field days in each tree nut industry allow growers and suppliers to industry to share ideas like the use of aerial drops of pheromones to attract bees for pollination

Growth continues
~ *for Australian tree nuts*



The Australian tree nut industry is a national success story in Australian agriculture. The farm gate value in 2025 was over AU$1.58 billion, making the industry not only a significant contributor to the Australian rural and regional economies, but also contributing more than a third of Australia's horticultural exports.

Just in the last five years the industry has seen significant new plantings across all tree nuts, particularly in almonds and macadamias. With a lead time of 5-10 years, this expansion is likely to push the farm gate value to well over $1.75 billion by 2030.

Tree nuts have been grown in Australia for over 100 years and productivity has never been higher. With gross revenue per hectare ranging up to $30,000, this is accompanied by economic returns to the community that are 10 to 20 times higher than the return from traditional row crops. It is not surprising therefore that across Australia the industry is seeing growers changing from their existing crops to tree nuts.

Strong markets, sound business models and free trade agreements with key export nations have led to the development of a maturing nut industry. By 2030 the macadamia industry is predicting an increase in production area to 57,600 hectares. Similarly almond production is forecast to increase to 170,000 hectares.

All tree nut sectors in Australia are growing. Pistachio's are predicted by 2030 to have 4,500 hectares in production which is a 500% increase since 2011. With walnuts increasing by 72%, pecans 85% and, chestnuts 45% with hazelnuts rebounding to 2021 levels.

The expansion of the nut industries generates flow-on business to associated sectors such as input suppliers, beekeeping, plant nurseries and local economies. Employment opportunities in the tree nut industry and supporting sectors remain strong.

The nut sector has sustained growth in domestic consumption of 5.6% year on year over the last 20 years. The industry retail value of the domestic market exceeds $1.5 billion per annum (2025).

On the export front in 2025 almonds, macadamias, walnuts, pecans and chestnuts exports to more than 65 countries totaled nearly $1.6 billion.

Almonds and macadamias are in the top four of Australia's most valuable horticultural export commodities with almonds coming in at number one.

Export sales of tree nuts increased to $1.2 billion in 2025 and continues its growth with new markets.

Australian nuts attract a premium in markets that appreciate food safety, product quality and reliability of supply chains.

Overseas buyers recognise Australia as the source of premium quality nuts, which are especially prized in the northern hemisphere. The industry is focussed on developing programs to ensure market opportunities are maximised both domestically and internationally and is working closely with government to develop new markets overseas.

Driving all activities across the tree nut industries is a commitment to sustainability. Research and development is paramount, growers are committed to better practice whether it be related to plant biosecurity, environmental issues such as water efficiency and climate change, and the social licence of communities in which they operate.

The potential for large economic losses from these threats are exacerbated because of the longevity of production within tree nut crops (25 to 100 years) in comparison to those industries with shorter production cycles (annual and biennial crops). Programs that protect the long-term investment of the tree nut industries from these risks are continually being updated and need to feature strongly in government policy.

Pistachio plantings are expected to increase to more than double by 2030.

Sustainable, in every way

Sustainability has been, and will continue to be, an ongoing commitment for the Australian tree nut industry.

Growers, processors and marketers are committed to best practice in the ways they do business and sustainability is critical to the industry's continuing success. Sustainability is now expected worldwide – by consumers, investors and governments.

The concept reaches into every part of the Australian tree nut industry. Growers are committed to using water as efficiently as possible, reducing impacts on the environment by building soil health, reducing the use of pesticides and herbicides, and recognising the social licence with which they operate in their local communities, as well as their contribution to these communities.

'Clean and green' is the advantage that Australia has in the global agricultural marketplace and nut growers realise the challenges to protect the environments in which they operate.

Considerable investment continues to be made into Research and Development programs to improve productivity through varietal development and selection, orchard management and crop protection, as well as developing new markets which will welcome the quality of Australian nuts and the safe, ethical way in which they are produced.

Much of this investment is made through Hort Innovation, a national body which works with horticulture to improve the productivity and global competitiveness of specific industries.

Australia's tree nut industries are committed to Hort Innovation's Australian-grown Horticulture Sustainability Framework, with four pillars:

- 'Nourish & Nurture' recognises the role of Australian horticultural produce in improving diets, health and wellbeing by providing safe, quality food and greenlife.
- 'People & Enterprise' identifies the strong links between the people, enterprises, communities and economic value of Australian-grown horticulture.
- 'Planet & Resources' focusses on reducing any impacts on the natural environment and on the dependence of horticultural production on resources, biosecurity and resilience to climatic variability.
- 'Less waste' is about reducing all forms of waste in horticultural production.

Within the pillars there are 17 focus areas that align with the United Nations' Sustainable Development Goals.

Goals such as 'Communities'. They are the lifeblood of Australian horticulture and the tree nut industries are part of communities in all Australian states, contributing significantly to their economic well-being, as well as that of the national economy.

Plus 'Good Health and Well Being'. Regularly eating nuts has been shown to contribute to heart health, reduce overall mortality and the risk of developing type 2 diabetes, assist with weight management, reduce the risk of cancer and contribute to good health in so many other ways. What a great attribute towards being sustainable!

'Climate action'. Nuts grow on trees – trees which capture and store a significant amount of carbon both above and below the ground over their 25 years plus lifecycle. Another tick on the sustainability framework.

ANIC is also a member of INC – the International Nut & Dried Fruit Council – which is committed to sustainable growth in the global industry. It has identified nine of 17 Sustainable Development Goals set by the United Nations that the nut industry can help achieve by 2030.

Best practice is all about continuous improvement – doing things better and sustainably, so that in 2030 the Australian tree nut industry will be the best it has ever been, in every way.

Sustainability will contribute to the vision that not only will Australia's tree nut industry surpass a value of $2 billion by 2030, but it will be in great shape for the future beyond.

Research at the Mildura Smart Farm is utilising drones (foreground) and also LIDAR which is used in mapping orchard canopy, flowers, fruit and yield.

Australian tree nut industry
~ *growing stronger*

Capital and expertise have combined to drive the expansion of area under nut cultivation in Australia. The industry is now a mixture of large 'corporate' farms and medium to small-sized family farms. Average farm size continues to rise.

Tree nut production in Australia is dominated in scale by almonds and macadamias. Almonds represent more than 50% of the total area planted and the tonnage produced. The macadamia, Australia's iconic native species, accounts for approximately one third of both area planted and tonnage produced.

Since 2011 the total area planted has increased by 240% to 124,000 hectares in 2025. Additionally farm gate value has increased to $1.58 billion an increase of 480% since 2011 with further plantings and farm gate value forecast to increase to $1.75 billion by 2030.

Tree nuts continue to provide an attractive alternative to the traditional but lower value Australian crops under pressure from overseas competitors. Nut growing converts land from these other crops with relatively lower financial returns per hectare to intensive crops with a high return per hectare of land and per megalitre of water.

Tree nut industries require long-term investment in capital, technological skills and research, development and extension (RD&E). With the support of RD&E funding from the Australian Government and our own nut industry levies, Australia is now producing some of the highest nut yields per hectare in the world. Long-term breeding programs aimed at improved varieties are also in place.

A foundation for the industry's growth has been widespread adoption of global best practice by growers, who have successfully adapted this knowledge to Australian conditions. Advanced production systems with new tree architecture and harvesting methods are addressing the challenges of growing in semi-arid environments. Industry led RD&E programs are developing new varieties to increase the productivity and resilience of nut trees, while investment in irrigation technology is achieving higher water use efficiency (returns per megalitre of water applied are up to $3,000).

The Australian tree nut industries are widely respected around the world for their knowledge and culture of innovation. Australia enjoys a reputation across the world for unsurpassed food-safety and environmental standards. Our relative isolation has generally provided Australian agriculture with a pest and disease-free environment, but biosecurity remains a critical factor in ensuring this continues.

The tyranny of distance generally means that most agricultural commodities carry a high export freight cost to our major markets. By contrast, the high value of nuts compared to most broadacre crops means the freight cost is a small component.

From orchard to processing to value adding, the Australian tree nut industry has excelled. Underpinning this success are many factors including adaption to a variety of climatic and agronomic zones, excellent infrastructure and processing systems, investment in RD&E and skilled growers and advisors.

AREA PLANTED, PRODUCTION AND FARM GATE VALUE OF AUSTRALIAN TREE NUTS (ACTUAL/FORECAST)

Area Planted, ha	**2011**	**2021**	**2023**	**2024**	**2025**	**2030**
Almonds	26,944	60,000	64,192	66,000	66,000	66,000
Macadamia	18,000	36,000	41,703	44,135	46,000	52,400
Walnuts	2,790	4,100	4,300	4,100	4,200	4,800
Pecans	1,400	2,115	2,115	2,165	2,265	2,600
Chestnuts	1,240	1,500	1,480	1,500	1,600	1,800
Pistachio	900	1,900	2,500	3,000	3,250	4,500
Hazelnuts	140	2,750	2,750	600	800	2,200
Total hectares	**51,414**	**108,365**	**119,040**	**121,500**	**124,115**	**139,500**

Production, tonnes	**2011**	**2021**	**2023**	**2024**	**2025**	**2030**
Almonds, kernels	37,626	124,000	110,707	153,550	140000	170,000
Macadamia, kernel equivalent	8,978	17,388	17,646	19,669	20,400	34,000
Walnuts, kernel equivalent	1,728	6,500	3,600	5,800	5,200	6,000
Pecans, kernel equivalent	1,540	1,620	1,850	1,900	2,000	2,300
Chestnuts, inshell	1,100	1,300	1,255	1,078	1,200	1,600
Pistachio, inshell	1,100	3,000	1,400	4,400	1,800	12,000
Hazelnuts, kernel equivalent	32	400	580	544	600	1,800
Total Production, tonnes	**74,560**	**195,434**	**137,038**	**186,941**	**171,200**	**227,700**

Farm Gate Value $m	**2011**	**2021**	**2023**	**2024**	**2025**	**2030**
Almonds	$188	$882	$642	$998	$1,218	$1,105
Macadamia	$88	$287	$104	$202	$240	$400
Walnuts	$14	$66	$20	$41	$44	$50
Pecans	$19	$13	$18	$23	$24	$28
Chestnuts	$9	$10	$10	$8	$10	$14
Pistachio	$11	$33	$18	$49	$36	$110
Hazelnuts	$0	$12	$7	$6	$8	$24
Total $m	**$329**	**$1,303**	**$819**	**$1,327**	**$1,580**	**$1,731**

Growing domestic consumption

Healthy eating trends and increasing consumer support for Australian 'clean and green' grown produce are driving sales of tree nuts in Australia.

The marketing investment by industry has also contributed greatly to the consistent growth in domestic consumption of tree nuts through direct promotion and marketing programs.

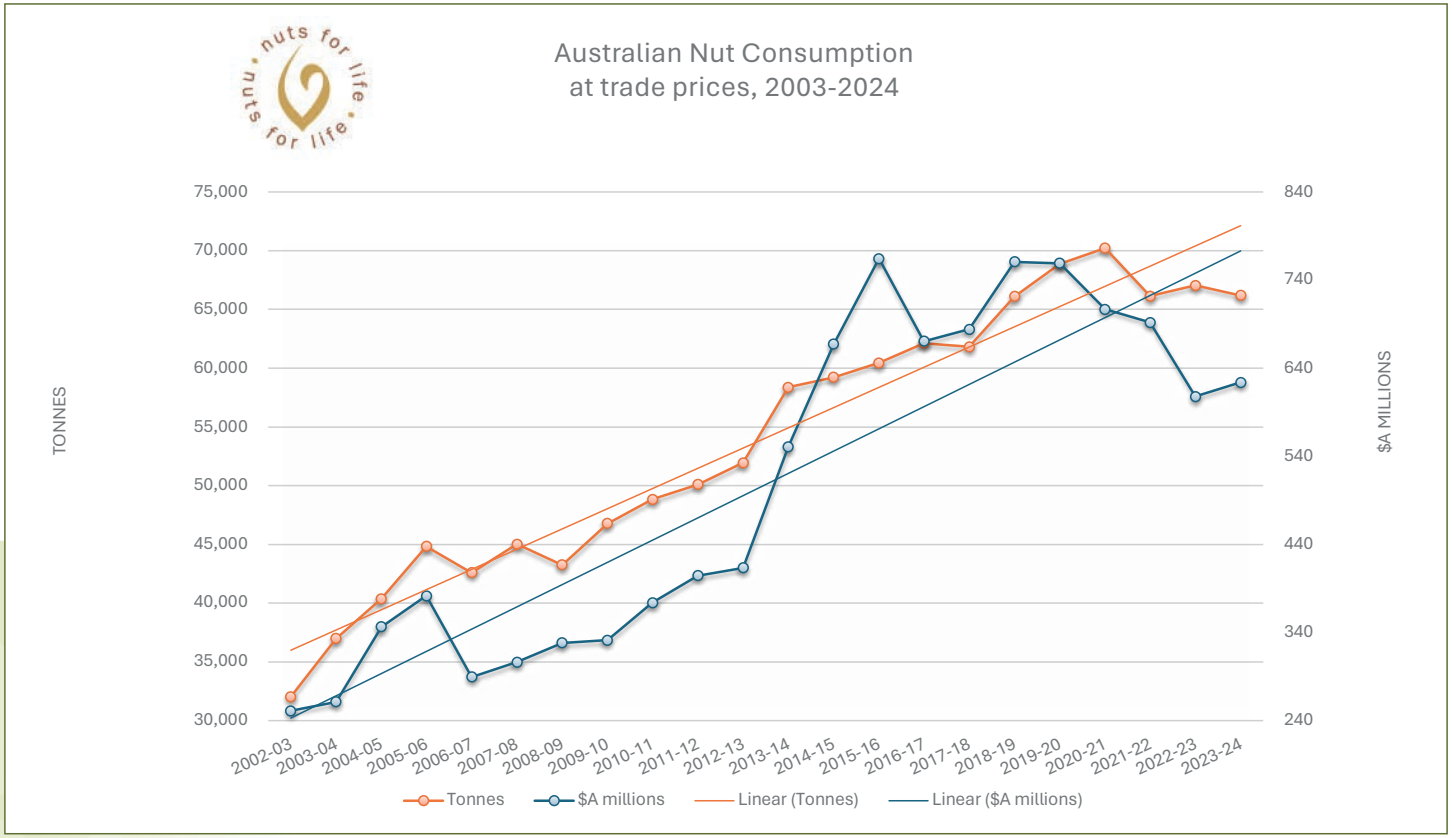
The Nuts for Life program, facilitated by the Australian Nut Industry Council (ANIC), in partnership with Australian nut industry members, is responsible for communicating the health benefits of nuts, with the aim of growing nut consumption amongst Australians.

The program, now in its 21st year, is partially funded by voluntary contributions from all sectors of the nut industry supply chain – a testament to their commitment to the Nuts for Life program.

Australian nut consumption (at trade prices) has more than doubled since 2002-3, reaching over 70,000 tonnes in 2021, and falling marginally to 66,187 tonnes in 2023-4.

The Australian nut crop is heavily consumed in local markets and any shortfall between domestic demand and available supply is met by imports. The almond, macadamia, walnut and pecan industries have all been developed with a strong international focus and are increasingly exporting as their production bases grow.

With domestic consumption over 70,000 tonnes in 2020-21 this would value the sales on current trade prices at over $700 million, or an estimated retail value of $1.5 billion.



Source: Nuts for Life

Nuts and health

Nuts have earned their place as an important food within healthy dietary patterns, thanks to the significant role they play in delivering essential nutrients, and decades of research highlighting their positive health outcomes.

Nuts are nutrient powerhouses – providing unique combinations of essential nutrients and bioactive compounds. They are rich in plant-protein, healthy unsaturated fats (mono- and polyunsaturated fats, including omega-3 fatty acids), and dietary fibre. They also contain vitamins (e.g., folic acid, niacin, vitamin E, vitamin B6), minerals (e.g., copper, magnesium, selenium, phosphorus, potassium and zinc), and bioactive compounds such as antioxidants, phytosterols and other phytochemicals. Nuts are cholesterol- and gluten-free, have a glycaemic index lowering effect, and are naturally low in sodium and sugar.

The impact of nut consumption on health outcomes has been extensively investigated since the first known publication in 1992, which showed that eating nuts was associated with a lower risk of coronary heart disease [1]. And since then, thousands of research studies have consistently confirmed nuts' positive effect on health.

Regularly eating nuts has been shown to contribute to heart health, reduce overall mortality, reduce the risk of developing type 2 diabetes, assist with weight management, reduce the risk of cancer, improve sperm quality and cognitive function, and overall promote good health [2-5].

EATING A HANDFUL OF NUTS A DAY IS ASSOCIATED WITH:

- 25% reduced risk for coronary heart disease
  22% reduced risk of death from cardiovascular disease (CVD)
- 22% reduced risk of dying from all causes
- 21% reduced risk for CVD
- 11% reduced risk of dying from cancer [6]

Despite their energy density and high fat content, nut consumption does not lead to weight gain, and in fact, may instead support weight management. A recent study [7] showed that, compared to those eating few nuts, those who ate the most nuts had a:

- 7% reduced rate of overweight/obesity
- 28% lower risk of an unhealthy waist size
- 5% reduced risk of gaining ≥5kg.

Yet, despite their health benefits, nut consumption amongst Australians remains chronically low. Combined data show that, on average, Australians consume around 6g per day [8, 9] – far short of the public health target of 30g per day.

For the health benefits of nuts to be fully realised, there is clearly a need to find ways of enabling shifts in national dietary patterns to get more Australians eating more nuts, more regularly.

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The Nuts for Life program
~ driving nut consumption

Nuts for Life is a productive, collaborative health education project, that has added significant value to the wider nut industry over more than 20 years. Created in 2003, the program's mission is to promote regular nut consumption, by collating the latest evidence-based information, and informing Australians about the impact nut consumption has on health outcomes.

The program has built a reputation as Australia's credible voice for the vital role nuts play in good health and nutrition. And, it's played a key role in helping drive nut consumption in Australia – which has more than doubled in volume, and tripled in value since 2003, to achieve an increase of around 5% compound growth per annum.

Economic modelling, by KPMG for Nuts for Life, revealed, that increasing nut consumption among Australians from the current intake of 4.6g to 30g per day has the potential to reduce health care expenditure in Australia by at least $980 million per year.

Some of Nuts for Life's significant achievements to date include:

- The launch of the 2030 Vision, aimed at driving nut consumption
- Improved positioning for nuts in public health policy (e.g., Health Star Ratings System, and the Australian Dietary Guidelines)
- The launch of the Healthy Handful logo
- Commissioning PhD and other research projects that have advanced nut nutrition and health science
- A highly-effective website, with impressive ongoing growth in traffic
- Significantly more health professionals now recommending nuts
- Securing a general-level health claim for nuts and heart health
- Supporting industry, including through workshops and training
- Strengthened connections with the INC, International Nut and Dried Fruit Council, and securing INC dissemination grants..

Nuts for Life continues to work towards achieving three significant long-term objectives, which will drive growth and demand and will increase nut consumption amongst Australians:

1. Increase the prominence of nuts in the next re-iteration of the Australian Dietary Guidelines,
2. Gain approval for a high-level health claim, and
3. Change the narrative on nuts and weight, to reflect current scientific research.

Building support for the health benefits of nuts, as part of a sustainable food system, is crucial to the success of these long-term objectives. Consequently, Nuts for Life educates and empowers health and food service professionals (via numerous activities and channels), and engages with food and health policy professionals, to communicate the importance of a daily handful of nuts

"Nuts For Life has been instrumental in breaking through consumption barriers and educating Australian health professionals about the vital role daily nut consumption can play in human health."

Nuts for Life is facilitated by ANIC, in partnership with Australian nut industry members. The program is funded through Frontiers developed by Hort Innovation, with voluntary co-investment from the Australian nut industry, and contributions from the Australian Government.

Engaged in more than **110 health professional conferences** and events, with a **reach** of almost **80,000** health professionals

Acquired more than **4,000 subscribers** to NutENews for health professionals

Gained more than **45,000 social media followers** – across X, Facebook, Instagram, and LinkedIn

Showcased more than **200 recipes** on the nutsforlife.com.au website

Grown website traffic, to (mostly recently) achieve more than **295,000 page views** annually

Dropped over **50** podcast episodes

Made over **10 nutrition** and **health policy** submissions on behalf of industry

Trade & exports

In line with growing international consumption, tree nuts continue to perform strongly in the export sector, dominating Australia's horticultural exports.

Tree nuts account for more than a third of all horticultural exports and are consistently valued at over AU$1.6 billion (2025). Prospects for export growth are also strong.

This is largely thanks to the powerful and persistent worldwide dietary trend and a strong set of local production values that emphasise food safety and eating quality, as well as excellent social and environmental stewardship credentials.

Australia currently exports nuts to around 65 countries. The principle barriers to expanding exports are the tariffs that remain in some key existing and some potential new markets. These tariffs restrict nut consumption by increasing the price to the importing market, in some cases prohibitively.

Free trade agreements (FTAs) between Australia and Japan, China, Taiwan, United Kingdom, UAE and South Korea have seen exports of Australian-grown nuts increase dramatically to these markets in the last few years. These FTAs have led to nut tariffs being phased out in those countries. These FTA markets still offer significant potential for growth. Other markets such as India, a major nut importer, following the India Australia-Economic Cooperation Trade Agreement, has made strong progress and offers even more potential.

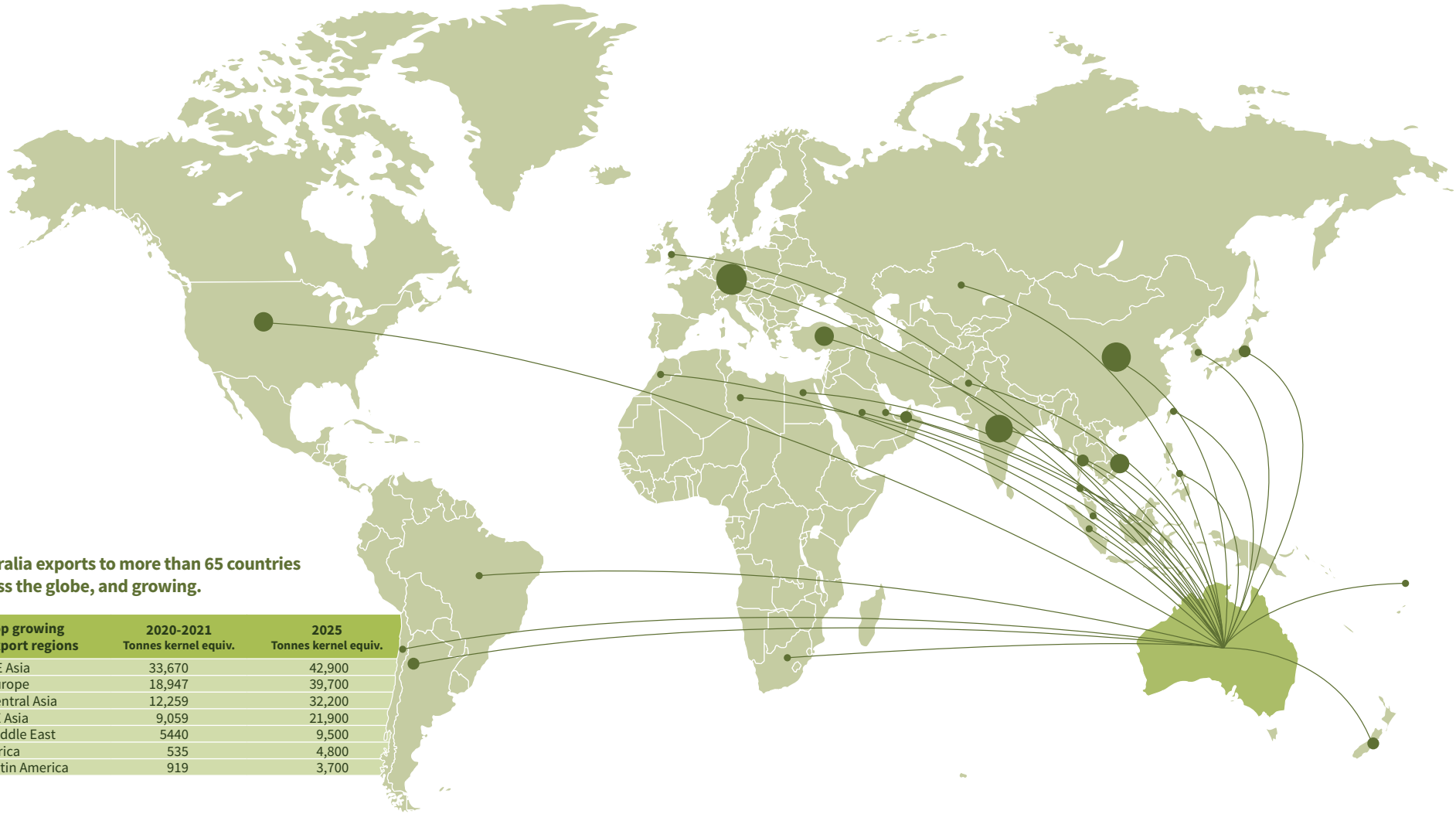
AUSTRALIAN TREE NUT EXPORT VOLUME *

Exports, tonnes (FY)	2011	2021	2024	9mths FY 2025
Almonds, kernels	24,483	98,328	126,863	126,548
Macadamia, kernel equivalent	8,905	25,004	29,870	25,647
Walnuts, kernel equivalent	1,312	5,699	991	3,433
Pecans, kernel equivalent	721	770	425	154
Chestnuts, in shell	671	1	6	1
Pistachio, in shell	300	622	596	2,817
Hazelnuts, kernel equivalent	-	6	2	72
Total exports, tonnes	**57,069**	**130,339**	**158,692**	**158,672**

*Data sourced from the ABS as of March 2025.

The development of export markets is supported by Australian tree nuts being present at major international trade shows.

AUSTRALIAN TREE NUT EXPORT MARKET 2025



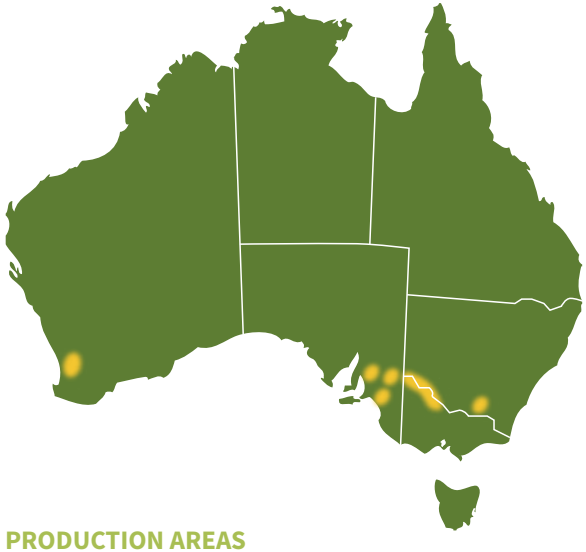
Australia exports to more than 65 countries across the globe, and growing.

Top growing export regions	2020-2021 Tonnes kernel equiv.	2025 Tonnes kernel equiv.
NE Asia	33,670	42,900
Europe	18,947	39,700
Central Asia	12,259	32,200
SE Asia	9,059	21,900
Middle East	5440	9,500
Africa	535	4,800
Latin America	919	3,700

Industry Snapshots

Almonds

Australian almonds are in demand from buyers all around the world who recognise their premium quality and the commitment of Australian almond growers to sustainable farming practices. The industry has invested significantly in added-value processing and offers an enhanced supply capability for the full valued-added range of almond products. The farmgate value of the Australian almond industry is forecast to exceed $1.4 billion by 2030.



PRODUCTION AREAS

- There are five major growing regions in Australia:
  - **Adelaide Plains* and the Riverland** (South Australia)
  - **Sunraysia** (Victoria)
  - **Riverina** (New South Wales)
  - **Swan Region** (Western Australia)
- Ownership structures are diverse with orchards owned by sole producers, family enterprises, both private and public companies, and investment funds.

CURRENT PRODUCTION

- Production in 2024 was 153,550 tonnes of kernel.
- The four major varieties grown in Australia include: Nonpareil (46%); Carmel (32%); Price (9%); and Monterey (7%) with other varieties making up the remainder. Of note is that the Monterey variety has increased its share of planting to 11%, so its share of production will similarly grow as trees mature.
- Approximately 56% of almond production (kernel) comes from Victoria's growing regions, followed by 19% from South Australia, 24% from New South Wales and less than 1% from Western Australia.

* Increased production capacity of value-added almond products such as almond meal, slivered almonds, flaked almonds, almond paste and almond butter position the Australian almond industry to help their customers grow with innovative solutions.

INDUSTRY POTENTIAL

- The industry continues its growth trajectory in production based on the new plantings over the past five years. The Australian almond crop is forecast to grow from 153,000 tonnes in 2024 to 170,000 tonnes in 2026. As ongoing new plantings are expected to plateau, the crop is forecast to plateau at this level as replanting on significant acreage takes place.
- Global consumer demand for almonds remans strong as the supply-demand balance returns to a more viable equilibrium. The world's major producing region, California, has also seen production level out after several years of below cost returns. Consumer demand, while taking some time to grow in alignment with this increase, is reaching up to the supply line. With the pressures of regulation around water use impacting confidence in California, global supply is expected to steady over the short to medium term.
- Demand is being driven by improving living standards in major export markets, the range of new food products using almonds as an ingredient and the increasing consumer awareness of the health benefits of almonds

MARKETS: PRESENT AND FUTURE

- The mainstreaming of plant-based foods across the globe has elevated the demand for almonds. The versatility and health benefits of the almond as an ingredient continues to drive consumption as the diets of many seek alternative protein sources. As the Southern Hemisphere's largest almond producer the growth of the Australian almond industry in both its kernel and value-added almond range means that it is a reliable supplier for 12 months a year.
- From an export perspective, Australian almonds are being chosen as a trusted brand in more than 50 countries which highlights a well-diversified market reach. The short to mid-term challenges for meeting demand will be significantly influenced by overcoming the ongoing global sea freight congestion.
- Almonds continue to be Australia's most valuable horticultural export product.
- While the Free Trade Agreement with China encouraged increased shipments, the Australian almond marketers remain close to their customers in the key established markets of Europe, India and the Middle East. All these core markets are experiencing growth as Australian almond exports move into multiple sales destinations.
- Marketing and promotion programs funded by industry levies in the US and Australia have been effective in increasing their respective domestic per capita consumption and targeted overseas market development.

COMPETITIVE ADVANTAGES

- Australian orchards produce the same varieties as the California almond industry, providing a reliable alternative sourcing option. Give the shipping constraints, procurement teams are spreading their risk and sourcing wider than ever before to minimise the risk of inventory shortfalls.
- Counter-seasonal production to California provides buyers with fresh product and often greater access to kernel sizes that are so popular with retailers and the premium end of the market.
- Superior crack-out rates (in-shell to kernel ratio) is significant in markets preferring in-shell product.
- Free Trade Agreements in Asia (eg: China, India and South-East Asia).
- Australia's geographic proximity to expanding Asian markets.

Chestnuts

The Australian industry processes in a limited capacity; Chestnut flour, purée products and some beverages. These value added products are being successfully marketed within Australia, but there is opportunity to expand the value-added space nationally and internationally.

PRODUCTION AREAS

- The Australian chestnut industry operates in the southern states of Australia, including

  NSW: Around Orange, Southern Tablelands, Blue Mountains and Batlow

  Tasmania: Northern and Central

  Victoria: North-east and Central; East of Melbourne

  South Australia: Adelaide Hills

  Western Australia: South-west
- Approximately 70% of the national crop is grown in north-east Victoria.
- The main varieties grown are Red Spanish, Purtons Pride and De Coppi Marone. Chestnuts flower during November and December and are harvested from March through to May.
- Many chestnut orchards are small family-owned orchards, but there are several large-scale commercial plantings and the average size of new orchards is increasing.

CURRENT PRODUCTION

- In 2024, chestnut production was valued (farm gate) at $8.2 million based on a production of 1,100 tonnes in-shell.
- In 2024 the industry comprised around 310,000 chestnut trees grown on approximately 1,500 hectares. The industry estimates that with more trees being planted, farm gate value will increase to approximately $12 million by 2025.
- The industry is primarily focused on the domestic market with approximately 2% exported, mainly to Asian markets.
- Production, based on a 2-year average, is about 1,167 tonnes in-shell a year of fresh chestnuts. (2023 - 1,255 tonnes and 2024 - 1,078 tonnes.)

INDUSTRY POTENTIAL

- Chestnut production is expected to increase to 1,400 tonnes in-shell by 2025 (subject to climatic conditions) as young orchards come into production.
- New varieties and improved orchard management techniques have reduced time to bearing and resulted in increased nut yield, nut size and ease of peeling.
- Some chestnuts are handpicked but more growers have moved to being fully mechanised as a result of development of new harvesting machinery.
- Growers continue to plant and re-work older trees to more consumer-friendly varieties.

MARKETS: PRESENT AND FUTURE

- Chestnuts are highly valued in Europe, the USA, Japan, China and Korea.
- Most growers sell their crop through the fresh wholesale markets.
- Current chestnut consumption in Australia is estimated at 1,300 tonnes in-shell, which is satisfied by domestic production.
- Small quantities of fresh and frozen peeled chestnuts are mainly exported to South East Asian countries.
- The Australian industry continues to develop new processing techniques for frozen peeled chestnuts, chestnut meal, flour and puree products. These value-added products are now being successfully marketed locally and overseas and have the potential to expand the overall market for chestnuts.
- The chestnut industry is seeking new export markets for fresh and frozen peeled chestnuts to sustain increased production.
- Nut size is important in the fresh chestnut market and new pruning techniques have enhanced this quality.

COMPETITIVE ADVANTAGES

- Australian chestnuts are fresh in the northern hemisphere off season and are highly regarded in Japan for great flavour and quality appeal.
- With the exception of New Zealand, importing fresh chestnuts into Australia is prohibited.
- Australia is free from insect pests such as the Chestnut Gall Wasp and Chestnut Weevil.
- Australia's pest-free status means chestnuts are produced without insecticides.
- The Eradication Program for Chestnut Blight that was undertaken by Chestnuts Australia Inc in partnership with Agriculture Victoria has moved to an industry managed program. While this fungal disease has devastated orchards and native forests overseas, it is under control and regular surveys aim to eradicate it completely.
- The Australian chestnut industry is consumer focused and the latest tree varieties being selected are based on ease of peeling and superior flavour. Overseas, yield is generally given a higher priority than eating quality in varietal selection.

Hazelnuts

The industry is set for rapid expansion. As young orchards come into commercial bearing, the industry estimates hazelnut production by 2023 will be 2,200 tonnes of kernel (5,500 tonnes in-shell) with a farm gate value of $40 million.

PRODUCTION AREAS

- Hazelnuts are mainly grown in the temperate areas of south-eastern Australia. Main production regions are the Central Tablelands of New South Wales around Orange, Narrandera, and northeast Victoria around Myrtleford. They are also grown in central and eastern Victoria and increasingly in northern Tasmania. There are small levels of production in Queensland, South Australia and Western Australia.
- Many hazelnut operations are small orchards of up to 6,000 trees although this is slowly changing with the average size of new hazelnut orchards increasing and more productive varieties being planted.
- Most orchards are family operated enterprises. Hazelnuts generally take seven to 10 years to come into commercial production.
- The major on-farm investment in hazelnuts is being undertaken by current growers and investors but there are opportunities for long-term investment by new entrants.

CURRENT PRODUCTION

- In 2024, hazelnut production was valued at $5.5 million (FGV). There is approximately 600 hectares planted to hazelnuts, consisting of around 120,000 trees with approximately 60% in production and 40% new plantings.
- Production is currently about 200 tonnes of kernel equivalent (550 tonnes in-shell), which will increase dramatically as recently planted orchards begin producing commercial quantities.
- Hazelnuts production thrives in temperate regions including Tasmania and the cooler, higher altitude regions of Victoria and New South Wales.
- During 2023/34 Agri Australis (Ferrero) removed 950,00 hazelnut trees across 1,900 hectares from their orchard in Narrandera, NSW and sold the property.

INDUSTRY POTENTIAL

- The industry is set for rapid expansion with a further 220,000 trees being planted by 2030. As young orchards come into commercial bearing, the industry estimates hazelnut production by 2030 will be 2,200 tonnes of kernel equivalent (5,500 tonnes in-shell) with a value of $20 million (FGV).
- Growth in hectares under production is also expected as farmers look towards increased crop diversity.
- Recent research highlights that plantings in warmer regions will only be successful with new low-chill requirement varieties that are suited for warmer temperatures.
- Interest in growing hazelnuts in Australia is increasing with a key driver being the opportunity to offer fresh Australian hazelnuts to the domestic consumer. As more production comes on-stream, Australian hazelnuts will increasingly become an import replacement crop for restaurants, premium quality confectioners, patisseries and 'foodies'.
- In 2024 AgriFutures Australia in partnership with Hazelnut Growers of Australia Inc launched a new $2 million R&D program being led by Charles Sturt University. The program includes up to 10 separate projects to be conducted across a 5-year period.
- A 'consortium' of growers and nurseries have recently imported new varieties from Chile with the objective of broadening the genomic base of plant material.

MARKETS: PRESENT AND FUTURE

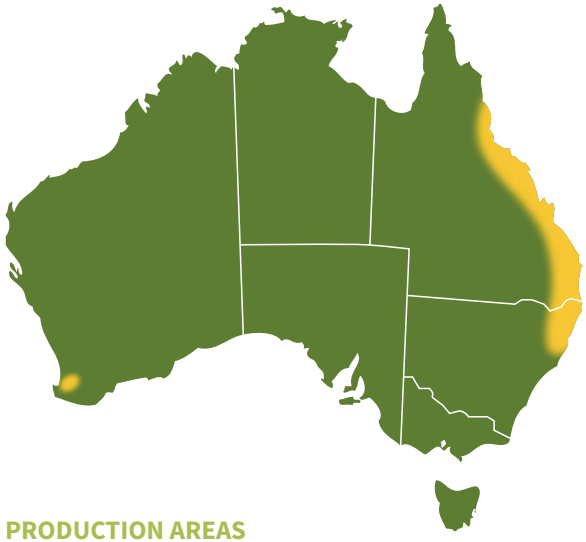
- Current domestic consumption of Australian hazelnut kernel equivalent is relatively small at about 160 tonnes (400 tonnes in-shell) a year. Domestic consumption of imported hazelnut kernel is 1,800 tonnes, equivalent to 4,500 tonnes in-shell.
- A major hazelnut cracking and processing facility has been established in North East Victoria with the broad objective of servicing small growers with a single processing and sales structure.
- Australia imports 3,500 tonnes of hazelnut product primarily from Turkey each year and mainly as kernel which is generally used by mass market confectioners.
- Australian hazelnuts in-shell are sold at farmers' markets, fruit shops, health food shops and co-operatives. There are several boutique cracking facilities producing kernel which is sold through the internet, at farmers' markets and to confectioners and patisseries. Some producers value-add to their kernels by making confectionery and health food products, hazelnut oil, flour and meal.
- Locally grown kernels receive a price premium and are sought after by restaurants, confectioners and patisseries because of the fresh taste of the local product compared to imported kernel.
- Demand for hazelnuts is increasing globally and as awareness of the health benefits of including nuts in the daily diet grows, consumption continues to increase.
- There is potential for exporting in-shell to Asian markets where foodstuffs produced under high safety standards are preferred.
- Between 2,500 and 3,000 hectares of well-managed plantings would meet Australia's current and future requirements.
- There is also potential to provide fresh, high-quality counter seasonal product to northern hemisphere markets.

COMPETITIVE ADVANTAGES

- Australia is free from Eastern Filbert Blight, a serious disease affecting the industry in the US.
- Because of the absence of serious pests and diseases in Australia, hazelnuts are produced with little use of herbicides and pesticides and some organically certified hazelnuts are now being produced in Australia.
- Australian production is well supported by research, leading to improved, more efficient and sustainable production systems.

Macadamias

By 2030 Australia will have about 52,400 ha planted to macadamias, with kernel production greater than 34,000 tonnes (100,000 tonnes in-shell) and an export value of over $600 million.



