Wine Australia



Future-proofing our grapevines for tomorrow

Securing Australia's supply of planting material



The heart of the Australian grape and wine sector

Propagation assets, such as germplasm collections and source blocks, are foundational to the wine sector's value chain, underpinning vineyard health, genetic integrity and diversity, and ultimately the sector's productivity, profitability and resilience.

The above image demonstrates how the National Grapevine Collection and Australian Grapevine Certification Program are central to a connected system supporting the sector.

Linked initiatives span healthy planting material, pest and disease management, new varieties and rootstocks, and reliable vineyard records and regulation — showing how these elements work together to support the wine sector.

Collectively these investments are improving the sector's access to healthy, true-to-type planting material and helping to create a more resilient propagation supply chain.

National Grapevine Collection (NGC) program

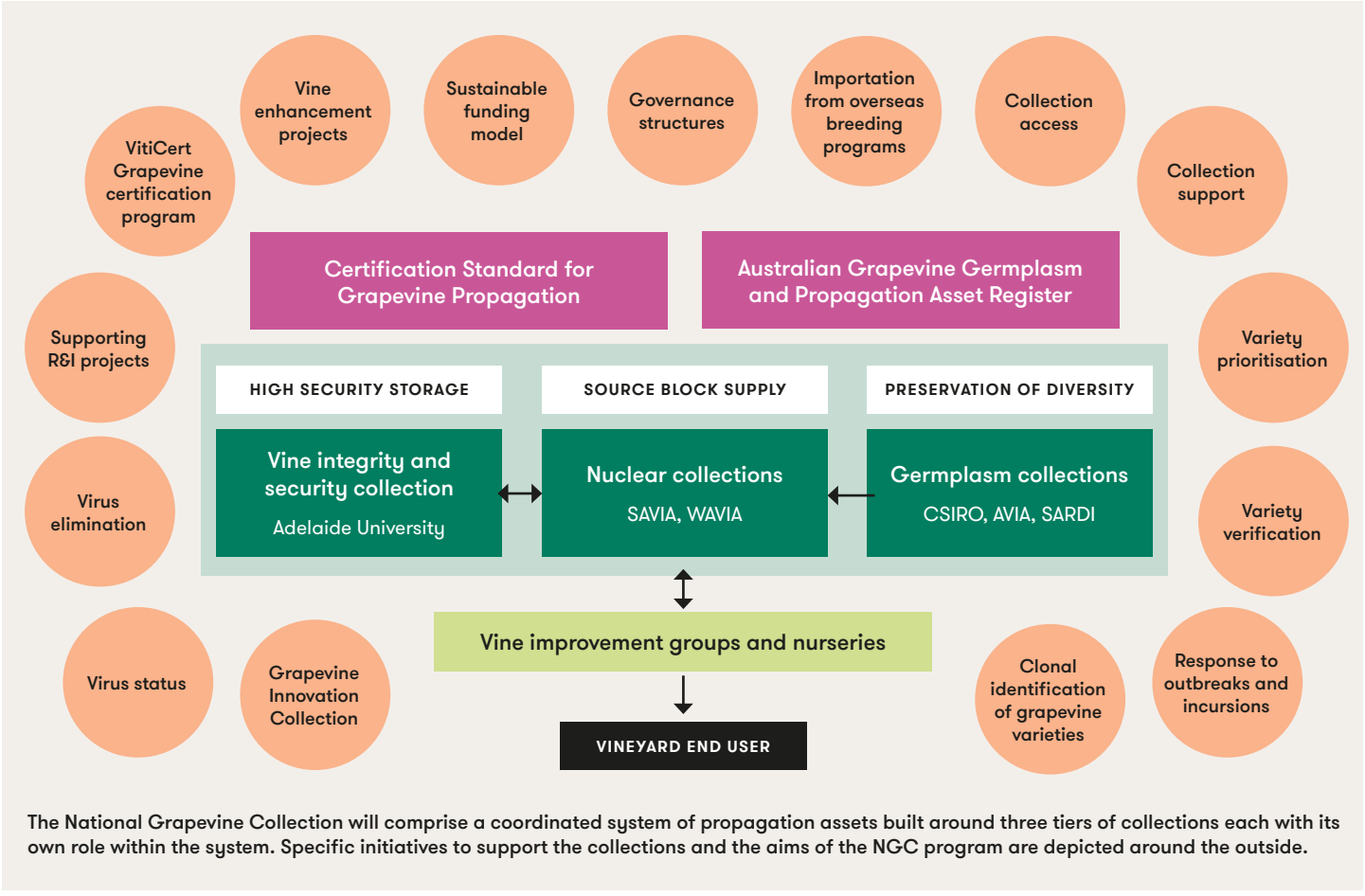
Initiated in 2022, the NGC program brings together a coordinated suite of activities to protect Australia's grapevine genetic resources and ensure the sector continues to have access to high-health planting material. Wine Australia is providing national leadership in partnership with collection owners, vine improvement groups, nurseries, researchers and other sector stakeholders.

