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AgriFutures Australia Hazelnut Program of Research Update

August 2026



The five-year Australian Hazelnut Program of Research is now completing its second year and the work is progressing well.

Projects are active across orchard production, sustainability, quality, processing, biosecurity and industry engagement.

The Program of Research operates under 3 themes and benefits growers by:

- Undertaking research in Australian orchards under real conditions
- Helping shape tools such as orchard mapping and benchmarking
- Building practical insights on water use, heat stress, quality and processing.

As part of the program, growers will have opportunities to participate in field walks, surveys and one-on-one discussions.

Below is the latest news from the three program themes.

Theme 1: Promote efficient and sustainable production systems

Theme 1 focuses on enhancing the productivity and sustainability of hazelnut orchards through crop load management, nutrition and irrigation, reproductive development and understanding pests and diseases.

Orchard performance: flower-to-nut, water and nutrition

Active field sites have been established in NSW at Batlow, Tumbarumba and Orange to generate data on irrigation, nutrition, water stress and orchard performance.

- Batlow: replicated irrigation and nutrition treatments with automated soil moisture monitoring
- Tumbarumba: young orchard monitoring focused on tree–soil water interactions
- Orange: established orchard monitoring deep soil water use and tree physiological responses

Soil moisture probes linked to weather sensors are key to delivering real-time data to inform irrigation practice. This work is timely after a hot, dry summer, and is expected to help growers make better irrigation decisions.

Pollination and orchard design

The development of a tool that estimates nut set and yield from flowering is underway. Images have been collected over the past season and these are now being assessed against harvest data.



Hazelnut catkins (Image: Modified from E. Douzery (CC BY-SA 4.0)), via Wikimedia Commons

A pollination literature review is underway, focusing on questions raised by growers, including:

- Pollinator layout and performance
- Variety-specific pollination requirements
- The impacts of climate variability.

Feedback from growers and researchers has indicated that options such as plant growth regulators in high-density systems (most relevant to newer orchard designs) may be beneficial for maintaining future yields.

Theme 2: Developing a benchmarking framework for the hazelnut industry

Theme 2 aims to produce a benchmarking framework for growers that provides an overview of the scope of hazelnut production in Australia including a spatial mapping of orchards, analysis of industry data and establishing quality standards for hazelnuts and by-products. With the potential for industry expansion, a sustainability framework will be developed providing guiding principles for best practice.

Australian hazelnut orchards map

About 75% of known hazelnut orchards have been mapped so far, equating to 261 hectares. The online map is now available in the Australian Tree Crop Map. Is your orchard on the map? View the draft map and add your feedback [here](#).



Australian Tree Crop Map showing regional location of current hazelnut orchards across Australia. The larger the tan-coloured circle, the greater area there is of hazelnuts.

National benchmarking survey

The benchmarking survey questions have been updated based on industry feedback and are now being completed by growers. A new national benchmarking platform has been set up with:

- A public industry dashboard
- Association-level insights
- Secure, individual grower views.