PRODUCTION AREAS

- Macadamias are grown along the eastern seaboard of New South Wales and Queensland, from Port Macquarie in the south, through to the Atherton Tablelands in the north. 70% of the Australian crop is produced in QLD and 30% in QLD.
- Production has expanded most rapidly in Bundaberg (QLD), with the region now accounting for over 50% of production.
- Ownership structures are diverse and comprise a combination of family-owned orchards, first time farmers, agri-business corporates and international and joint venture investments. The scale of new plantings is increasing significantly.

CURRENT PRODUCTION

- Production in 2024 was 57,850 tonnes @ 10% in-shell. Total area under macadamia production in 2024 was 44,129ha, of which 32,716ha is bearing.
- Production for 2025 was originally forecast to be 60,000 tonnes in-shell. However due to exceptional weather conditions, this was downgraded mid-season to 42,500 tonnes in-shell. A return to the previous growth trajectory is expected in 2026.

INDUSTRY POTENTIAL

- The industry is in the middle of its fastest growth since the early1990s. There are new plantings in established regions such as the northern rivers of NSW and Bundaberg in Queensland. New plantings are also occurring in Rockhampton, Mackay, Maryborough and Emerald (Qld), and the Richmond Valley (NSW). Bundaberg became the single largest growing region in 2016.
- The recent resurgence in new plantings has seen over 10,000 ha established in the last five years. Of these recent plantings, about one third are yet to reach full production.
- By 2030 about 52,400 ha will be planted to macadamias with kernel production of over 34,000 tonnes, or 100,000 tonnes in-shell. Export value is expected to exceed $600 million.
- Global production is expected to double by 2030 and global demand remains strong. Consumption is increasing as interest in healthy foods and awareness of the versatility of tree nuts rise. With continued investment in demand stimulation from both the Australian macadamia industry and the World Macadamia Organisation, it is anticipated that demand will keep pace with the increase in global supply.
- In recent years, the in-shell market has grown rapidly consuming up to 50% of global production at its peak. The kernel markets in Asia remained strong. The Europe kernel market has returned to growth and the macadamia industry is making inroads into the emerging market of India. Other major nut consumer markets such as Indonesia, and eastern Europe remain as yet undeveloped.
- Macadamias currently represent around 2% of the world trade in tree nuts. As both awareness and production increase, the Australian Macadamia Society predicts continued growth in the industry.

MARKETS: PRESENT AND FUTURE

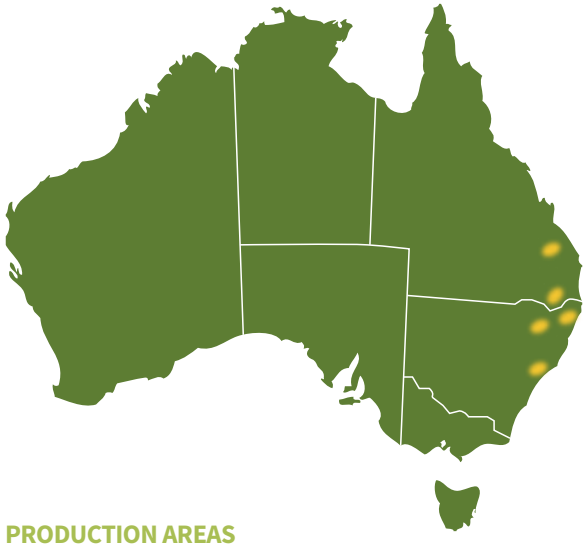
- Over 30% of Australian macadamias are sold in-shell, mainly to China where consumers favour in-shell product over kernel. They are flavoured and cut to allow hand cracking with a key.
- Approximately 70% of Australian macadamias are sold as kernel. Kernel is processed for snack food lines and as an ingredient in confectionery, cereals, ice-cream and bakery products. There is also a growing market for food oil and beauty products such as moisturisers and hair care.
- The domestic market consumes over 30% of total production, 99% of which is sold as kernel.
- Over 7,000 tonnes of kernel were exported in 2024 and over 20,000 tonnes of in-shell. This represented about 75% of total industry production and had a value of $226 million.
- Asian markets are showing the greatest growth driven by increasing trade interest and consumer awareness. In the last few years new market development campaigns have supported the product in China, Taiwan, Korea and India.
- Consumption of macadamias is increasing in India and this market is expected to grow significantly over the next 5 years.
- Promotion of health benefits is a support driver of demand and, combined with new market penetration, is expected to underpin further industry growth.
- Consumer insights research indicates there is considerable opportunity to leverage macadamias' unique attributes to elevate products and brands and remove barriers to consumption.

COMPETITIVE ADVANTAGES

- Macadamias are the only Australian native food plant to be widely traded internationally.
- Australian farms and processors have high product standards, with a demonstrated capacity to produce superior kernel.
- Through the Australian Government's National Residue Survey, the Australian macadamia industry can demonstrate 25 years of 100% compliance with all relevant standards.
- There is a strong financial commitment to domestic and export market development and on-farm research funded by a compulsory grower levy on production. The industry currently spends about $2.2 million annually on research and development and around $2.5 on marketing efforts.
- Australia holds the only natural germplasm resources for macadamias and has spent over $10 million over the last ten years on a comprehensive breeding program. The first new varietal releases from the program occurred in 2018, and early indications are that yield increases of 30% are possible.
- The industry has a strong representative body, the Australian Macadamia Society, which is driving further industry and export development.

Pecans

Production of Australian pecans is set to continue over the next decade with more plantings and trees reaching maturity. The crop is counter-seasonal to the northern hemisphere so fresh Australian pecans can be shipped into major markets in the pre-Christmas season and, importantly, in time for the Chinese New Year.



PRODUCTION AREAS

- The majority of the Australian pecan crop is produced under irrigation in the Gwydir Valley, east of Moree in northern inland New South Wales.
- Smaller scale production in New South Wales extends from the Hunter Valley and Nelson Bay on the Central Coast, to the Mid North Coast near Kempsey, and the North Coast around Lismore, and Tamworth.
- Pecans are also grown in Central Queensland around Mundubbera and Eidsvold, in the Southeast in the Lockyer Valley, and south to the NSW border.
- Small plantings also exist in South Australia and Western Australia.

CURRENT PRODUCTION

- The area under pecan orchards nationally is currently 2,165ha producing approximately 3825 tonnes nut-in-shell (1900 tonnes of kernel equivalent).
- With pecan trees taking 10 years or more to reach full production there is a substantial lag time before new plantings impact crop size. After a long period of stagnation, production increases are now happening.
- Global production remains concentrated in US and Mexico which together account for 87% or more of the world crop. South Africa continues to expand production (currently at about 8% of global production) with small but significant crops also to be found in Central and South America.

INDUSTRY POTENTIAL

- The 'Trawalla' orchards, established on an original 700ha by the Stahmann family in the early 1970s and further expanded in the years since, remains the major large-scale orchard in Australia. A number of new, smaller orchards have been planted in recent years and are now adding to production figures.
- A further 430ha, representing these new orchards, together with recent plantings by Stahmann Webster, will result in an increase in production by 2030 to 4600 tonnes (nut in shell)/2300 tonnes (kernel). More pecan developments are expected in coming years, by both existing growers and new entrants to the industry, further increasing future production.
- Pecans are extremely long-lived and remain highly productive for more than a century, making them a genuine long-term investment.
- Given the long-term nature of the industry, taking 10 years before trees reach full production, orchards are developed with sustainability initiatives in mind. The use of underground irrigation and PLC-monitoring systems maximises water use efficiency. Increased biosecurity protocols also reduce the risk of crop loss.
- The impacts of climate change have resulted in improved crop monitoring to minimise loss in extreme climate events.
- Ever-increasing input costs have resulted in farmers adapting to reduce these costs to maintain profitability. The use of solar systems for power generation, targeted chemical applications, and computer-monitored irrigation are some of the initiatives operating.
- New orchards are trending toward closer tree spacings from the standard 200 trees/ha up to 360 trees/ha to maximise production and reduce the overall footprint of the orchard while still maintaining yield.
- An increasing number of orchards are becoming Organic Certified.

MARKETS: PRESENT AND FUTURE

- The bulk of Australian production is sold as kernel for domestic consumption with distribution split between retail and manufacturing channels.
- Stahmann Webster operates Australia's largest pecan processing plant in Toowoomba, Queensland, from which it supplies in-shell and kernel products to domestic and international markets. There are a number of other smaller processors entering the market, predominantly focussing in the Organic and Regenerative Farming space supplying domestic markets.
- Australian pecan kernel exports find their way to all corners of the globe, from North America to Europe, the Middle East and East Asia.
- Australian pecan exports are predicted to increase, given the increase in tree maturity and production, however tariffs may curtail exports in the shorter term. Export value in 2024 was $4.6m (from a total production of $23m), expected to rise to $6m in 2030.
- Pecans constitute less than 5% of world tree nut trade and their consumption is still mainly concentrated in the US, where they are a native nut. However, demand in Asia, Europe and the Middle East is growing steadily. As a result, the pecan market has been strong in recent years, especially since the entry of China into the world market in the early 2000s.
- Pecans have many marketable health benefits, among which their exceptionally high level of antioxidants (one of the highest of all-natural food products) is most noteworthy.
- The Nuts for Life campaign continues to play an important role in bringing such benefits to the attention of Australian consumers, and it has been influential in continuing consumption growth in Australia.

COMPETITIVE ADVANTAGES

- Australian pecans are harvested in the northern hemisphere off-season meaning that fresh Australian product can be shipped into major markets in the pre-Christmas season and, importantly, in time for the Chinese New Year.
- The Australian pecan industry has been fortunate to remain free from troublesome scab disease which blights much of the production in the US.
- Innovative production techniques mean that the bulk of the Australian crop is grown without the use of chemical pesticides.
- Australia's clean and green image is underpinned by the robust food safety regimes required in Australia that are validated by internationally recognised QA systems. As a result, there is strong interest in Australian pecans by a health-conscious middle class that is increasing, particularly in our Asian region.

Pistachios

Australian consumption of pistachios in 2024 was 5,500 tonnes in-shell, having increased from 3,200 tonnes in 2010. This is in line with a global trend of increased plant-based food consumption in the last decade, including nuts, and the growing acceptance of the benefits to human health of nut consumption.

PRODUCTION AREAS

- The major pistachio production areas are along the Murray River Valley between Swan Hill in Victoria and Waikerie in South Australia. Further plantings are in Pinnaroo in South Australia, central west Victoria and the Riverina in NSW. There are a small number of growers in central New South Wales, southern Victoria and Western Australia though these only currently produce small yields.
- A large-scale commercial processing facility is located at Robinvale in Victoria, with a second facility built on the same site in 2024. This second plant can be expanded for the production from trees already planted during the next decade. There are also several small-scale processing plants in the production regions.
- There are 55 pistachio growers currently producing nuts. The industry includes a mix of farm sizes from 5 to 400 ha.

CURRENT PRODUCTION

- The total area under Australian pistachio production in 2024 was 3,000 hectares with a production of 4,400 tonnes. This compares with the combined production from the three major global producers (US, Iran and Türkiye) of approximately 1.3 million tonnes, US being the largest single producer of 250,000 ha currently planted and with a projected 2025 production of about 750,000 tonnes.
- Due to the alternate bearing production of pistachios, 2025 production was approximately 3,000 tonnes (off year).
- The industry is expanding, with new plantings of up to 250 hectares per annum over the next five years.
- By 2030, the area under pistachio production is expected to increase to 4,500 hectares, producing a crop of 12,000 tonnes in-shell for a farm gate value of $110 million.
- Pistachios are an attractive crop because of their hardiness in drought conditions, tolerance of poor soil and water, long tree life and resistance to common orchard pests and diseases.
- Improved orchard management and quality processing techniques have established a profitable, expanding and sustainable industry in Australia.
- Pistachio production in Australia is fully mechanised, requiring minimal labour and ensuring international competitiveness.
- The established commercial processing and marketing facility in Robinvale provides a mechanism for standardising product quality and maximising returns to growers.
- There has been further investment in the Robinvale processing plant to accommodate the increase in production with an ongoing commitment for further investment as the crop continues to expand.

MARKETS: PRESENT AND FUTURE

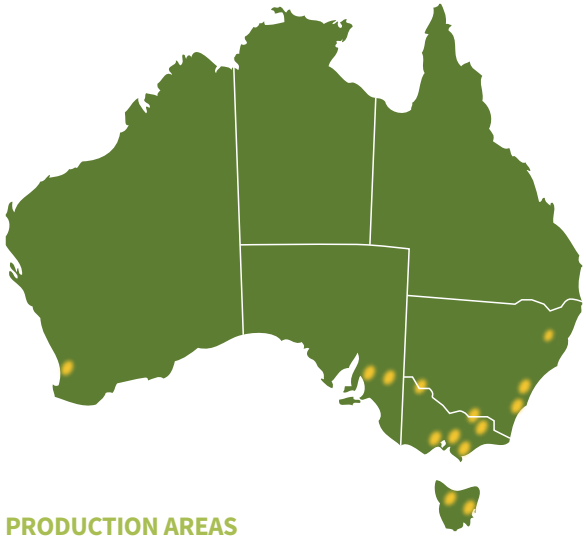
- The demand for pistachios is increasing globally and in Australia because of increased awareness of the health benefits of including nuts in the daily diet.
- Pistachios are mainly consumed as a snack food, which is a market sector that is expected to continue to grow.
- Consumption of healthy snack foods is increasing in tandem with disposable incomes.
- The market for pistachio kernels in the baking and food services sectors continues to expand steadily.
- In 2024, Australian consumption of pistachios was 5,500 tonnes a year in shell. We expect domestic production to regularly exceed domestic consumption within a few years.
- Exports of Australian pistachios are set to increase rapidly over the coming years.

COMPETITIVE ADVANTAGES

- The reputation of the Australian brand for fresh food gives a marketing advantage over others.
- Australian pistachios are harvested fresh during the northern hemisphere off-season.
- Our proximity to the Asian markets gives an access and distribution advantage.
- Pistachio crops in Australia are less troubled by pests than they are overseas. Lower chemical use reduces the cost of production and facilitates the clean, green image that the industry presents.
- Over the past 25 years the Pistachio Growers' Association Inc has led the development and administration of a wide range of research and development projects funded by industry and matching funds from the Australian government through Hort Innovation. This has enabled world quality research to be undertaken, particularly related to the Australian bred variety 'Sirora'. This research is enabling Australian producers to achieve international best practice.

Walnuts

Locally produced walnuts now supply total domestic in-shell demand, while demand is strong for good quality Australian walnuts in export markets, with about 40 – 45% of Australia's walnut production currently being exported.



PRODUCTION AREAS

- The Australian walnut industry has grown significantly in recent years due to growth in the establishment of large-scale commercial plantings. Major production areas are on the Riverina (near Griffith and Leeton) in New South Wales, the Goulburn Valley near Shepparton, the Murray Irrigation area near Kerang and Swan Hill in Victoria and near Manjimup in south-west Western Australia.
- Small scale orchards are scattered in the Ovens Valley, Gippsland and Central region of Victoria, regions within Tasmania, Southern Highlands and Central Tablelands of New South Wales and the Adelaide Hills and Riverland regions of South Australia.
- The Australian industry is a mix of small, older orchards and new, more extensive orchards. Most older orchards are family operations, with the majority of larger cultivations being managed through corporate investment structures.

CURRENT PRODUCTION

- The production of Australian walnuts in 2024 was in excess of 5,850 tonnes of kernel (12,100 tonnes in-shell). Farm-gate value was $41 million and the export value approximately $7million.
- Over 4,000 hectares representing in excess of 1.2 million mature and developing walnut trees were under cultivation in 2024. This number is expected to rise to 4,300 ha by 2023 as existing growers expand their orchards and new growers enter the industry. This expansion is expected in both existing and new regions.
- Stahmann Webster is Australia's largest walnut grower, owning and/or managing more than 3,000 ha of orchards. When mature, these orchards are expected to produce over 9,000 tonnes of kernel (18,000 tonnes in-shell) per annum.
- There are small areas of organic production mainly in Victoria and Western Australia.

INDUSTRY POTENTIAL

- Investment in new orchard establishment continues through both current enterprises and new entrants. Orchards established in the last five years have provided a firm base on which to further develop the industry.
- Investment in new processing facilities continued with a new facility built at Tatura, Victoria, in 2020 and operational for the 2021 season. This added additional processing capacity to manage future increases in production particularly in Victoria.
- New varieties and improved propagation, along with better orchard management and irrigation techniques have reduced time to bearing and increased nut yield.
- Australia is in a favourable position for walnut production across the southern hemisphere because of the suitability of climatic conditions, water, soil types and topography and capital raising ability.
- Factors that encourage investment in Australian walnut production include:
  - solid sustained growth in consumption, largely driven by the increasing awareness of the health benefits of walnut consumption;
  - the absence of most walnut pests and diseases in Australia;
  - the fact that walnuts are wind pollinated; and
  - continuing strong global demand for walnuts.

MARKETS: PRESENT AND FUTURE

- Annual domestic consumption of walnut is currently 600-800 tonnes in-shell and 4,900 tonnes of kernel (9,800 tonnes in-shell equivalent).
- Locally produced walnuts now supply total domestic inshell demand. Australian in-shell walnuts are sought by the domestic market because of their superior flavour and freshness compared to imported product.
- Most in-shell walnuts are sold through fresh produce markets and farmers markets. Walnuts are also sold through major retail chains and into the bakery and confectionery industries.
- Demand for kernel is increasing as consumers move towards year-round kernel consumption rather than seasonal walnut in-shell consumption.
- Several cracking facilities are currently operating, one of which is a state-of the-art cracking facility at Leeton in New South Wales, one in Tatura, Victoria and another in south-west Western Australia.
- Demand is strong for good quality Australian walnuts in export markets, with about 40 – 45% of Australia's walnut production currently being exported.
- Global growth in demand for walnuts has been maintained since 2011. World consumption has been increasing at a steady rate of around 4% per year. This is expected to continue with the continuing awareness of the health benefits of nut consumption. Markets are also increasing due to growing middle classes consuming more healthy foods. Domestically, appreciation for locally grown foods has increased, helped along the way by new 'country of origin' labelling laws.
- For the year ending June 2024, Australia exported 865 tonnes of in-shell walnuts (87% of walnut exports) and 127 tonnes of kernel walnuts (13% of exports), while importing 17 tonnes of in-shell walnuts (<1% of imports) and 5,400 tonnes of kernel walnuts (100% of imports).

COMPETITIVE ADVANTAGES

- Australia is a reliable exporter of off-season walnuts into the northern hemisphere.
- Although not immune to the impact of climate related challenges, Australia is free from many recognised walnut pests and diseases affecting other countries, so chemical use is low in Australian walnut production.
- Free Trade Agreements have also assisted with some growth into participating countries, breaking down some of the barriers to new market development.

REFERENCES

1. Hort Innovation Statistic Handbook…2023/24

ANIC
australian nut industry council

"Just in the last five years the industry has seen significant new plantings across all tree nuts, particularly in almonds and macadamias. With a lead time of 5-10 years, this expansion is likely to push the farm gate value to well over $2 billion by 2030."

CHESTNUTS AUSTRALIA INC.

CALL TO ACTION

RE: Proposed change to the Chestnut Statutory Levy/Charge – FORMAL VOTE

INTRODUCTION:

Back in 2019 there was a proposal to alter the Chestnut Levy/Charge that included reducing the marketing Levy/Charge to zero and increasing the R&D Levy/Charge to 7 cents per kilogram. While this proposal was supported, due to the circumstances at the time the proposal was withdrawn.

Over the past few years, the volume of Levies available across the programs has either been stable or has reduced. Much of the reduction over the past two seasons has been due to the increased crop losses through disease incidents including Chestnut Nut Rot, Chestnut Blight and Phytophthora.

Over the past two years CAI has worked to achieve maximum spending from the R&D pool on these diseases, but it has shown it to be insufficient to undertake serious and substantial research projects.

In February 2025 CAI held a grower meeting at which substantial information was presented regarding the potential management and control of Chestnut Nut Rot. At that meeting a number of Growers raised the Chestnut Levy/Charge and suggested that it should be reviewed with the aim of increasing the R&D pool.

There was general support from those in attendance that the CAI Executive Committee undertake a review and consider the options.

Members of the CAI Executive Committee discussed options with many of the larger growers within the industry.

From these discussions a concept paper was prepared and presented to the CAI Executive Committee for consideration. After long and in-depth discussions, the following motion was unanimously adopted by the CAI Executive Committee at their meeting on the 17th of June 2025

EXECUTIVE COMMITTEE MOTION:

"The CAI Executive Committee has endorsed the proposal and changes to the Levy/Charge figures prepared and presented to the Committee:

- **Total Levy/Charge being increased by 3 cents to 14 cents and that the 3 cents be allocated to R&D**

- **Marketing Levy/Charge being reduced from 5.0 cents to 2.5 cents and that the 2.5 cents be transferred to R&D**
- **The EPPRD Levy/Charge being set at zero (once the CAI Liability is paid) with the 1.0 cent going to R&D**
- **The PHA Levy/Charge being retained at 0.5 cents.**

and that the proposal be presented to ALL Australian Chestnut Growers/Levy Payers and a Vote/Ballot be conducted with Growers/Levy Payers to ultimately request support to increase the Levy/Charge and change the Split."

The CAI Executive Committee is now at the point of taking this proposal out to the Grower/Levy payers base for consideration. A formal ballot will be undertaken that will be used by CAI to undertake the next steps.

THE PROCESS OF DEVELOPING THE PROPOSAL TO PRESENT TO INDUSTRY:

The following proposal was developed from the Executive Committee Motion and is now being presented to ALL Australian Chestnut Growers/Levy Payers for consideration: -

- **Increase the overall Chestnut Levy/Charge to fourteen (14) cents from eleven (11) cents.**
- **Retain** the Plant Health Australia Levy/Charge (now the Biosecurity Activity Levy) contribution at 0.5 cents per kilogram.
- **Reduce** the Emergency Plant Pest Response Deed Levy/Charge (now the Biosecurity Response Levy) from one (1) cent per kilogram to zero (0) cents
- **Reduce** the Marketing Levy/Charge from five (5) cents per kilogram to two and a half (2.5) cents per kilogram.
- **Increase** the R&D Levy/Charge component from four and a half (4.5) cents per kilogram to eleven (11) cents per kilogram.

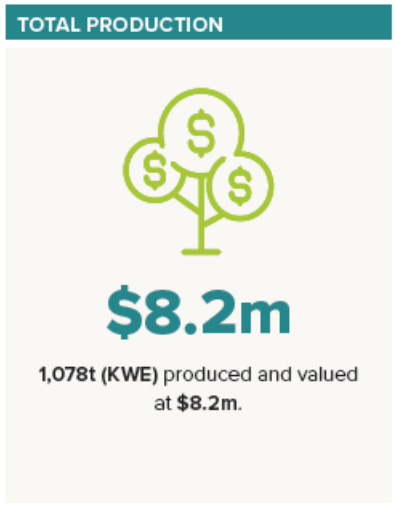
The overall objective is still 'to focus investment on key areas for the industry's future growth'
It is also important to note that the R&D Levy is only eligible for matched $ for $ funding by the Commonwealth Government which effectively doubles the amount of funding available for R&D projects.

The proposal has been constructed as a Motion for consideration by ALL Australian Chestnut Growers/Levy Payers.
What you are being asked to consider and vote on is detailed in the following table and is presented below under the FORMAL PROPOSAL section: -

Levy and charge component	Current Levy and charge rate	Proposed Levy and charge rate
EPPR (now the Biosecurity Response Levy)	1 cent per kilogram	0.0 cents per kilogram
Marketing	5 cents per kilogram	2.5 cents per kilogram
PHA (now the Biosecurity Activity Levy)	0.5 cents per kilogram	0.5 cents per kilogram
R&D	4.5 cents per kilogram	11.0 cents per kilogram
TOTAL	**11.0 cents per kilogram**	**14.0 cents per kilogram**

OVERVIEW:

Industry:
The Australian Chestnut Industry has been stagnant across many years due to a number of factors.
In 2024 the Australian Chestnut Industry produced 1,078 tonnes with a farm gate value of $8.2 million.



Over the past three years (since 2022) Australia's chestnut production has declined by 261 tonnes. This has seen a loss in GVP of approximately $2 million or 20% of the crop.
Current crop sales for 2025 show an even further decline.

YEAR ENDING JUNE	2022	2023		2024	
	Value	Value	% YoY	Value	% YoY
Production (KWE t)	1,339	1,255	-6%	1,078	-14%
Production ($m)	$10.1	$9.6	-5%	$8.2	-14%
Export Volume (KWE t)	<1	1	+83%	6	>100%
Export Value ($m)	$-	$-	-	< $0.1	-
Import Volume (KWE t)	23	2	-93%	3	+90%
Import Value ($m)	< $0.1	< $0.1	-86%	< $0.1	>100%
Domestic Supply (KWE t)	1,359	1,256	-8%	1,076	-14%
Domestic Supply Wholesale Value ($m)	$12.0	$11.3	-6%	$9.7	-14%
Domestic Supply per Capita (kg)	0.05	0.05	-9%	0.04	-17%

Sources: CAI; ABS; AC; CFVIWA; GTA/TDM; MP & DD (Freshlogic Analysis)

https://www.horticulture.com.au/globalassets/hort-innovation/australian-horticulture-statistics-handbook/hort-innovation-ahsh-2023-24-nuts.pdf

Chestnut Nut Rot is the biggest single pest/disease issue facing the Chestnut Industry and there are limited control options.
Many growers have lost over 50% of the crop across a range of varieties.

Based on some annual crop figures, as of 8th August 2025), the crop going to market from the NE region of Victoria has declined from 886 tonnes to 662 tonnes.
At an average of $6 per kg this equates to an estimated loss of $1,344,000 to growers across the each of the 2023, 2024 and 2025 seasons.
Much more product did not reach the packing line or was discarded at the packing line.

Based on the current Levy/Charge collection the ability to undertake substantial and effective research is constrained. With growers struggling with crop losses, it is important that the industry finds solutions or growers will start to exit the industry.

By taking forward a proposed Levy/Charge change the Chestnut Industry can undertake more and focussed research to ensure the industry remains viable and profitable.

Based on the proposed changes the following is a prediction as to what the Levy/Charge situation could look like

R and D Before

Chestnuts	**R&D 2023/2024** Actual	**R&D 2024/2025** Forecast	**R&D 2025/2026** Forecast	**R&D 2026/27** Forecast	**R&D 2027/28** Forecast	**R&D 2028/29** Forecast	**R&D 2029/30** Forecast	**R&D 2030/31** Forecast	**R&D 2031/32** Forecast
Opening Balance	100,469	131,395	140,121	111,650	93,005	74,308	55,452	36,126	36,637
Levies from growers	54,166	43,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Commonwealth funds	27,009	34,202	79,784	69,359	69,007	68,763	68,822	48,567	48,508
Other Income	5,201	1,387	2,802	2,233	1,860	1,486	1,109	723	733
Total Income	86,376	78,589	132,587	121,592	120,867	120,249	119,931	99,290	99,240
Project funding[1]	45,337	57,411	53,926	36,426	35,835	35,425	35,525	1,525	1,425
Available for Investment	0	0	80,000	80,000	80,000	80,000	80,000	80,000	80,000
Grower Consultation & Advice[2]	0	0	0	0	0	0	0	0	0
Service delivery	8,683	10,992	25,643	22,292	22,179	22,100	22,119	15,610	15,590
Total matched expenditure	54,020	68,403	159,569	138,718	138,014	137,525	137,644	97,135	97,015
Closing balance	131,395	140,121	111,650	93,005	74,308	55,452	36,126	36,637	37,185
Levy collection costs	1,430	1,460	1,489	1,519	1,549	1,580	1,612	1,644	1,677

R and D Implementing Scenario 3 from FY26/27

*Available for Investment increased to $200k from FY26/27

Chestnuts	R&D 2023/2024	R&D 2024/2025	R&D 2025/2026	R&D 2026/27	R&D 2027/28	R&D 2028/29	R&D 2029/30	R&D 2030/31	R&D 2031/32
	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Opening Balance	100,469	131,395	140,121	111,650	101,536	91,543	81,562	71,291	81,038
Levies from growers	54,166	43,000	50,000	130,020	130,020	130,020	130,020	130,020	130,020
Commonwealth funds	27,009	34,202	79,784	140,847	140,495	140,251	140,310	120,055	119,996
Other Income	5,201	1,387	2,802	2,233	2,031	1,831	1,631	1,426	1,621
Total Income	86,376	78,589	132,587	273,100	272,546	272,102	271,962	251,501	251,637
Project funding[1]	45,337	57,411	53,926	36,426	35,835	35,425	35,525	1,525	1,425
Available for Investment	0	0	80,000	200,000	200,000	200,000	200,000	200,000	200,000
Grower Consultation & Advice[2]	0	0	0	0	0	0	0	0	0
Service delivery	8,683	10,992	25,643	45,268	45,155	45,077	45,096	38,586	38,567
Total matched expenditure	54,020	68,403	159,569	281,694	280,990	280,502	280,621	240,111	239,992
Closing balance	131,395	140,121	111,650	101,536	91,543	81,562	71,291	81,038	91,005
Levy collection costs	1,430	1,460	1,489	1,519	1,549	1,580	1,612	1,644	1,677

The proposed change would result in a near tripling the available R&D funds and along with other pools of funding CAI believes it can achieve very valuable changes to the Industry that will show a real return on investment.

LEVY:

The current Chestnut Levy/Charge:

The Department of Agriculture, Fisheries and Forestry administer the Chestnut Levy/Charge as detailed: -

Levy/Charge component	Current Levy/Charge rate
EPPR	1.0 cents per kilogram
Marketing	5.0 cents per kilogram
PHA	0.5 cents per kilogram
R&D	4.5 cents per kilogram
TOTAL	**11.0 cents per kilogram**

PROPOSED WAY FORWARD:

a) **Overall Levy/Charge**
The current total Chestnut Levy/Charge has been at eleven (11) cents per kilogram for many years. Over that time there has been a reduction in the return on investment due to increased costs and charges as the levy has not kept up with CPI increases.

Given the most recent crop losses due to disease incidents the level of funds available for R&D have shown to be insufficient to build a worthwhile and substantial program.

As a result, the initial component of the overall proposal is to increase the total Levy/Charge by three (3) cents per kilogram, taking it from eleven (11) cents to fourteen (14) cents per kilogram with the additional three (3) cents to be allocated to the R&D Pool.

b) **Marketing Levy/Charge**
The next component of the overall proposal is to reduce the Chestnut Marketing Levy/Charge from five (5) cents per kilogram to two and a half (2.5) cents per kilogram.

While this is a small amount it is the belief of the CAI Executive Committee that this will be sufficient to maintain an overarching marketing program that will support the new initiatives resulting from improved nut quality resulting from the expanded R&D program.

As Marketing activities are not matched by Commonwealth Government contributions it is felt that programs undertaken by individual growers and marketing companies will complement the smaller industry marketing program. Their direct investment is not subject to management charges by a third party and can be targeted in areas that most effectively generate sales growth.

With the setting of the Chestnut Marketing Levy/Charge at two and a half (2.5) cents, going forward, Chestnuts Australia Inc will work with: -

1) Hort Innovation to utilise the current and future available marketing funds in an effective and efficient manner.

Marketing Before

Chestnuts	Marketing 2023/2024	Marketing 2024/2025	Marketing 2025/2026	Marketing 2026/27	Marketing 2027/28	Marketing 2028/29	Marketing 2029/30	Marketing 2030/31	Marketing 2031/32
	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Opening Balance	61,665	49,127	38,959	30,027	27,197	30,590	34,017	37,480	40,977
Levies from growers	60,183	47,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000
Other Income	2,171	1,200	779	601	544	612	680	750	820
Total Income	62,354	48,200	55,779	55,601	55,544	55,612	55,680	55,750	55,820
Project funding[1]	58,113	45,000	40,000	0	0	0	0	0	0
Available for Investment	0	0	10,000	45,000	40,000	40,000	40,000	40,000	40,000
Grower Consultation & Advice[2]	0	0	0	0	0	0	0	0	0
Service delivery	15,253	11,811	13,123	11,811	10,499	10,499	10,499	10,499	10,499
Total Expenditure	73,366	56,811	63,123	56,811	50,499	50,499	50,499	50,499	50,499
Closing balance	49,127	38,959	30,027	27,197	30,590	34,017	37,480	40,977	44,510
Levy collection costs	1,526	1,557	1,588	1,620	1,652	1,685	1,719	1,753	1,789

Marketing Implementing Scenario 3 from FY26/27

*Available for Investment decreased to $25 k from FY26/27 to FY29/30 and then $20 k for FY30/31 and FY31/32

Chestnuts	Marketing 2023/2024	Marketing 2024/2025	Marketing 2025/2026	Marketing 2026/27	Marketing 2027/28	Marketing 2028/29	Marketing 2029/30	Marketing 2030/31	Marketing 2031/32
	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Opening Balance	61,665	49,127	38,959	30,027	26,996	23,872	20,652	17,335	20,229
Levies from growers	60,183	47,000	55,000	29,550	29,550	29,550	29,550	29,550	29,550
Other Income	2,171	1,200	779	601	540	477	413	347	405
Total Income	62,354	48,200	55,779	30,151	30,090	30,027	29,963	29,897	29,955
Project funding[1]	58,113	45,000	40,000	0	0	0	0	0	0
Available for Investment	0	0	10,000	25,000	25,000	25,000	25,000	20,000	20,000
Grower Consultation & Advice[2]	0	0	0	0	0	0	0	0	0
Service delivery	15,253	11,811	13,123	6,562	6,562	6,562	6,562	5,249	5,249
Total Expenditure	73,366	56,811	63,123	31,562	31,562	31,562	31,562	25,249	25,249
Closing balance	49,127	38,959	30,027	26,996	23,872	20,652	17,335	20,229	23,145
Levy collection costs	1,526	1,557	1,588	1,620	1,652	1,685	1,719	1,753	1,789

2) Industry and individual growers to undertake domestic marketing utilising voluntary contributions and other funds to drive in-store inspiration and encourage shoppers to experience Australian Chestnuts during the season. In addition, the industry will continue to work with key retailers to generate in-store presence.

c) PHA Levy/Charge (Now known as the Biosecurity Activity Levy)

It is proposed that there be no change to the PHA Levy/Charge and that it be retained at a half (0.5) cent per kilogram.

The PHA Levy/Charge covers the PHA membership fee of $1,600 (exclusive of GST) per annum.

d) EPPRD Levy/Charge (Now known as the Biosecurity Response Levy)

Now that CAI has paid off the Chestnut Blight eradication program cost sharing liability the proposal is to reduce the EPPRD Levy/Charge from one (1) cent per kilogram to zero (0) cents per kilogram.

The one (1) cent is to be transferred to the R&D Levy/Charge pool.

CAI will work with Plant Health Australia (PHA) and DAFF to utilise any reserves, on biosecurity activities, at the point in time the proposed Levy/Charge changes become law.

e) R&D Levy/Charge

The proposal is to increase the Chestnut R&D Levy/Charge from four and a half (4.5) cents to eleven (11) cents.

This will be undertaken through the following: -

LEVY	**CURRENT**	**NEW R&D Pool**
Current R&D Levy/Charge	4.5 cents per kilogram	4.5
Transfer EPPRD Levy/Charge	1.0 cents per kilogram	1.0
Transfer part of Marketing Levy/Charge	5.0 cents per kilogram	2.5
Additional new Levy/Charge		3
TOTAL		**11 cents**

With the matching resources from the Australian Government this would give the Australian Chestnut Industry a substantially increased R&D pool to allow the industry to undertake the required research to manage the current disease pressures.

FORMAL PROPOSAL:

Chestnuts Australia Inc is putting the following Motion to ALL known Australian Chestnut Growers/Levy Payers through a formal Vote/Ballot.
As a Grower/Levy Payer you are invited to consider the information detailed in this discussion paper and vote on the Motion between the 22nd of September and the 31st of October 2025.

The Vote/Ballot is being managed by Bradbrook Lawyers, an independent legal firm, who have experience with the levy procedure having undertaken similar services for Summerfruit Australia Ltd and the Australian Sweetpotato Growers Association Inc.

The **FORMAL PROPOSAL** is that the Chestnut Levy/Charge be changed as follows: -

MOTION: "That the Chestnut Levy/Charge be increased by 3 (three) cents to 14 (fourteen) cents and that the allocation be as per the following."

Levy/Charge component	Current Levy/Charge rate	Proposed Levy/Charge rate
EPPR (now the Biosecurity Response Levy)	**1 cent per kilogram**	**0.0 cents per kilogram**
Marketing	**5 cents per kilogram**	**2.5 cents per kilogram**
PHA (now the Biosecurity Activity Levy)	**0.5 cents per kilogram**	**0.5 cents per kilogram**
R&D	**4.5 cents per kilogram**	**11.0 cents per kilogram**
TOTAL	**11.0 cents per kilogram**	**14.0 cents per kilogram**

NEXT STEPS:

- As a Chestnut Grower and Levy Payer, Chestnuts Australia Inc invites you to
  - Consider the material detailed in this document
  - Attend the CAI AGM on the 13th of September 2025 to discuss the proposal and ask any questions and/or seek clarification
  - Vote on the proposal using a ballot paper to be forwarded to you on Monday 22nd September 2025.

- The ballot will close at the close of business on Friday 31st October 2025.

- If a majority of levy payers who choose to vote (50% plus one) support the proposal, a submission will be prepared by Chestnuts Australia Inc and submitted to the Minister for Agriculture.

- A final decision by the Minister will be made after an objection period of at least 30 business days after being submitted to government.

- You will be notified of the outcome and, if the proposal is voted to go ahead, of the details of the six-week objection period required after the submission goes to the Minister.

- This proposal will form part of CAI's review of the Chestnut Statutory Levy/Charge program.

- The Minister makes the final decision to agree, or not, to the levy proposal and CAI would be seeking any changes to be implemented on the 1st of July 2025.