Wine Australia has invested in coordination of the program through Nick Dry, alongside work to protect and improve key germplasm and propagation resources. Activities include virus screening and elimination, collection management, maintenance and access to priority varieties and clones, relocation and rehabilitation of propagation material, vine enhancement, and a pilot Vine Integrity and Security Collection for long-term, high-security storage of grapevine genetic resources.

Australian Grapevine Germplasm and Propagation Asset Registers

This national online platform is intended to address important information gaps. The Propagation Asset Register will capture identity, health, planting and management information for vines held in collections, multiplication rows and source blocks.

The complementary Grapevine Germplasm Register is intended to provide a publicly accessible record of the varieties, clones and rootstocks planted in Australia. Foundational work to date has included compiling information from earlier registers and surveys, incorporating new testing data, reviewing Australian and international database systems, and identifying stakeholder requirements. The asset register will likely work alongside the National Vineyard Register.



The National Grapevine Collection will comprise a coordinated system of propagation assets built around three tiers of collections each with its own role within the system. Specific initiatives to support the collections and the aims of the NGC program are depicted around the outside.

Partners in Australia's grapevine propagation assets

- Wine Australia – Adelaide
- Adelaide University – Adelaide
- Australian Wine Research Institute – Adelaide
- Australian Grape & Wine – Canberra
- Agriculture Victoria Research – Melbourne, Tatura
- Commonwealth Scientific and Industrial Research Organisation – Adelaide, Irymple, Brisbane
- South Australian Research and Development Institute – Nuriootpa
- Australian Table Grape Association – Mildura
- Dried Fruits Australia – Mildura
- Wines of WA – Perth
- University of Western Australia – Perth
- WA Department of Primary Industries and Regional Development – Manjimup
- Australian Vine Improvement Association – Dareton
- Western Australian Vine Improvement Association – Margaret River
- South Australian Vine Improvement Association – Adelaide
- Riverland Vine Improvement Committee – Riverland (Monash)
- NSW Department of Primary Industries and Regional Development – Orange, Griffith
- Chalmers Viticulture – Merbein
- Greenlife Industry Australia – Canberra
- Treasury Wine Estates – Wynns Coonawarra
- Yalumba Nursery – Nuriootpa



VitiCert Australia

A national, science-based certification program for grapevine planting material, VitiCert Australia will apply across the propagation supply chain, from collections and source blocks through to nurseries and the material supplied to growers. Certified material will be produced and verified against the nationally consistent Grapevine Nursery Stock Specification and independently audited.

The program is supported by Wine Australia, will be steered by an industry-based Standards Committee and delivered through Greenlife Industry Australia. Wine Australia's role includes supporting establishment and governance activities and providing certification, while ongoing research and innovation investment will help ensure its technical requirements are based on the latest science.

Research and innovation supporting investments in the nation's propagation assets

Wine Australia's investment in the NGC, Australian Grapevine Germplasm and Propagation Asset Register and VitiCert Australia is supported by a broader portfolio of research and innovation.

Current and recent work includes:

- best-practice virus sampling, detection and improved virus surveillance
- virus elimination in priority varieties and clones
- genetic verification of varieties and clones
- research into virus vectors such as grapevine scale
- improved diagnosis and management of grapevine trunk diseases in propagation material.