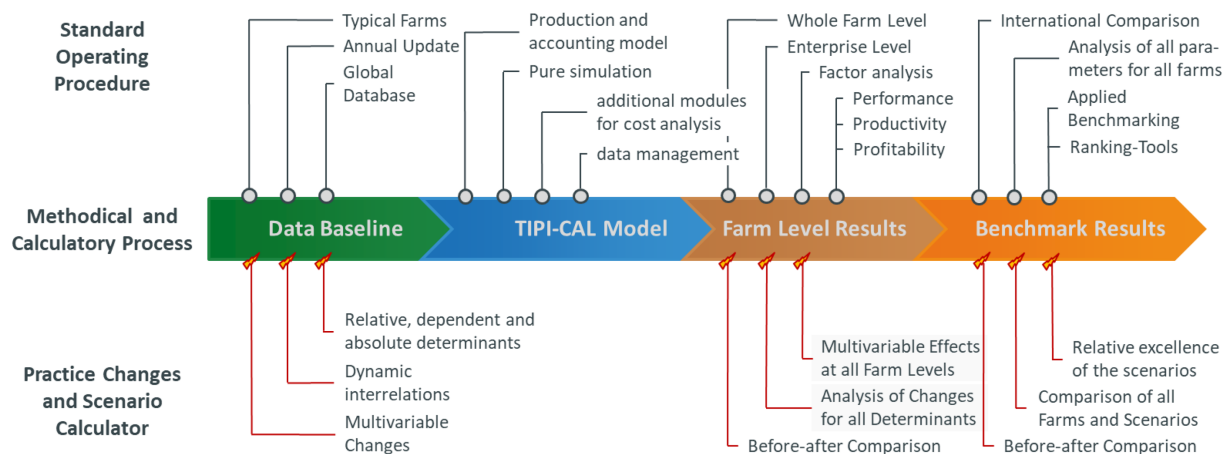
Next steps will look at freshness, storage and drying effects and may include comparisons with imported product. AUSHAZ partners are working one-on-one with growers to ensure data collection goes smoothly and make sure the results of the data collected are useful on-farm. This will help build clear, practical benchmarks the industry can track over time. You can undertake the survey [here](#).

Biosecurity capability strengthening

A simple framework to assess new pest and disease detection tools is being developed, so future advice to growers is practical and evidence-based. The framework is currently undergoing a period of industry consultation, with release expected in the next few months.

Sustainability Framework for the hazelnut industry

The Sustainability Framework has been refined after industry consultation. Further updates will be guided by the initial benchmarking data now being collected.



How can Australian hazelnut orchards be compared on a global scale? This 4-stage methodology-Data Baseline, TIPI-CAL Modeling, Farm-Level Analysis, and Global Benchmarking-synthesises complex information to provide the roadmap for developing sustainability in hazelnut production

Quality standards

A quality standards literature review has been undertaken and is close to being shared. To validate the review outcomes, and benchmark hazelnuts produced in Australia, 49 samples (kernels, skins, husks and shells) have been submitted for physical assessment, along with both chemical and protein analysis.

Early findings:

- The protein content in Australian hazelnut oilcake appears higher than some international benchmarks, with protein isolate purity reaching about 80%
- Hazelnut skin has shown very high antioxidant capacity, suggesting potential for value-added products.

Next steps will look at freshness, storage and drying effects, and may include comparisons with imported product.



Initial kernel quality can be addressed through implementation of colour sorters during the processing cycle.

Theme 3: Driving industry growth through innovation and integrated communication and engagement

This theme is fostering industry growth through innovation and effective communication. It has a focus on extension and communication and includes two research projects, one focused on optimal nut drying technologies and the other on biosecurity preparedness.

Drying and storage technologies

To help growers choose drying and storage settings that protect nut quality while keeping energy costs down, post-harvest drying trials are planned for the 2025-2026 and 2026-2027 growing seasons.

Innovative solar-assisted drying systems will be evaluated for energy efficiency in conjunction with analysis of nut quality, which will give a clear picture of drying efficiency and storage effects on kernel quality and shelf life.