Contact us:
If you would like to speak with someone about this proposal, please contact Trevor Ranford, Industry Development/Communications Officer, Chestnuts Australia Inc via

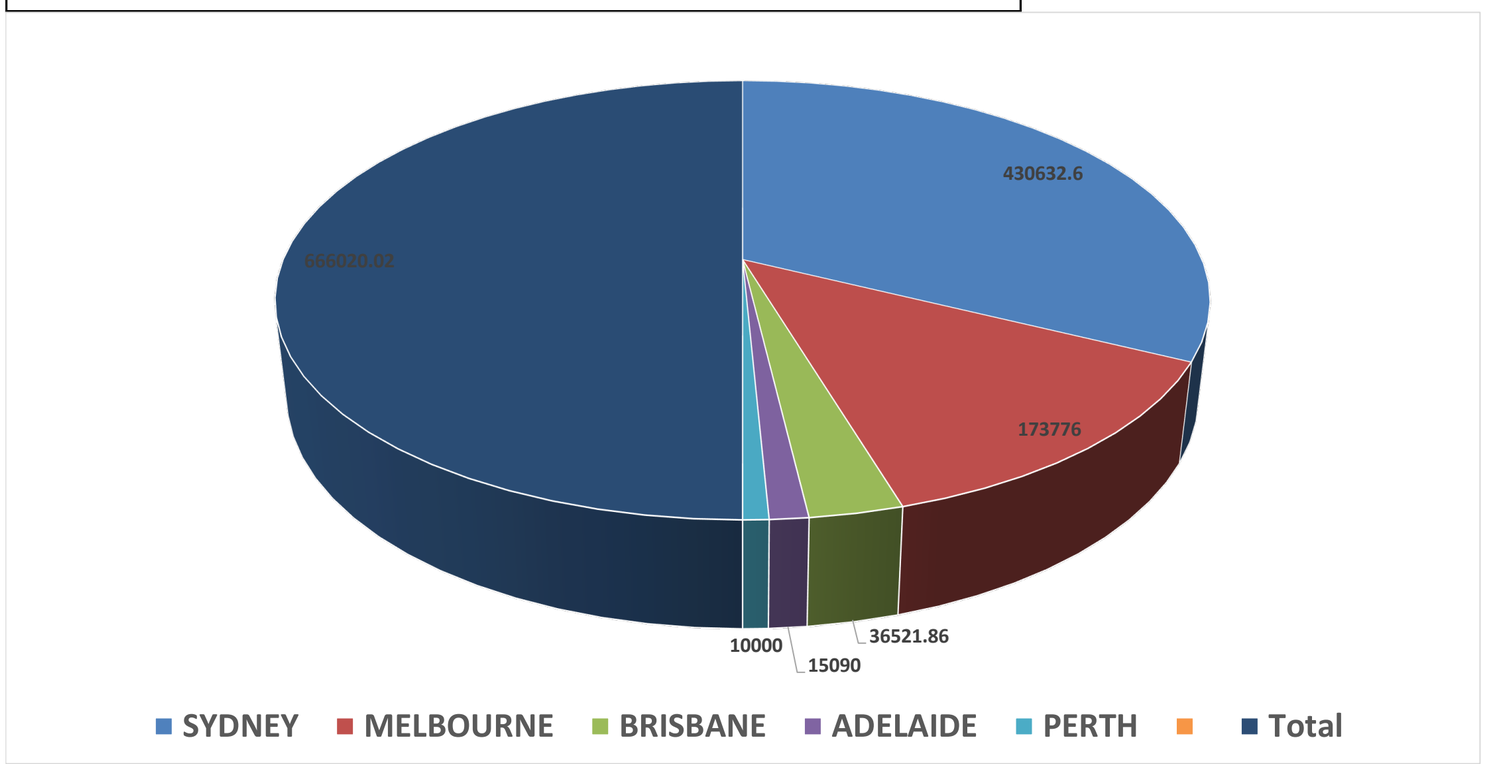
- Phone: 0417 809 172
- Email us at: sahort@bigpond.com
- You might also wish to visit our website at: www.chestnutsaustraliainc.com.au

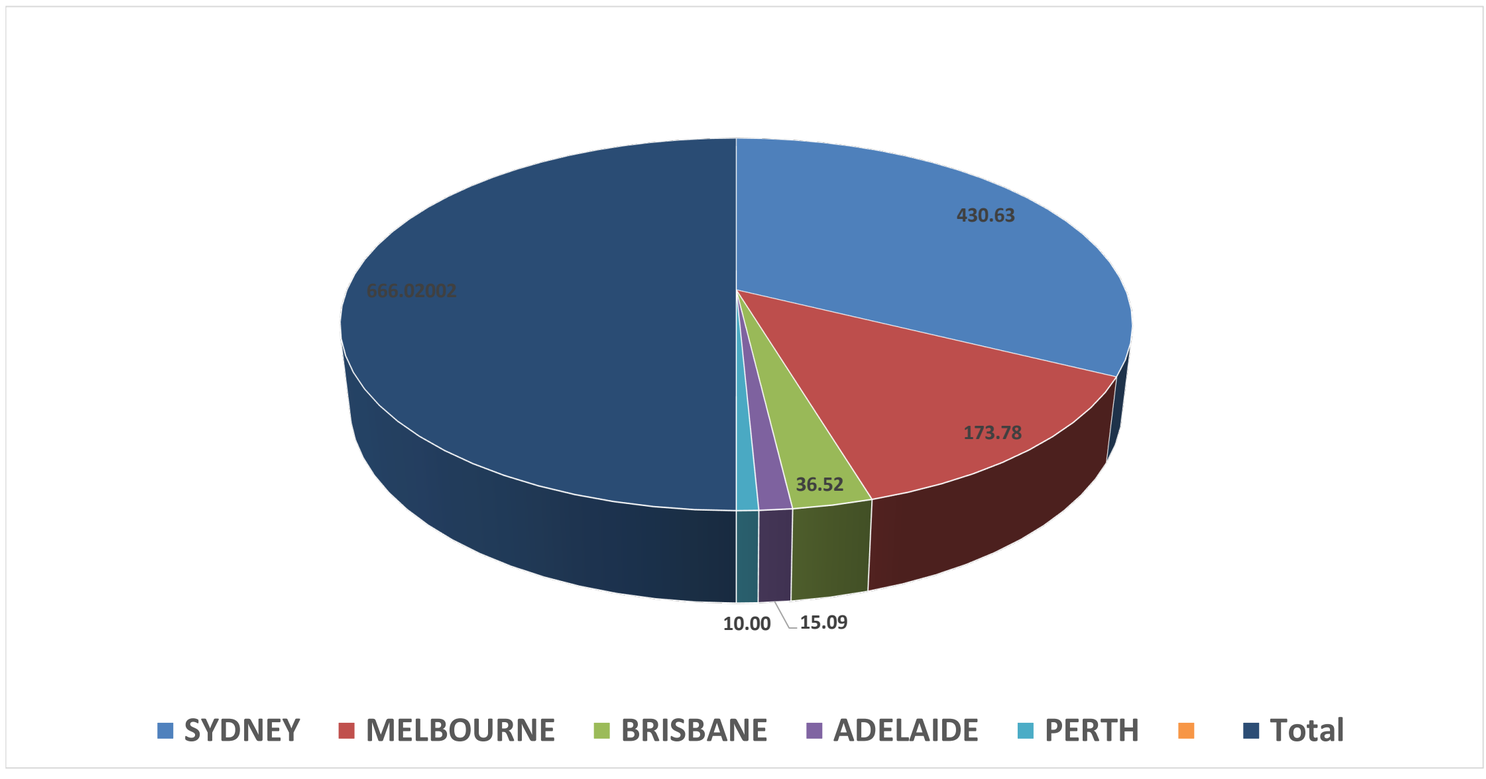
CHESTNUTS AUSTRALIA INC - MOVEMENT AND PRICES OF NUTS 2025

WEEK ENDING	VOLUME IN KILOGRAMS					
	SYDNEY	MELBOURNE	BRISBANE	ADELAIDE	PERTH	TOTALS
7-Mar						0
14-Mar	3010	1000				4010
21-Mar	22600	3280		2000		27880
28-Mar	32317	13760	4410	0	1000	51487
4-Apr	28700	17440	4000			50140
11-Apr	29287	7040	4980	3600	2000	46907
18-Apr	37816.6	14761.2	2754	3000	1000	59331.8
25-Apr	25135.6	7609.6	2973.7	1730	1000	38448.9
2-May	25641.6	8591.6	3000	3760	0	40993.2
9-May	26803.6	14311.6				41115.2
16-May	23401.6	18820.6	2564		1000	45786.2
23-May	17270	12913.6	3533.6		1000	34717.2
30-May	17669.6	9306	3271.6		1000	31247.2
6-Jun	19901.8	7370.8	980		1000	29252.6
13-Jun	23648.4	9659.8	1495.6			34803.8
20-Jun	22089.4	5016.56	585.36		1000	28691.32
27-Jun	17786.8	5464.8	580	1000		24831.6
4-Jul	12796.8	5904.3	526.8			19227.9
11-Jul	12046.8	6591.5	573.6			19211.9
18-Jul	8660	3503.6	293.6			12457.2
25-Jul	5880	1430				7310
1-Aug	9470					9470
8-Aug	4610					4610
15-Aug	4090					4090
22-Aug						0
29-Aug						0
5-Sep						0
12-Sep						0
19-Sep						0

	SYDNEY	MELBOURNE	BRISBANE	ADELAIDE	PERTH	Total
TOTAL KG	430632.6	173776	36521.86	15090	10000	666020
%	65%	26%	5%	2%	2%	100%

	SYDNEY	MELBOURNE	BRISBANE	ADELAIDE	PERTH	Total
TOTAL TONNES	430.63	173.78	36.52	15.09	10.00	666.02
%	65%	26%	5%	2%	2%	100%





CHESTNUT INDUSTRY 2025 SEASON **LOCATION - SYDNEY**

WEEK ENDING	No 2				MEDIUM				STANDARD				L1				L2				L3				L4			
	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE
14-Mar																												
21-Mar																												
28-Mar	$2.50	$3.00	$3.00	$2.81	$2.50	$3.00	$3.00	$2.81	$3.00	$4.00	$4.00	$3.63	$4.00	$5.00	$5.00	$4.63	$5.00	$6.00	$6.00	$5.63	$6.00	$7.00	$7.00	$6.63	$7.00	$8.00	$8.00	$7.63
4-Apr	$2.50	$3.00	$3.00	$2.75	$2.50	$3.00	$3.00	$2.75	$3.00	$4.00	$4.00	$3.50	$4.00	$5.00	$5.00	$4.50	$5.00	$6.00	$6.00	$5.50	$6.00	$7.00	$7.00	$6.50	$7.00	$8.00	$8.00	$7.50
11-Apr	$2.50	$3.00	$3.00	$2.75	$2.50	$3.00	$3.00	$2.75	$3.00	$4.00	$4.00	$3.50	$4.00	$5.00	$5.00	$4.50	$5.00	$6.00	$6.00	$5.50	$6.00	$7.00	$7.00	$6.50	$7.00	$8.00	$8.00	$7.50
17-Apr	$2.50	$3.00	$3.00	$2.75	$2.50	$3.00	$3.00	$2.75	$3.00	$4.00	$4.00	$3.50	$4.00	$5.00	$5.00	$4.50	$5.00	$6.00	$6.00	$5.50	$6.00	$7.00	$7.00	$6.50	$7.00	$8.00	$8.00	$7.50
24-Apr	$2.00	$3.00	$3.00	$2.50	$2.50	$3.00	$3.00	$2.42	$2.50	$4.00	$4.00	$3.17	$4.00	$5.00	$5.00	$4.17	$5.00	$6.00	$6.00	$5.17	$6.00	$7.00	$7.00	$6.17	$7.00	$8.00	$8.00	$7.50
2-May	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.25	$2.50	$3.50	$3.50	$3.00	$4.00	$5.00	$5.00	$4.00	$5.00	$6.00	$6.00	$5.00	$6.00	$7.00	$7.00	$6.00	$7.00	$8.00	$8.00	$7.50
9-May	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.25	$2.50	$3.50	$3.50	$3.00	$4.00	$5.00	$5.00	$4.00	$5.00	$6.00	$6.00	$5.00	$6.00	$7.00	$7.00	$6.00	$7.00	$8.00	$8.00	$7.50
16-May	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.03	$2.50	$4.00	$4.00	$3.45	$4.00	$5.00	$5.00	$4.90	$5.00	$6.00	$6.00	$5.90	$6.00	$7.50	$7.50	$7.13	$7.00	$9.00	$9.00	$8.40
23-May	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.00	$3.00	$4.00	$4.00	$3.50	$4.00	$5.00	$5.00	$5.00	$5.00	$6.00	$6.00	$6.00	$7.00	$7.50	$7.50	$7.25	$8.00	$9.00	$9.00	$8.50
30-May	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.00	$3.00	$4.00	$4.00	$3.50	$4.00	$5.00	$5.00	$5.00	$5.00	$6.00	$6.00	$6.00	$7.00	$7.50	$7.50	$7.25	$8.00	$9.00	$9.00	$8.50
6-Jun	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.00	$3.00	$4.00	$4.00	$3.50	$5.00	$5.50	$5.50	$5.25	$6.00	$6.50	$6.50	$6.25	$7.00	$8.00	$8.00	$7.50	$9.00	$9.50	$9.50	$9.25
13-Jun	$2.00	$3.00	$3.00	$2.50	$2.50	$2.50	$2.50	$2.50	$3.00	$4.00	$4.00	$3.50	$5.00	$6.00	$6.00	$5.50	$6.00	$7.00	$7.00	$6.50	$8.00	$8.50	$8.50	$8.25	$6.50	$10.00	$10.00	$8.88
20-Jun	$2.00	$3.00	$3.00	$2.50	$2.50	$2.50	$2.50	$2.50	$3.00	$4.00	$4.00	$3.50	$5.00	$6.00	$6.00	$5.50	$6.00	$7.00	$7.00	$6.50	$8.00	$8.50	$8.50	$8.25	$9.00	$10.00	$10.00	$9.50
27-Jun	$2.00	$3.00	$3.00	$2.50	$2.50	$2.50	$2.50	$2.50	$3.00	$4.00	$4.00	$3.50	$5.00	$6.00	$6.00	$5.50	$6.00	$7.00	$7.00	$6.50	$8.00	$8.50	$8.50	$8.25	$9.00	$10.00	$10.00	$9.50
4-Jul	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.40	$3.00	$4.00	$4.00	$3.60	$5.00	$6.50	$6.50	$5.80	$6.00	$8.00	$8.00	$6.90	$8.00	$9.00	$9.00	$8.45	$9.00	$10.50	$10.50	$9.80
11-Jul	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.25	$3.50	$4.00	$4.00	$3.75	$6.00	$6.50	$6.50	$6.25	$7.00	$8.00	$8.00	$7.50	$8.50	$9.00	$9.00	$8.75	$10.00	$10.50	$10.50	$10.25
18-Jul	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.25	$3.50	$4.00	$4.00	$3.75	$6.00	$6.50	$6.50	$6.25	$7.00	$8.00	$8.00	$7.50	$8.50	$9.00	$9.00	$8.75	$10.00	$10.50	$10.50	$10.25
25-Jul	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.25	$3.50	$4.00	$4.00	$3.75	$6.00	$6.50	$6.50	$6.25	$7.00	$8.00	$8.00	$7.50	$8.50	$9.00	$9.00	$8.75	$10.00	$10.50	$10.50	$10.25
1-Aug	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.25	$3.50	$4.00	$4.00	$3.75	$6.00	$6.50	$6.50	$6.25	$7.00	$8.00	$8.00	$7.50	$8.50	$9.00	$9.00	$8.75	$10.00	$10.50	$10.50	$10.25
8-Aug	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.25	$3.50	$4.00	$4.00	$3.75	$6.00	$6.50	$6.50	$6.25	$7.00	$8.00	$8.00	$7.50	$8.50	$9.00	$9.00	$8.75	$10.00	$10.50	$10.50	$10.25
15-Aug	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.25	$3.50	$4.00	$4.00	$3.75	$6.00	$6.50	$6.50	$6.25	$7.00	$8.00	$8.00	$7.50	$8.50	$9.00	$9.00	$8.75	$10.00	$10.50	$10.50	$10.25
22-Aug	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.25	$3.50	$4.00	$4.00	$3.75	$6.00	$6.50	$6.50	$6.25	$7.00	$8.00	$8.00	$7.50	$8.50	$9.00	$9.00	$8.75	$10.00	$10.50	$10.50	$10.25
29-Aug	$2.00	$3.00	$3.00	$2.50	$2.00	$2.50	$2.50	$2.25	$3.50	$4.00	$4.00	$3.75	$6.00	$6.50	$6.50	$6.25	$7.00	$8.00	$8.00	$7.50	$8.50	$9.00	$9.00	$8.75	$10.00	$10.50	$10.50	$10.25
5-Sep																												
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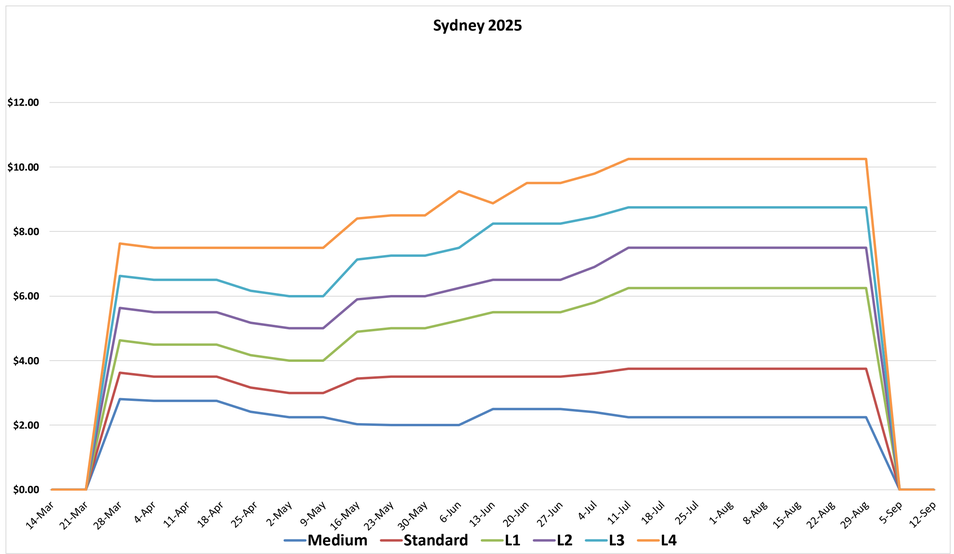
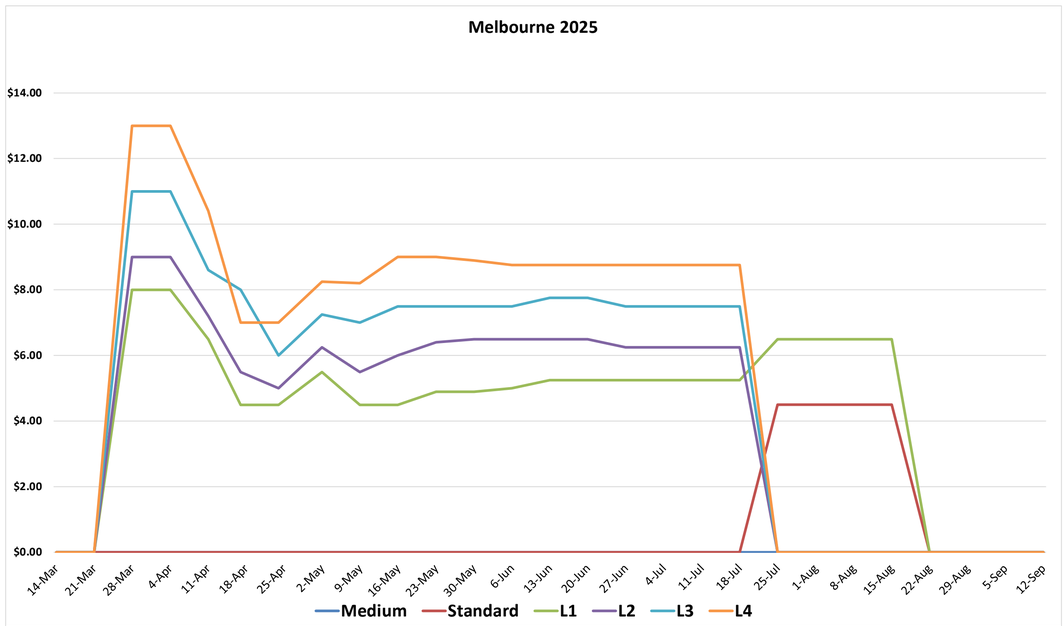


	MEDIUM	STANDARD	L1	L2	L3	L4
14-Mar	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
21-Mar	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
28-Mar	$2.81	$3.63	$4.63	$5.63	$6.63	$7.63
4-Apr	$2.75	$3.50	$4.50	$5.50	$6.50	$7.50
11-Apr	$2.75	$3.50	$4.50	$5.50	$6.50	$7.50
17-Apr	$2.75	$3.50	$4.50	$5.50	$6.50	$7.50
24-Apr	$2.42	$3.17	$4.17	$5.17	$6.17	$7.50
2-May	$2.25	$3.00	$4.00	$5.00	$6.00	$7.50
9-May	$2.25	$3.00	$4.00	$5.00	$6.00	$7.50
16-May	$2.03	$3.45	$4.90	$5.90	$7.13	$8.40
23-May	$2.00	$3.50	$5.00	$6.00	$7.25	$8.50
30-May	$2.00	$3.50	$5.00	$6.00	$7.25	$8.50
6-Jun	$2.00	$3.50	$5.25	$6.25	$7.50	$9.25
13-Jun	$2.50	$3.50	$5.50	$6.50	$8.25	$8.88
20-Jun	$2.50	$3.50	$5.50	$6.50	$8.25	$9.50
27-Jun	$2.50	$3.50	$5.50	$6.50	$8.25	$9.50
4-Jul	$2.40	$3.60	$5.80	$6.90	$8.45	$9.80
11-Jul	$2.25	$3.75	$6.25	$7.50	$8.75	$10.25
18-Jul	$2.25	$3.75	$6.25	$7.50	$8.75	$10.25
25-Jul	$2.25	$3.75	$6.25	$7.50	$8.75	$10.25
1-Aug	$2.25	$3.75	$6.25	$7.50	$8.75	$10.25
8-Aug	$2.25	$3.75	$6.25	$7.50	$8.75	$10.25
15-Aug	$2.25	$3.75	$6.25	$7.50	$8.75	$10.25
22-Aug	$2.25	$3.75	$6.25	$7.50	$8.75	$10.25
29-Aug	$2.25	$3.75	$6.25	$7.50	$8.75	$10.25
5-Sep	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
12-Sep	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

CHESTNUT INDUSTRY 2025 SEASON **LOCATION - MELBOURNE**

WEEK ENDING	MEDIUM				STANDARD				L1				L2				L3				L4			
	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE
14-Mar																								
21-Mar																								
28-Mar									$8.00	$8.00	$8.00	$8.00	$9.00	$9.00	$9.00	$9.00	$11.00	$11.00	$11.00	$11.00	$13.00	$13.00	$13.00	$13.00
4-Apr									$8.00	$8.00	$8.00	$8.00	$9.00	$9.00	$9.00	$9.00	$11.00	$11.00	$11.00	$11.00	$13.00	$13.00	$13.00	$13.00
11-Apr									$4.50	$8.00	$8.00	$6.50	$5.50	$9.00	$9.00	$7.20	$6.50	$11.00	$11.00	$8.60	$8.50	$13.00	$13.00	$10.40
17-Apr									$4.00	$5.00	$5.00	$4.50	$4.00	$6.00	$6.00	$5.50	$8.00	$8.00	$8.00	$8.00	$6.00	$8.00	$8.00	$7.00
24-Apr									$4.00	$5.00	$5.00	$4.50	$4.00	$6.00	$6.00	$5.00	$5.00	$7.00	$7.00	$6.00	$6.00	$8.00	$8.00	$7.00
2-May									$5.00	$6.00	$6.00	$5.50	$6.00	$6.50	$6.50	$6.25	$7.00	$7.50	$7.50	$7.25	$8.00	$8.50	$8.50	$8.25
9-May									$4.00	$5.00	$5.00	$4.50	$5.00	$6.00	$6.00	$5.50	$6.00	$7.00	$7.00	$7.00	$8.00	$8.50	$8.50	$8.20
16-May									$4.00	$5.00	$5.00	$4.50	$5.00	$7.00	$7.00	$6.00	$7.00	$8.00	$8.00	$7.50	$9.00	$9.00	$9.00	$9.00
23-May									$4.00	$5.50	$5.50	$4.90	$5.00	$7.00	$7.00	$6.40	$7.00	$8.00	$8.00	$7.50	$9.00	$9.00	$9.00	$9.00
30-May									$4.00	$5.50	$5.50	$4.90	$6.00	$7.00	$7.00	$6.50	$7.00	$8.00	$8.00	$7.50	$8.00	$9.00	$9.00	$8.90
6-Jun									$4.50	$5.50	$5.50	$5.00	$6.00	$7.00	$7.00	$6.50	$7.00	$8.00	$8.00	$7.50	$8.00	$9.00	$9.00	$8.75
13-Jun									$5.00	$5.50	$5.50	$5.25	$6.00	$7.00	$7.00	$6.50	$7.50	$8.00	$8.00	$7.75	$8.50	$9.00	$9.00	$8.75
20-Jun									$5.00	$5.50	$5.50	$5.25	$6.00	$7.00	$7.00	$6.50	$7.50	$8.00	$8.00	$7.75	$8.50	$9.00	$9.00	$8.75
27-Jun									$5.00	$5.50	$5.50	$5.25	$6.00	$6.50	$6.50	$6.25	$7.50	$7.50	$7.50	$7.50	$8.50	$9.00	$9.00	$8.75
4-Jul									$5.00	$5.50	$5.50	$5.25	$6.00	$6.50	$6.50	$6.25	$7.50	$7.50	$7.50	$7.50	$8.50	$9.00	$9.00	$8.75
11-Jul									$5.00	$5.50	$5.50	$5.25	$6.00	$6.50	$6.50	$6.25	$7.50	$7.50	$7.50	$7.50	$8.50	$9.00	$9.00	$8.75
18-Jul									$5.00	$5.50	$5.50	$5.25	$6.00	$6.50	$6.50	$6.25	$7.50	$7.50	$7.50	$7.50	$8.50	$9.00	$9.00	$8.75
25-Jul					$4.00	$5.00	$5.00	$4.50	$6.00	$7.00	$7.00	$6.50												
1-Aug					$4.00	$5.00	$5.00	$4.50	$6.00	$7.00	$7.00	$6.50												
8-Aug					$4.00	$5.00	$5.00	$4.50	$6.00	$7.00	$7.00	$6.50												
15-Aug					$4.00	$5.00	$5.00	$4.50	$6.00	$7.00	$7.00	$6.50												
22-Aug																								
29-Aug																								
5-Sep																								
12-Sep																								



	MEDIUM	STANDARD	L1	L2	L3	L4
14-Mar	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
21-Mar	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
28-Mar	$0.00	$0.00	$8.00	$9.00	$11.00	$13.00
4-Apr	$0.00	$0.00	$8.00	$9.00	$11.00	$13.00
11-Apr	$0.00	$0.00	$6.50	$7.20	$8.60	$10.40
17-Apr	$0.00	$0.00	$4.50	$5.50	$8.00	$7.00
24-Apr	$0.00	$0.00	$4.50	$5.00	$6.00	$7.00
2-May	$0.00	$0.00	$5.50	$6.25	$7.25	$8.25
9-May	$0.00	$0.00	$4.50	$5.50	$7.00	$8.20
16-May	$0.00	$0.00	$4.50	$6.00	$7.50	$9.00
23-May	$0.00	$0.00	$4.90	$6.40	$7.50	$9.00
30-May	$0.00	$0.00	$4.90	$6.50	$7.50	$8.90
6-Jun	$0.00	$0.00	$5.00	$6.50	$7.50	$8.75
13-Jun	$0.00	$0.00	$5.25	$6.50	$7.75	$8.75
20-Jun	$0.00	$0.00	$5.25	$6.50	$7.75	$8.75
27-Jun	$0.00	$0.00	$5.25	$6.25	$7.50	$8.75
4-Jul	$0.00	$0.00	$5.25	$6.25	$7.50	$8.75
11-Jul	$0.00	$0.00	$5.25	$6.25	$7.50	$8.75
18-Jul	$0.00	$0.00	$5.25	$6.25	$7.50	$8.75
25-Jul	$0.00	$4.50	$6.50	$0.00	$0.00	$0.00
1-Aug	$0.00	$4.50	$6.50	$0.00	$0.00	$0.00
8-Aug	$0.00	$4.50	$6.50	$0.00	$0.00	$0.00
15-Aug	$0.00	$4.50	$6.50	$0.00	$0.00	$0.00
22-Aug	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
29-Aug	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
5-Sep	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
12-Sep	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

CHESTNUT INDUSTRY 2025 SEASON — **LOCATION - ADELAIDE**

WEEK ENDING	MEDIUM				STANDARD				L1				L2				L3				L4			
	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE
14-Mar																								
21-Mar																								
28-Mar									$6.00	$6.00	$6.00	$6.00	$7.00	$12.00	$12.00	$8.20	$8.00	$14.00	$14.00	$9.50				
4-Apr									$6.00	$6.00	$6.00	$6.00	$7.00	$7.00	$7.00	$7.00	$8.00	$8.00	$8.00	$8.00				
11-Apr									$6.00	$6.00	$6.00	$6.00	$7.00	$7.00	$7.00	$7.00	$8.00	$8.00	$8.00	$8.00	$9.00	$9.00	$9.00	$9.00
17-Apr									$6.00	$6.00	$6.00	$6.00	$7.00	$7.00	$7.00	$7.00	$8.00	$8.00	$8.00	$8.00	$9.00	$9.00	$9.00	$9.00
24-Apr					$4.00	$5.00	$5.00	$4.50	$5.00	$6.00	$6.00	$5.67	$6.00	$7.00	$7.00	$6.67	$7.00	$8.00	$8.00	$7.67	$9.00	$9.00	$9.00	$9.00
2-May					$4.00	$5.00	$5.00	$4.50	$5.00	$6.00	$6.00	$5.50	$6.00	$7.00	$7.00	$6.50	$7.00	$8.00	$8.00	$7.50	$9.00	$9.00	$9.00	$9.00
9-May					$4.00	$5.00	$5.00	$4.50	$5.00	$6.00	$6.00	$5.50	$6.00	$7.00	$7.00	$6.50	$7.00	$8.00	$8.00	$7.50	$9.00	$9.00	$9.00	$9.00
16-May					$4.00	$5.00	$5.00	$4.50	$5.00	$6.00	$6.00	$5.50	$6.00	$7.00	$7.00	$6.50	$7.00	$8.00	$8.00	$7.50	$9.00	$9.00	$9.00	$9.00
23-May					$4.00	$5.00	$5.00	$4.50	$5.00	$6.00	$6.00	$5.50	$6.00	$7.00	$7.00	$6.50	$7.00	$8.00	$8.00	$7.50	$9.00	$9.00	$9.00	$9.00
30-May					$4.00	$5.00	$5.00	$4.80	$5.00	$6.00	$6.00	$5.80	$6.80	$7.00	$7.00	$6.50	$7.00	$8.00	$8.00	$7.80	$9.00	$9.00	$9.00	$9.00
6-Jun					$5.00	$5.00	$5.00	$5.00	$6.00	$6.00	$6.00	$6.00	$7.00	$7.00	$7.00	$7.00	$8.00	$8.00	$8.00	$8.00	$9.00	$9.00	$9.00	$9.00
13-Jun					$5.00	$5.00	$5.00	$5.00	$6.00	$6.00	$6.00	$6.00	$7.00	$7.00	$7.00	$7.00	$8.00	$8.00	$8.00	$8.00	$9.00	$9.00	$9.00	$9.00
20-Jun					$5.00	$5.00	$5.00	$5.00	$6.00	$6.00	$6.00	$6.00	$7.00	$7.00	$7.00	$7.00	$8.00	$8.00	$8.00	$8.00	$9.00	$9.00	$9.00	$9.00
27-Jun					$5.00	$5.00	$5.00	$5.00	$6.00	$6.00	$6.00	$6.00	$7.00	$7.00	$7.00	$7.00	$8.00	$8.00	$8.00	$8.00	$9.00	$9.00	$9.00	$9.00
4-Jul					$5.00	$5.00	$5.00	$5.00	$6.00	$6.00	$6.00	$6.00	$7.00	$7.00	$7.00	$7.00	$8.00	$8.00	$8.00	$8.00	$9.00	$9.00	$9.00	$9.00
11-Jul					$5.00	$5.00	$5.00	$5.00	$6.00	$6.00	$6.00	$6.00	$7.00	$7.00	$7.00	$7.00	$8.00	$8.00	$8.00	$8.00	$9.00	$9.00	$9.00	$9.00
18-Jul					$5.00	$5.00	$5.00	$5.00	$6.00	$6.00	$6.00	$6.00	$7.00	$7.00	$7.00	$7.00	$8.00	$8.00	$8.00	$8.00	$9.00	$9.00	$9.00	$9.00
25-Jul					$7.00	$7.00	$7.00	$7.00					$10.00	$10.00	$10.00	$10.00								
1-Aug									$8.00	$8.00	$8.00	$8.00	$10.00	$10.00	$10.00	$10.00								
8-Aug									$8.00	$8.00	$8.00	$8.00	$10.00	$10.00	$10.00	$10.00								
15-Aug									$8.00	$8.00	$8.00	$8.00	$10.00	$10.00	$10.00	$10.00								
22-Aug									$8.00	$8.00	$8.00	$8.00	$10.00	$10.00	$10.00	$10.00								
29-Aug																								
5-Sep																								
12-Sep																								
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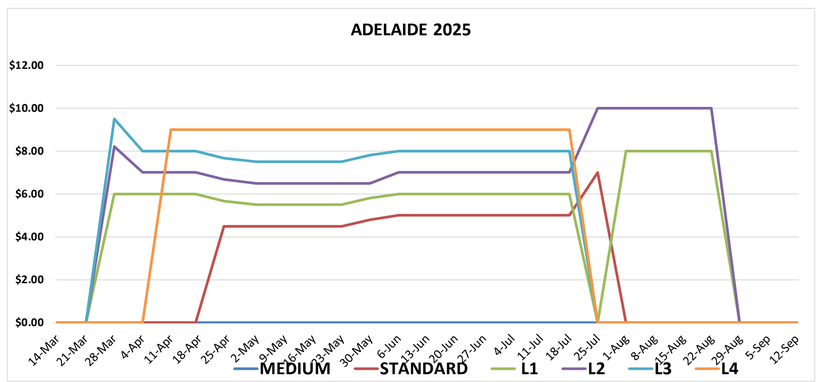

	MEDIUM	STANDARD	L1	L2	L3	L4
14-Mar	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
21-Mar	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
28-Mar	$0.00	$0.00	$6.00	$8.20	$9.50	$0.00
4-Apr	$0.00	$0.00	$6.00	$7.00	$8.00	$0.00
11-Apr	$0.00	$0.00	$6.00	$7.00	$8.00	$9.00
17-Apr	$0.00	$0.00	$6.00	$7.00	$8.00	$9.00
24-Apr	$0.00	$4.50	$5.67	$6.67	$7.67	$9.00
2-May	$0.00	$4.50	$5.50	$6.50	$7.50	$9.00
9-May	$0.00	$4.50	$5.50	$6.50	$7.50	$9.00
16-May	$0.00	$4.50	$5.50	$6.50	$7.50	$9.00
23-May	$0.00	$4.50	$5.50	$6.50	$7.50	$9.00
30-May	$0.00	$4.80	$5.80	$6.50	$7.80	$9.00
6-Jun	$0.00	$5.00	$6.00	$7.00	$8.00	$9.00
13-Jun	$0.00	$5.00	$6.00	$7.00	$8.00	$9.00
20-Jun	$0.00	$5.00	$6.00	$7.00	$8.00	$9.00
27-Jun	$0.00	$5.00	$6.00	$7.00	$8.00	$9.00
4-Jul	$0.00	$5.00	$6.00	$7.00	$8.00	$9.00
11-Jul	$0.00	$5.00	$6.00	$7.00	$8.00	$9.00
18-Jul	$0.00	$5.00	$6.00	$7.00	$8.00	$9.00
25-Jul	$0.00	$7.00	$0.00	$10.00	$0.00	$0.00
1-Aug	$0.00	$0.00	$8.00	$10.00	$0.00	$0.00
8-Aug	$0.00	$0.00	$8.00	$10.00	$0.00	$0.00
15-Aug	$0.00	$0.00	$8.00	$10.00	$0.00	$0.00
22-Aug	$0.00	$0.00	$8.00	$10.00	$0.00	$0.00
29-Aug	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
5-Sep	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
12-Sep	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
						$0.00
						$0.00

CHESTNUT INDUSTRY 2025 SEASON **LOCATION - BRISBANE**

WEEK ENDING	MEDIUM				STANDARD				L1				L2				L3				L4			
	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE	LOW	HIGH	BEST	AVERAGE				AVERAGE
14-Mar																								
21-Mar																								
28-Mar									$7.50	$8.00	$8.00	$7.70	$9.00	$10.00	$10.00	$9.50	$10.00	$12.00	$12.00	$11.00	$12.00	$14.00	$14.00	$13.20
4-Apr									$5.00	$8.00	$8.00	$6.80	$7.00	$10.00	$10.00	$8.70	$8.00	$12.00	$12.00	$10.60	$10.00	$14.00	$14.00	$12.60
11-Apr									$4.00	$7.00	$7.00	$5.10	$5.00	$8.00	$8.00	$6.15	$7.00	$10.00	$10.00	$8.10	$9.00	$12.00	$12.00	$10.10
17-Apr									$4.00	$5.00	$5.00	$4.50	$5.00	$5.50	$5.50	$5.25	$7.00	$8.00	$8.00	$7.50	$9.00	$10.00	$10.00	$9.50
24-Apr									$4.00	$5.00	$5.00	$4.50	$5.00	$5.50	$5.50	$5.25	$7.00	$8.00	$8.00	$7.50	$9.00	$10.00	$10.00	$9.50
2-May									$4.00	$5.00	$5.00	$4.50	$5.00	$6.00	$6.00	$5.35	$6.00	$8.00	$8.00	$7.30	$7.00	$10.00	$10.00	$8.90
9-May									$4.00	$5.00	$5.00	$4.50	$5.00	$6.00	$6.00	$5.50	$6.00	$8.00	$8.00	$7.00	$7.00	$9.00	$9.00	$8.00
16-May									$4.00	$6.00	$6.00	$4.70	$5.00	$7.00	$7.00	$5.90	$6.00	$8.00	$8.00	$7.20	$7.00	$9.00	$9.00	$8.20
23-May									$4.00	$6.00	$6.00	$5.00	$5.00	$7.00	$7.00	$6.50	$6.00	$8.00	$8.00	$7.50	$7.00	$9.00	$9.00	$8.50
30-May									$4.00	$6.00	$6.00	$5.00	$5.00	$7.00	$7.00	$6.50	$6.00	$8.00	$8.00	$7.50	$7.00	$9.00	$9.00	$8.50
6-Jun									$4.00	$6.00	$6.00	$5.00	$5.00	$7.00	$7.00	$6.50	$6.00	$8.00	$8.00	$7.50	$7.00	$9.00	$9.00	$8.50
13-Jun									$4.00	$6.00	$6.00	$5.00	$5.00	$7.00	$7.00	$6.50	$6.00	$8.00	$8.00	$7.50	$7.00	$9.00	$9.00	$8.50
20-Jun									$4.00	$6.00	$6.00	$5.00	$5.00	$7.00	$7.00	$6.50	$6.00	$8.00	$8.00	$7.50	$7.00	$9.00	$9.00	$8.50
27-Jun									$4.00	$6.00	$6.00	$5.00	$5.00	$7.00	$7.00	$6.50	$6.00	$8.00	$8.00	$7.50	$7.00	$9.00	$9.00	$8.50
4-Jul																								
11-Jul																								
18-Jul																								
25-Jul																								
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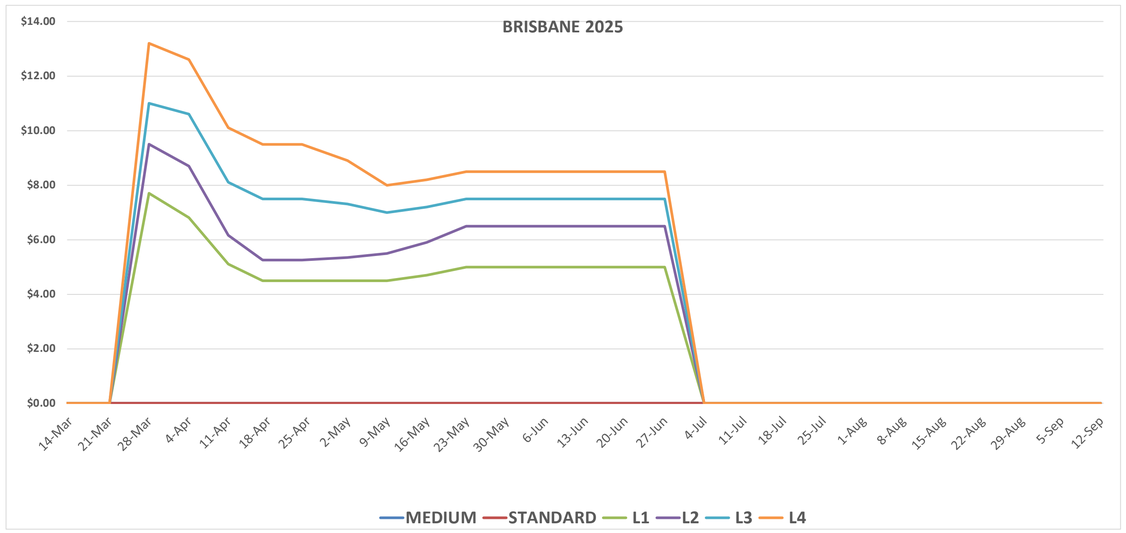


	MEDIUM	STANDARD	L1	L2	L3	L4
14-Mar	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
21-Mar	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
28-Mar	$0.00	$0.00	$7.70	$9.50	$11.00	$13.20
4-Apr	$0.00	$0.00	$6.80	$8.70	$10.60	$12.60
11-Apr	$0.00	$0.00	$5.10	$6.15	$8.10	$10.10
17-Apr	$0.00	$0.00	$4.50	$5.25	$7.50	$9.50
24-Apr	$0.00	$0.00	$4.50	$5.25	$7.50	$9.50
2-May	$0.00	$0.00	$4.50	$5.35	$7.30	$8.90
9-May	$0.00	$0.00	$4.50	$5.50	$7.00	$8.00
16-May	$0.00	$0.00	$4.70	$5.90	$7.20	$8.20
23-May	$0.00	$0.00	$5.00	$6.50	$7.50	$8.50
30-May	$0.00	$0.00	$5.00	$6.50	$7.50	$8.50
6-Jun	$0.00	$0.00	$5.00	$6.50	$7.50	$8.50
13-Jun	$0.00	$0.00	$5.00	$6.50	$7.50	$8.50
20-Jun	$0.00	$0.00	$5.00	$6.50	$7.50	$8.50
27-Jun	$0.00	$0.00	$5.00	$6.50	$7.50	$8.50
4-Jul	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
11-Jul	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
18-Jul	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
25-Jul	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
1-Aug	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
8-Aug	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
15-Aug	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
22-Aug	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
29-Aug	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
5-Sep	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
12-Sep	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
#REF!	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
#REF!	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

2025

Below are the completed charts indicating the 2025 Average Weekly Wholesale Market Prices and Tonnages transported from NE Victoria. Data was collected by Chestnuts Australia Inc. from a number of sources.