Virus elimination will ensure important germplasm is available to industry as high-health planting material, while the broader research portfolio provides the science and tools to strengthen management of the NGC and other propagation assets, improve information held in the Australian Grapevine Germplasm and Propagation Asset Register, and inform the technical requirements underpinning VitiCert Australia.

These propagation investments are also important to Wine Australia's grapevine breeding portfolio (described below). The NGC will provide a pathway for new genetic material from this work to be securely maintained and made accessible to industry, the register can provide information about that material and VitiCert Australia can help maintain its identity and health as it moves through the propagation supply chain.

Further along the value chain, VitiCert Australia will complement Wine Australia's Label Integrity Program and its requirements for evidence supporting claims about Australian wine. There is also potential for the National Vineyard Register and Australian Grapevine Germplasm and Propagation Asset Register to operate side by side, providing complementary information about propagation resources and commercial vineyard plantings.

Reliable access to planting material and new genetic resources also supports the environmental and economic sustainability aims of Sustainable Winegrowing Australia. New varieties and rootstocks with improved resistance to pests and diseases or greater tolerance of changing climatic conditions can help growers reduce chemical use, manage production risks and build more resilient vineyard businesses.

Investments in Australia's propagation assets also strengthen the provenance, integrity and resilience of the vineyard base from which Australian wine is produced, which can support confidence in Australian wine in both domestic and overseas markets. Over time, the NGC will ensure Australian growers have access to new varieties and rootstocks that respond to changing market preferences.



Enabling technologies for DNA-free gene editing



Gene-edited varieties and trait targets



Breeding rootstocks with durable pest resistance and climate resilience

Wine Australia is investing in three projects as part of its current Strategic Research Agreement (SRA) 2022–27 with the CSIRO.

Shaping the next stage of grapevine breeding investment

Wine Australia and CSIRO have partnered in grapevine breeding since the 1990s, developing winegrape varieties with resistance to powdery and downy mildew and rootstocks with resistance to phylloxera and root-knot nematodes. Current investment has evolved this work through the use of gene editing to improve key winegrape cultivars and continued breeding of rootstocks. Together, this work has produced three streams of planting material.

Mildew-resistant grapevine varieties

The first generation of mildew-resistant winegrape material contains 40 red and white selections. Growers in New South Wales, Victoria and South Australia are evaluating this material, with two supported by commercial wine production arrangements. Four selections are under Plant Breeder's Rights protection and two have been named – Riesladel and Verdelisse – with two more to be named shortly.

A second generation of mildew-resistant winegrape material has been bred to provide more durable resistance to powdery and downy mildew. More than 500 single vines are under field evaluation in Griffith and Orange, where disease resistance, viticultural performance and wine quality are being assessed through to 2028.

Improved rootstocks

The rootstock program has also delivered material for industry, with the Merbein (or M-) series becoming available in 2005 and the CSIRO (or C-) series released in 2019.

Current research is developing a further generation of rootstocks with more durable resistance to phylloxera and root-knot nematodes and improved resilience to changing climatic conditions, including salinity