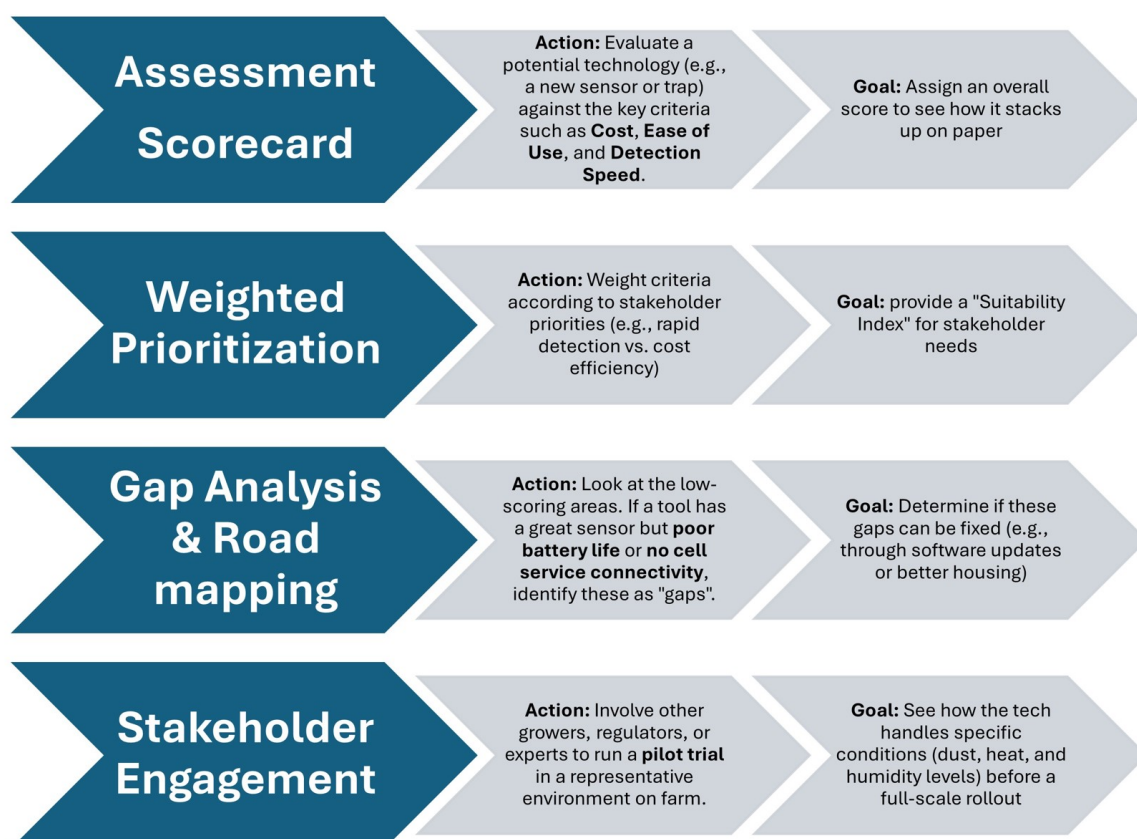
Watch: learn more about drying technology research [in this webinar](#)

Biosecurity and surveillance

A criteria-based framework has been developed to assess new pest and disease detection tools such as rapid genetic analysis systems and sensor-based systems. The framework helps industries:

- Evaluate a potential technology against criteria such as cost, ease of use and detection speed
- Weigh the criteria against industry biosecurity priorities (e.g. rapid detection vs cost efficiency)
- Identify the pros and cons of the technology
- Determine how well the technology works in the field (e.g. its response to dust, heat and humidity).

The framework, example below, is now being aligned to the hazelnut industry biosecurity priorities, so it supports practical on-farm decisions.



Industry engagement and extension

Engagement over the past 12 months has included:

- The Hazelnut Program of Research Forum in Launceston, Tasmania, in September 2025, with AUSHAZ theme/project leads also delivering presentations during the Hazelnut Conference.
- The delivery of an overview of the AUSHAZ program by Mr. Trevor Ranford, executive officer HGA, at the 11th International Congress on Hazelnut, China
- A webinar on hazelnut drying delivered by researchers Yong Wang and Pavittar Singh Sandhu.

Several grower-friendly resources are in development, including:

- Webinars on nutrition and water use in Australian hazelnut orchards, the evaluation of flowers for yield prediction, and the progress of benchmarking the industry.
- Technical fact sheets on biosecurity threats, endemic pests and diseases, hazelnut drying, and bird management.
- 6-monthly achievement summaries.



Growers attending the 2024 Tri-Nut conference toured the hazelnut processing facility in Victoria established by Ben Barrow of Carboor Farms.

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Looking for more hazelnut insights? Head to the [Hazelnut Growers Australia website](#) to access the latest news from across the sector.

AgriFutures Australia acknowledges the First Nations people of Australia as the traditional custodians of the lands and waters on which we live, learn and work. We pay our respects to past, present and future Elders of these nations. In particular, we acknowledge the Wiradjuri people of Australia, the traditional custodians of the lands and waters where AgriFutures' head office is located.



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