Charts 1 to 4 show the prices achieved across the season within each of the wholesale markets reported on.

Chart 1

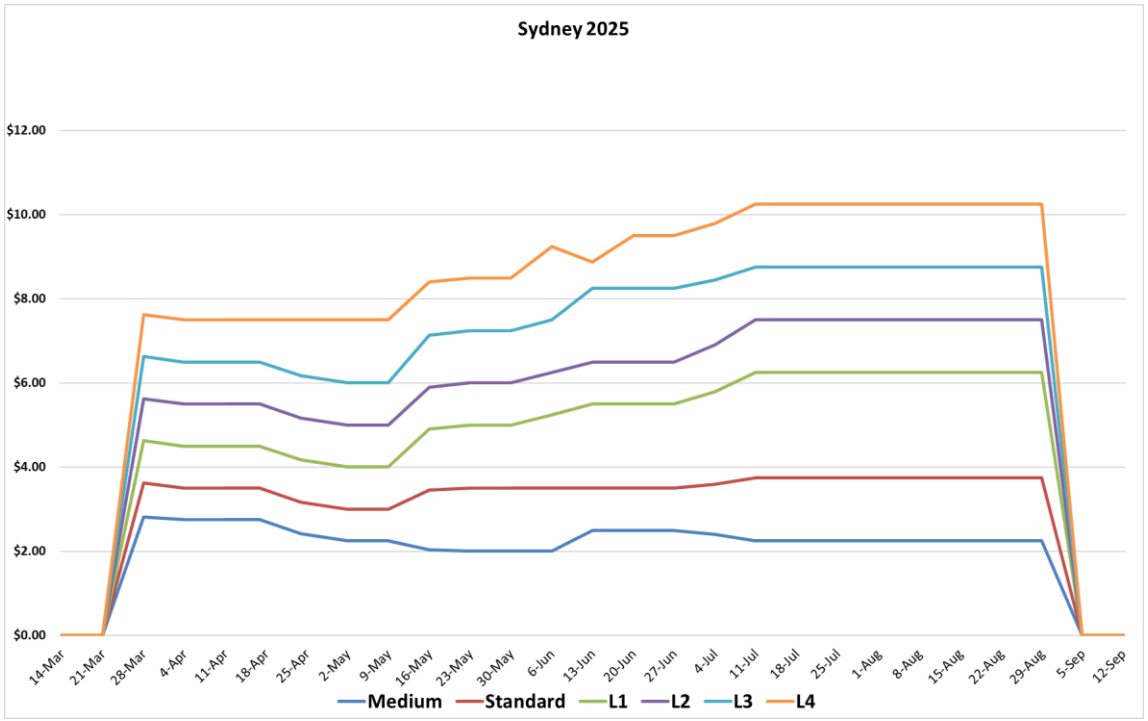


Chart 2

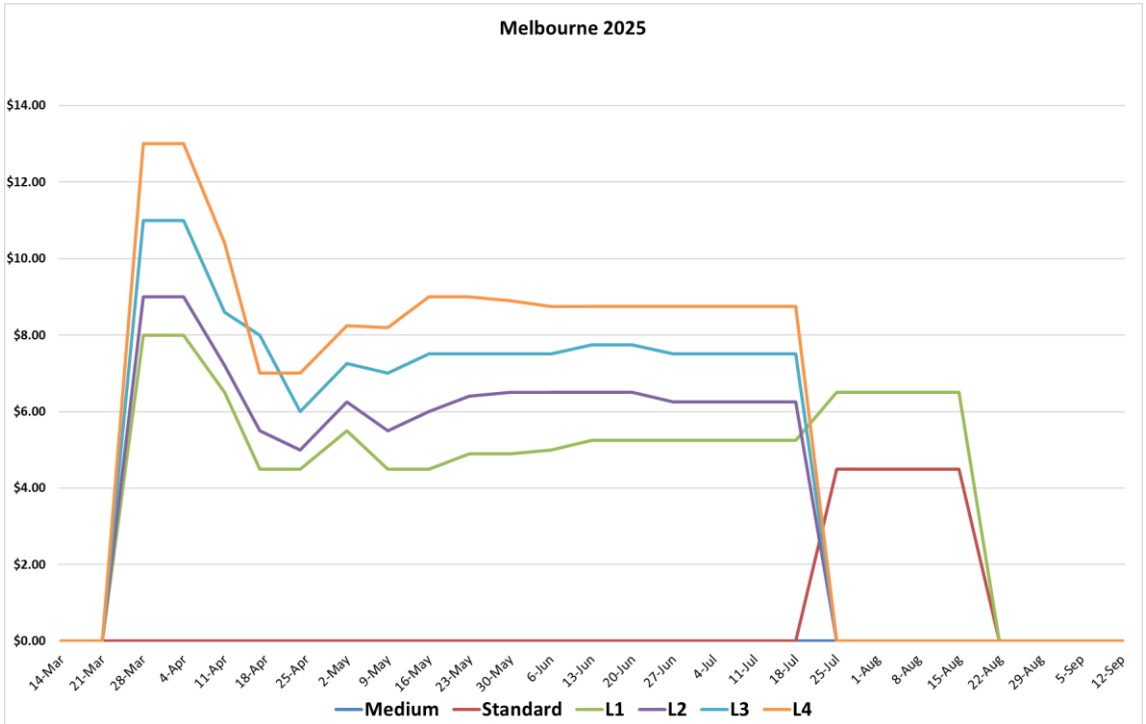


Chart 3

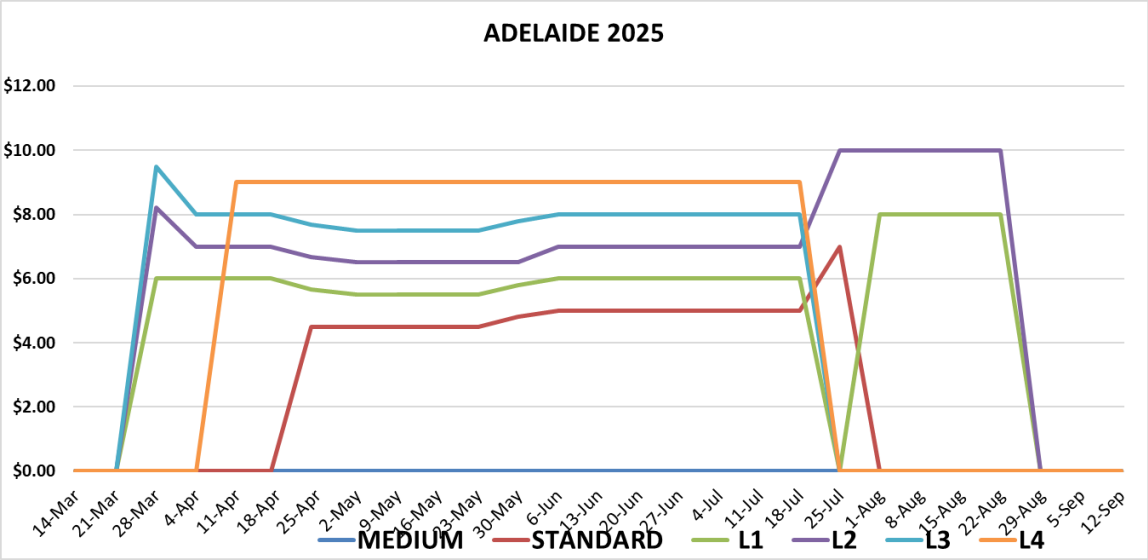


Chart 4

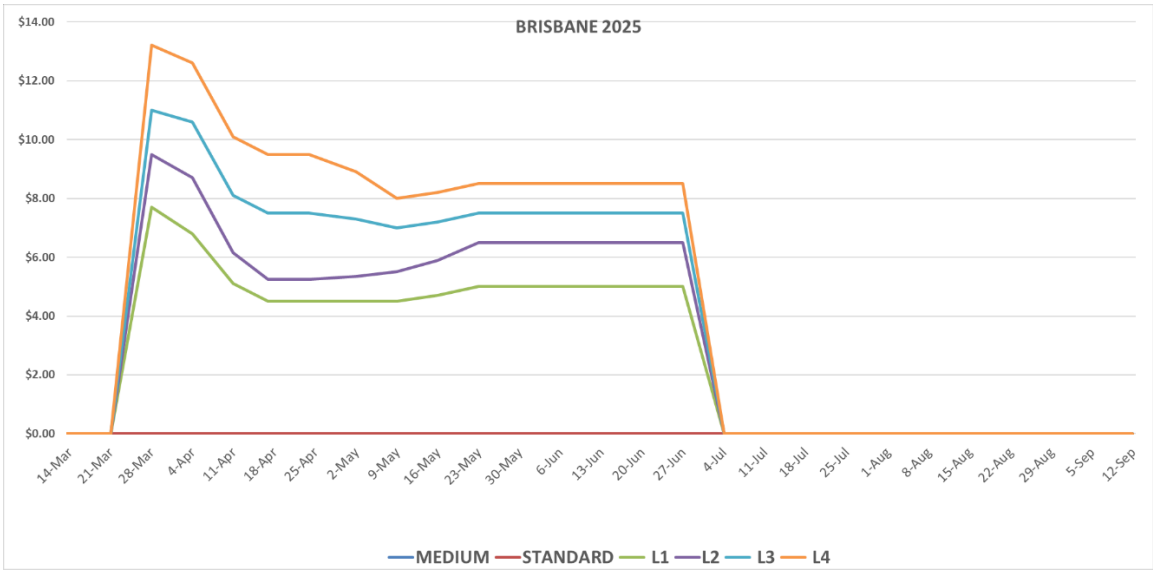
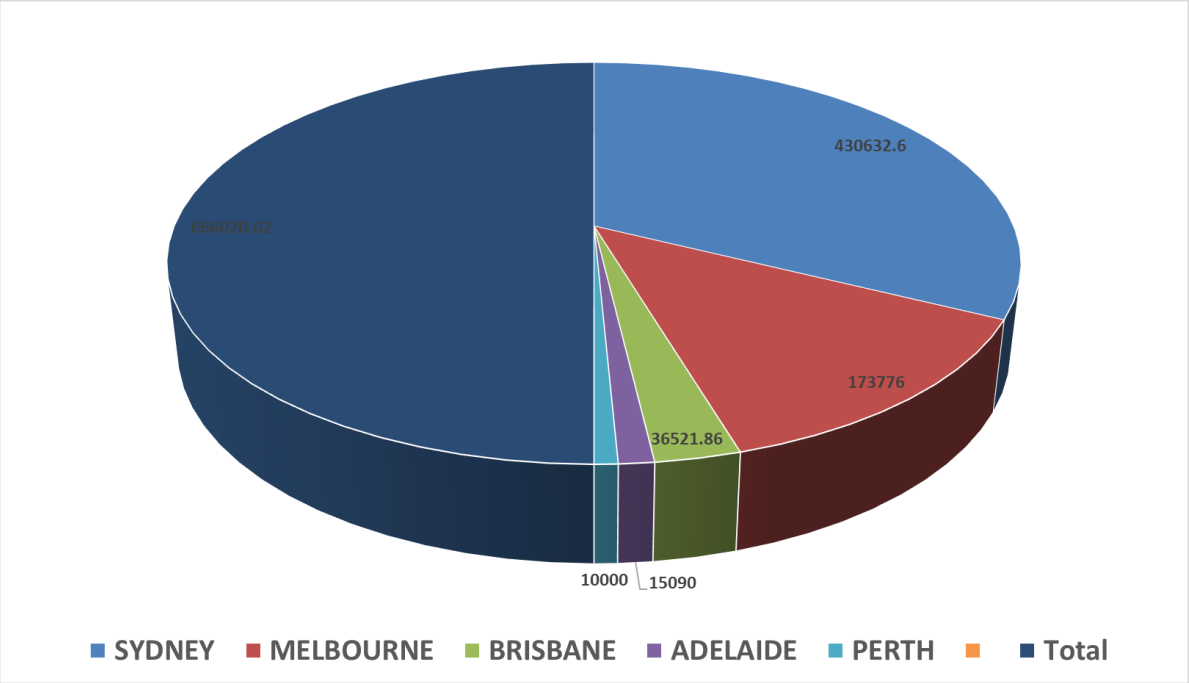


Chart 5 is information gathered from the major transport company from NE Victoria ONLY. (This is not the complete numbers for Australia).

Chart 5



Based on the assumption that 70% of Australian Chestnut production comes from NE Victoria if we extrapolate forward, then the estimated total Australian Chestnut Production for 2025 was approximately 952 tonnes.

2025 AUSTRALIAN CHESTNUT INDUSTRY CONGRESS

Optional meet and greet and informal dinner Friday 12th.

Saturday 13th and Sunday 14th SEPTEMBER 2025

VENUE

WANGARATTA QUALITY INN

DELEGATE SPONSOR

THE CONGRESS IS BEING SUPPORTED AS PART OF THE NATIONAL BUSINESS EVENTS PROGRAM (REGIONAL VICTORIA)

MELBOURNE Convention Bureau

BUSINESS EVENTS VICTORIA

MEET IN REGIONAL VICTORIA

PROGRAM

FRIDAY 12th September 2025

Opportunity for any Chestnut Growers to meet with John Stanley for a 15-minute one-on-one session about value-adding and or Food trails.

Informal Dinner in the hotel restaurant at OWN costs.

PROGRAM

SATURDAY 13th SEPTEMBER 2025

INDUSTRY WORKSHOP - KEYNOTE PRESENTATION

8:30 **am REGISTRATION**

8.55 am Welcome

9:00 am: "***A Nutty Affair: Developing a Chestnut Business into a key Destination".***

The session will cover: -

- Why be a Chestnut Grower?
- What are your values?
- Price Taker or Price Maker?
- What are the key ingredients for success?
- How can we sell more chestnuts in Australia?

This will be an interactive 'workshop' for chestnut growers led by the acclaimed industry/international speaker – **John Stanley.**

John Stanley is a qualified horticulturist who consults to agricultural and horticultural business in 35 countries. He is a Nuffield Scholar and a professional speaker.
Eleven years ago, John and his wife, Linda, purchased a chestnut farm in Western Australia. Chestnut Brae had 1,000 sweet chestnut trees and the previous owners sold chestnuts directly to market, often at a loss.
John and Linda toured the world to learn about chestnut growing and how to become "Price Makers" and not "Price Takers" in the industry.
Chestnut Brae now supplies everything from Chestnut Liquor to Chestnut Flour and is recognized globally as an agritourism destination.
John has presented his ideas to chestnut growers in the USA, Italy and France.

10:30 am: **Morning Tea - in Trade Display area**

11:00 am: Workshop continues.

12:30 pm: Workshop concludes and LUNCH.

CHESTNUT CONFERENCE.

1.30 pm "***OFFICIAL OPENING"***

1:35 pm "***Biostimulants and plant/soil health"***
Robert Stanic, Sonic Essentials (TBC)

2:05 pm "***ProBlad - a multi-faceted fungicide"***
7 Worlds Ag (TBC)

2:35 pm "***NE Region Weather Station Network application and usage"***
CropX/Green Brain/TAFCO

3:00 pm Afternoon Tea

3:30 pm "***Maximising yields through targeted Precision agriculture using Drones and bio fertilisers."***
Luke Weekley, Falcon UAV

4:00 pm ***NUT ROT – launch of***

- ***Australian Nut Rot Management Protocol***
- ***Australian Nut Rot Predictive Model''***

4.30 pm **2025 CHESTNUTS AUSTRALIA INC ANNUAL GENERAL MEETING**

- ***Australian Chestnut Levy Report***
- ***2025 Chestnut Marketing program report***

CONFERENCE DINNER:

6:30 pm Pre-Dinner Drinks followed by Conference Dinner at 7:00 pm

CONFERENCE (Cont'd)

SUNDAY 14th SEPTEMBER 2025
7:30 am Conference Breakfast

9:00 am "***What's new in grading equipment for chestnut producers".***
UNITEC Asia Pacific *(TBC)*

9:30 am "***NUT ROT – update***

- ***Overseas trial reports***
- ***Australian trial reports***
- ***In-vitro project report***
- ***Other R&D Programs – soil, irrigation, endophytes''***

10:30 am Morning Tea

11:00 am Orchard visit

- Drone flight
- Launch and Inspection of Indigo Extension - TAFCO Weather stations.

The **Indigo Extension – TAFCO Online Weather Station Network** is supported by the Australian Government through funding from the Natural Heritage Trust under the Climate-Smart Agriculture Program and delivered by North East CMA in partnership with Indigo Shire Council.

12:30 pm Light Lunch organised by TAFCO and Indigo Shire

SPONSORS:

ACCOMMODATION:

ACCOMMODATION IS AVAILABLE AT

THE WANGARATTA QUALITY INN
Just Quote Chestnuts Australia Inc

OR

OTHER MOTELS WITHIN WANGARATTA AND SURROUNDS.

……

2025 AUSTRALIAN CHESTNUT INDUSTRY CONGRESS

Optional meet and greet dinner Friday 12th.
Saturday 13th and Sunday 14th SEPTEMBER 2025

REGISTRATION FORM:
Register by completing below.

Business Name: .....

Address: .....

.....**Postcode:** .....

Phone: ..... **Mobile:** .....

E-mail: .....

FULL REGISTRATION: In part sponsored by NATIONAL BUSINESS EVENTS PROGRAM (REGIONAL VICTORIA)
Covering Saturday Congress, Saturday night Dinner (3-course), Sunday morning breakfast and Conference and Sunday orchard walks.
Members: $143 (Inclusive GST) Non-Members: $187 (inclusive GST)

PART REGISTRATION:
Saturday Workshop: Members: $77 (Inc GST) Non-Members: $110 (Inc GST)
Saturday Night Dinner: Members: $77 (Inc GST) Non-Members: $110 (Inc GST)
Sunday Breakfast, Workshop and Orchard visit: Members: $66 (Inc GST) Non-members: $99 (Inc GST)

CAI Member YES NO

The following person(s) will be attending the

a) Saturday Congress: YES NO

b) Saturday Dinner: YES NO

c) Sunday Breakfast and Workshop: YES NO

d) Sunday morning orchard walk: YES NO

How many seats ..... **Payment $**.....

NAMES:
....

....

DIETARY REQUIREMENTS: .....

RSVP: **ASAP**

RETURN FORM TO: Trevor Ranford
27 Ludgate Hill Road, ALDGATE. SA. 5154
E-mail: sahort@bigpond.com

Signature: .....**Date:** .....

Payment option - EFT
Bank Account name: Chestnuts Australia **BSB: 803 070** **Acc No: 74674**
(Register with Surname and 25 Congress)

Australian Chestnut Industry Congress 2025

SWOT Analysis Report

Wangaratta, Victoria – 13–14 September 2025

Prepared by CAI Communications Team

Contents

1. Executive Summary

At the 2025 Australian Chestnut Industry Congress in Wangaratta, six grower break-out groups completed a structured SWOT. Their inputs confirm a strong base: a distinctive, versatile product; proven varieties; and credible health credentials aligned with modern diets. The biggest constraints remain nut rot, uneven handling and quality through the chain, small industry scale, and low consumer familiarity that suppresses repeat purchase.

Opportunities are practical and near-term: value-adding and processing to lift returns on second-grade nuts; simple education for retailers and consumers to reduce waste and confusion; agri-tourism and food-service partnerships to widen demand; and a clearer national brand to unite messaging. Key threats include biosecurity incursions, climate variability, and fragile logistics that can erode market trust.

Six priority actions emerged:

- Intensify research on nut rot and resistant varieties.
- Implement national QA standards.
- Promote health benefits and preparation.
- Support cooperative processing.
- Plan proactively for climate and biosecurity risks.
- Engage schools and younger consumers.

Together, these actions form a pragmatic roadmap that aligns grower capability with market needs.

Digital readiness was also considered. Practical AI can translate weather, soil and imagery into go/no-go prompts, anticipate disease risk windows, schedule irrigation, auto-write compliance records, and benchmark seasons—tools that strengthen QA and decision speed without replacing grower judgement. Early pilots should target high-value use cases with clear ROI, strong data stewardship and grower control, then scale through extension once benefits are demonstrated.

2. About the Presenter

John Stanley is a qualified horticulturist, international consultant and professional speaker who has worked with agribusinesses in over 35 countries. A Nuffield Scholar, John and his wife Linda own Chestnut Brae in Western Australia, where they transformed a small chestnut farm into a globally recognised agritourism and value-adding enterprise.

Their operation produces chestnut flour, chestnut liquor and a range of processed products. John has shared his expertise with chestnut industries in the USA, Italy and France, and brought this experience to the Australian Congress workshop.

3. Introduction

This report summarises the outcomes of a participatory SWOT analysis run during the Australian Chestnut Industry Congress, Wangaratta, 13–14 September 2025. Six break-out groups of growers contributed their views, which were captured as dot points and then synthesised into short explanatory paragraphs. The method intentionally privileges grower experience: it focuses on what is working, what is not, where value could be unlocked, and what might put that value at risk.

SWOT is a simple framing, but it helps align technical detail with commercial reality.

Strengths: product quality, varietal diversity, health positioning, and a collaborative culture define the base to build on.

Weaknesses: nut rot, inconsistent retail handling, small scale, and limited consumer know-how where capability must lift.

Opportunities: processing, education, agri-tourism, and partnerships indicate where near-term wins are possible.

Threats: biosecurity, climate variability, and fragile supply chains highlight external risks that require coordinated readiness.

The workshop's outcomes are not a statistical survey and do not replace formal R&D or market analysis. Rather, they provide an agreed list of priorities from active producers. Those priorities are translated here into specific, staged recommendations that combine immediate practice changes with medium-term investment.

The aim is to deliver practical steps that improve product reliability, strengthen demand, and sustain grower profitability. The process also emphasised feasibility. Ideas were kept practical, low-cost where possible, and sequenced so wins in the coming season support deeper change.

In regard to governance matters, clear roles for industry bodies, grower groups and retailers are proposed, with simple measures to track progress and adjust plans as evidence and market conditions evolve in practice.

4. Strengths

Great product

Chestnuts are a seasonal nut with a distinctive flavour, texture, and versatility that make them attractive to both consumers and chefs. This provides growers with a premium product to market.

Good varieties

A range of chestnut varieties is available in Australia, each with specific qualities such as ease of peeling, roasting quality, or suitability for processing. This diversity supports different market niches.

Health benefits – low fat, low sugar

Unlike most other nuts, chestnuts are low in fat and sugar and high in fibre and complex carbohydrates. This positions them strongly in health-conscious markets.

Brand

There is an untapped opportunity to create a strong national brand identity for Australian chestnuts that can highlight provenance, quality and health benefits.

Volume of oz production

While still small compared to other nut crops, Australian chestnut production is growing steadily, providing enough volume to meet domestic demand and begin developing processing options.

Community network is strong.

Growers share knowledge and collaborate through Chestnuts Australia Inc. This network strengthens industry resilience and facilitates collective action.

Good product

Reinforces that chestnuts are a high-quality, appealing nut that consumers can enjoy in many different forms.

Wholesale agent's network

Established wholesale agent channels give growers access to wider markets beyond direct farm sales, supporting commercial viability.

Comparatively low input costs

Chestnut orchards generally require fewer chemical inputs than many crops, reducing costs and supporting sustainable production.

$/acre is profitable.

Where orchards are well-managed and quality is maintained, chestnuts can generate attractive returns per hectare.

Low impact pest/disease

Although nut rot is a concern, chestnuts are otherwise relatively free from severe pest and disease pressures, compared to other horticultural crops.

Hardy species

Chestnut trees are durable and adaptable, making them suitable for a range of growing regions in Australia.

Longevity of crop/yrs

Trees are long-lived and can remain productive for many decades, spreading establishment costs and providing intergenerational opportunities.

Experienced growers

The industry benefits from an established cohort of experienced growers who bring knowledge and credibility.

Small industry

Being small allows for agility, close connections between growers, and the ability to adapt quickly to new opportunities.

Versatile & flexible product / Product – versatility

Chestnuts can be roasted, boiled, milled into flour, puréed, or incorporated into a wide range of cuisines, increasing market reach.

Collaborative industry (knowledge sharing)

Growers are generally open to sharing information and working together, supporting faster adoption of best practice.

Varietal improvements

New cultivars are being developed or tested, offering better peeling, higher quality, or greater disease resistance.

Superfood/wellness

Chestnuts fit into the global “superfood” trend, making them easier to promote to health-conscious consumers.

Community / Healthy / Sexy / Multicultural / Homely & nostalgic / Story – vegetarian / Low calories & low GI / Fun / Unique?

These descriptors capture the consumer appeal of chestnuts: they are linked with community and tradition, resonate across cultures (Asian, European), are modern and “fun” to cook with, and can be positioned as a healthy, unique product in the food landscape.

5. Weaknesses

Industry is too small for volume for export, milling & flour.

Current production levels are insufficient to consistently supply export markets or establish large-scale flour and processing facilities.

Nut rot

Gnomoniopsis nut rot remains the single biggest production and quality issue, undermining consumer confidence.

Quality control – farm

Variability in on-farm practices results in inconsistent quality of nuts reaching the market.

Customer (Supermarkets)

Supermarkets often handle chestnuts poorly, leading to damage and loss of consumer trust.

Long time (yrs) to first harvest ($)

Chestnut orchards take years to reach full production, delaying return on investment and deterring new growers.

Attracts 'amateur' growers to detriment of the industry.

Low entry barriers can bring in inexperienced growers whose practices harm the reputation of chestnuts overall.

Small size industry nationally & gov. funding etc.

The small scale of the industry makes it harder to attract significant government or research funding.

Public knowledge is still lacking.

Consumers remain unfamiliar with how to cook or use chestnuts, limiting demand.

Target can be limited to small cultural demographics.

Consumption is often restricted to groups with cultural traditions of chestnut use, reducing mainstream uptake.

Chestnut is still considered an allergen.

Confusion between chestnuts and tree nuts discourages some consumers due to perceived allergy risks.

Consultants to assist growers.

There are few expert consultants available specifically to support chestnut growers.

Small industry / Consistent product / Retailers handling / No young farmers coming through / Costly start up barrier.

A combination of limited scale, inconsistent product quality, poor retail handling, lack of generational renewal, and high establishment costs creates ongoing challenges.

Consumer does not understand / Industry does not understand consumer.

There is a knowledge gap on both sides: consumers don't understand preparation, and the industry has not always understood consumer expectations.

Time consuming to prepare.

Peeling and cooking chestnuts is seen as difficult by many consumers, reducing convenience appeal.

Resistance to co-op, scale

Growers' reluctance to cooperate limits the ability to develop shared processing or export markets.

Hard to sell / Pest & disease / Individual growers / Education / Quality consistency / Preparation / Demand

These issues further highlight the challenges around quality, demand, pest pressures, and lack of unified industry approaches.

6. Opportunities

Currently no imports of chestnuts

The lack of imported competition gives Australian chestnuts full access to the domestic market.

A lot of processing opportunity

Processing into flour, purée, liquor and snacks provides avenues to expand markets and use lower grade nuts.

Alternate species possibilities (oak)

Exploring related species and diversified uses (e.g. agroforestry) may broaden grower options.

Angus finished on chestnuts

Chestnuts can be used as livestock feed, creating niche marketing opportunities for premium meat products.

Vegetarian/vegan markets

As a gluten-free, plant-based carbohydrate, chestnuts are well positioned to serve vegan and vegetarian diets.

Co-op / Processing / Educate / Undersold

Developing cooperatives, processing capacity and consumer education campaigns can expand demand and supply reliability.

General public ignorant re chestnuts – not seen/tasted – no idea

Consumer unfamiliarity remains an opportunity if tackled through education and marketing.

Agri tourism / Value add opportunities / Grow/expand market

Farmgate tourism, festivals and value-adding can provide additional revenue and promote chestnuts more widely.

Partnerships in other industries – ice cream / Honing & targeting markets / Added value – Bouché

Chestnuts can be incorporated into other food sectors, helping increase visibility and consumption.

Centralised processor / Export?? – restaurant / Veggie & processed chestnuts

Shared processing facilities and small export niches (e.g. high-end restaurants) are realistic next steps.

Schools / Veggie recipes!! / Flavoured shake

Engaging children and linking chestnuts into healthy recipes creates future demand and mainstream awareness.

7. Threats

WA borer

An incursion of exotic borers would severely damage orchards.

Nut rot – production and perception

Nut rot continues to reduce yields and consumer trust in chestnuts.

Phytophthora – no successful treatments

This soil-borne disease poses a major long-term risk with no easy management solutions.

Climate change – ideal areas changing

Shifts in rainfall and temperature threaten existing production regions.

Customer confidence in product

Any decline in chestnut quality at retail undermines consumer loyalty.

Financial climate

Economic downturns can reduce demand for premium nuts.

Biosecurity / Blight / Supply chain breakdown / Supermarket handling

Biosecurity risks, potential outbreaks of chestnut blight, fragile supply chains, and poor retail handling remain significant threats.

8. Actions / Priorities

Educating children on the nutritional benefits of chestnuts for long term industry future

Introducing chestnuts into schools builds knowledge and consumption habits in future generations.

Eliminate nut rot and maintain quality

Addressing nut rot is the most pressing priority to secure both production and consumer confidence.

Educating retail

Retail staff and buyers need clear guidance on correct handling and storage of chestnuts.

Guarantee our product quality

Setting clear standards across the industry will ensure consumers consistently receive high-quality nuts.

Identify varieties e.g. easy peeling/boiling/roasting

Improving variety selection for peeling and cooking will reduce consumer barriers.

Health benefits

Promoting nutritional advantages is central to chestnuts' value proposition.

Educate / market to increase demand

Sustained campaigns are needed to grow awareness and sales.

Establish threshold for acceptable level of nut rot → grower + wholesaler

Clear quality thresholds will guide both growers and wholesalers, improving consistency.

Identify varieties that are resistant to nut rot

Breeding and selecting resistant varieties is a long-term solution to disease pressure.

Identify timing of spore release for optimal management

Understanding disease epidemiology is critical for predictive models and effective spray timing.

Processing (co-op)

Shared facilities will allow efficient use of lower-grade nuts and consistent supply for new markets.

Respond to climate change → varieties (not red)

Futureproofing through variety adaptation and climate-smart practices is necessary.

Educate (post-harvest) consumer & retailer – nutrition & "how to"

Practical education reduces waste and frustration, supporting repeat purchases.

Convenience packed microwave ready chestnuts plus other value adding products

Developing ready-to-use formats will attract new consumers who value convenience.

Solve nut rot & QA issues

Industry-wide action is needed to ensure product reliability and trust.

Use of AI to improve production & quality management

New technologies such as AI can support orchard monitoring, predictive disease management, and postharvest quality control.

SUMMARIES OF THE GROUP WORKSHOP SESSION:

GROUP A:

STRENGTHS:

- Community.
- Healthy.
- Multicultural consumers – European and Asian.
- Homely and nostalgic.
- Story – Vegetarian.
- Low Calories and low GI.
- Nut Allergies alternative.
- Unique.

WEAKNESSES:

- Hard to sell.
- Individual growers.
- Education – unique product.
- Quality consistency.
- Preparation.
- Demand.

OPPORTUNITIES:

- Flavoured shake bags and Air fryers.
- Partnership with other industries e.g., Ice cream.
- MKR and MasterChef.
- Honing and targeting markets.
- Added Value – centralized processer - Bouche.
- Exports.
- Restaurant.
- Veggie recipes – e.g., pre-processed chestnuts for recipes (cauli rice) – need consistent supply.
- Veggie and processing.
- Chestnutella.
- Chestnut – ella.
- Schools – low allergy.

THREATS:

- Biosecurity.
- Nut Rot.
- Blight.
- Supply chain breakdown.
- Supermarket handling.

GROUP B:

STRENGTHS:

- Experienced growers.

- Small Industry.
- Versatile and flexible product.

WEAKNESSES:
- Lack of consultants to assist growers.
- 'small' industry.
- Inconsistent product.
- Retailer handling.
- No young farmers coming through.

OPPORTUNITIES:
- Co-operative – processing.
- Educate.
- Where are we?
- How and what you plan to develop within the Chestnut Market.

THREATS:
- Climate change – disease.
- Lack of confidence.

TOP THREE ACTIONS/TOPICS:
1. Processing (Co-op).
2. Respond to climate change – Varieties (no crop in February).
3. Educate Consumer and retailer – post harvest – nutritious and 'how to'.

GROUP C:

STRENGTHS:
- Great Product
- Good varieties
- Health Benefits – low fat – low sugar

WEAKNESSES:
- Industry too small for volume for – export – milling for flour.
- Nut Rot
- Quality Control – farm – customer – retailer (Coles)

OPPORTUNITIES:
- Undersold
- General public ignorant regarding chestnut - Not seen/tasted – No idea.
- Agri-tourism
- Value-add opportunities.

THREATS:
- Nut Rot
- Shot Hole Borer
- Quality Control – Seasonal – product care/management

GROUP D:

STENGTHS:

- Volume of Oz product.
- Community network is strong.
- Good product.
- Wholesale agents.
- Comparatively low input costs.
- $/acre is profitable.
- Low impact – pests/diseases.
- Hardy species.
- Longevity of crop/years

WEAKNESSES:

- Long time (years) to first harvest ($).
- Attracts 'amateur' growers to detriment of the industry.
- Small size industry and nationally limited government funding, etc.
- Public knowledge is still lacking.
- Target can be limited to small cultural demographics.
- Chestnut is still considered an allergen – difficult to conquer the stigma.

OPPORTUNITIES:

- Currently no imports of chestnuts.
- A lot of processing opportunities.
- Alternative species possibilities (oak)
- Angus finished on chestnuts.
- Vegetarian/Vegan markets.

THREATS:

- WA Borer.
- Nut Rot - production – public perception – reduces consumer confidence.
- Phytophthora – no successful treatments.
- Climate Change – ideal areas for growing are changing.

ACTIONS TO IMPROVE THE INDUSTRY:

1. Convenience packed microwave ready chestnuts plus other value-adding products.
2. Solve Nut Rot and QA issues.
3. Use of AI to improve production and quality management.

GROUP E:

ACTIONS:

1. Educate market to increase demand.
2. Establish threshold for acceptable level of nut rot – for grower – for wholesaler.
3. Identify varieties that are resistant to nut rot.
4. Identify timing of spore release for optimum management for nut rot.

GROUP F:

ACTIONS:

1. Educate children on the nutritional benefits of chestnuts for long term industry future.
2. Eliminate nut rot and maintain quality.
3. Educate retail.
4. Guarantee our product quality.
5. Identify varieties e.g., Easy peel, roasting.
6. Health benefits.

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9. Recommendations

a) Invest in nut rot research and resistant varieties

Nut rot remains the single most pressing challenge to chestnut quality and market growth. Investment in detailed research on the epidemiology of the fungus, predictive modelling for spore release, and the breeding or identification of resistant cultivars is essential. This approach will reduce crop losses, safeguard grower profitability, and rebuild consumer confidence. A coordinated industry-wide commitment will ensure solutions are delivered efficiently and adopted consistently across production regions.

b) Develop national QA standards to ensure product consistency

Consistency in product quality is critical to expanding consumer demand. A national quality assurance program should establish clear thresholds for acceptable nut rot levels, handling guidelines, and storage requirements. Standards must apply across farms, wholesalers, and retailers so consumers receive a reliable experience. QA accreditation can also support access to premium markets and position Australian chestnuts as trustworthy and high-quality, making it easier to justify higher price points and expand into export opportunities.

c) Promote chestnuts' health benefits and preparation methods widely

Consumers often remain unaware of the unique nutritional profile of chestnuts and how simple they are to prepare. A sustained marketing effort should highlight their low fat and low sugar content, fibre, and suitability for gluten-free diets. Campaigns should include demonstrations, recipes, and convenient preparation tips to overcome perceived complexity. This dual focus on health and ease of use will broaden consumer appeal, create repeat purchase behaviour, and encourage chestnuts to become a regular item in shopping baskets.

d) Support cooperative processing and value-adding ventures

Individual growers often lack the scale to justify investment in processing facilities. Cooperative models can overcome this barrier by pooling second-grade nuts for flour, purée, snack products, and other value-added items. Such ventures spread costs, reduce waste, and extend market reach. By working together, growers can create a consistent supply that attracts larger customers, improves bargaining power, and diversifies income streams. This strategy also helps stabilise prices and ensures a greater share of the value chain remains with growers.

e) Plan proactively for climate change and biosecurity risks

The chestnut industry faces increasing challenges from changing weather patterns, shifting climatic zones, and the threat of exotic pests and diseases. Proactive planning requires investment in climate-resilient cultivars, improved irrigation and soil management practices, and robust biosecurity protocols. Scenario planning and contingency frameworks should be shared across the industry to ensure rapid response in the event of an incursion. A forward-looking approach will build resilience, reduce vulnerability, and reassure consumers that Australian chestnuts are a secure and sustainable product.

f) Engage schools and young consumers to build long-term demand

To secure the industry's future, chestnuts must be introduced to the next generation of consumers. School-based programs, nutritional education, and tasting experiences will normalise chestnut consumption early in life. Ready-to-eat convenience products also appeal to younger consumers with busy lifestyles. Building familiarity and positive associations with chestnuts among children and young adults creates lasting demand. In parallel, efforts should be made to attract younger farmers into the industry, ensuring generational renewal in both production and consumption.

g) Adopt practical AI for day-to-day management

Adopt AI where it directly sharpens decisions and saves time. Prioritise tools that turn weather, soil-moisture and imagery into simple go/no-go prompts; forecast disease windows to guide sanitation, harvest order and label-compliant sprays; schedule irrigation to avoid over- or under-watering; and auto-write spray, irrigation and sanitation records for QA and audits. Use grader or camera-based checks to flag damage early and divert suspect lots. Start with one or two high-impact pilots, keep humans in the loop, protect data privacy, and measure ROI in fewer defects, steadier grades and labour saved. Scale successful pilots through extension and shared procurement.

10. Conclusion

The chestnut industry possesses the ingredients for durable growth: a product with genuine culinary and health appeal, a base of experienced growers, and a culture of sharing practical know-how. Yet these assets cannot reach their full potential while nut rot persists, quality varies through the chain, and consumer familiarity remains low. The workshop made clear that progress depends on simultaneous attention to orchard health, postharvest practice, and market confidence.

A focused program can deliver that shift. Research on disease epidemiology and resistant varieties must pair with national QA standards that travel from farm to retailer. Education should make preparation effortless for households and handling clear for stores. Cooperative processing can monetise second-grade nuts and enable a steady supply of flour, purée, and ready-to-eat formats. Proactive planning for climate and biosecurity risks will protect hard-won gains.

Success should be measured by fewer rot-affected lots, higher repeat purchase rates, and improved margins from value-added products. A staged approach with quick wins now, capability building over the next two seasons, and longer-term breeding and infrastructure, will balance urgency with realism.

AI is an enabler across this agenda, not a silver bullet. Adopt it where it measurably improves timing, consistency and compliance: weather-to-action alerts, disease-risk forecasting, irrigation scheduling, postharvest diversion of suspect lots, auto-logging for PHI/REI and QA, and season benchmarking. Start with small, supervised pilots on clearly defined problems, protect data privacy, and keep humans in the loop. As benefits are proven, scale through industry templates, training and shared procurement to lower costs for smaller orchards.