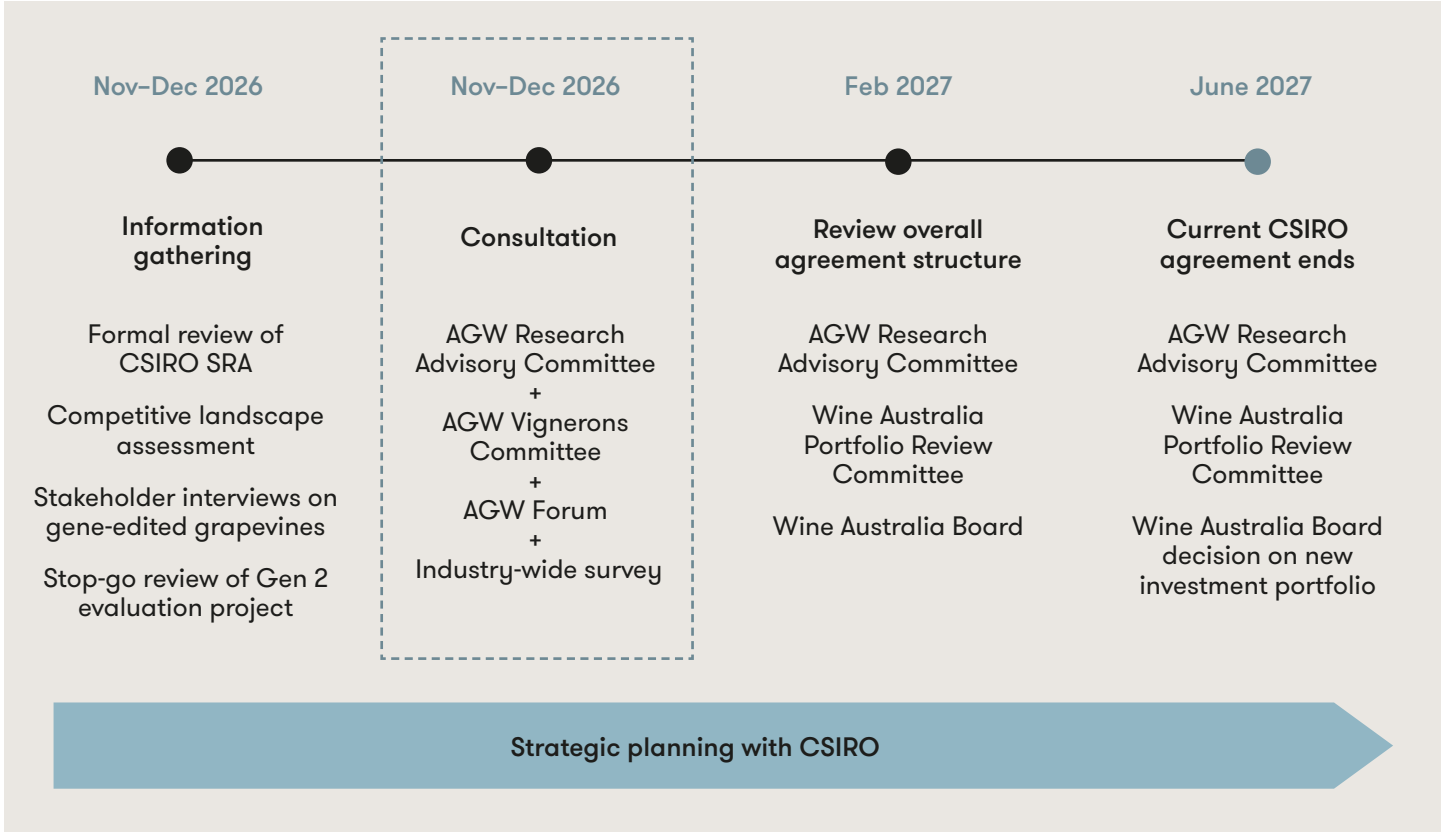
Gene-edited grapevines

Gene editing offers the potential to modify specific traits in existing premium winegrape varieties rather than develop an entirely new variety through conventional crossing. This could accelerate the development of improved vines while retaining valued characteristics of established varieties.

A pipeline of gene-edited vines has been successfully established for key Australian winegrape varieties, with research targeting production and quality traits including fungal pathogen tolerance. More than 200 gene-edited grapevine lines are currently being maintained across the research pipeline, with the first edited varieties having progressed to field evaluation in secure research facilities.

Further work is needed to understand the pathway from successful research to industry use, including which traits should be prioritised and what regulatory, market and community expectations would apply to gene-edited vines and the resulting wine.

Decision inputs and milestones



Why Wine Australia is consulting now

Wine Australia's current Strategic Research Agreement with CSIRO concludes on 30 June 2027, creating an opportunity to review, progress and consider the direction of the grapevine breeding portfolio as a whole before decisions are made about future investment.

Rather than simply continuing existing projects, Wine Australia is seeking input on which areas of breeding remain priorities, where further investment could deliver the greatest value, and whether different approaches may be needed.