If industry bodies, growers, advisors, and retail partners coordinate around this roadmap, Australian chestnuts can reliably deliver quality, convenience, and confidence to consumers, securing profitable, resilient growth. Implementation should begin immediately with targeted pilots and retailer engagement ahead of peak sales.

Chestnut Brown Rot Protocol (Australia)

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1. Introduction and Scope

Objective: To reduce the impact and spread of chestnut brown rot in Australian orchards, support national consistency in disease identification and response, and provide a foundation for ongoing research, surveillance, and management.

Target Crop and Disease: European and hybrid chestnut (*Castanea sativa* and cultivars) affected by nut rot primarily caused by *Gnomoniopsis smithogilvyi*.

Legal Basis: While there are currently no specific Commonwealth regulations for nut rot in chestnuts, this protocol aligns with general biosecurity provisions under the Biosecurity Act 2015 (Cth), Plant Health Australia frameworks, and relevant state-based plant health legislation**.**

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2. Pest or Pathogen Profile

Scientific and Common Name: *Gnomoniopsis smithogilvyi* (chestnut rot fungus)

Taxonomy and Morphology: Ascomycete fungus in the family Gnomoniaceae; produces conidia in pycnidia; identifiable via molecular markers and culture.

Distribution: Found throughout southeastern Australia (Victoria, NSW, Tasmania), Europe (Italy, France, Switzerland), New Zealand, and the USA.

Biology and Lifecycle: Infects flowers, burrs, and developing nuts. Infection can remain latent until harvest. Overwinters in woody tissue, fallen nuts, and burrs. Peak infection occurs during flowering (late October to mid-November in SE Australia).

Means of Spread and Entry Pathways: Spread via airborne spores, infected planting material, orchard tools, and contaminated nuts.

Host Range: *Castanea sativa*, *Castanea crenata* hybrids, and other *Castanea* species.

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3. Risk Assessment Summary

Entry, Establishment, and Spread Potential: High risk in all Australian chestnut-growing regions. Easily established in moist, temperate climates.

Economic and Environmental Impact: Yield losses >50% reported in unmanaged blocks. Impacts nut quality, storability, and market access.[1]

Previous Incursions or Outbreaks: First confirmed in Australia in early 2010s. Now endemic.

Likelihood of Spread: High—especially through wet seasons, poor orchard sanitation, or shared equipment.

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[1] Source: *Visentin, I., et al. (2012). First report of Gnomoniopsis castanea causing nut rot on sweet chestnut in Italy. Plant Disease, 96(3), 460.*

4. Surveillance and Detection

Visual Inspection Guidelines: Monitor for browning of kernels, discoloured internal tissue, blackened tips, or off-odours in stored nuts.

Sampling Methods and Frequency: Random harvest sampling (20 nuts/tree, 10 trees/block) at peak drop; pre-storage.

Laboratory Diagnostic Protocols: Culture and PCR-based testing using specific primers (e.g. ITS, tef1-alpha).

Early Warning Systems: Growers should routinely record the incidence of chestnut nut rot in their orchards, ideally during and after harvest, using a consistent scoring system (e.g. percentage of affected nuts per tree or per bin). These records should be uploaded to a shared digital extension platform, coordinated by AWIA, that links nut rot observations with relevant weather, spray and orchard management data.

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5. Management and Control Measures

Movement Restrictions: Restrict movement of unprocessed nuts and plant material from heavily affected regions during high-risk periods.

Destruction or Treatment: Destroy dropped infected nuts and burrs; avoid composting.

Cleaning/Disinfection: Sanitise tools and harvest bins with bleach or peracetic acid.

Eradication Procedures: Not currently feasible: management is containment and reduction focused.

---

6. Integrated Pest Management (IPM) Recommendations

Cultural Controls:

- Prompt harvest and removal of dropped nuts
- Prune to open canopy and increase airflow
- Collect and remove infected burrs and nuts promptly. If mulching is used, ensure material is either hot-composted, buried, or removed from the orchard to prevent carryover of fungal inoculum.

Biological Controls: Under investigation; none currently registered.
Resistant Varieties: No fully resistant cultivars available; anecdotal reports of partial tolerance in some hybrids.

---

7. Chemical Control

FIRST TREATMENT

- **Conditions**: full anthesis (phase k in Figure 1). Repeat after 7-14 days.
- **Chemical Options:** As below

Product	Label	Dosage by label	Mode of use

Comments:

SECOND TREATMENT

Conditions: burr and fruit ripening (between the end of August – the end of September in Northern hemisphere depending on the variety). Time of burr and fruit ripening might slightly change depending on geographic areas.

Chemical Options:

Product	Label	Dosage by label	Mode of use

Comments:

THIRD TREATMENT

A third treatment is suggested with …… immediately before harvest.

Comments:

8. Monitoring and Reporting

Ongoing Surveillance: Growers to maintain block-by-block nut rot logs.

Record Keeping: Include nut rot incidence in spray diaries or digital crop management tools.

Thresholds for Action: >10% rot in sampled nuts triggers review of hygiene, canopy, and harvest practices.

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9. Training and Communication

Grower Education: Delivered via AWIA and AgVic workshops, online fact sheets, and demonstration blocks.

Public Awareness: Minimal given non-quarantine status, but seasonal updates to be issued via grower newsletters.

Stakeholder Responsibilities:

- Growers: on-farm implementation
- Industry (AWIA): knowledge coordination
- Government: support through extension and monitoring

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10. Evaluation and Review

Effectiveness Assessment: Annual survey of nut rot incidence and grower practices.

Update Triggers:

- New biological control available
- Fungicide registration
- Climate shifts affecting pathogen pressure

Review Timeline: Every 3 years or earlier if required.

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11. Appendices

A. Map of Australian chestnut zones

B. Lab diagnostic protocol (PCR and culture)

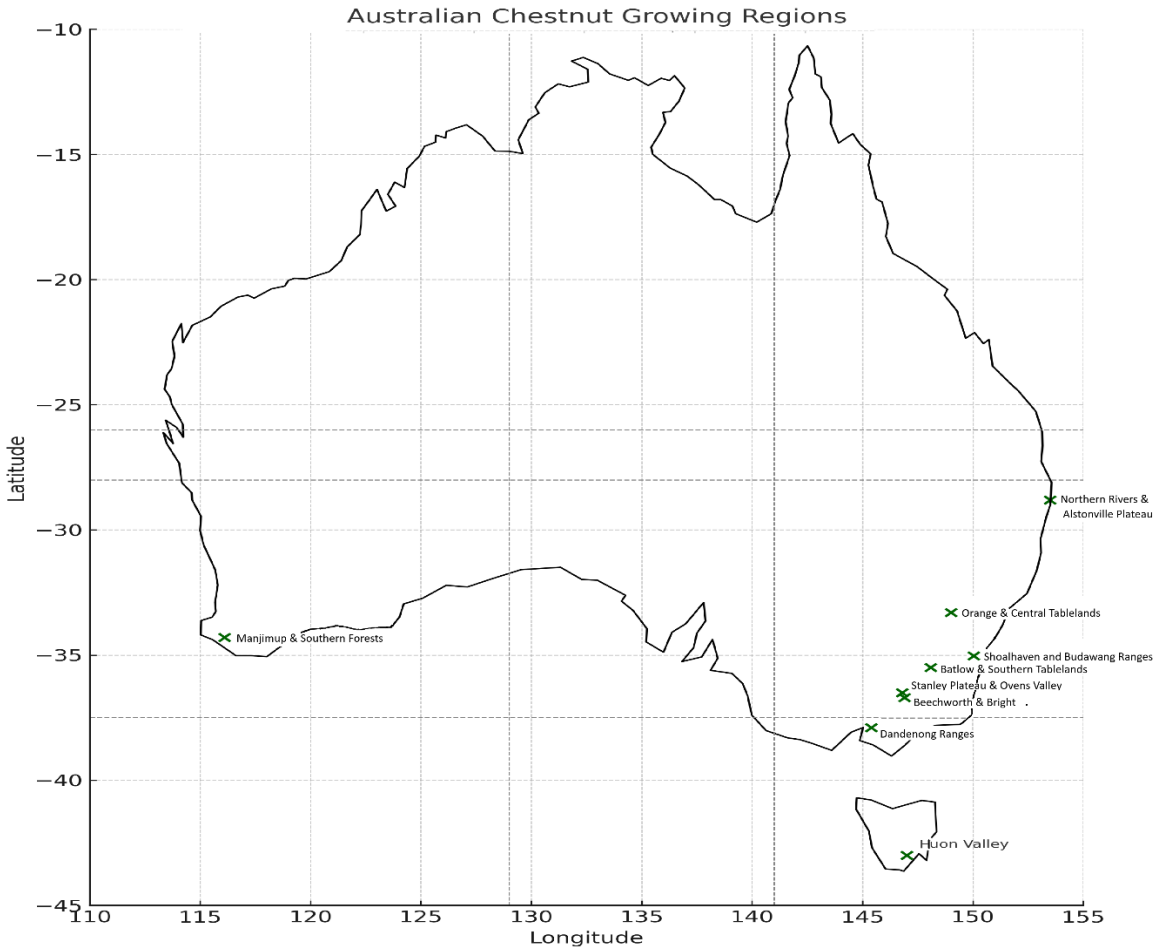
C. Pre-harvest and postharvest sanitation SOP

D. Glossary of terms

E. Approved labs for testing and reference isolates

Appendix A

Australian Chestnut Growing Regions



(Draft – still a work in progress – need state boundaries)

Appendix B

Lab Diagnostic Protocol (PCR and Culture) for Chestnut Nut Rot (Gnomoniopsis smithogilvyi)

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1. Sample Collection and Transport

- Collect symptomatic nuts showing internal browning, decay, or discolouration.
- Surface-sterilise with 70% ethanol and flame, or dip in 1% sodium hypochlorite for 30 seconds followed by sterile water rinse.
- Transport samples in sterile bags or tubes under cool conditions (<10°C); process within 24 hours if possible.

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2. Culture-Based Identification

2.1 Isolation Procedure

- Cut nut tissue into small pieces (~5 mm), focusing on margins of necrotic tissue.
- Place onto PDA (potato dextrose agar) or MEA (malt extract agar) plates under sterile conditions.
- Incubate at 22–25°C for 5–7 days in the dark.

2.2 Identification

- Look for fast-growing colonies with pale to grey-brown pigmentation.
- Microscopic observation: Pycnidia, conidia (1-celled, ellipsoidal), ~7–10 × 2–4 µm.
- Confirm by sub-culturing and comparing with reference isolates.

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3. PCR-Based Identification

3.1 DNA Extraction

- Excise fungal mycelium from 5-day-old culture.
- Extract DNA using CTAB method or commercial fungal DNA kits (e.g. Qiagen DNeasy Plant Mini Kit).

3.2 PCR Amplification

- Target regions: ITS and TEF1-α (translation elongation factor 1-alpha).

Primers:

- ITS1/ITS4 (universal fungal identification)
- EF1-728F / EF1-986R (for TEF1-α)

Reaction Mix (25 µl):

- 1X PCR buffer
- 1.5 mM MgCl2
- 200 µM dNTPs
- 0.5 µM each primer
- 0.5 U Taq polymerase
- 1 µl DNA template

Thermal Cycling (for ITS):

- Initial denaturation: 95°C, 3 min
- 35 cycles:
    - Denaturation: 95°C, 30 sec

    - Annealing: 55°C, 30 sec
    - Extension: 72°C, 45 sec
- Final extension: 72°C, 5 min

3.3 Gel Electrophoresis

- Run 5 µl of PCR product on 1.2% agarose gel with ethidium bromide or SYBR Safe.
- Confirm band size (ITS: ~600 bp; TEF1-α: ~300 bp).

3.4 Sequence Confirmation (optional)

- Purify PCR product and sequence.
- BLAST against GenBank for confirmation of *G. smithogilvyi* identity (high match >99%).

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4. Laboratory QA/QC

- Include positive and negative controls in every PCR run.
- Maintain reference isolates for culture comparisons.
- Regularly verify reagents and primers for integrity.

4.1 Approved Testing Labs

- AgriBio (Vic)
- NSW DPI Plant Pathology Lab (Orange)
- SARDI Plant Pathology Unit (SA)
- Other accredited labs upon request

Appendix C

Pre-Harvest and Postharvest Sanitation SOP for Chestnut Nut Rot (Gnomoniopsis smithogilvyi)

Purpose:
To reduce the inoculum load and spread of chestnut nut rot in orchards by implementing rigorous hygiene practices before, during, and after harvest.

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1. Pre-Harvest Sanitation Procedures

Timing: Commence 4–6 weeks prior to expected nut drop.

1.1 Orchard Floor Preparation

- Remove and destroy any remaining fallen burrs or mummified nuts from the previous season.
- Maintain ground cover or low vegetation through slashing or mowing to facilitate visibility and nut retrieval.

1.2 Tree and Canopy Hygiene

- Prune to open the canopy and improve airflow, reducing humidity levels that favour fungal development.
- Remove dead or diseased branches showing signs of internal browning or cankers.

1.3 Equipment Preparation

- Clean and disinfect all harvesting tools, bins, and machinery using 1% sodium hypochlorite or approved peracetic acid solutions.
- Ensure harvest equipment is free from decayed nut material.

1.4 Weather and Monitoring

- Monitor weather conditions during flowering (Oct–Nov) for rot-favourable conditions: 25–30°C, RH >85%, and rainfall.
- Flag high-risk blocks for additional vigilance.

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2. Harvest Sanitation Procedures

2.1 Prompt Collection

- Harvest nuts daily or at least every 2–3 days during peak drop to minimise time on the orchard floor.

2.2 Field Sorting

- Discard visibly infected or discoloured nuts during harvest.

- Separate and label nuts from high-incidence blocks for further inspection or immediate drying.

2.3 Bin and Tool Hygiene

- Wash and disinfect bins between loads using bleach or quaternary ammonium compounds.
- Keep tools off the ground where possible.

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3. Postharvest Sanitation Procedures

3.1 Nut Drying

- Dry nuts to <12% moisture content within 48 hours of harvest using forced air or ventilated drying sheds.

3.2 Storage

- Store nuts in clean, cool, dry environments (<5°C, 50–60% RH).
- Avoid piling nuts too deep (>40 cm) without airflow.

3.3 Waste Management

- Remove and destroy discarded nuts and burrs—do not compost in open piles.
- Burn or hot-compost at ≥55°C for several days, or dispose of via deep burial.

3.4 Post-Season Orchard Cleanup

- Once harvest is complete, mow and collect remaining debris.
- Disinfect harvest equipment and update hygiene records.

Compliance and Records

- Maintain sanitation logs for orchard blocks.
- Note hygiene actions in spray diaries or digital record-keeping tools.

Review Schedule:
Reviewed annually or after any significant rot outbreak.

(Include in protocol appendices as an SOP reference.)

Appendix D

Glossary of terms

1. Pathogen and Fungal Identification

Term / Code	Definition
Gnomoniopsis smithogilvyi	The fungal pathogen primarily responsible for chestnut nut rot in Australia.
Ascomycete	A fungal group (phylum Ascomycota) characterised by spore formation in sac-like structures called asci.
Pycnidia	Asexual fruiting bodies that release conidia (spores); visible as black specks in infected nut tissue.
Conidia	Asexual fungal spores, ellipsoidal in shape for *G. smithogilvyi* (~7–10 × 2–4 µm).
CTAB	Cetyltrimethylammonium bromide – a reagent used to extract DNA from fungal tissues.
ITS	Internal Transcribed Spacer – a commonly sequenced DNA region used in fungal identification.
TEF1-α	Translation Elongation Factor 1-alpha gene – another fungal DNA region used for species confirmation.
PCR	Polymerase Chain Reaction – a molecular technique to amplify specific DNA fragments for identification.
EF1-728F / EF1-986R	Specific primers used to amplify TEF1-α gene sequences in PCR.
ITS1 / ITS4	Universal fungal primers for amplifying the ITS region in PCR testing.
PDA / MEA	Potato Dextrose Agar and Malt Extract Agar – nutrient-rich media for culturing fungi.

2. Disease and Surveillance Terminology

Term / Code	Definition
Chestnut Nut Rot	A disease caused by G. smithogilvyi, resulting in internal browning, discolouration, and kernel decay in chestnuts.
Latent Infection	Fungal colonisation that remains symptomless until later stages, often after harvest.
Inoculum	Any material capable of causing infection (e.g. spores, infected tissue).
Thresholds for Action	A defined incidence level (e.g. >10% rot) that triggers management review or intervention.
Surveillance	The routine monitoring and recording of disease presence and incidence across orchard blocks.
Diagnostic Protocol	Laboratory methods (culture and molecular) used to confirm the presence of G. smithogilvyi.

3. Orchard Management and IPM (Integrated Pest Management)

Term / Code	Definition
Canopy Management	Pruning to open the tree canopy to improve airflow and reduce humidity, thereby lowering fungal risk.
Hot Composting	Controlled decomposition process at ≥55°C to kill fungal spores in infected material.
Sanitation	Practices that remove or destroy sources of inoculum, such as infected burrs, nuts, and orchard debris.
Pre-harvest Sanitation	Cleaning and pruning done weeks before nut drop to reduce disease risk.
Postharvest Sanitation	Measures taken immediately after harvest to minimise disease spread during storage.
Field Sorting	On-site removal of visibly infected or poor-quality nuts during collection.
Disinfection	Use of agents like bleach or peracetic acid to sanitise equipment and bins.
Drying (<12% moisture)	A critical postharvest step to halt fungal development in stored nuts.
Cool Storage (<5°C, 50–60% RH)	Recommended storage environment to suppress pathogen growth.

4. Institutions and Regulatory Acronyms

Acronym	Full form	Role
CAI	Chestnuts Australia Inc	National peak industry body that supports growers through research, advocacy, marketing, and industry coordination.
AgVic	Agriculture Victoria	Delivers workshops, diagnostics, and extension materials.
APVMA	Australian Pesticides & Veterinary Medicines Authority	Regulates pesticide use, including off-label permits
SOP	Standard Operating Procedure	A defined, step-by-step method for carrying out orchard or laboratory tasks
QA/QC	Quality Assurance / Quality Control	Laboratory practices to ensure consistency and reliability of diagnostic results.

5. Lab and Reference Terms

Term / Code	Definition
Reference Isolate	A laboratory-maintained sample of *G. smithogilvyi* used to validate culture results.
BLAST (GenBank)	Basic Local Alignment Search Tool – online database search used to confirm DNA sequence identity.
Agarose Gel Electrophoresis	Technique used to separate and visualise DNA fragments during PCR validation.
SYBR Safe / Ethidium Bromide	DNA-binding dyes used in gel electrophoresis to visualise DNA bands.

Appendix E

Approved labs for testing and reference isolates

Accredited laboratories that can perform the PCR-and-culture diagnostic protocol for *Gnomoniopsis smithogilvyi*

State	Laboratory (institution)	Location / Contact	Capability & accreditation notes
VIC	Crop Health Services (CHS), AgriBio – Centre for AgriBioscience - Agriculture Victoria	La Trobe University campus, Bundoora VIC 3083 T: 03 9032 7515 E: *sample.reception@agriculture.vic.gov.au*	1. State-run plant-diagnostic service offering culture isolation, microscopic ID and PCR/sequence assays for fungal pathogens 2. Member of the National Plant Biosecurity Diagnostic Network (NPBDN) 3. Operates under NATA ISO 17025 scope for plant pathology tests.
NSW	Plant Pathology & Mycology Herbarium, Orange Agricultural Institute (OAI) – NSW DPI	Forest Rd, Orange NSW 2800 T 02 6391 3100	1. Provides culture, morphology and gene-target PCR for chestnut pathogens 2. houses the state fungal reference collection. 3. dpi.nsw.gov.au
NSW	Plant Health Diagnostic Service (PHDS), Elizabeth Macarthur Agricultural Institute (EMAI) – NSW DPI	Woodbridge Rd, Menangle NSW 2568 T: 1800 675 623 E: laboratory.services@dpi.nsw.gov.au	1. NATA-accredited ISO 17025 plant-health laboratory 2. Routine high-throughput PCR, sequencing and culture authentication for fungal diseases 3. dpi.nsw.gov.au
TAS	Plant Diagnostic Services (PDS) – Biosecurity Tasmania, Dept. Natural Resources & Environment (NRE Tas)	Mt Pleasant Laboratories, Prospect TAS 7250 T: 03 6165 3777 E: plantdiagnosticservices@nre.tas.gov.au	1. Offers fee-for-service culture and molecular identification of plant pathogens 2. Staff are NPBDN-endorsed diagnosticians 3. PDS participates in national proficiency testing for PCR of *G. smithogilvyi*. 4. Tasmania DNR&E
WA	DPIRD Diagnostics & Laboratory Services (DDLS) – Plant Pathology	3 Baron-Hay Ct, South Perth WA 6151 T: 08 9368 3721 E: ddls@dpird.wa.gov.au	1. NATA ISO 17025 facility 2. Provides fungal isolation, morphology, ITS/TEF1-α PCR and sequencing. 3. Maintains WA reference cultures and is part of NPBDN. 4. dpird.wa.gov.audpird.wa.gov.au


CHESTNUT ROT RISK ASSESSMENT MODEL
November 2024 Risk Report for North-East Victoria

RISK REPORT FOR NORTH-EAST VICTORIA

Contents

Introduction

Chestnut rot, caused by *Gnomoniopsis smithogilvyi*, has become an increasingly significant postharvest concern for commercial chestnut producers in North-East Victoria. The pathogen's ability to infect during flowering and remain latent until nut maturity or storage poses challenges for detection and management. This report provides an evidence-based regional risk assessment for November 2024, focusing on the critical period of female flower receptivity.

Utilising a rule-based model informed by plant pathology literature, daily weather data (temperature, relative humidity, and rainfall) were analysed for seven key growing locations: Beechworth, Coral Bank, King Valley, Myrtleford, Rosewhite, Whorouly and Porepunkah. The model assigns a daily risk index based on environmental conditions known to favour infection and provides site-specific commentary on potential infection windows.

This risk guide is designed to support growers, agronomists and researchers by improving understanding of infection risk patterns, enabling improved in-season decision-making, and strengthening the timing of orchard interventions such as canopy management, sanitation, and fungicide application.

PART A: CHESTNUT ROT RISK ASSESSMENT MODEL

Pathogen: Gnomoniopsis smithogilvyi L.A.Shuttlew., E.C.Y.Liew & D.I.Guest.

1. Overview

Chestnut rot caused by the fungal pathogen *Gnomoniopsis smithogilvyi* represents a significant constraint to the marketable yield and postharvest quality of chestnuts (Castanea spp.) in temperate production regions. This risk assessment model provides a predictive framework based on empirical environmental thresholds to estimate the probability of disease-conducive conditions and to guide decision-making in the absence of pathogen-specific spore or inoculum monitoring systems.

2. Model Structure

The model is structured as a rule-based additive risk index that integrates daily meteorological data to assess the potential risk of *G. smithogilvyi* infection. It is intended as a heuristic tool to aid in-season risk characterisation at the orchard scale.

ENVIRONMENTAL VARIABLE	THRESHOLD CONDITION	RELATIVE WEIGHT
Maximum Temperature	25°C ≤ T ≤ 30°C	0.4
Maximum Relative Humidity	≥ 85%	0.3
Maximum Relative Humidity	75–84%	0.2
Rainfall (daily or preceding day)	> 0 mm	0.3
Maximum composite risk score	—	1.0

3. Interpretation of Risk Index

The composite risk score, bounded between 0 and 1, provides a semiquantitative estimate of the favourability of daily environmental conditions for disease development. Risk classes are interpreted as follows:

- 0.0–0.3: Low probability of rot-conducive conditions.
- 0.4–0.6: Moderate probability; favourable for initial infection under prolonged moisture.
- 0.7–1.0: High probability; highly conducive conditions for infection and symptom progression.

4. Epidemiological Rationale

The model is informed by disease triangle principles and pathogen biology literature. *G. smithogilvyi* activity is favoured by moderate to high temperatures in conjunction with extended periods of relative humidity and/or free moisture, particularly during nut fill and pre-harvest stages. Rainfall is interpreted as a proxy for leaf and fruit wetness, which may persist into subsequent days and enhance spore viability and penetration. Empirical thresholds for fungal risk models from other fruit crops have been used to parameterise this model in the absence of pathogen-specific infection curve data.

5. Supporting Literature

- Agrios, G.N. (2005). “Plant Pathology” (5th ed.). Academic Press. Emphasises the role of leaf wetness and temperature in fungal sporulation and infection.
- Magarey, R.D., Sutton, T.B., & Thayer, C.L. (2005). A simple generic infection model for foliar fungal plant pathogens. “Phytopathology”, 95(1), 92–100. https://doi.org/10.1094/PHYTO-95-0092
- Xu, X., & Butt, D.J. (1998). Weather-based forecasting of brown rot blossom blight of stone fruits. “European Journal of Plant Pathology”, 104(5), 461–471.

6. Limitations and Application Scope

The model is best suited for coarse risk estimation in the absence of pathogen quantification or spatiotemporal disease mapping. It does not incorporate host phenological stage, inoculum load, orchard microclimate, or cultivar resistance.

The output is intended to inform risk communication and support decisions regarding canopy management, irrigation scheduling, or fungicide application timing. Calibration with locally validated disease incidence data is recommended to increase predictive utility.

PART B: REGIONAL CHESTNUT ROT RISK SUMMARY

This report presents a consolidated view of chestnut rot (*Gnomoniopsis smithogilvyi*) infection risk across seven key chestnut-producing locations in North-East Victoria. Based on daily maximum temperature, humidity, and rainfall data from **1 to 30 November 2024,** this analysis evaluates environmental suitability for infection during the critical flowering period.

Overview

Flowering typically occurs from late October to early December, with female flower receptivity peaking between approximately 7 to 17 November. Infections during this stage are often asymptomatic at first, becoming apparent only during nut maturity, postharvest, or storage.

The additive risk model used here draws on established environmental thresholds:

- 25–30°C maximum daily temperature
- ≥85% relative humidity, with heightened risk at >95%
- Rainfall on the day or previous day

Each site report identifies high and moderate risk periods, supported by daily meteorological data and orchard-relevant observations.

Summary of Site-Specific Risk

LOCATION	RISK PERIODS	RAINFALL INCIDENCE	INFECTION PROBABILITY
Beechworth	Frequent	Moderate	**High**
Coral Bank	Extensive	Frequent	**Very High**
King Valley	Extended	Frequent	**High**
Myrtleford	Extended	High (esp. late)	**High**
Rosewhite	Continuous	Frequent	**Very High**
Whorouly	Repeated	High	**Very High**
Porepunkah	Repeated	Moderate to High	**High**

Site-Specific Risk Assessments

Beechworth

High-risk days: 4, 7, 13, 17, 27, 30 November. Consistent humidity above 95%, with multiple days of rainfall and optimal temperatures aligning with flowering.

Coral Bank

High-risk days: 3, 4, 7, 13, 14, 18, 22, 26–30 November. Extended infection window across early and late November, supported by frequent rainfall and persistently high humidity.

King Valley

High-risk days: 3, 4, 6–7, 11, 13–16, 18, 20–22, 28, 30 November. Strong alignment of temperature and humidity around peak flowering dates. Rainfall enhanced risk in second half of month.

Myrtleford

High-risk days: 7, 14, 18, 25–30 November. Extended humid conditions and multiple rainfall events suggest a high probability of latent infection, especially late in the month.

Rosewhite

High-risk days: 4, 6–7, 10–12, 14–16, 18, 22, 25–30 November. Nearly continuous high humidity and multiple rainfall events sustained elevated infection risk throughout November.

Whorouly

High-risk days: 3–6, 7, 10–12, 14–16, 18, 20, 22, 25–28, 30 November. Clusters of infection risk during and following peak flowering, with high rainfall and humidity.

Porepunkah

High-risk days: 7–8, 11–13, 15–16, 20–23, 25–30 November. Temperature and humidity consistently aligned with infection thresholds. Rainfall during the final week of November created prolonged periods of high infection potential.

Regional Trends and Predictions

Rainfall was widespread from 14 to 30 November, with several areas receiving more than 20 mm on multiple days. Relative humidity remained consistently above 95% across all sites. Maximum temperatures frequently ranged from 25–30°C during the flowering period.

These conditions indicate very high environmental suitability for chestnut rot infection across the region. Latent infection of flowering tissues is likely to lead to increased internal rot symptoms in the 2025 harvest.

Recommendations

- Increase postharvest inspection intensity, especially for blocks exposed to late-month rainfall.
- Incorporate localised weather monitoring and orchard-specific sanitation and fungicide practices into annual disease management planning.
- Consider early-season interventions in 2025–26, especially in blocks showing elevated symptoms post-storage in 2025.

1. Chestnut Rot Risk Assessment – Beechworth, November 2024

Based on daily weather data from November 2024, environmental conditions in the Beechworth district were favourable for infection by *Gnomoniopsis smithogilvyi*, the fungus responsible for chestnut rot. Several periods during flowering presented elevated or high risk of infection, particularly during mid-November, when female flower receptivity is likely to have peaked.

Flowering Context

Chestnut flowering in north-east Victoria, including the Beechworth region, typically occurs between late October and early December. Female flowers are most receptive between approximately 7 and 17 November. This period represents a critical window for floral infection, particularly when warm temperatures, high humidity, and rainfall coincide. Infections at flowering may remain symptomless until nut maturation or storage.

Summary of Risk Conditions – November 2024

High-risk infection days were recorded on:

- 4 November – Maximum temperature 28.3°C, rainfall 0.2 mm, relative humidity 81%
- 7 November – Maximum temperature 27.7°C, rainfall 4.2 mm, relative humidity 97.2%
- 13 November – Maximum temperature 26.7°C, rainfall 1.8 mm, relative humidity 95.1%
- 17 November – Maximum temperature 30.0°C, rainfall 0.4 mm, relative humidity 80.4%
- 27 November – Maximum temperature 25.5°C, rainfall 21.4 mm, relative humidity 109.3%
- 30 November – Maximum temperature 28.7°C, rainfall 24.6 mm, relative humidity 98.9%

These days coincide with the flowering and early nut development stages, increasing the risk of latent infections establishing within developing nut tissues.

Moderate-risk days occurred on:

- **18 November**, following heavy rainfall and 100% humidity
- **25 and 26 November**, with high humidity values (>108%) and measurable rainfall
- **28 November**, with continued very high humidity and rainfall carryover from earlier days

Implications for Growers

The sequence of high- and moderate-risk days during the flowering period indicates that conditions in November 2024 were highly conducive to infection by *Gnomoniopsis smithogilvyi*. As infection typically occurs through the female flower structures, this pattern suggests a heightened probability of internal rot symptoms developing in the 2025 harvest.

Nut rot symptoms may not be visible at harvest but are likely to emerge during storage or processing. Growers in the Beechworth region should anticipate potential quality issues and consider increased postharvest monitoring. For the 2025–26 season, emphasis should be placed on orchard hygiene, canopy management, and strategies to reduce moisture retention around flowering time. Further use of weather-based risk tracking may assist with timely management decisions.

2. Chestnut Rot Risk Assessment – Coral Bank, November 2024

Daily weather data from Coral Bank for November 2024 indicates very high potential for chestnut rot infection by Gnomoniopsis smithogilvyi during the critical flowering period. Warm temperatures, sustained high humidity, and frequent rainfall created ideal conditions for floral infection, particularly during peak female flower receptivity.

Flowering Context

Chestnut trees in Coral Bank typically flower from late October through November. Female flowers are most receptive to infection from approximately the second to third week of November. During this time, the fungus may enter through floral tissues, particularly the stigma and style, with symptoms only emerging weeks or months later.

Summary of Risk Conditions – November 2024

High-risk days (multiple factors met):

- 3 November – 24.8°C, rainfall 4.2 mm, 96.3% humidity
- 4 November – 30.0°C, rainfall 0.6 mm, 95.1% humidity
- 7 November – 30.3°C, rainfall 1.0 mm, 100% humidity
- 13 November – 29.3°C, rainfall 0.6 mm, 95.8% humidity
- 14 November – 23.8°C, rainfall 3.6 mm, 96.3% humidity
- 18 November – 23.2°C, rainfall 23.8 mm, 100.9% humidity
- 22 November – 31.0°C, rainfall 3.0 mm, 99.2% humidity
- 26 November – 25.9°C, rainfall 16.6 mm, 99.9% humidity
- 27 November – 27.8°C, rainfall 52.2 mm, 100.3% humidity
- 28 November – 23.8°C, rainfall 64.6 mm, 101% humidity
- 30 November – 32.7°C, rainfall 10.8 mm, 99.8% humidity

These dates, especially between 3 and 18 November, align closely with flowering in the Coral Bank region, increasing the likelihood of infection during female flower receptivity.

Moderate-risk periods also likely on:

- 1, 2, 5, 6, 8 to 12, 15 to 17, 19 to 21, and 29 November. These days show combinations of warm temperatures and very high humidity, often above 98%, even where rainfall was absent.

Implications for Growers

The extended period of high humidity and repeated rainfall events during November 2024 strongly suggests that conditions were favourable for *Gnomoniopsis smithogilvyi* infection in Coral Bank chestnut orchards. Infection likely occurred during the flowering period, particularly in female flowers, increasing the probability of internal rot symptoms developing during the 2025 harvest. Nut rot symptoms may not become visible until nuts are cracked or stored. Growers should be prepared for the possibility of quality loss and consider enhanced monitoring during postharvest processing. For the 2025–26 season, early canopy management and orchard sanitation efforts will be critical to reduce spore loads and improve airflow during flowering. Continued use of local weather-based models may support timely and targeted orchard decisions.

3. Chestnut Rot Risk Assessment – King Valley, November 2024

Environmental conditions in King Valley throughout November 2024 were highly conducive to infection by *Gnomoniopsis smithogilvyi*. A combination of sustained high humidity, favourable temperature ranges, and several rainfall events occurred during the chestnut flowering period, especially during the likely window of peak female flower receptivity.

Flowering Context

Flowering in King Valley typically extends from late October through November, with peak receptivity of female flowers commonly occurring in the second and third weeks of November. During this phase, flowers are especially vulnerable to infection under wet and humid conditions. Fungal infection at this stage may remain latent until nut maturity or postharvest.

Summary of Risk Conditions – November 2024

High-risk days based on temperature, humidity, and rainfall thresholds:

- **3 November** – 25.8°C and 93.2% humidity
- **4 November** – 31.0°C and 102.5% humidity
- **6 November** – 27.3°C and 98.4% humidity
- **7 November** – 31.3°C and 103.7% humidity
- **11 November** – 25.9°C and 104.1% humidity
- **13 November** – 25.9°C and 97.0% humidity
- **15 to 16 November** – 27.5–27.7°C with humidity exceeding 101%
- **17 November** – 32.5°C with rainfall and humidity at 95.4%
- **18 November** – 24.7°C with 27.6 mm rainfall and 105.4% humidity
- **20 to 22 November** – All within or above the 26.9–31.4°C range, with humidity levels consistently above 103%
- **28 November** – 25.5°C and 104.7% humidity
- **30 November** – 33.1°C and 101.5% humidity

Additional high humidity days without rainfall

- (e.g. 5, 8, 9, 10, 12, 14, 19, 27, and 29 November) contribute to extended periods of elevated infection risk through sustained environmental moisture.

Implications for Growers

The combination of warm temperatures and near-continuous high humidity throughout November suggests that conditions in King Valley were highly suitable for *Gnomoniopsis smithogilvyi* infection during chestnut flowering. Infection is likely to have occurred via female floral tissues, with implications for the quality of the 2025 harvest.

Latent infections may remain symptomless until nuts are processed or stored. Growers in the King Valley region should expect an increased probability of internal rot. Enhanced postharvest inspection is recommended, particularly for nuts from high-risk blocks. Planning for the 2025–26 season should include early-season orchard hygiene, improved canopy management, and closer integration of weather-based monitoring tools to anticipate and respond to infection risk in real time.

4. Chestnut Rot Risk Assessment – Myrtleford, November 2024

Weather conditions in Myrtleford throughout November 2024 were consistently favourable for the development of chestnut rot caused by Gnomoniopsis smithogilvyi. Extended periods of high humidity, combined with moderate temperatures and multiple rainfall events, coincided with the chestnut flowering period and increased the likelihood of infection during female flower receptivity.

Flowering Context

In the Myrtleford district, chestnut flowering generally occurs from late October to early December. The period of female flower receptivity, usually between the second and third weeks of November, is considered most susceptible to infection. The presence of moisture on flowers, especially during warm and humid conditions, facilitates fungal colonisation. Infections may remain latent until nut development or postharvest.

Summary of Risk Conditions – November 2024

High-risk days based on temperature, humidity, and rainfall thresholds:

- **1 to 12 November –** Daily maximum temperatures between 22.0–23.1°C with sustained humidity above 98% for most days
- **7 November** – 22.6°C with 2.2 mm rainfall and 103.6% humidity
- **14 November** – 22.0°C with 7.2 mm rainfall and 103.4% humidity
- **18 November** – 21.8°C with 21.2 mm rainfall and 104.8% humidity
- **25 to 30 November** – Repeated rainfall events (up to 37 mm) and humidity consistently above 104%, peaking at 107.6% on 27 November

These conditions, particularly between 7 and 18 November, coincide closely with the most sensitive period for floral infection in chestnut trees. The late November events may further support disease progression during early nut development.

Moderate-risk conditions were also present throughout the entire month, with only minimal periods of lower humidity or reduced moisture.

Implications for Growers

The data indicates a prolonged period of elevated infection risk in Myrtleford chestnut orchards. This includes both the flowering and early nut development stages. Infection by Gnomoniopsis smithogilvyi is likely to have occurred under these conditions, particularly via the stigma and floral tissues of the female flowers.

Growers should be prepared for the possibility of internal nut rot symptoms manifesting during storage and cracking. Increased monitoring is advised during postharvest processing, particularly for fruit from blocks exposed to rainfall between 7 and 30 November. Management for the 2025–26 season should include measures to reduce canopy humidity, enhance air circulation, and incorporate weather-based alerts for strategic intervention.

5. Chestnut Rot Risk Assessment – Rosewhite, November 2024

Weather conditions in Rosewhite throughout November 2024 indicate a prolonged period of environmental risk for chestnut rot caused by Gnomoniopsis smithogilvyi. A sequence of warm to hot days, very high humidity, and multiple rainfall events occurred during the expected flowering period, particularly during the likely window of female flower receptivity. These conditions substantially increased the likelihood of infection.

Flowering Context

Chestnuts in Rosewhite typically flower from late October through November, with female flowers most susceptible to infection in the second and third weeks of the month. Moisture on flower surfaces, particularly stigmas, combined with warm temperatures and sustained humidity, facilitates fungal spore germination and infection. These infections may remain latent and only become visible postharvest.

Summary of Risk Conditions – November 2024

High-risk days where temperature, humidity, and/or rainfall thresholds were met:

- 4 November – 30.8°C, rainfall 0.4 mm, 87.9% humidity
- 6 to 7 November – 27.0–30.6°C, with rainfall and humidity above 96%
- 10 to 12 November – 22.5–28.7°C, with humidity between 95.6% and 100.1%
- 14 November – 24.1°C, 12.8 mm rainfall, 100.3% humidity
- 15 to 16 November – 26.5–28.4°C and humidity above 94%
- 18 November – 23.6°C, 13.2 mm rainfall, 95.9% humidity
- 22 November – 31.0°C, 1.2 mm rainfall, 100.2% humidity
- 25 to 30 November – Daily rainfall between 0.2–26.8 mm, maximum humidity ≥ 100.3%, with temperatures generally in the optimal or high range (24.2–32.2°C)

These periods align with flowering and early nut development, making the infection risk particularly significant. Moderate-risk days occurred throughout much of the remainder of the month, where temperature or humidity alone supported fungal development, even in the absence of rainfall.

Implications for Growers

The sequence of weather events in November 2024 provided consistent and favourable conditions for floral infection by Gnomoniopsis smithogilvyi in Rosewhite chestnut orchards. Rainfall from 14 to 30 November, in particular, coincided with extended periods of relative humidity above 100%, creating an environment highly conducive to infection through open flower tissues. As a result, the probability of latent nut rot developing in the 2025 harvest is significantly elevated. Growers should be prepared for possible internal rot to emerge during storage or processing. Enhanced postharvest inspection is recommended, particularly for blocks known to have flowered during high-risk periods. For the following season, growers may wish to review canopy management practices and consider the value of disease risk alerts based on localised weather data.

6. Chestnut Rot Risk Assessment – Whorouly, November 2024

Environmental conditions in Whorouly during November 2024 indicate multiple high-risk periods for chestnut rot infection by *Gnomoniopsis smithogilvyi*. The combination of suitable temperatures, consistently high humidity, and numerous rainfall events coincided with the chestnut flowering period, particularly the expected window for female flower receptivity.

Flowering Context

In Whorouly, chestnut flowering generally spans from late October through November. The second and third weeks of November are typically the most critical for infection, as the female flowers are receptive to fungal spores. Extended moisture or humidity during this period significantly increases the chance of infection entering through floral tissues, even in the absence of visible rot until postharvest.

Summary of Risk Conditions – November 2024

High-risk periods occurred on**:**

- **3 to 6 November** – Maximum temperatures between 27.4–31.9°C, with humidity ranging from 95.6% to 102%, including rainfall on 4 November
- **7 November** – 32.8°C, 2.6 mm rainfall, and 99.8% humidity
- **10 to 12 November** – Temperatures between 24.1–29.1°C and humidity consistently above 96%
- **14 to 16 November** – Moderate temperatures, 2.2 mm rainfall on the 14th, and humidity exceeding 101%
- **18 November** – 23.8°C, 24.2 mm rainfall, and 99.5% humidity
- **25 to 28 November** – Rainfall ranged from 10.8 to 27 mm, with sustained humidity ≥ 100.3% on all days
- **30 November** – 32.4°C with 26.6 mm rainfall and 99.7% humidity

Moderate-risk conditions were present throughout much of the remainder of the month, with daily maximum humidity typically at or near 100% and temperatures supporting fungal development.

Implications for Growers

The consistent presence of favourable conditions for infection throughout November indicates a high likelihood that *Gnomoniopsis smithogilvyi* infected flowering tissues in Whorouly orchards. Rain events around the flowering peak (particularly 4–7 and 25–30 November) represent the most critical periods where latent infection may have become established.

As chestnut rot symptoms often do not manifest until storage or postharvest, growers should prepare for increased risk of internal rot in the 2025 harvest. Targeted postharvest inspection and early season orchard hygiene in 2025–26 are recommended. Incorporating local weather data into routine decision-making will support better disease forecasting and response in future seasons.

7. Chestnut Rot Risk Assessment – Porepunkah, November 2024

Environmental conditions in Porepunkah during November 2024 indicate multiple high-risk periods for chestnut rot infection by *Gnomoniopsis smithogilvyi*. The combination of suitable temperatures, consistently high humidity, and numerous rainfall events coincided with the chestnut flowering period, particularly the expected window for female flower receptivity.

Flowering Context

Flowering conditions at Porepunkah during November 2024 coincided with key infection drivers for chestnut rot. Flower receptivity likely peaked around 7–17 November, and this period aligned with multiple environmental triggers, including optimal temperatures, elevated humidity, and recurring rainfall events.

Summary of Risk Conditions – November 2024

High-risk periods occurred on:

- **7–8 November** – Temperatures ranged from 21.1°C to 29.7°C, with humidity levels above 107%. Rainfall occurred on both days (1.8 mm and 0.6 mm), increasing moisture availability for infection.
- **11–13 November** – Daily maximum temperatures rose to 28.6°C, humidity remained above 101%, and conducive warmth and moisture persisted during likely peak flower receptivity.
- **15–16 November** – Maximum temperatures of 25.8°C and 27.2°C occurred alongside humidity readings of 102.5% and 104.5%, sustaining conditions favourable for fungal development even in the absence of rain.
- **20–23 November** – Temperatures remained between 25.7°C and 33.9°C, humidity exceeded 96.8% each day, and all days fell within or above the critical temperature range. Conditions supported continued infection and latent colonisation.
- **25–30 November** – A prolonged wet period featured daily rainfall from 25 to 28 November, with falls ranging from 15.4 mm to 42.4 mm. Humidity ranged from 106.2% to 109.9%, and temperatures were within or above the optimal band (22.1°C to 31.9°C). This sequence of events likely represents the most sustained and intense infection risk period of the month.

Implications for Growers

The sustained alignment of temperature, humidity, and rainfall during November suggests a high probability that *Gnomoniopsis smithogilvyi* infected floral tissues in Porepunkah orchards during the 2024 flowering period. The critical window from 7 to 13 November, followed by a second major rainfall-driven risk period from 25 to 30 November, provided ideal conditions for both infection and early colonisation.

Given that chestnut rot often remains undetected until postharvest or during storage, growers should anticipate an elevated risk of internal rot symptoms emerging in the 2025 crop. Strategic responses should include increased vigilance during nut inspection, particularly in high rainfall blocks, and the implementation of pre-flowering orchard hygiene and fungicide coverage for the 2025–26 season. The use of site-specific weather monitoring to guide in-season decisions will enhance preparedness and improve outcomes in managing latent disease risk.

PART C: EVOLVING THE MODEL

Integrating Management Factors with Environmental Conditions

Incorporating orchard sanitation and fungicide treatment at flowering into this chestnut rot (*Gnomoniopsis smithogilvyi*) risk model would shift it from a purely environmental risk model to a more integrated risk assessment tool, accounting for both extrinsic (weather) and intrinsic (management) factors. This would make the model more realistic and valuable for growers' decision-making.

Here's how the model could evolve and what it might look like:

1. Core Structure

Retain the additive score model, but add new weighted components for:

- Orchard Sanitation Level
- Fungicide Application Status (at flowering)

Each input contributes a weight to the final risk score, maintaining the 0–1 scale for clarity.

Risk Factor	Criteria	Risk Contribution
Max Temp (°C)	25–30°C	0.4
Max Humidity (%)	≥85%	0.2 (up to 0.3)
Rainfall (today or prior)	>0 mm	0.2 (up to 0.3)
Orchard Sanitation	Poor = +0.2; Good = 0	0.0–0.2
Fungicide Treatment	None = +0.1; Applied at flowering = –0.1	–0.1 to +0.1

2. Sanitation Scoring

Assess each block or orchard as:

- Good (0): Removed burs/leaves, pruned canopy, no mummified nuts or debris
- Moderate (+0.1): Some debris or dense canopy, inconsistent hygiene
- Poor (+0.2): High inoculum load, debris under trees, no recent sanitation

3. Fungicide Input

Assess application status as:

- Protectant applied at flowering (–0.1): Targeted timing and good coverage
- Not applied or poorly timed (+0.1): No protection or missed window

4. Updated Risk Interpretation

With a maximum score of 1.1 and a potential negative adjustment from fungicide, you'd revise thresholds:

FINAL SCORE	RISK LEVEL

0.0–0.3	Low
0.4–0.6	Moderate
0.7–0.9	High
≥1.0	Very High

Example Calculation

- Date: 12 November
- Max Temp: 26.5°C → 0.4
- Max Humidity: 95% → 0.3
- Rainfall Yesterday: Yes → 0.2
- Sanitation: Poor → +0.2
- Fungicide: Applied at flowering → –0.1
- **Total Score: 1.0 → Very High Risk**

5. Benefits of This Approach

- **Grower engagement:** Encourages better orchard management awareness
- **Decision support:** Helps justify fungicide investment or sanitation prioritisation
- **Customisation**: Tailored to block-level differences within an orchard

6. Future Enhancements

- Add canopy density, historical rot levels, or cultivar susceptibility
- Integrate with mobile weather stations or remote sensing
- Shift to a Bayesian model for dynamic probability updating

Summary and Recommendations

The November 2024 risk analysis indicates widespread environmental suitability for *Gnomoniopsis smithogilvyi* infection across all monitored sites. High relative humidity (>95%) was common throughout the month, with rainfall events overlapping peak flowering windows at multiple locations. Most regions recorded maximum temperatures within the 25–30°C threshold for fungal activity, and all seven sites experienced extended or repeated periods of high risk.

Key insights

- **Very high-risk conditions** were recorded in Coral Bank, Rosewhite and Whorouly, where rainfall and humidity persisted for much of the flowering period.
- **Porepunkah and Beechworth** experienced repeated but less frequent rainfall, though high humidity and temperature patterns aligned with infection thresholds.
- **King Valley and Myrtleford** faced extended periods of elevated risk, particularly in mid to late November, with potential for latent infections.

Recommendations for Growers

- Increase postharvest inspection and sorting efforts in the 2025 harvest to identify internal rot early.
- Review and enhance orchard sanitation and canopy airflow to reduce inoculum loads and moisture retention during flowering.
- Consider pre-flowering fungicide treatments and incorporate local weather monitoring into disease risk planning.
- Use this model as a foundation for long-term orchard health tracking and to evaluate block-level differences in risk.

Finally, incorporation of orchard management variables (such as sanitation level and fungicide application) into the risk model may offer even greater predictive accuracy and decision support.

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Botrytis / Grey Mould

(Botrytis cinerea)

FACTSHEET

Botrytis is one of the most widely distributed & economically damaging plant diseases world-wide.

(Nelson, S. 2017, in flickr.com, Public Domain)

Grey mould (Botrytis cinerea) growing profusely on fig tree stems, showing dense, fluffy grey sporulation typical of the pathogen under humid conditions. This infection can lead to stem dieback and significant fruit losses if not managed promptly.

1. Introduction

Grey mould, caused by the fungus *Botrytis cinerea*, attacks blooms, shoots, leaves, fruit and even dormant buds on more than 500 host species, including chestnuts, hazelnuts and walnuts.

Under cool, humid conditions the fungus can infect a crop at almost any growth stage, spread rapidly through spore showers, and continue rotting produce long after harvest.

This fact sheet explains how *B. cinerea* lives, how to recognise the risk factors in your orchard, and how to integrate cultural, biological and chemical tools into a practical management plan.

2. One fungus, two names

When scientists first studied grey mould they noticed that under field conditions the fungus usually produced grey fluff (called *conidia*) on stalks; they named that form *Botrytis*.

Occasionally, however, the same organism forms tiny cup-shaped fruiting bodies that eject sexual spores; that stage was named *Botryotinia fuckeliana*.

Today we know these are simply two life phases of a single fungus, so most extension material sticks to one name—*Botrytis cinerea*.

In this fact sheet, "*Botrytis*" and "grey mould" both refer to the same pathogen.

Why growers should care

Losses to *Botrytis* come in three main waves:

- **Flower and fruit set losses** If blossoms blight early, fruit never forms. In almonds, cherries and kiwifruit, a wet flowering period can reduce yield by 10–50 %.
- **Field rot and downgrading** Grey lesions on chestnuts spread fast in a damp canopy. Even a small infection can trigger a downgrade from "first grade" to "processing" or total rejection.
- **Post-harvest breakdown** *Botrytis* thrives at 0–5 °C if humidity is high. A single infected punnet in a cool room can seed mould onto neighbouring trays, wiping out a week's marketing window.

Because the fungus exploits both living and dead tissue it is extremely hard to eradicate once established.

The key is to reduce favourable conditions and spore numbers at every step of production, from pruning to storage.

4. Life cycle

The grey mould lifecycle can be broken into seven practical stages that matter to growers.

1. Over-wintering

In dead leaves, prunings, discarded fruit and topsoil the fungus forms tough black resting structures called *sclerotia*.

Think of them as tiny survival capsules about the size of a poppy seed. They can sit quietly in soil or debris for a year or more, waiting for suitable weather.

2. Primary inoculum release

When temperatures hover between 10 °C and 20 °C and leaves stay wet for several hours, the sclerotia or old mycelium produce a forest of conidiophores topped with millions of light grey spores.

A shift from night-time humidity to a breezy morning often shakes those spores into the air.

13. Dispersal Spores

These travel by wind, irrigation splash, worker clothing and harvest bins. Under a microscope they look like footballs but they are only 8–14 µm across—small enough to float hundreds of metres in still air.

14. Attachment & germination

Spores that land on fresh wounds, senescent petals or soft fruit skin stick almost instantly and germinate within four to eight hours if the surface film of moisture remains. Free water for as little as three hours can be enough.

15. Biotrophic phase (stealth mode)

Before visible rot appears, *Botrytis* "softly" colonises the outer cells, taking up sugars without killing the tissue.

This stage may last a day on strawberries but several weeks in dormant buds. Invisible infections in green berry caps or lettuce ribs often flare up later, especially after harvest.

16. Necrotrophic phase (attack mode)

The fungus now switches on its chemical arsenal.

It secretes enzymes that dissolve the cuticle, cell walls and middle lamella; it releases oxalic acid to melt calcium pectate 'glue'; it generates hydrogen peroxide to kill cells.

Tissue collapses into a brown, water soaked spot that soon spruces grey fluff.

17. Secondary spread & dormancy

Grey mould spots shower new spores; if weather turns dry the fungus may retreat into fresh sclerotia and wait for the next humid cycle, completing the loop.

5. Botrytis weather

Growers often talk about "Botrytis weather" to describe environmental conditions that are conducive to the spread of the fungus. Typical triggers are:

- **15–20 °C air temperature** – growth slows below 5 °C and above 25 °C.
- **High relative humidity** (>90 %) or free moisture on leaves for three or more hours.
- **Dense foliage** that shades inner leaves and traps dew.
- **Over-fertilisation** with nitrogen leading to soft, succulent tissue.
- **Injuries** from pruning, hail, insects or machinery.
- **Extended bloom periods** where spent petals cling to stems.

A vineyard forecast tool in South Australia showed that when daily leaf-wetness hours dropped below 2 hours, no *Botrytis* infections were detected despite plenty of spores.

In contrast, eight wet hours plus 18 °C overnight almost guaranteed an outbreak.

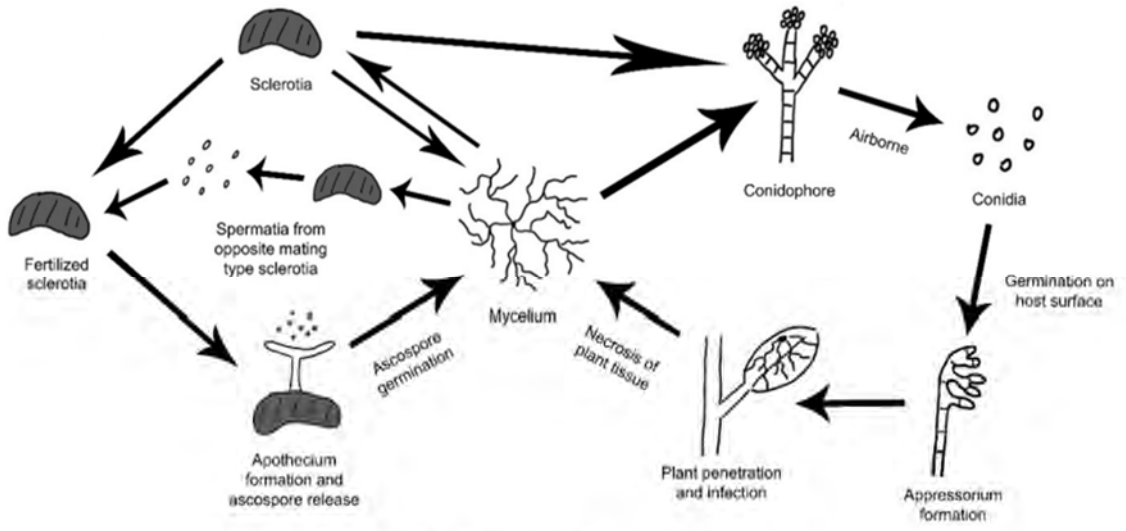


Figure 1. Life cycle of *Botrytis cinerea*.

(Cheung et al. 2020, CC_BY_4.0).

6. How Botrytis attacks

1. Why ripening makes plants vulnerable

The fungus *Botrytis cinerea*, which causes grey mould, infects many types of plants by taking advantage of changes in ripening tissues.

As fruit or leaves ripen, they produce more sugars, nitrogen, and natural plant chemicals (called volatile organic compounds). *Botrytis* uses these changes to start its infection process.

2. How Botrytis breaks down plant defences

Once the fungus is active, it releases harmful substances like oxalic acid, enzymes that break down cell walls, and chemicals that mimic plant hormones.

These actions weaken the plant's defences, damage its cells, and make it easier for the fungus to spread.

3. Why young tissues resist infection

Young plant tissues—like new leaves, young fruit, and seeds—often contain high levels of natural compounds such as tannins and phenolics.

These substances help protect the plant and are thought to be one reason why younger tissue is usually more resistant to *Botrytis*.

4. How Botrytis exploits cell death to spread

Botrytis also uses a tricky method to help it spread: it triggers the plant's own cell death process.

At the beginning of infection, the fungus releases reactive chemicals like hydrogen peroxide.

These signals confuse the plant and cause nearby cells to die, which *Botrytis* then uses as an entry point to grow and colonise the surrounding tissue.

Recognising Botrytis

Botrytis cinerea, commonly known as grey mould, can infect many parts of a chestnut tree throughout the growing season and after harvest.

Timely identification is key to reducing spread and loss. These are the symptoms you might observe in the orchard or storage area:

1. Flower blight

Infected flowers show early signs as petals lose their natural colour, turning beige or light brown. These petals often collapse onto the ovary.

If humidity is high, you may notice fine grey mould — tiny fuzzy tufts — forming around the base of the flower, especially where the petals meet the ovary. Affected flowers fail to develop into healthy nuts.

2. Leaf lesions

Leaves may develop distinct brown spots that are either rounded or V-shaped, often starting at the leaf edge or where the midrib joins the blade.

In humid conditions, these spots can produce visible rings or zones where the fungus sporulates, forming a bullseye-like pattern. These lesions reduce photosynthesis and can lead to premature leaf drop.

3. Stem cankers

Young shoots and stems can show pale brown streaks or blotches, sometimes referred to as "watermarks". These areas later darken and may feel slightly sunken.

In moist conditions, a fine grey dust — fungal spores — may appear. Heavily infected stems often become brittle and may snap at the lesion site, causing dieback.

4. Fruit rot

In chestnuts early rot may appear as soft, watery patches on the skin. These areas quickly expand and become covered in dense grey fungal growth. In nuts, internal browning or darkening is common.

As the infection progresses, fruit can split, collapse, or dry out entirely. Rotten fruit gives off a musty or sour smell.

5. Storage mould

After harvest, grey mould can continue to develop in storage, especially if fruit is not fully dried or cooled.

Look for silver-grey fungal growth, especially on the shoulders of the fruit or where two fruits were touching. This is often where residual moisture remains trapped.

Storage infections can spread quickly between nuts, spoiling large quantities if not caught early.

Grey mould (*Botrytis cinerea*) on chestnuts in storage. (*Image: Chatboxapp 21JUL25*)

7. Identifying chestnut rots by fruit

In addition to *Botrytis*, other types of rots infect chestnut fruit in Australia. This can include in the orchard and while nuts are being storage. Early identification of the specific type of rot will enable growers to choose appropriate management strategies and preventing further spread.

The following **dichotomous key** provides a step-by-step approach to distinguish between different types of chestnut fruit rots based on visible symptoms and timing of infection. It can be used in the field, packhouse, or storage facility.

8. Dichotomous Key*

1. Is there visible mould growing on the outer shell or surface of the nut?

- **Yes** → go to 2
- **No** → go to 5

2. Mould is grey, fluffy, or dusty; nut is soft and collapsing

- **Yes** → ***Botrytis cinerea*** **(Grey Mould)**
- **No** → go to 3

3. Mould is blue-green in colour

- **Yes** → ***Penicillium*** **spp. (Blue-Green Mould)**
- **No** → go to 4

4. Mould is black or dark brown in colour

- **Yes** → ***Aspergillus*** **spp. (Black Mould)**
- **No** → go to 5

5. No visible mould; nut appears sound externally but is brown or streaked inside, with internal rot

- **Yes** → ***Gnomoniopsis smithogilvyi*** **(Brown Nut Rot)**

a. *Botrytis* colony on a walnut

c. Blue/green *Penicillium* and black *Aspergillus* colonies on a walnut

Images a & b: Zabiak, A. 2025 (CC_BY_4.0)

b. Discoloured kernels from brown nut rot
(Jiang, N. & Tian, C. 2019 (CC_BY_4.0)

d. White *Fusarium spp* on various nuts *(Mirabile, G et al, 2021 (CC_BY_3.0))*

9. Management toolbox

Good Botrytis control is never one single product. It is many small steps layered together.

1. Site and canopy design

- Plant rows to catch prevailing breezes
- Avoid tall windbreaks too close to blocks.
- In orchards, prune centres open so sunlight reaches middle branches.

2. Irrigation strategy

- Drip or subsurface drip are better than overhead sprinklers.
- If overhead watering is essential, run sets at dawn so foliage dries before evening.
- Monitor soil moisture and avoid lush, sappy growth late in the season.

3. Sanitation

- Collect fallen blossoms, thinned fruit and prunings.
- Chop or compost them hot.
- Regularly remove green trash, and fruit dislodged by wind, from under trees.

4. Biological options

- *Bacillus amyloliquefaciens* (Serenade®) colonises leaf surfaces and out-competes *Botrytis*.
- Apply at 5–7 day intervals when bloom stretches over weeks. Cold-tolerant *Trichoderma harzianum* strains work well in cool-store bins; dip or fog crates before loading.

5. Chemical program

- When disease pressure is high, integrate fungicides with different modes of action (MoA).
- Rotate groups; never apply the same MoA more than twice per season.
- Follow minor-use permits carefully.

6. Resistance management

- *Botrytis* rapidly mutates. Resistance to dicarboximides and QoIs is common wherever those products were over-used.
- Keep rates at label minimums for control; under dosing accelerates resistance more than correct rates.

What are QoIs?

QoIs (often written as **QoIs**) stands for **Quinone outside Inhibitors**, a group of fungicides also known as **strobilurins**.

QoI fungicides stop fungi like **Botrytis cinerea** from producing energy, killing or slowing their growth.

However, **Botrytis can rapidly develop resistance** if these fungicides are overused, making them less effective over time.

Common QoI fungicides

These include:

- Azoxystrobin
- Pyraclostrobin
- Trifloxystrobin

Resistance

Resistance to QoIs is often due to a **single-point mutation** in the fungal DNA, making it relatively easy for Botrytis populations to adapt, especially if the same mode of action is used repeatedly without rotation.

Best practice

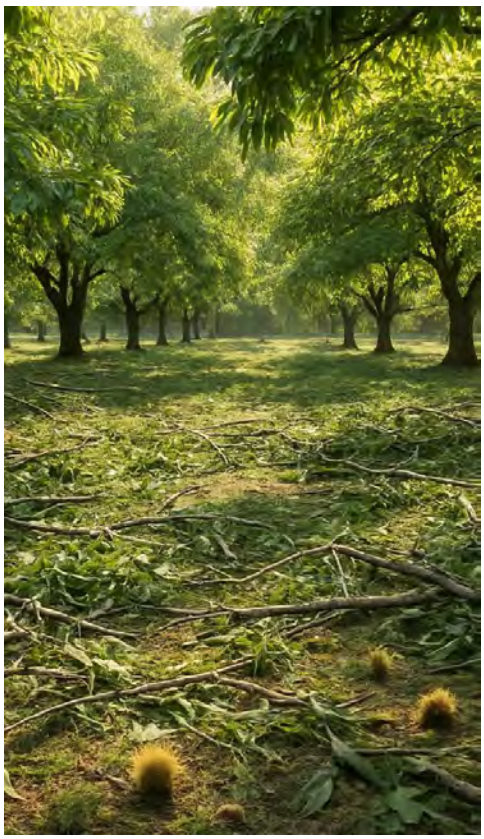
Rotate with fungicides from different FRAC groups and use integrated disease management strategies to reduce resistance risk.

7. Post-harvest measures

- Forced air cooling within two hours of picking cuts spore germination by half.
- Ideal storage = 0 °C, 90–95 % RH, and free air movement.
- A 45–50 °C hot water dip for 3–5 minutes reduces surface spores on chestnuts .
- Break up warm fruit stacks. That is, avoid storing freshly harvested chestnuts in large, tightly packed piles while still warm, especially if field heat hasn't been removed.

8. Weather-based forecasting

- A simple rule of thumb is that, **if leaf wetness >15 hours at 12-20 °C,** treat high value crops within 24 hours.
- Several phone apps now integrate farm weather stations to push alerts.



Chestnut orchard floor with fallen branches and burrs ready for cleanup (*Image: chatboxapp 22JUL25)*

10. Post-harvest treatments & storage

What happens after harvest is critical — even clean, healthy nuts can quickly deteriorate if they are not handled or stored correctly.

Practical steps outlined here can help growers preserve quality and reduce postharvest losses.

1. Cleaning and handling

After harvest, nuts should be handled as gently and quickly as possible. Chestnuts stored warm — even for a few hours — are at much higher risk of developing mould. Key steps include:

- Using clean, dry containers (e.g. ventilated plastic crates, not hessian sacks).
- Emptying full containers promptly and avoid leaving them in the sun or enclosed vehicles.
- Sorting and discarding visibly damaged or infected nuts early — these act as inoculum sources for the rest.

2. Drying

Chestnuts must be dried promptly to reduce their internal moisture and slow microbial activity. Even nuts that appear dry on the outside can retain high moisture inside the kernel. Best practice include:

- Using ambient or slightly warmed forced-air drying.
- Avoiding high heat, which damages nut quality and invites spoilage.
- Drying to below 12% moisture content for longer storage.
- Regularly checking airflow and prevent damp areas from forming in drying sheds.

3. Cool storage

Once dried, store nuts at low temperatures as soon as possible. Chestnuts stored above 5 °C deteriorate rapidly. Cool storage should be viewed not as optional, but essential. Storage tips include:

- Keeping temperatures below 4 °C with relative humidity around 60–70%.
- Using ventilated crates or mesh sacks — avoid plastic liners that trap moisture.
- Don't stack bins too high; allow for air circulation.
- Avoiding placing nuts near dripping coolers, wet walls, or uninsulated doors.
- Running evaporator fans intermittently to reduce condensation and prevent cold spots.

4. Hygiene in storage & packing areas

One overlooked source of contamination is the packhouse or storage area itself. Debris such as leaf litter, burr fragments, and dust under grading belts can harbour fungal spores and lead to cross-contamination. Clean regularly by:

- Removing trash daily from floors and under machinery.
- Cleaning bins, belts, and contact surfaces with food-grade sanitisers.
- Monitoring for condensation, standing water, or areas of visible mould.

5. Biological and Hot Water Treatments

Some growers have found success using biocontrols and hot water dips as part of an integrated strategy. Effective tools include:

- **Fogging bins** with *Bacillus* or *Trichoderma*-based biological fungicides before loading into storage.
- **Hot water dipping** chestnuts over 16 g in size (e.g. 50–55 °C for several minutes) to reduce surface contamination.

These treatments won't eliminate all rot but can reduce the fungal load significantly and extend storage life.

6. In Summary:

- Rapid drying and cooling are essential after harvest.
- Maintain low temperatures and good airflow in storage.
- Clean handling areas thoroughly and regularly.
- Consider targeted biological or thermal treatments

Freshly harvested chestnuts ready to be roasted and enjoyed.
(© Chestnuts Australia Inc)

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Intro to Bot Canker

FACTSHEET

“Bot canker”, or just “Bot”, infects nut trees especially if they are already stressed or weakened.

Brown–black inner bark from Bot Canker *(Image: Davey Tree Expert Company, www.davey.com With permission)*

1. Bot canker & orchards

Bot canker is a group of trunk and limb diseases caused by fungi that live on wood and in debris.

They invade through wounds or weakened tissue, then kill patches of bark and cambium.

Left unchecked, cankers girdle branches, reduce sap flow, and lower yield and tree vigour.

2. What it is

“Bot canker” is shorthand for canker diseases linked to *Botryosphaeriaceae* and related fungi. These fungi are widely distributed in orchards and shelterbelts.

They produce spores on dead wood and infected tissue and spread by wind and rain splash.

They can also live inside apparently healthy tissue and flare up when trees are stressed or wounded.

3. Why it matters

Cankers reduce growth and crop load by killing wood and buds, causing dieback, affecting nut quality, and shortening orchard life.

In young blocks, losses can snowball if cankers are not removed. In mature orchards, hidden cankers and dead spurs chip away at production and complicate pruning and training.

4. What to look for

Use these quick visual cues to recognise likely canker problems

- Sunken, dark, or cracked patches of bark on scaffolds and laterals.
- Amber or dark gum/resin/sap oozing from wounds or pruning cuts.
- Dead spurs or short shoots with shrivelled buds, often in clusters.
- Sudden dieback beyond a pruning cut or borer hole.
- In cross‑section, a streak of brown discoloured wood extending beyond the visible canker margin.

If you suspect a new or unusual canker, mark the limb and check again after rain events.

Photograph the cut surface and the external symptoms to help with diagnosis and follow-up decisions.

5. How it spreads

Spores are released from infected dead wood, mummified tissue and old pruning wounds, especially in wet weather.

They move on wind and rain. Entry points include pruning cuts, cracks from sunburn or heat stress, hail damage, borer and scale feeding sites, and harvest or machinery wounds.

Tools can spread inoculum if used from tree to tree without cleaning.

6. Conditions that favour canker

These are the orchard situations that increase infection risk

- Water stress (too dry or too wet) and poor drainage.
- Heat and sunburn on exposed scaffolds.
- Heavy crops on weak wood; narrow crotch angles that split under load.
- Wounding during wet periods; pruning late in the day when surfaces stay wet.
- Poor orchard hygiene with dead wood left in trees or on the ground.

7. The layered approach

Bot canker control is not a single product or silver bullet. It is a set of small, well-timed actions that add up. Focus on:

- Removing sources of spores
- Protecting or avoiding wounds when infection pressure is high
- Keeping trees even and vigorous so they can compartmentalise small infections.

8. Pre-season set-up

Before the season starts, prepare the orchard and tools with these actions to lower canker risk:

- ☐ Plan pruning for drier windows where possible. Have disinfectant and a bin or tarp ready .
- ☐ Train for strong frameworks with open canopies. Reduce shaded, pockets where dieback thrives.
- ☐ Protect high-value scaffolds from sunburn (paint, wraps, or shade tactics) before heat spikes.
- ☐ Check drainage issues and fix ponding areas. Aim for even irrigation and avoid waterlogging.
- ☐ Service tools. Sharp, clean blades make smaller, smoother wounds that dry faster.
- ☐ Remove mummified nuts, spurs and other debris from trees and orchard floor to cut down inoculum sources.
- ☐ Where recommended, consider wound protectants on larger cuts in high-risk blocks. Follow label directions.

9. In-season quick checks

During the growing season, look out for these issues and act promptly:

Mummified burs in the canopy: remove to reduce inoculum. *(Image: GR)*

- ☐ Walk blocks after rain or wind events. Flag fresh ooze, sunken bark and dieback for follow-up.
- ☐ Prune out cankered wood back to clean, healthy tissue .
- ☐ Remove and destroy prunings; do not leave piles under trees.
- ☐ Disinfect pruning and saw blades between trees or blocks.
- ☐ Keep knives and saws sharp for clean cuts. Avoid making large cuts in wet weather.
- ☐ Manage borers and scale that open entry points. Fix rub damage from ties, guards or machinery.

10. Post harvest clean-up

Once the crop is off, use these steps to reset the orchard and reduce carry -over inoculum .

- ☐ Do a hygiene round. Remove dead arms, mummified spurs and hangers; chip or burn as permitted.
- ☐ Review hot spots where canker kept reappearing. Consider heavier sanitation pruning there.
- ☐ Repaint or rewrap sun-exposed scaffolds at risk of burn and cracking.
- ☐ Do a hygiene round. Remove dead arms, mummified spurs and hangers; chip or burn as permitted
- ☐ Update maps and notes so next season's pruning crew targets the right areas first.

11. Making cuts that heal

When removing an active canker, cut well back into clean wood.

A rule of thumb is to cut at least 15-30 cm beyond visible symptoms on smaller laterals, and further if stain is present.

Shape the final cut close to the branch collar so it can seal. Keep cutting until the cross-section is uniformly pale and healthy. Do not leave stubs.

12. Common pitfalls

These are the frequent mistakes growers make when tackling canker:

- Pruning out obvious cankers but leaving small dead spurs and hangers everywhere.
- Cutting flush or leaving stubs that cannot seal.
- Pruning late in the day before rain with no chance to dry.
- Skipping tool disinfection after removing suspect wood.
- Ignoring drainage faults or heat-exposed scaffolds that crack every summer.

Hort Innovation Strategic levy investment | CHESTNUT FUND

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More on Bot Canker Dieback

FACTSHEET

"Bot canker" is a disease caused by fungi *Botryosphaeria* and *Neofusicoccum*.

Bot canker on a *Fraxinus ornus* *(Image: Benigno, A et al, Forests 2024, 15(1), 51; doi.org/10.3390/f15010051, (CC-BY-4.0))*

1. Introduction

Bot canker is caused by *Botryosphaeria* and *Neofusicoccum* fungi that live on many woody trees and shrubs.

A canker is a continuous mass of killed tissues in trunks, scaffolds, branches and shoots where the canker fungi have grown and colonised the entire cankered tissues and beyond.

Canker fungi enter through small wounds or natural scars on trees, then kill spurs, shoots and sometimes larger branches.

These fungi have been identified as primary agents in postharvest chestnut rot, leading to significant economic losses during storage

2. One disease

Botryosphaeria and Neofusicoccum are closely related pathogens in the same family of fungi.

In practice, they cause very similar canker and dieback symptoms in orchards.

Many field guides, websites and labs use the names together or interchangeably.

For day-to-day management, consider them the same problem and focus on prevention and hygiene.

3. Why growers care

Bot canker quietly erodes yield and drives up pruning and post-harvest workload.

Even with good hygiene, spores from old wood and nearby hosts keep the pressure on each season. F

or nut orchards, Bot canker can impact productivity and profitability in several ways:

- Yield loss on affected spurs and limbs. Dead shoots and spurs won't set next season's crop.
- More dead wood to cut out and dispose of. Pruning costs climb, especially after wet springs and summers.
- Greater risk of post-harvest issues. Infected spurs and hull infections can lift the pressure for rot and moulds in storage.
- Increased susceptibility to other pests and diseases. Stressed or damaged wood can attract borers and allow secondary infections to take hold, further reducing tree health and productivity.

Because these fungi exploit both living and dead wood, they are hard to get rid of once established.

The key is to reduce favourable conditions and inoculum numbers at every step from pruning to storage.

Version 1: SEP25

4. Bot life cycle

Think of the disease loop in seven easy steps that you can act on:

1) Survival in dead material

The fungi persist in dead sticks, prunings, old cankers and some nearby trees.

On that dead wood they form small black fruiting bodies (like pepper) which release spores in wet weather.

2) Spore release

When temperatures are above about 10 °C and wood gets wet (from rain or heavy wetting) for several hours, the fruiting bodies release millions of spores.

A shift from overnight humidity to a breezy morning helps carry them.

3) Dispersal

Spores move by wind, splashing, on clothing and tools, and on machinery and bins.

They can travel tens to hundreds of metres in still conditions, so nearby trees and windbreaks matter.

4) Landing and entry

Spores stick quickly to fresh cuts, sunburn cracks, wounds from hail, and natural leaf and bud scars.

They germinate within a few hours if the surface stays wet.

5) Stealth phase

Before a canker is obvious, the fungi quietly colonise the outer layers of the bark around the wound.

That is why infections can sit unnoticed for weeks.

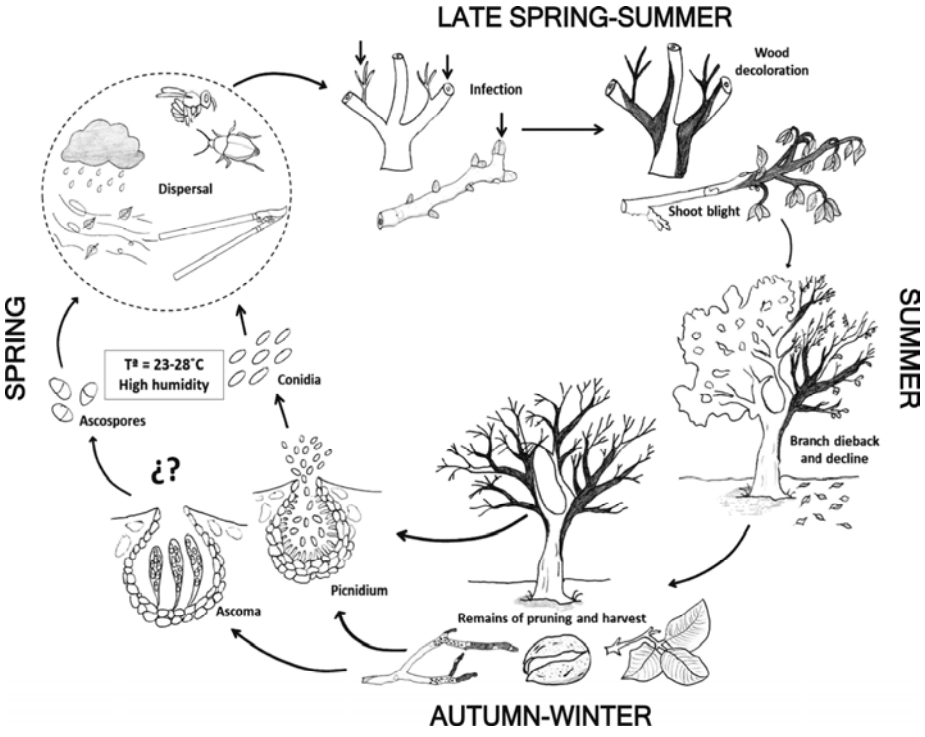
6) Canker phase

The fungi produce enzymes that kill cells and expand along the bark and cambium.

The inner bark at the canker edge turns brown or black. Spurs die, shoots wilt and limbs can fail at the lesion.

7) Splash-and-spread

Old cankers shower spores during the next wet spell, and the cycle repeats unless dead wood is removed during dry weather.



Biological cycle of branch dieback and shoot blight of the English walnut *(Image: Kenfaoui et al. 2022, Journal of Fungi 8:595, CC BY 4.0. https://doi.org/10.3390/jof8060595)*

5. Botryosphaeria weather

Growers talk about "Bot weather".

The risk is highest when:

- Temperatures exceed 10 °C
- Rain, persistent dew or irrigation wets wood for several hours
- Dense or shaded canopies stay wet

In southern Australia, the peak infection risk for Bot runs from mid-November through mid-January.

6. How Bot attacks

Growers of chestnuts or walnuts should expect some exposure to Bot canker every season.

This fungus uses multiple entry points and survival strategies to establish in your orchard, and once it's in, it's hard to remove completely. Here's how it works:

- **Wounds are the main doorway**: fresh pruning cuts, sunburn cracks on young trunks, hail injuries and mechanical knocks give the fungus a way in.
- **Wounds stay vulnerable for months**: pruning sites can remain susceptible for up to four months, so timing and wound care are critical.
- **Old wood is a spore factory**: dead branches and piles of prunings left through wet spells release spores, raising infection pressure.
- **Neighbouring plants can be carriers:** nearby woody hosts, including windbreaks and creekline trees, can harbour Bot fungi year-round.
- **Weakened wood is easier to invade** — scale insect damage and heavy shading make bark more prone to infection; controlling scale and keeping canopies open reduces this risk.
- **Moisture prolongs infection risk** — poor airflow after rain or irrigation keeps wood wet longer, favouring spore germination. Good drainage and grass and weed control improve drying.

7. Recognising Bot canker

Early recognition makes a big difference to managing Bot canker.

It often starts subtly, so train yourself and your team to spot the telltale patterns before the disease gets a foothold.

During pruning and canopy inspections, look for these stress symptoms on individual shoots or limbs:

1) **Shoot and spur dieback**: Individual shoots may wilt and turn brown ("flagging"), often with dead leaves still attached. Spurs may blacken and fail to produce the next season.
2) **Cankers on young wood**: Lesions are often sunken with cracked bark. When sliced, the inner bark at the margin is brown or black instead of green.
3) **Fruiting bodies**: On older cankers, small black dots (pycnidia) can be seen embedded in the bark.
4) **Spread from wounds**: Pruning cuts, hail damage, and sunburn cracks on young trunks are common entry points.
5) **Nut and husk involvement**: Infected spurs may also carry nut infections, increasing the risk of rot or mould in storage if hygiene is poor.