This comes at an important point in the development of the portfolio. Previous and current investments have generated mildew-resistant winegrape material, rootstocks and gene-editing capability, but translating these outputs into industry adoption remains a challenge. A structured commercialisation strategy supported by appropriate expertise and an established supply chain is needed along with better information and promotion to improve grower confidence. Further work is likely to be needed in areas such as:

- regional evaluation
- wine assessment and market testing
- access to healthy propagation material
- commercialisation and licensing
- extension and adoption.

Regulatory, trade, naming, intellectual property and social licence considerations also need to be understood before some material can progress towards commercial use.

Current approach to future planning for grapevine breeding

Wine Australia is progressing several connected activities to inform decisions on investment in grapevine breeding beyond June 2027. These include:

- conducting a formal review of the CSIRO Strategic Research Agreement, to be completed by end November 2026
- establishing regular meetings with the CSIRO SRA Management Committee to inform development of the next agreement
- seeking end-of-project forecasts, key risks and future options from CSIRO project teams
- undertaking a stop–go assessment of the second-generation mildew-resistant selections by NSW DPIRD, to be completed in December
- commissioning stakeholder interviews across the wine value chain to understand industry views, concerns and information needs about gene-edited grapevines
- supporting the National Grapevine Collection (NGC) program and the new VitiCert Australia certification program to provide a supply chain founded on high-quality, traceable and virus-tested planting material
- expanding the scope of Nick Dry's role as NGC coordinator to include activities to support the adoption of CSIRO-bred varieties and rootstocks; this includes an assessment of the competitive landscape and market opportunity for CSIRO-bred material in an international context, taking into consideration the desirability of traits, availability, uptake and commercialisation pathways
- developing options for commercialisation, regional evaluation and industry adoption
- seeking to clarify regulatory, naming, intellectual property, licensing and market-access considerations for both conventionally bred and gene-edited varieties

Wine Australia and CSIRO have agreed that a clear pathway to industry impact should be a key feature of future grapevine breeding investment. Industry input is, therefore, important in determining not just what Wine Australia invests in next from a technical perspective, but what needs to support delivery of promising new varieties and rootstock material.

What we're asking industry to consider

Industry input is being sought on the future direction of grapevine breeding for the sector. This includes whether breeding remains a strategic priority, where future investment should be focused, what evidence is needed to build confidence in new varieties and rootstocks, and what broader barriers should be addressed first for successful adoption and commercialisation.

There are also choices about where future effort should be directed. These include:

- whether to continue conventional breeding of new varieties
- placing greater emphasis on evaluating and commercialising Australian-bred material already developed
- assessing disease-resistant varieties from overseas
- further developing gene editing of established premium varieties
- continue breeding and evaluating new rootstocks.

These questions are intended to guide discussion rather than limit it. Please raise any issues that are particularly important to you or that you think are missing.

The aim is to understand which problems breeding should help solve and where investment in grapevine improvement and planting material can deliver the greatest value to growers and winemakers over the next 10–20 years.

Industry input will shape investment beyond 2027

Strategic priority

Does grapevine breeding and its enabling capabliity remain a strategic priority for the Australian grape and wine sector?

Evidence and readiness

What evidence shows Australian-bred varieties compete with overseas options and what would build confidence – priority traits, regional perfomance, market acceptance, reliable access to vines?

The right balance

How should investment be balanced across conventional breeding, evaluation, commercialisation, imported varieties, gene editing and rootstocks? What follows if we continue, change or stop doing any or all of these?

Clarity and success

Which regulatory, naming, IP, trade and social licence issues must be resolved first, and how do we measure success beyond scientific outputs?



Consultation

Wine Australia consults widely across the grape and wine sector to inform future research investment. For the consultation process on the future of grapevine breeding we will engage through the following mechanisms for feedback and input:

- AGW Vignerons Committee
- AGW Research Advisory Committee
- AGW Policy Forum
- Industry-wide post-event survey
- Stakeholder interviews carried out as part of a formal review of the current CSIRO agreement
- Stakeholder interviews on gene-edited grapevines
- Additional targeted consultation activities as required

Have your say

Help guide Wine Australia's future grapevne breeding investment and priorities.

Email: research@wineaustralia.com