8. Action calendar

Use this as a starting point and adjust to suit your block, weather and variety.

Always follow chemical labels and any current APVMA permits for your crop and state.

1) Late winter to early spring

- Walk the block and flag trees or rows with high levels of deadwood.
- Plan pruning for dry, settled weather.
- Line up tool-sanitation supplies and wound-care paint.
- Check scale pressure and plan control if thresholds are exceeded.

2) Spring to mid-summer

This is the time of highest risk.

- Prune out dead and dying wood early, on dry days. Cut well back into healthy tissue.
- Paint larger cuts on young or sun□exposed wood to reduce sunburn cracks.
- Where legally permitted and disease pressure is high, consider protective sprays mapped to local risk windows.
- Keep irrigation off trunks and avoid prolonged wetting of foliage.

Botryosphaeria fruiting bodies on honey locust branch *(Courtesy: N Brazee, UMass Ext)*

3) Mid to late summer

- Continue dead-wood removal. Don't prune if rain is forecast.
- Maintain tool hygiene and keep contractors supplied with disinfectant.
- In chestnuts, prioritise harvest hygiene and rapid cooling to reduce moulds.

4) Autumn

- Undertake a final pass to remove obvious dead wood during a dry spell.
- Decide whether to chip prunings in-row or remove and destroy off-block. In heavy disease years, removal is safer.
- Review this season's notes and update your risk map for next

A longitudinal canker on an Fraxinus ornus trunk (A), subjected to progressive removal of the outer bark (B–D) to show the extension of the necrotic tissues throughout the inner bark *(Image: Benigno, A et al 2023, in Forests 2024, 15(1), 51; doi.org/10.3390/f15010051 (CC-BY-4.0))*

9. Management toolbox

Good control isn't about one product or action.

It's about combining many small, well-timed steps that work together to keep the problem in check.

Each orchard is different, but the principles are the same — limit the fungus's entry points, reduce its food sources, and make the environment less favourable for infection.

The following practices, when undertaken together across the season, will help protect trees and crops from Bot canker pressure.

1) Site & canopy

- Plant or prune for airflow and light – keep breezes moving through the canopy.
- Avoid tall, dense windbreaks right next to the block.
- Protect young trunks from sunburn to prevent cracks later.

2) Irrigation

- Use drip or low-throw sprinklers to keep trunks and foliage dry.
- If using overheads, run them so leaves dry before evening.
- Avoid soaking trunks.

3) Sanitation

- On dry days, prune out dead spurs and branches, cutting well back into healthy wood.
- In seasons with low disease pressure, prunings can be fine-chipped and mulched in place.
- During heavy infection years, cut out big limbs and badly cankered wood and remove them from the orchard.
- Don't let prunings sit in the paddock during rain — they quickly build up spores .

4) Scale & shade

- Monitor walnut scale and other scale insects. Treat only when population thresholds or label triggers are reached.
- Open up dense canopy areas so sunlight and airflow can reach the wood. Faster drying helps keep trees healthier and less prone to infection.

5) Chemicals

- Only spray if the target is confirmed and a legal label or APVMA permit covers your crop, pest and state.
- Follow withholding periods and residue limits for your markets.
- Rotate modes of action – don't rely on one chemistry all season.
- Chestnut options are limited – keep up with industry updates.

6) Resistance management

- Use full label rates and correct intervals.
- Rotate chemistry groups as per label or permit.
- Avoid repeated use of the same product group.

10. Dead wood & prunings

Old, infected wood is a major source of Bot canker spores.

Removing it promptly, and handling prunings wisely, can cut infection pressure across the block.

- Remove dead wood during dry weather to limit spore spread.
- In light-disease years and dry conditions, fine-chip prunings to use as mulch around trees.
- Avoid cutting or shredding prunings if rain is forecast within 24 hours.
- Take larger or badly cankered pieces out of the orchard and destroy them.
- Stack or store prunings well clear of blocks until disposal is complete.
- Keep vehicles and machinery off prunings in wet weather to avoid carrying spores to healthy trees.
- In high-disease blocks, clean and sterilise pruning tools between trees to prevent moving spores into fresh wounds.

Mulch in mango orchard. In nut blocks, chipped prunings can be used the same way in light-disease years and dry conditions. *(Courtesy: Australian Mango Industry)*

11 Recognising Flagging

1) What is flagging?

Flagging is the sudden wilting and dieback of a single shoot, spur, or small branch while the rest of the chestnut tree looks normal and healthy.

It is one of the earliest signs of wood canker diseases such as Botryosphaeria.

2) What to look for

- **Sudden wilt**: A shoot or spur droops and turns brown while neighbouring leaves remain green.
- **Localised dieback**: Only one limb or spur is affected, not the whole tree.
- **Dead buds**: Spurs that flag this season will not push new growth next spring.
- **Canker at the base**: If you cut into the bark at the junction, the inner tissue may be brown or black rather than green.
- **Progression**: Flagging often spreads slowly from the initial infection site into nearby wood.

3) Why it matters

- Flagging marks where the canker is active. If ignored, the infection spreads into larger limbs.
- Each flagged spur represents lost yield for the following season.
- Early detection lets you prune out infected wood while the canker is still small.

4) How to monitor

- Walk blocks regularly during the growing season, especially after **wet, warm periods**.
- Record the **percent of trees with flagging** in each block.
- Take photos for your records – close-ups of the flagged spur and the canker margin.
- Note pruning history, weather events (hail, heat stress), and irrigation conditions around the time flagging appears.

5) Next steps

- **Prune back into clean wood** on a dry day when flagging is detected.
- **Sanitise tools** between blocks (and between trees in high-pressure situations).
- **Track trends** year to year – repeated flagging means high inoculum pressure in the orchard.

12. Monitoring

Keeping simple but consistent notes makes it easier to spot trends, plan pruning and spraying, and justify decisions.

Over time, your records will show what's working and where to improve.

- Record block and row location for each inspection.
- Note date of monitoring.
- Estimate % of trees showing flagging.
- Count number of cankers removed per 100 m.
- Record scale presence and any action taken.
- List pruning dates and who did the work.
- Tick off tool hygiene checks when completed.
- Log sprays applied – include product name, batch number, rate, timing, and withholding period.
- Record disposal method for prunings.

13. Sampling

If you're unsure what's causing the problem, send a sample to a lab.

- **What to cut:** From a fresh canker, take a wedge that includes both healthy and diseased tissue at the advancing edge.
- **How to pack:** Wrap pieces in dry paper or a paper bag. Do not add wet towels. Keep samples cool.
- **When to ship:** Send early in the week so samples don't sit in transit over the weekend.
- **What to include:** Photos and brief notes on symptoms, irrigation, and recent pruning or weather events.

Wilting and flagging of a walnut tree due to bot canker *(Image: Dr Themis J. Michailides, UANR. Used with permission.)*

14. Weekly in-season walk-through

A quick lap each week keeps small problems from becoming big ones.

Take your monitoring book and tick these off:

- ☐ Note any blocks with new flagging. Mark trees and record % flagged.
- ☐ Remove obvious dead wood on dry days. Cut back into clean wood; bag or chip as per your sanitation plan.
- ☐ Top up sanitation supplies. Disinfectant, wipes, bin liners, gloves, ribbons/paint for marking.
- ☐ Check irrigation isn't wetting trunks or keeping foliage wet. Adjust sets, nozzles or timings if needed.

Check flow and pressure; fix nozzles and leaks early. *(Image: Agriculture Victoria. Permitted use)*

- ☐ Check scale hotspots and dense shade. Record locations; thin or treat when thresholds/labels allow.
- ☐ Record actions and observations in the Monitoring and Record Book.

15. Pre/in-season checks

Before and during the season, use these quick checks to cut Bot canker risk, prevent spread, and keep pruning and hygiene on track.

1) Pruning & wound protection

- ☐ Prune out cankered limbs back to clean wood; remove and destroy prunings.
- ☐ Prune on dry days; protect larger cuts where recommended.
- ☐ Avoid trunk and major-limb wounds during all operations.

2) Hygiene, stress & follow-up

- ☐ Disinfect tools between trees or blocks; keep knives and saws sharp.
- ☐ Reduce stress: even irrigation, good drainage, avoid waterlogging and heat stress.
- ☐ Manage borers and other wounding pests; remove mummified burs and dead wood.
- ☐ Map hotspots and recheck flagged trees during weekly walk-throughs.

16. What you can do now

Turn the checks into action and track results so you can improve each season.

- ☐ **Track your own pressure:** record per-block flagging, cankers removed per 100 m, and mould or rot at receival; use these numbers to benchmark seasons.
- ☐ **Tighten the basics:** prune on dry days, cut back into clean wood, remove badly cankered pieces, and do not leave prunings through wet spells.
- ☐ **Reduce wetness time**: keep trunks and foliage from staying wet after irrigation or rain; open dense shade to improve airflow.

Black pycnidia of Bot canker underneath the bark of a walnut branch. *(Image: T.J. Michailides, Kearney Ag Centre. With permission.)*

Brown–black inner bark from Bot Canker *(Image: Davey Tree Expert Company, www.davey.com With permission)*

- ☐ **Treat the right problem**: confirm the target and check the APVMA label or permit for your crop, pest and state before spraying.
- ☐ **Stay plugged in:** expect updates as local trials report and permits evolve; keep in touch with your industry association and advisers so you get new advice early.

Rapid response

Suspect an unusual or notifiable disease? Phone the Exotic Plant Pest Hotline 1800 084 881.

REMEMBER:

Effective Bot canker control comes from small, well-timed actions throughout the season and refining them as local evidence emerges - not from any single product or tactic.

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Pezicula in chestnut orchards

FACTSHEET

Pezicula, a common wood fungus, turns pathogenic on trees under stress.

Waxy, ochre fruiting bodies of Pezicula cinnamomea on bark after wet weather. *(Image: BJoerns, 2022, www.inaturalist.org/photos/181051957 , CC BY-SA 4.0)*

1. What it is

Pezicula fungi (*Pezicula cinnamomea*) can behave in a few different ways.

They can:

- Live quietly in the outer bark without causing trouble (as "endophytes")
- Feed on dead wood and old pruning stubs (as "saprobes"), or
- Take advantage of weak or stressed trees and damage the bark a little (as "weak pathogens").

On healthy chestnut trees, Pezicula fungi often sits in the background and causes no clear symptoms.

2. Why it matters

Think of Pezicula as an opportunist.

When trees are well watered and not under heat or other stress, it is usually harmless.

When trees are stressed by drought, heat, wounding, poor pruning, waterlogging, or root problems, Pezicula can tip from quiet to troublesome.

In those conditions it can be linked with small bark injuries or shallow cankers that slowly expand.

While most clear reports of cankers are from oaks in dry years, the message for chestnuts is similar: stressed trees are more at risk, and problems tend to appear around wounds, stubs, sunburn, or cracks.

There is also a possible upside.

In the lab, some endophytic Pezicula have slowed the growth of aggressive fungi such as the chestnut blight pathogen.

That is interesting science, but it has not yet been proven as a control method in the field.

Take it as a reminder that **good orchard hygiene and steady tree health** help keep the "good biology" in balance.

3. Where it lives & how it behaves

Pezicula is most often found in the outer bark layers. It is rarely recovered from deeper wood on healthy trees.

It can also colonise dead twigs or old pruning stubs and produce spores there. Those dead pieces then act as small spore sources.

When the weather is moist and there are fresh wounds or cracks, spores can land and the fungus may move into living bark, especially on stressed trees.

Most of the time it stays quiet and is only picked up by a lab test.

4. What to look for

Because symptoms can be subtle on chestnut, start with a quick check in each block.

- Dead twigs or stubs: look for tiny, fleshy, waxy cups (apothecia) that are yellow to ochre on the surface of old wood.
- Living bark: watch for small, shallow, sunken or darkened patches that do not heal well, especially after drought, heat, or sunburn.

5. Identification

You can photograph suspect bark and dead twigs, but formal identification is best done by a plant pathology lab.

The lab can culture the fungus or run DNA tests to confirm it and, if needed, take it down to species level.

This helps avoid confusion with other canker fungi that look similar in the field.

6. When the risk goes up

Keep a closer eye on trees and plan extra hygiene when these conditions apply:

- Drought and heatwaves that dry or crack bark and expose the cambium.
- Big pruning cuts, rough stubs, or cuts made in wet weather that heal slowly.
- Dead wood left in canopies or on the ground, which builds up inoculum.
- Trees under other pressure: poor drainage, waterlogging, uneven irrigation, compaction, sunburn, or root damage.

In simple terms, anything that weakens bark or slows healing lifts the risk.

7. How to confirm it

Here's a simple step-by-step way to confirm what you're seeing.

1) **Spot it:** note bark patches that expand, or yellow-ochre cups on dead twigs.
2) **Pause work:** stop pruning in that row; clean boots/tools before moving.
3) **Mark & photo:** flag the tree, circle the spot with chalk, take close and wider photos.
4) **Record:** block/row/tree, date, symptoms, recent weather, and any wounds or heat events.
5) **Sample correctly:** with clean tools, cut a small wedge from the **margin** of the bark lesion (half healthy, half affected) and clip a twig carrying fruiting bodies.
6) **Keep cool/dry:** wrap in paper, place in a ventilated bag or box (no plastic), label clearly.
7) **Submit to lab:** request culture/DNA for Pezicula spp. and other canker fungi; include photos/notes.
8) **Isolate area:** avoid traffic; disinfect tools after leaving.
9) **Interim actions:** remove obvious dead twigs in dry weather; steady irrigation; protect from heat.
10) **Act on results:** update your sanitation/pruning plan; resample if symptoms persist or spread.

Pezicula cinnamomea fruiting on bark - small, pale ochre cup-shaped apothecia.
(Image: BJoerns, 2023, www.inaturalist.org/photos/255113241, CC BY-SA 4.0)

8. A sanitation & pruning plan

An orchard sanitation and pruning plan involves:

- Timing cuts to prevent disease disinfecting tools between cuts
- Dipping or spraying cutting tools with a disinfectant
- Removing infected material from the orchard
- Establishing a system to manage diseased or dead branches.

Pruning goals include:

- Maintaining tree size
- Improving light and air circulation within the canopy
- Promoting healthy growth
- Preparing the tree for efficient fruit production.

9. Management that works in practice

There is no chestnut-specific fungicide programme for Pezicula.

The goal is to keep it in the "quiet" state and reduce spore sources.

Focus on three things:

1. Hygiene and wound care

- Remove dead wood and hangers from the canopy.
- Pick up and dispose of mummified nuts and other debris that can host fungi.
- Make clean pruning cuts close to the branch collar; avoid leaving stubs.
- Prefer dry weather for pruning where possible so cuts seal faster.
- Disinfect saws and secateurs between trees when removing suspect wood.

2. Lower stress & even out moisture

- Aim for steady soil moisture within sensible bands for your soil type. Avoid the cycle of very dry, then saturated.
- Protect heat-exposed limbs before severe heat (trunk paint or wraps) to limit cracking and sunburn.
- Fix drainage and compaction issues so wounds can heal and cankers are less likely to establish.

3. Encourage healthy biology

- Diverse, healthy microbial communities can compete with pathogens.
- Treat probiotics or inoculants as experimental unless local evidence supports them.

10. When to seek advice

Get technical help or review your plan if any of these occur:

- Bark lesions spread quickly after heat or drought events.
- Repeated shallow necrosis forms around pruning stubs or sunburn cracks.
- You see unusual little yellow-ochre fruiting bodies on dead twigs and want to be sure what they are.

A lab diagnosis can tell you if Pezicula is present and whether sanitation pruning is all that is needed.

If symptoms keep returning despite hygiene and irrigation, pause work, mark the trees, and seek expert advice before further pruning.

Winter clean-up: remove mummified burs from the canopy to cut disease carry-over. *(Image: GR)*

Pruning hygiene kit: gloves, saw, secateurs, brush and spray bottle for isopropyl alcohol. *(Main image: Susana MaRo/pexels)*

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Chestnut Industry Biosecurity Statement
July 2025

Chestnut Australia Inc is strongly committed to ensuring the Chestnut Industry effectively reduces the potential for incursions of emergency plant pests and diseases that could adversely impact on domestic trade/international trade/market access/public health/food safety/regional and national economy/environment. The Chestnut Industry is also strongly committed to ensuring responses to any pest incursions that may occur are undertaken as rapidly and effectively as possible to minimise costs to growers, the industry, other plant industries, government parties and the wider community.

The Australian Chestnut industry operates principally in the southern states of Australia, including NSW, Tasmania and Victoria, plus southern areas of SA and the south west area of WA.
Approximately 70 per cent of the national crop is grown in North East Victoria.
The main varieties grown are Red Spanish, Purtons Pride and De Coppi Marone. Chestnuts flower during November and December and are harvested from March through to May.
In 2024 there were around 1,480 ha containing approximately 400,000 trees with production estimated to be 1,078 tonnes. Increases will occur in coming years due to the expansion in plantings. The industry is primarily focused on the domestic market with approximately 2 per cent exported mainly to Asian markets. The LVP of Chestnuts in 2024 was $8.2 million.

INDUSTRY BIOSECURITY PLAN – CHESTNUT INDUSTRY

The Chestnut Industry through Chestnuts Australia Inc has worked with Plant Health Australia (PHA), a range of government agencies including DAFF, NSW Department of Primary Industries, Agriculture Victoria and Primary Industries and Regions SA and the other nut industries of Almonds, Pistachios, Walnuts. Pecans, Hazelnuts and Macadamias to develop a comprehensive national approach to managing biosecurity risks in the Chestnut Industry.

The National Nut Industry Biosecurity Plan, consistent with PHA's *National Industry Biosecurity Planning Guidelines*, was officially published in January 2016 following endorsement by Government and Industry but it is currently being reviewed and reshaped and is due for finalisation in the second half of 2025.
Copies of the DRAFT document and the chestnut pest and disease lists plan have been made available to key industry representatives of the Chestnut Australia Inc Executive Committee for review and comment.

The National Nut Industry Biosecurity Plan comprises an introduction and four other key sections.

The threat identification section, from the new DRAFT document, has involved the development of a priority pest list, developed through the identification, analysis and prioritisation of three (3) High Priority pests/diseases and thirty-eight (38) Exotic Pests/Diseases to Monitor.

The risk mitigation section outlines a range of pre-emptive strategies at the national, state, regional and property levels to ensure the exclusion/management of serious plant pests.

The contingency plans and response management procedures section details key industry contacts and communication procedures, relevant counselling and financial counselling providers. These Contingency Plans underpin and will be used in conjunction with the general management structures of PLANTPLAN. Each contingency plan includes pest or industry specific details relating to the management/control/eradication of individual pest threats.

The awareness section identifies a range of existing fact sheets or other sources of information for the high priority pests identified in the priority pest list. Where no existing fact sheets or information was available on particular pests, fact sheets have been and will continue to be developed.

The National Nut Industry Biosecurity Plan for Chestnuts does not include any other specific details.

In addition, one (1) national diagnostic protocol has been/are being developed for Chestnut Blight and will form part of future biosecurity plans.

Chestnuts Australia Inc will work with Plant Health Australia and provide appropriate resources to the ongoing maintenance and reviews of the plan.

PEST CATEGORISATION

Of the forty-one (41) pests identified in the priority pest list of the National Nut Industry Biosecurity Plan, one (1) has been categorised and is listed in Schedule 13 of the Emergency Plant Pest Response Deed.

AND

Chestnuts Australia Inc commits to ensuring appropriate industry technical experts will be available to participate in Categorisation Groups to consider pest categorisation or funding weight calculations for Emergency Plant Pests with multi-industry impacts.

NATIONAL DECISION-MAKING PROCESSES/PLANTPLAN

Chestnuts Australia Inc has endorsed PLANTPLAN (Australian Emergency Plant Pest Response Plan) and will use this document to work effectively with government parties to manage any agreed responses to an EPP.

Chestnuts Australia Inc will ensure senior and qualified industry delegates are available at short notice to participate in meetings of the Consultative Committee on Emergency Plant Pests and the National Management Group and to take up roles in Local Control Centres or the State Coordination Centres. Chestnuts Australia Inc will also ensure all delegates participate in relevant training delivered through Plant Health Australia's National Emergency Plant Pest Training Program.

BIOSECURITY AWARENESS

Chestnuts Australia Inc has been involved in promoting biosecurity within the Chestnut industry through the involvement with the Chestnut Blight incursion and subsequent Eradication Program, Transition to Management Program and the Industry Management Program.

Chestnuts Australia Inc maintains a Biosecurity section on the industry website.
In addition, Chestnuts Australia Inc prepares and supplies to members a range of pest and disease and orchard sanitation technical sheets.

OTHER ACTIVITIES

Chestnuts Australia Inc has employed an Industry Development Officer and one of the roles is to undertake biosecurity activities including: -

a) Representation of Chestnuts Australia Inc at relevant Plant Health Australia meetings,
b) Representation at relevant Consultative Committee on Emergency Plant Pests and National Management Group meetings.
c) Ongoing review the pest list within the Nut Industry Biosecurity Plan.
d) The industry 'front-line' representative with the Chestnut Blight Response Plan activities

The position of the Industry Development Officer is funded through general revenue of Chestnuts Australia Inc.

Chestnuts Australia Inc continues to engage a Biosecurity/Surveillance Officer to assist and drive the Industry/Agriculture Victoria Chestnut Blight management program and continue as a medium-term resource for the Australian Chestnut Industry.

The broad roles of the Chestnut Industry Biosecurity Officer are as follows: -

- Effectively deploy the tools and information already developed through the Transition to Management program to assist growers.
- Provide on farm biosecurity training to all growers enabling effective management of pests and diseases.
- Support and position the industry and its growers to transition from government to industry leadership of chestnut blight management (in line with agreed national biosecurity policy).

Over the three-year period – July 2021 to June 2024 the Chestnut Biosecurity Officer and the team of surveillance personnel have inspected over 180,000 chestnut trees for Chestnut Blight in an endeavour to delineate the disease and identify and remove infected trees.

All of the inspection/surveillance data has been added to AUSPestCheck®.

LIST OF ACTIVITIES ATTENDED BY MEMBERS OF THE CH22000 PROJECT TEAM MEMBERS AS PART OF THE FINAL PERIOD OF THE PROJECT.

- National Sustainable funding for the Biosecurity System, Plant Health Committee – 17th June 2025
- CAI Executive Committee/R&D Committee meetings – 17th June 2025
- PSHP NMG Meeting via Teams – 18th June 2025
- Water rationing budget tool meeting, AgVic – 24th June 2025
- PSHP CCEPP Meeting via Teams – 26th June 2025
- Farm Value to Values: The Evolving Australian Consumer, Hort Innovation Webinar – 27th June 2025
- APVMA Efficacy Workshop, Canberra – 1st July 2025
- India CECA Stakeholder Group Meeting via Teams – 2nd July 2025
- Chestnut SIAP Meeting – 7th July 2025
- Nuts for Life Committee meeting and presentation on Health Claim options – 15th July 2025
- HIN Meeting – Presentation on Victorian Machete legislation – 17th July 2025
- Climate Smart Project planning meeting with Elke Jasper and Guy Rischmueller – 17th July 2025
- CAI Chemical Working Group Meeting via 'Teams' – 21st July 2025
- PHSB interview with Scientific Advisor – 29th July 2025
- Hort Innovation Communications Group 'SuppHort' Meeting – 30th July 2025
- Corella Bird Project 'Teams' session with Cherrp – 11th August 2025
- Victorian HIN meeting via 'Teams' – 12th August 2025
- FSANZ Health Star Rating Webinar – 14th August 2025
- NECMA Climate Smart Project Group Meeting and Information Session – 19th August 2025
- Chemical meeting with BSAF representatives – 19th August 2025
- NECMA Climate Smart Project meeting – 26th August 2025
- Victorian HIN Meeting on chemicals at Attwood, Victoria – 2nd September 2025
- Chestnut representatives meeting with R&D Scientists at Agriculture Victoria at Bundoora – 3rd September 2025
- ANIC/Austrade meeting to discuss future market expansion programs via 'Teams' – 4th September 2025
- Meeting with Dr Helen Haines, MP regarding Chestnut Blight – 12th September 2025
- Chestnut Grower visits with John Stanley through NE Victoria – 12th September 2025
- 2025 Australian Chestnut Congress, Wangaratta, Victoria – 13th and 14th September 2025
- TAFCO/Indigo Shire Stanley weather station launch – 14th September 2025
- PHSB CEPP meeting via 'Teams' – 16th September 2025
- Chestnut SIAP meeting via 'Teams' – 22nd September 2025
- Plant Market Access Workshop organised by DAFF – 22nd September 2025
- Chestnut Chemical Project meeting with Hort Innovation/Contractor – 23rd September 2025
- AgVic IRG Meeting via 'Teams' – 25th September 2025
- ANIC Board Meeting – 29th September 2025.

CHESTNUTS AUSTRALIA INC

NUT ROT MANAGEMENT DISCUSSION PAPER

EXECUTIVE SUMMARY:

The following is the situation:

- Currently we have two actives being registered under permit by APVMA – PYRACLOSTROBIN and DIFENOCONAZOLE
- These two actives are from fungicide Groups 3 and 11
- Industry has access to Phosphorous Acid
- There are a number of Potassium Phosphonate products available in Australia
- There does not seem to be any Zinc Phosphonate products available in Australia
- Based on the USA work there has been some success with commercial fungicides, biologicals and Zn Phosphonates particularly.
- There is a new product in Problad Verde (Blad) that is available in Australia that has been trialled in Austria. The company 7 Worlds is willing to work with industry to potentially trial the product

GOING FORWARD

To develop the best pool of chemicals and to ultimately avoid resistance development we need to look at expanding the groups of actives.
Some to consider would be (in my opinion): -

- ***Cyprodinil/Fludioxonil (9/12) – Switch that showed good results in original SARDI trials***
- ***Propiconazole (3) – listed as part of the number 1 product in USA trials***
- ***Fluopyram/Trifloxystrobin (7/11) – Luna sensation - one suggested by Hort Innovation and used in trials in Greece***
- ***Florylpicoxamid (21) - Verpixo Adavelt – one suggested by Hort Innovation***
- ***Tebuconazole (3) – available in Australia***

This potentially is seven actives that cover Groups 7, 9, 12 and 21.
Some of these actives are also in other chemicals listed below.

Given the input so far from the two agencies once a list of actives is agreed upon, we could turn around some in vitro work by say mid-September.
Then a selection, based on the results could then be placed into a funded trial that could commence before flowering in 2025.
We need to match some of these with the material from Kevin Bodnaruk to see what USA or other overseas data is available and where they have uses in other nut crops.

The following areas have been covered below: -

- Overview of chemicals/actives currently being used
- Permit application documents being considered by APVMA
- Phosphorous Acid Permit
- Results from USA
- Overview of chemicals/actives currently being considered
- Input from Kevin Bodnaruk
- Phosphonate Products
- Products available in Australia
- Biologicals
- Laboratory Work
- Past SARDI Results

OVERVIEW OF CHEMICALS/ACTIVIES CURRENTLY BEING USED

Chemical	Active 1	Active 2	Group	Country
Cabrio	PYRACLOSTROBIN 250 g/L		11	Used by Australian growers
Cabretta	PYRACLOSTROBIN 250 g/L		11	Used by Australian growers
Digger	DIFENOCONAZOLE 125 g/L		3	Used by Australian growers
Score	DIFENOCONAZOLE 250 g/L		C	Used by Australian growers
Phosphoric Acid	PHOSPHOROUS ACID As mono and di potassium phosphonate 333 mL/100 L			Permit use

PERMIT APPLICATION DOCUMENTS BEING CONSIDERED BY APVMA

<table>
<tr><th>Crop</th><th>Insect Pests</th><th colspan="2">Rate</th></tr>
<tr><td rowspan="3">Chestnuts</td><td rowspan="3">Chestnut rot

(Gnomoniopsis smithogilvyi)</td><td colspan="2">Difenoconazole</td></tr>
<tr><td>50 mL/100 L

(250 g/L product)</td><td>12.5 g/100 L

(100 g/kg product)</td></tr>
<tr><td colspan="2">Plus pyraclostrobin @ 40 mL/100L

(250 g/L product)</td></tr>
</table>

Critical Use Comments:

- DO NOT apply more than four (4) applications per season.
- Do Not use an adjuvant.
- Ensure thorough spray coverage. Do Not apply more than 1000 L/ha per application.
- Make the first spray at budburst, i.e., two weeks prior to flowering.
- Repeat applications 14-21 days later if conditions favour disease development, e.g., at peak flowering and two weeks post-flowering, as preventative treatments.

Withholding Periods:
Harvest: DO NOT harvest for 14 DAYS after the final application.
Grazing: DO NOT feed treated chestnut culls to livestock.

PHOSPHOROUS ACID PERMIT:

Products to be used:

ACCENSI PHOSPOT 400 SYSTEMIC FUNGICIDE (APVMA No. 69799)
PLUS OTHER REGISTERED PRODUCTS
Containing: 400 g/L PHOSPHOROUS ACID as the only active constituent.

AGRI-FOS 600 SYSTEMIC FUNGICIDE (APVMA No. 54430)
PLUS OTHER REGISTERED PRODUCTS
Containing: 600 g/L PHOSPHOROUS ACID as the only active constituent.

SPRAYPHOS 620 SYSTEMIC FUNGICIDE (APVMA No. 59052)
PLUS OTHER REGISTERED PRODUCTS
Containing: 620 g/L PHOSPHOROUS ACID as the only active constituent.

AGRI-FOS 625 SYSTEMIC FUNGICIDE (APVMA No. 61691)
PLUS OTHER REGISTERED PRODUCTS
Containing: 625 g/L PHOSPHOROUS ACID as the only active constituent.

Directions for Use: Crop	**Disease**	**Rate**
Chestnut	Suppression of Phytophthora Trunk and Root Canker (Phytophthora cinnamomi)	400 g/L products: Apply at a maximum rate of 500 mL/100 L 600 g/L products: Apply at a maximum rate of 333 mL/100 L
	Suppression of Phomopsis Nut Rot (Phomopsis castanea)	620 and 625 g/L products: Apply at a maximum rate of 320 mL/100 L

Critical Use Comments:

- Apply foliar spray to the point-of-runoff, ensuring all leaves and branches are covered.
- Apply a maximum of 2 foliar sprays per production (growing) season.
- DO NOT apply to trees under severe water stress or during very hot weather.

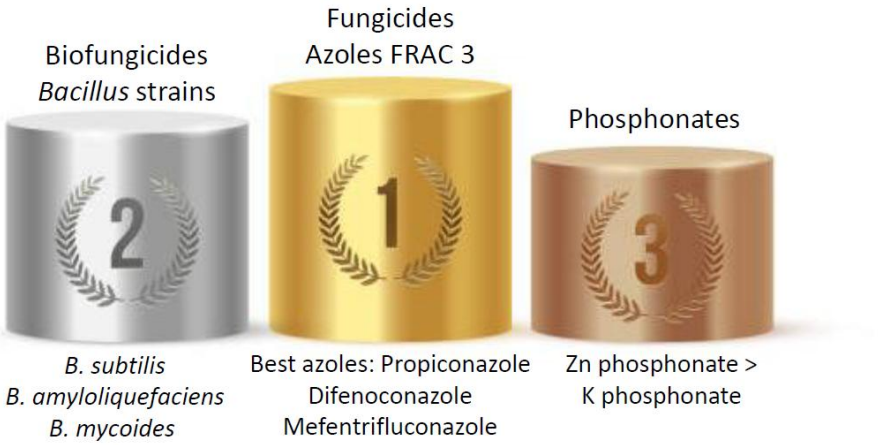
RESULTS FROM USA

The presentation given at Eurocastanea in January 2025 from Giorgia Bastanella is attached to this to this report.

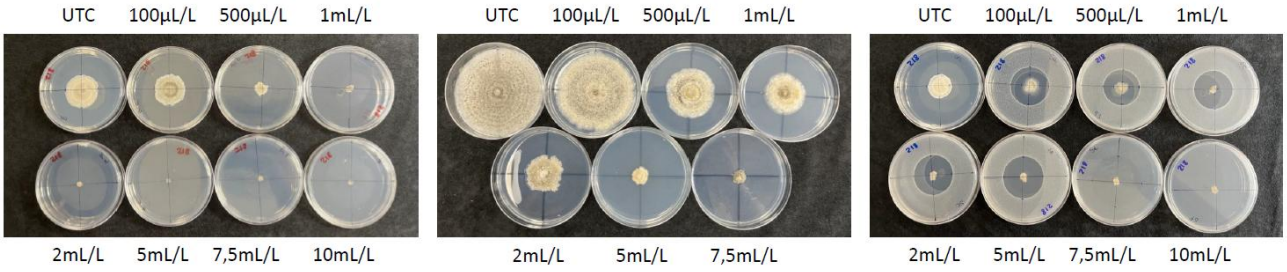
PLEASE NOTE THIS IS A CONFIDENTIAL REPORT AS GIORGIA IS LOOKING TO PUBLISH A SCIENTIFIC PAPER.

The following is extracted from that report: -

Experimental trials for 2023-2024 season – EC_{50}



Experimental trials for 2023-2024 season – EC_{50}



Sysstem® Zn
Active Ingredient: Zn phosphonate (Total P_2O_5 35%, Zinc 8.0%)

KPhite® 7LP
Active Ingredient: Mono- and dipotassium salts of Phosphorous Acid 56%

Serenade® ASO
Active Ingredient: QST 713 strain of dried Bacillus subtilis 14.60% (7.3 x 109 CFU/g)

OVERVIEW OF CHEMICALS/ACTIVES CURRENTLY BEING CONSIDERED

Chemical	Active 1	Active 2	Group	Country
Switch	CYPRODINIL 375 g/kg	FLUDIOXONIL 250 g/kg	9/12	
TILT 500 EC Systemic Fungicide	Propiconazole 500 g/L		3	USA
Luna Sensation	FLUOPYRAM 250 g/L	TRIFLOXYSTROBIN 250 g/L	7/11	Used in Greece
Verpixo Adavelt	FLORYLPICOXAMID 100 g/L		21	
Meviron	FLUXAPYROXAD 250 g/L	PYRACLOSTROBIN 250 g/L	7/11	
MIRAVIS PRIME	FLUDIOXONIL 250 g/L	PYDIFLUMETOFEN 150 g/L	7/12	
Inspire Super	DIFENOCONAZOLE (8.4%)	CYPRODINIL (23.1%)	3/9	USA
AFrame	AZOXYSTROBIN (22.9%)		11	USA
TebuStar	TEBUCONAZOLE (45%)		3	USA
CropSure Tebustar 430 SC	TEBUCONAZOLE 430 g/L		3	AUS product
Flint Max	TEBUCONAZOLE (50%)	TRIFLOXYSTROBIN (25%)	11	Greece
Flint		TRIFLOXYSTROBIN 500 g/kg	11	AUS (Bayer product)

Given we already have chemicals from 3 and 11 we might consider chemicals/actives from other groups 7, 9, 12 and 21.

NEW 'FUNGICIDE' NOW AVAILABLE IN AUSTRALIA

Problad Verde (Blad)

7Worlds (previously GroChem) would suggest looking at Problad Verde (Blad), a new molecule they are distributing in the market.
Attached is the Antifungal activity in Vitro work, and it is also getting looked at for post-harvest diseases.

ProBlad Verde is an innovative broad spectrum contact fungicide containing the new active ingredient BLAD protein, with a unique multi-site mode of action, providing preventative and curative effects against multiple stages of fungal life cycle.

https://7worlds.com.au/wp-content/uploads/2024/10/Web-Leaflet_ProBlad-Verde_7W.pdf

NOTE: THIS PRODUCT IS BEING USED IN AUSTRIA. TREVOR RANFORD REQUESTING MORE INFORMATION FROM THE RESEARCHERS

INPUT FROM KEVIN BODNARUK:

Regarding the SIAP and the session on chemical trials. Fyi, I've looked at the various fungicides options listed in the most recent SARP as well as what information I could find from journals and HIA reports with regards to Chestnut rot, from the perspective of trying to satisfy the APVMA data requirements for minor use permits. Outlined below is what I've pulled together, not a lot of joy. Unfortunately, the APVMA doesn't consider the existence of a USA registered use as sufficient evidence to support efficacy and, I've not found many potentially relevant registrations in other countries, (my French, Italia, Portuguese and Spanish is limited).

Another potential issue is that the list heavily favours Groups 3, 7 and 11. Given fungicide resistance management strategies the number of applications per group are limited so pursuing approvals for multiple diseases may limit

In terms of chestnut rot, depending on what new efficacy data might emerge from recent local and OS trials, my best suggestion, at least for the short-term, would be to consider screening those fungicides where there is tree nut residue trial already data available. The proviso being that the proposed use pattern would need to be comparable to that used in the residue trials.

Diseases	**SARP identified options**	**Chemical Group**	**Residue data?**	**Efficacy data?**	**Comment**
Phomopsis	Aureobasidium pullulans	BM02	Exempt	Needed	USA Tree nut registration for Monilinia and Botrytis
Botryosphaeria	Azoxystrobin	11	Available	Needed	Registered in USA in Tree nuts for Alternaria, Monilinia, Anthracnose and Cladosporium
Alternaria, Botryosphaeria, Monilinia	Bacillus amyloliquefaciens MBI 600 (Serifel)	BM02	Exempt	Needed	USA Tree nut registration for foliar application against Alternaria, Anthracnose, Botryosphaeria spp, Cladosporium spp, Monilinia spp.
Phomopsis	Bacillus amyloliquefaciens QST 713 (Serenade)	BM02	Exempt	Needed	USA Tree nut registrations for Alternaria, Anthracnose, Botryosphaeria, Monilinia, Cladosporium
Monilinia	BLAD	BM01	Exempt	Needed	USA Tree nut registration
Monilinia, Phomopsis	Captan	M4	Needed	Needed	USA registered in almonds only. Rate in grapes lower than for use in almonds. No Codex MRL
Cladosporium, Cryphonectria, Monilinia, Phompsis, Phytophthora	Copper	M1	Exempt	Needed	No USA registration for the disease, labels indicate 'Leaf spot' Registered in Aus in Tree nuts for Phytophthora (Nufarm products)
Monilinia	Cyprodinil	9	Needed	Needed	USA registrations in almonds and pistachio only
Phomopsis	Dithianon	M9	Needed	Needed	No USA Tree nut registrations, No Codex MRL
Monilinia	Dodine	U12	Needed	Needed	USA registered in almonds only. No Codex MRL
Alternaria, Cladosporium, Monilinia	Florylpicoxamid	21	Needed	Needed	No USA Tree nut registrations, No Codex MRL
Phomopsis	Fluazinam	29	Needed	Needed	No USA Tree nut registrations, No Codex MRL
Cladosporium		12 + 11	Needed	Needed	No USA post-harvest registration in tree nuts

	Fludioxonil + Azoxystrobin (Graduate A+)				No USA in-crop Tree nut registration for co-formulated product Azoxy registered as a stand-alone product. Fludioxonil co-formulated with pydiflumetofen
Alternaria, Botryosphaeria, Cladosporium, Monilinia, Phomopsis	Fluopyram + tebuconazole (Luna Experience)	7 + 3	Available	Needed	Registered in USA for tree nuts. Not for Phompsis
Alternaria, Cladosporium, Monilinia	Fluopyram + trifloxystrobin	7 + 11	Available	Needed	USA registered in almonds only. Residue trial data available for individual products.
Alternaria, Cladosporium,	Fluxapyroxad + pyraclostrobin	7 + 11	Available	Needed	USA Tree nut registration. Residue trial data available for individual products.
Phytophthora	Mandipropamid	40	Needed	Needed	No USA Tree nut registration. No relevant Codex MRLs
Alternaria, Botryosphaeria, Cladosporium, Monilinia	Mefentrifluconazole	3	Available	Needed	Registered in USA for tree nuts. Not for Phomopsis
Phomopsis	Metiram	M3	Needed	Needed	No USA Tree nut registrations, No Codex MRL
Phytophthora	Oxathiapiprolin	49	Available	Needed	USA Tree nut registration for Phytophthora
Alternaria, Cladosporium,	Penthiopyrad	7	Available	Needed	Aus & USA registrations
Alternaria, Cladosporium, Monilinia	Pydiflumetofen + Fludioxonil	7+12	Available	Needed	USA Tree nut registration for Alternaria, Anthracnose, Monilinia, Cladosporium
Botryosphaeria,	Phosphonate	PO7	Available	Needed	EU GAP: 4 L/ha - 3.02 kg ai/ha 21 day PHI USA GAP: 6 foliar applications of 1.9 kg ai/ha
Alternaria	Polyoxin-D	19	Exempt	Needed	Registered for Tree nuts in the USA for Alternaria and Botrytis. [Six applications at 0.23 g ai/ha, 14 day RTI and a 0 day WHP]
Cladosporium	Sodium Hypochlorite	-	Exempt	-	PER13640 in place
Botryosphaeria, Cladosporium	Triforine	3	Needed	Needed	No USA Tree nut registrations, no Codex MRLs

G. smithogilvyi	Azoxystrobin + Tebuconazole (Custodia Forte)	11 + 3	Possibly available	Needed	No USA Tree nut registration for co-formulated product. Residue trial data available for individual products. Relevance dependant on proposed use pattern. Possible pushback for permits as same fungicide groups if pyraclostrobin and difenoconazole permit applications successful.
	Bacillus amyloliquefaciens Strain QST 713	BM02	Exempt	Possibly available	Gomes *et al*. 2022 may be sufficient for organic grower permit? Also French (FR - 2023-053) EU Emergency authorisation in 2023 (6 x 8 L/ha (1500 L/ha) from first open flower)]
	Phosphonate K	PO7	Available	Possibly available	Bastianelli 2023 may be sufficient for K phosphonate permit.
	Phosphonate Zn	PO7	Possibly needed	Needed	No Zn phosphonate registered in the EU or USA as a pesticide. Potentially full data package would be needed to gain Aus approval, e.g., toxicology, OH&S, environment etc.
	Tebuconazole	3	Available	Possibly available	Registered in the USA in tree nuts for Botryosphaeria and Monilinia. Registered in Europe in tree nuts for Alternaria, Colletotrichum and Phomopsis. Efficacy: Gomes *et al* 2022 & Bastianelli 2023 may be sufficient for a permit. As above, possible pushback, should permit be approved for difenoconazole, due to also being a Group 3 fungicide.
	Trichoderma harzianum	BM02	Exempt	Needed	Registered in Aust for use in grapes.

					Efficacy from Beninga *et al* 2024 may be sufficient for a permit?

PHOSPHONATE PRODUCTS:

Kalex® (AlbaMilagro International Ltd., Parabiago, Italy) containing 50% w/w potassium-phosphite (KH_2PO_3), is a liquid fertilizer and enhancer of the natural resistance of plants against external pathogenic agents.
Kalex®, 200 mL/L, endotherapy.

Kalex Zn® (AlbaMilagro International Ltd., Parabiago, Italy) containing 4% w/w Ureic nitrogen, 36% w/w zinc-phosphonate ($O_6P_2Zn_3$), is an innovative mineral fluid fertilizer containing, in the form of zinc phosphonates, high quantities of phosphorus and zinc, with its known fungicidal activity.
Kalex Zn®, 300 mL hL/1, crown spray.

KALEX Zn contains Zn-Phosphite which acts as resistance inductor. **KALEX Zn** is strongly indicated for crops which suffer Zinc deficiency symptoms. **KALEX Zn** promotes root development and blooming thanks the important role of Zinc for auxins synthesis.

KPhite 7LP
A SYSTEMIC FUNGICIDE BACTERICIDE FOR THE CONTROL OF DOWNY MILDEW, PHYTOPHTHORA, PYTHIUM, AND VARIOUS OTHER DISEASES ON GREENHOUSE CROPS, INDOOR AND OUTDOOR ORNAMENTALS, BEDDING PLANTS AND FORESTRY APPLICATIONS AND DOMESTIC TREES INCLUDING CONIFERS, PINES, OAKS AND TURF

Active Ingredients:
Mono- and dipotassium salts of Phosphorous Acid* 56.0%
OTHER INGREDIENTS: 44.0%
TOTAL: 100.0%
*Contains 7.03 lbs./gallon of active ingredients, mono- and dipotassium salts of Phosphorous Acid.
Equivalent to 4.41 lbs. Phosphorous Acid/gallon.

Mystic® 430 SC (Nufarm Italia Ltd., Milano, Italy) containing 40.18% (w/v) Tebuconazole ($C_{16}H_{22}ClN_3O$), is used as conventional chemical treatment against fungal contamination (Table 1). Doses used were those recommended by producers.
Mystic® 430 SC, 35 mL hL/1, crown **spray.**

PRODUCTS AVAILABLE IN AUSTRALIA

None of the above products appear to be registered in Australia. This has been confirmed by my investigation along with input from Kevin Bodnaruk.

Kevin also indicated that he was unaware of and Zn phosphonates-based products being available in Australia.

But the following mono and di potassium phosphonates are registered in Australia

- Profusion 600 from Nutrien
- Crop Doc from Grochem.

PHOSFUSION 600
Phosfusion 600 is a unique formulation of Phosphorous (Phosphite) and Potassium which offers protection against Downey Mildew and Phytophthora SPP., activates plant defense systems and stimulates plant vigour in a range of crops and other plants.
Benefits

- Provides effective control of Downy Mildew and Phytophthora diseases on a wide range of crops
- Is formulated from a non-toxic potassium phosphite base

- Systemic action provides complete translocation throughout the plant ensuring effective disease control of all diseased plant parts
- Can be applied with a wide range of other agricultural chemicals, reducing the number of spray applications needed
- Free flowing formulation makes it easy to decant into spray equipment and mixing tanks
- High concentration reduces quantity of product needed and saves on packaging and freight costs

Analysis

PHOSPHOROUS (Phosphorous acid present as mono and di-potassium phosphonate)	600g/L

This a Group 33 Fungicide.

NOTE: TREVOR RANFORD IS IN CONTACT WITH THE COMPANY AND AWAITING INFORMATION

CROP DOC 600

FUNGICIDE FOR THE CONTROL OF PHYTOPHTHORA DISEASES AND DOWNY MILDEW IN VARIOUS SITUATION AS PER THE DIRECTIONS FOR USE TABLE

Active Constituent: 600g/L PHOSPHOROUS (Phosphonic) Acid present as Mono (and) Di Potassium Phosphite

FUNGICIDE RESISTANCE WARNING

GROUP 33 FUNGICIDE

Crop Doc is a member of the Phosphonates group of fungicides. For fungicide resistance management, the product is Group 33 Fungicide. Some naturally occurring individual fungi resistant to the product and other Group 33 fungicides may exist through normal genetic variability in any fungal population. The resistant individuals can eventually dominate the fungal population if these fungicides are used repeatedly. These resistant fungi will not be controlled by this product or other Group 33 fungicides, thus resulting in a reduction in efficacy and possible yield loss. Since occurrence of resistant fungi is difficult to detect prior to use, Grochem Australia Pty Ltd accepts no liability for any losses that may result from the failure of this product to control resistant fungi.

Crop Doc 600 (600g/L Phosphorous (Phosphonic) acid as mono-di K phosphonate) - would be well worth looking at in trials
Phos acid is one of the most systemic molecules for control of Downy Mildew and Phytophthora disease. It moves both in the Xylem and Phloem working on diseases that are internally acting on plants.

NOTE: TREVOR RANFORD IS IN CONTACT WITH THE COMPANY AND AWAITING INFORMATION

NOTE: TREVOR RANFORD IS IN CONTACT WITH SONIC ESSENTIALS AND ALSO SLTEC ABOUT RELEVANT PRODUCTS.

BIOLOGICALS

A list of some of the biologicals used overseas.

Serenade® ASO	BAYER	*Bacillus subtilis* strain QST 713 1.34%	Biological Fungicide	BM02	USA	Portugal
Double Nickel® LC		*Bacillus amyloliquefaciens* strain D747 98,85%		BM02 (ex 44)	USA	
LifeGard® WG		*Bacillus mycoides* isolate J 40%		P06	USA	
Stargus™		*Bacillus amyloliquefaciens* strain F727 cells and spent fermentation media 96.4%		BM02	USA	
Serifel®		*Bacillus amyloliquefaciens* strain MBI 600 11.0%		BM02 (ex 44)	USA	
EcoSwing®		Extract of *Swinglea glutinosa* 82%		BM01	USA	
Howler® EVO		*Pseudomonas chlororaphis* strain AFS009 50%		BM02 (ex 44)	USA	

LABORATORY WORK:

AgVic Research:

- 3 isolates would be done.
- have chosen the following from our collection varying in date of isolation and location.

VPRI		Location	Date
42194	Gnomoniopsis smithogilvy	Wandiligong	2013
42614	Gnomoniopsis smithogilvy	Stanley	2015
44393	Gnomoniopsis smithogilvy	Wandiligong	2023

- Early September is doable.

- Need to supply the names of the 8 actives we would like to test and they will draw up a quote.

Dr Tonya Wiechel (she/her)
Senior Research Scientist
Plant Pathology | Microbial Sciences, Pests and Diseases | Agriculture Victoria Research
Department of Energy, Environment and Climate Action
AgriBio Centre for AgriBioscience 5 Ring Road, La Trobe University, Bundoora, Victoria 3083
T: 03 9032 7347 | M: 0408 037 731 | E: Tonya.Wiechel@agriculture.vic.gov.au
www.linkedin.com/in/tonya-wiechel

SARDI

I do have the capability, but I'd need more information.

I don't have a Gnomoniopsis smithogilvyi isolate currently - getting some from growers is the best option for chemical efficacy studies if possible, feel free to send me some before we talk about contracting Horticulture pathology - Department of Primary Industries and Regions South Australia - PIRSA . There are a few in culture collections we could buy (est. $150) but I cannot tell their age.

What chemicals/actives are you interested in? Fungicides are fairly simple to incorporate into media but viable biologicals are more difficult to draw a conclusion from using in vitro methods.

The actual work would only take est. 3 weeks but the planning, preparation and contracting tends to take weeks-months more. Cost is dependent on the number of isolates (max. 5) and products (& concentrations tested) but I'd expect it to be min $3,000 to a max. of $6,000 for a one-off trial.

Cathryn Todd | Horticultural Pathologist
Crop Sciences | Plant Health & Diagnostics
South Australian Research and Development Institute - SARDI | **Primary Industries and Regions SA - PIRSA**
Affiliate lecturer of the University of Adelaide

Table 1. Relative effectiveness of the fungicides in both *in vitro* tests

Fungicide	Active ingredient	Spore germination	Mycelial growth
Octave®	prochloraz	+++	+++
Digger®	difenoconazole	+++	+++
Dithane®	mancozeb	+++	+
Switch®	cyprodinil + fludioxonil	++	+++
Cabrio®	pyraclostrobin	++	+++
Pristine®	pyraclostrobin + boscalid	+	-
Amistar®	azoxystrobin	x	+++
Champ®	copper hydroxide	x	x
Fontelis®	penthiopyrad	x	+
Filan®	boscalid	x	x

+++ = good control
++ = fair control
+ = low control
X = not effective

Table 2. Percent inhibition of mycelial growth after four days growth of *Gnomoniopsis* on agar amended with fungicides compared to unamended control.

	Percent inhibition		
	ppm active ingredient		
Fungicide	**0.1**	**1**	**10**
prochloraz	100	100	100
pyraclostrobin	100	100	100
difenoconazole	100	100	100
azoxystrobin	95.6	100	100
cyprodinil + fludioxonil	79.3	100	100
penthiopyrad	7.1	10.5	59.0
mancozeb	11.5	12.2	44.4
boscalid	0.7	6.4	32.2
copper hydroxide	3.4	8.8	0

Table 3. Inhibition after three days growth of *Gnomoniopsis* from spores challenged with discs soaked with one of three rates of various fungicides (1/2 recommended label rate of product (RR), RR and twice RR) or with water (0) as the control.

Fungicide	Active ingredient	Rate of fungicide			
		0	½ RR	RR*	2 x RR
Octave®	prochloraz	41.1	100	100	100
Digger®	difenoconazole	6.1	100	100	100
Dithane®	mancozeb	0.0	71.1	88.3	98.9
Switch®	cyprodinil + fludioxonil	0.0	30.6	40.6	61.8
Cabrio®	pyraclostrobin	0.0	29.4	38.9	56.1
Pristine®	pyraclostrobin + boscalid	0.0	5.6	30.6	41.7
Amistar®	azoxystrobin	0.0	0.0	0.0	0.0
Champ®	copper hydroxide	0.0	0.0	0.0	0.0
Fontelis®	penthiopyrad	0.0	0.0	0.0	0.0
Filan®	boscalid	0.0	0.0	0.0	0.0

* RR= recommended label rate of product

Document prepared by:
Trevor Ranford
Industry Development Officer
Chestnuts Australia Inc
4th July 2025

Australian Chestnut Industry Congress Report

Wangaratta, Victoria – 13–14 September 2025

Prepared by Elke Jasper of CAI Communications Team

Friday 12th September – Regional visit to growers

Meeting John Stanley, Trevor and Guy, introductions and background at the Beechworth Bakery. Continued to Hillsborough property, Anita and Drew Cooke. Discussions were had about value adding through Agri -tourism to the store with Anita and Drew. John was impressed by the labelled products and range. Further discussions to be had! Drew gave us a tour of his property and discussed his passion for soil biodiversity with natural processes, largely non synthetic chemical applications and no irrigation. Used grasses to wick moisture, dew overnight. Understands his soil microorganisms by viewing through microscope overtime. Discussion about bare earth and disadvantages. John suggested viewing 6 inches of soil, UK on you tube.

Andrew has volunteered some trees for trials in the near future.

Saturday 13th September – WORKSHOP AND CONFERENCE:

Speaker: Trevor Ranford -introduction of the day's events, grant for weather station, soil health predictive model sponsorships included

- Unitech, tor
- Tornado
- Sonic essential
- Falcon UAV
- TAFCO
- CropX
- Business events Victoria

Speaker: John Stanley, Chestnut Brae's Journey- Carlotta, Nannup, Western Australia

Spoke about his business and ideas.

Began in Burmingham, Nuffield scholarship 70's toured America as a horticultural/agriculture leader Became sole trader in 1976, work with nursery industry expanding the experience of customers from just selling plants to café etc. He now works in 35 countries in horticulture, specialising in Agri tourism. John and Linda about 13 years ago decided to buy a property in WA. Wanted to own/ dominate market with something new and novel. Had to be within a 3hr range of the market- Perth. The criteria for a property were to have good soil, water, internet and crop within first year; bought Chestnut Brae. Although at a dead end, led to development as a travel destination.

- Values: first off- what are their values -farm sustainability, agritourism, work with partners with the same values, lead in innovation, educate consumers about chestnuts.
- Our vision mission statement values (quality, trust) experience (beyond expected), curiosity (new ideas), fun (for all).
- Identified values all team on same page . decide whether to be a price taker or maker
- Commodity vs value add – must dominate market ie cannot be coles etc.
- target market areas underdeveloped independent food outlets, farmers market, state events, onsite shops and online shopping.
- Brand went to design company 3 designs had a targeted party design chosen by young people although not his preference. Created more than 30 products, not too worried about selling chestnuts in the shell- produces honey, cosmetics chestnut tea, flour (20 % made into flour). Chestnuts that are too small (30% crop) used to feed pigs (High value and in demand) promoted to foodies, mustard (only one in the world). There is a shift in people that have money- less people however spent more. Chestnut Liqueurs sold by the case. Top seller $56/bottle and chestnut beer classed as best in world.

- Must enter competition to win it. Gap in market- a need non-alcoholic alternative.

- Opportunity for chestnut industry- must be a collective decision for chestnut milk where to work on commercial scale need a large volume as a café alternative. Almond milk high volume of water needed 160l/l milk. Viable option in competitive market.
- Most versatile tree, honey wood (i.e. used for drums), drinks, entrée, main, meals and desserts.
- Most important equipment - Peeling machine from Korea, Dyer, FTMA harvester
- What are ingredients for success-
    - Market strategy: social media asked backpackers for opinion- TikTok, Instagram You tube Facebook and AI, with regular updates. Employed young person to promote business on these platforms. Use QR code to give story and promotion, to packaging and where possible.
    - Enter awards in shire, regional, tourism and Global agritourism network awards.
    - Create chestnut club- marketing special privilege recipes advocates such as chefs' dinners story telling.
    - Connect farmers and consumers. Created farm walk/trail increase on site sales, draws on whole farm experience, educating customers with an understanding of production, ups and downs and history. People have no experience leads to online sale/ordering
    - The word of mouth is an effective selling point.
    - Chestnut trails done well in Europe-food and beverage to fit in back pocket, festivals sell nostalgia, wellness market- create experience no just product
    - Echoes of husks -children's books by Craig Wilson
    - Have organised top 50 farmers to have a conference at his farm as well grab and go roasted chestnuts at medieval festivals.
    - Wellness movement opportunities as anti-ultra processed foods movement, Chris Van Tulleken Ultra processed people
    - Future agritourism global network -Adelaide conference deciding on structure in a few weeks.
    - Threats to industry-
        - climate change, disease- chestnut blight/nut rot /shothole borer
        - Disillusionment with supermarket chain system.
        - Age demographics older, need young to be attracted.

Speaker: - John Stanely Workshop

At the workshop John Stanley initiated group discussions about where the chestnut Industry is now. Topics written on posters for each group

- strengths
- weakness
- opportunities
- and threats.

- **Strengths**
  - Versatile product, can be made into flour, frozen liqueurs etc
  - small industry room to grow,
  - collective industry
  - media range
  - super food- great product good variety- low fat low sugar wellness industry
  - potential to create co-op- processing faster prevent disease
  - super food
  - variety improvement
- **Weakness**
  - Retail handling knowledge and lack of will to store properly – supermarkets provide real estate ie carpark shelves but don't store and check quality
  - Lack of education consumers and retailers
  - Hard to prepare, time consuming
  - Early variety higher nut rot
  - Not enough of the younger generation
  - Small industry- too small
  - Quality control who controls smaller volumes and communication
  - Undersold -ignorance of product-
  - Resistance to coop, costly startup
  - Industry not understood
- **Opportunities**
  - Increase media plat form
  - Education-story telling/ experience
    Educate market to increase demographics, media schools
  - Processing coop
  - Recommend removal of earlier varieties
  - Non - alcoholic beverages- cultural-Arabs middle east, no alcohol, younger gen less alcohol consumption.

- Vegetarian option
- Grab and go prepared meals/ cube snacks- younger culture becoming more snack orientated
- Air fryer used and flavours added to (boring taste to some) i.e. garlic chilli
- Chestnut Nutella- non allergy
- Post processing development
- Education – children retail quality
- Identify the variety best for ie boiling flor similar to apples
- Promotion health benefits
- AI -use to manage quality, predictive weather, soil moisture, reduce manual labour, manage irrigation
- Undersold - opportunities for agritourism value added products
- Establish threshold for nut rot <3% growers and wholesalers
- Identify varieties that are resistant to nut rot - time of sporing, revenue for options, management- variety improvement
- Grow and expand market- grower understanding scale up -possible to cooperative floor processing
- Understand market, find market for 2nd grade
- Commercial scale value added concepts ie chestnut trail? food and beverage chestnut milk?

- **Threats**
  - Confidence
  - Disease nut rot /quality disillusionment of customers re quality
  - Huge losses due to nut rot-20 tonnes dumped some farms
  - At farm level quality control throughout seasons to improve
  - Not adhered to- Cool chain transport in wholesale
  - climate change
  - AI -not understood, unemployment
  - Only grow market if good quality
  - Financial climate

Speaker: Guy Rischmueller

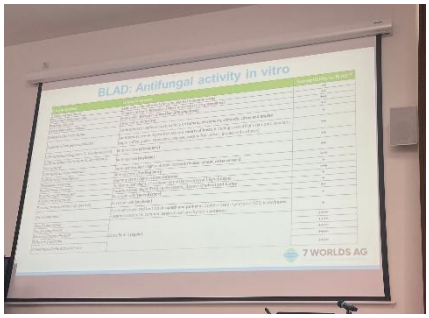
Trevor Ranford successfully secured several grants

- Grant-Climate smart tri nut; hazel, chestnut, walnut

Managing water and soil in a changing climate soil and irrigation built on earlier irrigation workshop/grant by Lachlan Campbell- on farm training and demonstrations.

- Grant for endophytes in the orchard Celeste Linde consultant.
- Grant NECMA soil health and natural heritage trust-
- Guy surveyed 40 nut growers about systems management challenges.
- Key messages -limited weather monitored, infrequent soil /leaf test soil capacity. Now objectives to support adoption climate smart sustainable agricultural practices and change- establish baseline to identify gaps in monitoring. Need more results not enough responses to surveys. So far-
    - 55% of all nut growers rely visual cues, too late, results in incurred losses of 20%production
    - Soil analysis only 23% per year, 7% every few yrs,13% never
    - Equip. used to test soil tensiometer 30%, manual 43%
    - Preferred training- home 64%, preferred hands-on workshop 41%, and one on one workshops 31%
    - irrigation challenges- no agreement when joint ownership involved
    - map resources, plans, scheduling practical training quick tools, water budgeting review and adjust and a need for end of season sum up.

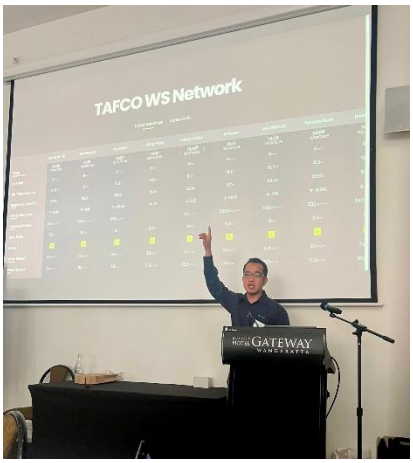
Speaker: 7 Worlds Ag- by Ben Coombe- Portugues company



- ProbLad Verder fungicide product BMO1– not registered
- a wholesale business that sells to companies such as AgVet etc.
- They have some organic certified products.
- They work with stone fruit and this may transfer to the chestnut industry, an added tool to the kit to reduce resistance issues.
- Fungicide derived from lupin seeds is a polypeptide (lectin) effects the ion transfer in cell wall of fungi

Speaker: Crop X Adrian Soe Myint

TAFCO weather station network and Kerri Murphy



Real time data and modelling for weather predictions- soil moisture measured 10cm increment to 80cm depth. Disease model available for grapes apples wheat septoria leaf spot. Spray calendar recorder. Satellite data available imagery of crop growth comparison over time. TAFCO/Green brain/CropX - access weather prediction and farms of the future in NSW.

Speaker: Falcon UAV - Luke Weekley

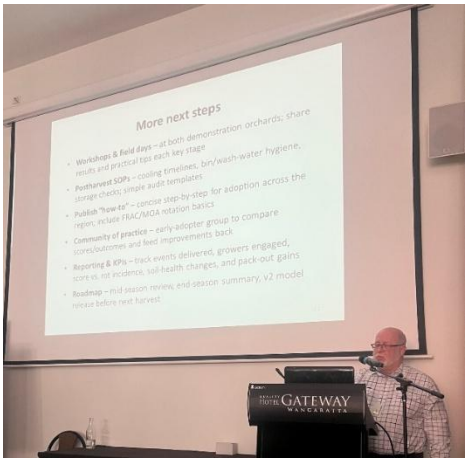
Maximise yields through targeted precision agriculture using drones and biofertilizers. Work with aerial survey, ground truth. drone resolution $1cm^2$ resolution. When engaging contractor make sure has insurance and license before engaging.

Uses-

- assessment soil health and management of pathogens through bacteria infused biofertilisers
- AI yield estimation and bird deterrent techniques.
- Maps multi spectral use to id differences, detection early sigh of stress deficiencies water disease pockets.

Speaker: Climate smart chestnuts- brown rot modelling by Guy Rischmueller -
Development of a model using criteria such as: -

- timing of high inoculum period
- tree stress
- conditions of inoculum temperature rain,
- debris on orchard floor
- sanitation
- wounds mechanical wildlife
- post - harvest
- Benefit: - early warning system, more accurate timing of fungicides use, block priorities, improved post- harvest control.



Speaker: Market Program by Louise Benini

Objective

- increase consumer awareness
- education through recipes how to use, prepare and store chestnuts
- This achieved through social media platforms Instagram Facebook organising competitions prizes, newsletters, events such as la Fiera and influencers such as well-known chefs - Elise Pulbrook releasing reels and demonstrations.

Dinner

Delicious dinner and thank you Luciano Cester for your long years of service to CAI.

Sunday 14/9/2025

Speaker: Unitec Francesco Brancato

AI soft where that is able to detect defects in nuts, classify, can measure weight, size, colour, and reduce cost of manual labour. May be used in co-operative situation

Speaker: Trevor Ranford

Nut rot trials see power point– what has been done and future trials

Call for collaboration trials sites and response to surveys to add to historic data.

Speaker: Guy Rischmueller

What can AI do for growers –

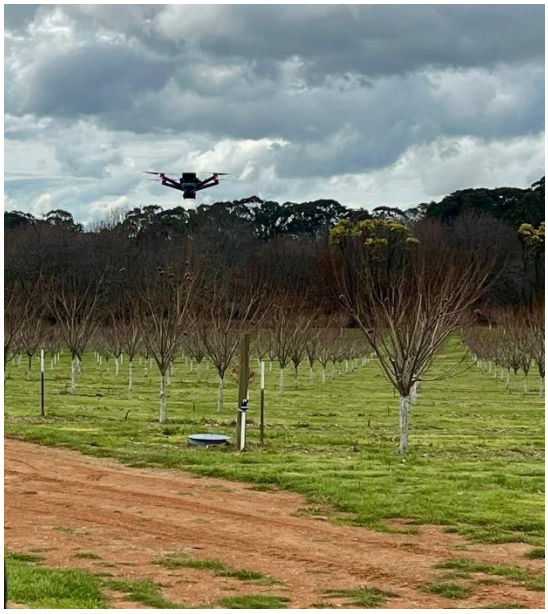
- High risk weather data for damage and disease
- Scan and analysis of crop-analysis of can be improved to manage crop outcomes through nutrient rate, irrigation timing, pruning etc.
- save time and manual labour

Farm Walk/Launch of weather station at Stanley, Victoria.

Biosecurity foot bath at Orchard

Scott Landells and Sally McDonald launch of Stanley weather station

Crop X weather station sponsored by Australian Government through Indigo shire Council, North CMA, Natural heritage trust. Demonstration at Brendon Thompson property



Demonstration Drone technology by **Falcon UAV- Luke Weekly**

Lunch

Post-conference attendee-feedback report

Chestnut Congress 2025 — Wangaratta, 13–14 September 2025

Prepared by CAI Communications Team

September 2025

1. Executive summary

A brief end-of-event survey was used to capture the feedback and numeric ratings of attendees at this conference

Attendees rated the Congress highly and highlighted clear, practical take-aways. On usefulness (1–10), the average score was 9.35 (n=17; median 10; range 8–10). Program quality averaged 8.88 (n=16; median 9; range 6–10).

What worked best: networking with other growers, weather station/monitoring updates, UAV/drone demonstrations, access to presenters, and concise management tools. Many intend to adopt weather and soil-moisture monitoring, trial biologicals, explore AI-assisted tasks, and assess grading/QA technology.

Most respondents heard about the event via CAI email. Suggestions for improvement were pragmatic: attract more growers, keep the format tight (avoid a full weekend), and provide content on co-ops/processing.

These signals translate into simple actions: short take-home guides, hands-on clinics, and targeted follow-ups on monitoring, QA and processing pathways. Event context and sessions are per the published program.

2. Method

Attendees filled in a short survey right after the Congress (paper or online). It asked for 1–10 ratings and a few short comments. We removed names, fixed obvious typos, and dropped any duplicate answers. We then worked out simple numbers (average, middle value, highest and lowest) and grouped similar comments into themes. These results reflect the views of the people who were there. They are a guide, not a full industry sample, and should be read alongside the session notes.

3. Headline metrics

- **Overall usefulness** (1–10): average 9.35 from 17 people — nine gave 10, five gave 9, three gave 8.
- **Program quality** (1–10): average 8.88 from 16 people — seven gave 10, three gave 9, four gave 8, one gave 7, one gave 6.

In short, people found the event very useful and the program strong. A small number of lower scores show there is room to improve the pace or mix of sessions. Keep what worked (networking, practical tools, accessible presenters) and fine-tune depth, timing and format next time.

4. What worked well

Based on the feedback, the following areas worked particularly well.

- Networking and peer learning.
- Weather stations/monitoring and practical decision tools.
- UAV/drone insights and imagery.
- Accessible presenters; good mix of research and practice.
- Venue/format noted positively in several comments.

5. Intended adoption / on-farm changes

Attendees said they plan to make the following changes on farm.

- Monitoring: start/upgrade weather and soil-moisture monitoring; improve placement/reading; use data in irrigation timing.
- Biologicals & disease: trial biological applications; refine spray timing windows.
- Technology & QA: explore AI-assisted tasks (quality checks, record-keeping); consider grading/defect-sorter investment in 1–2 years.
- Operations: improve farm-gate experience; tidy post-harvest (for example, burr management).

6. How attendees heard about the event

People found out about the Congress through the channels below.

- CAI email: 15 mentions.
- Other channels: Hort Innovation ISM (1), direct contact (1).

7. What to improve next time

Attendees suggested these changes for next year.

- **Attendance**: “more growers” / “need more attendees”.
- **Format**: avoid a full weekend; several asked for shorter blocks (for example, Friday half day + Saturday).
- **Content requests**: co-ops/processing and central processing options; continue the current mix of technical, marketing and networking.

8. Recommendations

The following actions were suggested to improve the congress in future:

- Hands-on clinics — Run short, practical field demos on tensiometers, data-to-action irrigation timing, and UAV basics.
- Processing/co-ops explainer — One-pager on options, costs and first steps; invite interest for a follow-up working group.
- Keep it tight — Trial a compressed format (for example, half-day + one full day) to reduce fatigue and lift attendance.
- Tech to action — Curate “first steps on your block” summaries for AI-assisted QA, record-keeping and grader/camera checks.

Appendix 1: Survey Tool

Participant Feedback Sheet
Hort Innovation Project CH22000
Field Day – September 13th & 14th

Please rate the following out of 10 by circling your choice - 1 represents very poor and 10 represents excellent.

1) How useful was the weekend for you? 1 2 3 4 5 6 7 8 9 10

2) How would you rate the quality of the program? 1 2 3 4 5 6 7 8 9 10

Why?

3) What do you think were the best aspects of the Congress?

4) Is there anything you learnt at the Congress that you intend to adopt on-farm or implement in your farming business? What? Timeframe?

5) How did you hear about this activity/event?

6) What was missing? Any suggestions for future events/activities?

Please hand back to Trevor on the day, Thank you ☺

Appendix 2: Chestnut Congress 2025 Program

Below is a list with times of congress presentations and events:

Saturday 13 September 2025 – Workshop and conference sessions

8:30 am Registration

8:55 am Welcome

- Acknowledgements and sponsor thanks: Unitec, Tornado, Sonic Essentials, Falcon UAV, TAFCO, CropX, Business Events Victoria

9:05 am Keynote workshop

- A Nutty Affair: developing a chestnut business into a destination
- Interactive workshop for growers led by John Stanley

10:30 am Morning tea

11:00 am Workshop continues

12:30 pm Lunch

1:30 pm Official opening of the conference

1:35 pm Building demand: market program update

- Presenter: Louise Benini (how to buy, store and cook; short, practical content and channels)

2:00 pm NE Region weather-station network

- Presenters: CropX / TAFCO / Green Brain

2:30 pm ProBlad fungicide concept and resistance management

- Presenter: 7 Worlds Ag

3:00 pm Afternoon tea

3:30 pm Precision agriculture with UAVs

- Presenter: Luke Weekley, Falcon UAV

4:00 pm Climate-smart chestnuts – brown-rot early-warning model

- Presenter: Guy Rischmueller

4:30 pm Chestnuts Australia Inc – Annual General Meeting

- Australian Chestnut Levy report
- 2025 chestnut marketing program report

6:30 pm Pre-dinner drinks

7:00 pm Conference dinner

Sunday 14 September 2025 – Technology, trials and field activities

7:30 am Conference breakfast

9:00 am Grading and defect detection with AI

- Presenter: Francesco Bramcato, Unitec (classification by defect/size/colour; labour efficiencies; potential shared facility)

9:30 am Nut-rot trials – progress and next steps

- Presenter: Trevor Ranford (what's been done, call for collaboration sites and more survey responses)

10:00 am Practical AI for growers – first use cases

- Presenter: Guy Rischmueller (weather-to-action alerts, irrigation scheduling, camera-based checks, auto-logging)

10:30 am Morning tea

11:00 am Orchard visit and field demonstrations

- Launch of the Stanley weather station and live demo
- Weather-station network demonstration at Brendon Thompson's property
- UAV demonstration by Falcon UAV

12:30 pm Light lunch provided by TAFCO and Indigo Shire

2:30 pm Conference ends

Website Statistics 1st October 2022 – 30th September 2025

Month	Unique visitors	Number of visits	Pages	Hits
Oct 2022	1,105	2,510	11,725	18,783
Nov 2022	1,425	3,418	13,387	21,782
Dec 2022	1,457	3,742	14,217	23,189
Total	12,356	25,551	107,369	203,250

Month	Unique visitors	Number of visits	Pages	Hits
Jan 2023	1,206	3,146	14,124	22,385
Feb 2023	951	2,371	10,637	17,229
Mar 2023	1,687	3,849	13,347	22,623
Apr 2023	2,167	3,149	11,872	24,696
May 2023	2,600	3,195	12,483	23,861
Jun 2023	1,195	1,686	7,897	15,902
Jul 2023	2,385	2,910	9,980	17,862
Aug 2023	1,918	2,613	11,421	19,734
Sep 2023	1,042	1,885	8,273	13,794
Oct 2023	1,189	2,005	9,066	17,238
Nov 2023	999	1,840	9,143	16,333
Dec 2023	1,126	2,029	10,261	17,508
Total	18,465	30,678	128,504	229,165

Month	Unique visitors	Number of visits	Pages	Hits
Jan 2024	1,210	2,130	10,132	18,506
Feb 2024	1,484	2,316	12,714	22,036
Mar 2024	1,540	2,430	11,670	21,327
Apr 2024	1,665	2,600	11,369	30,552
May 2024	1,371	2,258	10,452	19,579
Jun 2024	1,451	2,335	10,083	17,108
Jul 2024	1,287	2,251	10,828	19,205
Aug 2024	1,195	2,189	9,880	15,694
Sep 2024	1,349	2,461	11,085	17,966
Oct 2024	1,969	3,168	11,580	20,546
Nov 2024	1,624	2,770	10,574	17,081
Dec 2024	1,597	2,746	10,489	17,141
Total	17,742	29,654	130,856	236,741

Month	Unique visitors	Number of visits	Pages	Hits
Jan 2025	1,559	2,640	9,970	16,381
Feb 2025	1,612	2,973	10,892	17,177
Mar 2025	2,088	3,870	13,686	22,120
Apr 2025	1,778	3,267	13,463	24,989
May 2025	1,912	3,507	14,982	25,119
Jun 2025	2,525	3,905	14,776	22,826
Jul 2025	2,221	3,825	15,293	22,966
Aug 2025	3,832	14,681	44,029	50,978
Sep 2025	4,000	10,203	32,529	37,111
Total	21,527	48,871	169,620	239,667

Website Statistics - Top 10 Downloads

2022

Downloads (Top 10) - Full list				
Downloads: 227	Hits	206 Hits	Bandwidth	Average size
/wp-content/uploads/Chestnut-blight-surveillance-form-interactiv...	383	0	11.54 MB	30.84 KB
/wp-content/uploads/Guide-to-managing-chestnut-blight-accessible...	280	17	487.33 MB	1.64 MB
/wp-content/uploads/Chestnut-blight-16-November-2019-M-Mebalds-A...	205	18	461.30 MB	2.07 MB
/wp-content/uploads/Chestnut-Poster-A1-0612_01-chestnut-blight-m...	203	2	281.64 MB	1.37 MB
/wp-content/uploads/2019-February-Farm-Walk-chestnut-blight_TR_9...	156	0	23.58 MB	154.75 KB
/wp-content/uploads/210119_Chestnut-blight_media-release-min.pdf	147	0	6.61 MB	46.05 KB
/wp-content/uploads/Efficient-monitoring-of-Phenology-in-chestnu...	117	3	48.74 MB	415.93 KB
/wp-content/uploads/Lampinen_Impacts-of-irrigation-on-quality-in...	111	66	599.07 MB	3.38 MB
/wp-content/uploads/pdfdocs/policy.pdf	83	2	11.96 MB	144.07 KB
/wp-content/uploads/Development-of-chestnut-bin-scale-controlled...	78	0	86.75 MB	1.11 MB

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/wp-content/uploads/Guide-to-managing-chestnut-blight-accessible...	502	68	890.09 MB	1.56 MB
/wp-content/uploads/Chestnut-blight-surveillance-form-interactiv...	296	50	10.20 MB	30.18 KB
/wp-content/uploads/103TRAN-chestnut-preventing-mould-tech-sheet...	269	36	32.76 MB	109.97 KB
/wp-content/uploads/Chestnut-Poster-A1-0612_01-chestnut-blight-m...	242	2	338.22 MB	1.39 MB
/wp-content/uploads/pdfdocs/safeuse.pdf	239	14	117.60 MB	475.97 KB
/wp-content/uploads/Chestnut-Poster-A1-0612_02-pests-and-disease...	232	30	249.07 MB	973.48 KB
/wp-content/uploads/Chestnut-blight-16-November-2019-M-Mebalds-A...	186	2	411.08 MB	2.19 MB
/wp-content/uploads/210119_Chestnut-blight_media-release-min.pdf	164	0	7.29 MB	45.49 KB
/wp-content/uploads/2019-February-Farm-Walk-chestnut-blight_TR_9...	160	0	23.88 MB	152.82 KB
//wp-includes/ID3/license.txt	148	0	196.71 KB	1.33 KB

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/wp-content/uploads/Guide-to-managing-chestnut-blight-accessible...	701	48	1.20 GB	1.64 MB
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/wp-content/uploads/Chestnut-blight-surveillance-form-interactiv...	388	1	11.66 MB	30.69 KB
/wp-content/uploads/Chestnut-Poster-A1-0612_01-chestnut-blight-m...	382	4	539.14 MB	1.40 MB
/wp-content/uploads/Chestnut-Poster-A1-0612_02-pests-and-disease...	342	17	369.69 MB	1.03 MB
/wp-content/uploads/103TRAN-chestnut-preventing-mould-tech-sheet...	293	23	34.65 MB	112.28 KB
/wp-content/uploads/about-chestnut-blight-min.pdf	277	6	203.56 MB	736.55 KB
/wp-content/uploads/Chestnut-blight-16-November-2019-M-Mebalds-A...	257	1	574.74 MB	2.23 MB
/wp-content/uploads/Chestnuts-Australia_is-your-farm-at-risk-min...	254	3	174.65 MB	695.90 KB
/wp-content/uploads/Chestnut-Blight-pres-feb-23-E-Japser-T-Ranfo...	252	7	2.02 GB	7.97 MB

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/wp-content/uploads/Guide-to-managing-chestnut-blight-accessible...	865	33	1.46 GB	1.67 MB
/wp-content/uploads/Chestnut-blight-surveillance-form-interactiv...	709	0	21.36 MB	30.84 KB
/wp-content/uploads/Chestnut-Poster-A1-0612_01-chestnut-blight-m...	698	5	987.77 MB	1.41 MB
/wp-content/uploads/pdfdocs/safeuse.pdf	311	11	153.56 MB	488.35 KB
/wp-content/uploads/Hort-stats-nuts-22-23-1-min.pdf	307	5	572.30 MB	1.83 MB
/wp-content/uploads/Chestnut-Blight-CAI-Information-Session-18-1...	251	0	1.53 GB	6.26 MB
/wp-content/uploads/102TRAN-chestnut-climate-tech-sheet-min.pdf	243	12	37.53 MB	150.71 KB
/wp-content/uploads/Chestnut-Poster-A1-0612_02-pests-and-disease...	235	26	257.03 MB	1008.41 KB
/wp-content/uploads/Chestnut-blight-16-November-2019-M-Mebalds-A...	221	0	491.67 MB	2.22 MB
/wp-content/uploads/103TRAN-chestnut-preventing-mould-tech-sheet...	212	3	24.67 MB	117.48 KB