

2025 Genetically Modified Organisms Environmental Scan



GMO Environmental Scan

CropLife Australia Submission
May 2025

Executive Summary

Australia agriculture stands at a critical juncture where, facing numerous challenges—rising input costs, climate pressures and shifting market demands—we must identify and implement solutions that safeguard our long-term prosperity. Australia needs the tools and systems to raise productivity while combating costs of living. To achieve this, a bold, science-based approach that embraces emerging technologies such as gene editing, aligns regulatory frameworks with national and international best practice, and fosters close collaboration between government, industry and research to drive sustainable growth and maintain our global competitiveness.

Tasmania's current approach to regulating gene technology is not aligned with the Commonwealth scheme—restricting organisms with site-directed nuclease-1 (SDN-1) genome edits via biosecurity provisions while also maintaining a moratorium on genetically modified organisms (GMOs)—creates unnecessary complexity, stifles innovation and undermines a coherent national framework. This misalignment unjustifiably complicates regulatory processes, inflates costs for researchers and farmers, and risks Tasmania falling behind mainland and international competitors in deploying the innovations needed to combat a growing list of challenges.

The 2025 Environmental Scan Final Report is primarily qualitative, lacking transparent survey data, economic modelling or documented stakeholder interviews to substantiate claims of price premiums for GMO-free produce. Independent analyses, that includes South Australia's post-moratorium reviews and a 2012 Tasmanian study attributing a \$4 million per annum loss to the GMO ban, demonstrate no enduring price advantage. Meanwhile, major export markets worldwide have exempted SDN-1 edits when no foreign DNA is introduced, a consensus already reflected across other Australian jurisdictions.

To safeguard Tasmanian prosperity and achieve the objectives of AgriVision 2050, it is vital that farmers, medical practitioners, food manufacturers, conservationists, researchers and other innovators have access to safe scientific breakthroughs. Unlocking the full potential of gene technology, especially precision breeding using new breeding techniques (NBTs), will help Tasmania remain globally competitive and support a diversified economy. We therefore recommend that Tasmania align its SDN-1 regulations with the Commonwealth scheme and lift the moratorium on GMOs that are thoroughly assessed and approved by the Gene Technology Regulator. These steps will reduce regulatory burdens, attract private-sector investment and ensure Tasmanian producers can capitalise on world-leading agricultural technologies.

With rising cost-of-living pressures, accelerating climate change and increasingly volatile trade conditions, decisions made today will shape prosperity for the next decade. Tasmania cannot afford to arbitrarily restrict innovation; decisive action now

will ensure the State can withstand these headwinds and secure a resilient, prosperous future.

Key Recommendations

1. **Review & Lift the GMO Moratorium:** Undertake a formal review of the moratorium with a view to permitting all OGTR-approved GMOs, ensuring Tasmanian growers can access proven, safe technologies.
2. **Recognise & Adopt National Regulatory Updates:** Automatically incorporate future changes arising from the Third Review of the National Gene Technology Scheme—such as risk-tiering, revised definitions and process refinements—into Tasmanian policy without requiring separate state-level amendment processes.
3. **Harmonise Treatment of SDN-1:** Align Tasmania’s treatment of SDN-1 edits with the National Gene Technology Scheme.
4. **Remove SDN-1 From Biosecurity Group Permits:** Biosecurity is a critical process that risks politicisation when employed for opaque regulatory purposes.

1. Introduction

CropLife Australia (CropLife) is the national peak industry organisation representing the agricultural chemical and plant biotechnology (plant science) sector in Australia. CropLife represents the innovators, developers, manufacturers, formulators and suppliers of crop protection products (organic, synthetic and biologically based pesticides) and agricultural biotechnology innovations. CropLife's membership is made up of both large and small, patent holding and generic, companies and accordingly, CropLife advocates for policy positions that ensure the agricultural sector that is internationally competitive through globally leading productivity and sustainability. Both of these are achieved through access to world-class technological innovation and products of the plant science sector.

The '*Genetically Modified Organisms (GMO) Environmental Scan Final Report 2025*' (the Scan Report) affords a critical opportunity to engage with Tasmanian regulation of gene technology. Although the Scan Report provides a useful, albeit narrow, overview of international regulatory developments, market sentiment and emerging applications, CropLife is concerned that it fails to address critical shortcomings in Tasmania's current regime—most notably, the inappropriate use of biosecurity measures to impose ad-hoc restrictions on imports containing genome edits that are ideologically driven and unsupported by science.

Programs such as Tasmania's AgriVision 2050 rightly spotlight the State's need to harness new technologies for future prosperity. This prosperity requires capital but such investment only occurs with stable policy settings. Yet, by persisting with restrictive, science-lagging regulations and a moratorium misaligned with the National Gene Technology Scheme, the State risks years—if not decades—of foregone productivity gains, delayed innovation and lost economic opportunity. It is therefore imperative that Tasmania revises its policy to fully align with the Commonwealth scheme, reviews the GMO moratorium and unlocks the full potential of gene technology for the benefit of Tasmanian farmers, food manufacturers, researchers, conservationists and wider communities.

2. The Scan Report

2.1 Empirical Data & Transparency

Recommendation: Ensure conclusions are based on data and, if needed, undertake transparent studies to develop this data.

The Scan Report provided little evidence that any global perception of Tasmanian produce being among the world's best relates to restrictions on gene technology. In fact, it was noted that even in jurisdictions suggested to be sensitive to gene technology, knowledge of Tasmanian gene technology policies could not be determined.¹ It was noted that in China, a primary market, “[a]wareness of Tasmania’s position on SDN-1 produce appeared to be entirely absent from all elements of the supply-chain from distributors to consumers”.² In fact, over the past five years China has rapidly embraced gene technology.^{3,4}

Under the National Gene Technology Scheme, State law can designate regions to remain GM free for marketing reasons.⁵ Although often repeated, claims regarding premiums afforded to Tasmanian farmers through maintenance of the GM moratorium are not supported by data. Furthermore, the costs for forgoing these innovations are also not mentioned. Any discussion of GM polices should demonstrate using empirical evidence that Tasmania was earning a premium compared to other Australian States. The South Australian (SA) GM moratorium, which ended in 2020, provides a clear case study highlighting that being GM-free did not provide any benefit. Independent analysis found that despite the GM ban, SA had not achieved a canola price premium.^{6,7}

A 2012 study of the Tasmanian moratorium attributed a \$4 million per annum (2001-2011) loss from maintaining a GMO-free status even when considering quantifiable benefits.⁸ With global attitudes and policy on GM and the emergence of genome edited

¹ Department of Natural Resources and Environment Tasmania, ‘Genetically Modified Organisms (GMO) Environmental Scan’ (Report, April 2025) ‘The Scan Report’, pp16-18.

² Ibid, p16.

³ Jon Cohen, ‘To feed its 1.4 billion, China bets big on genome editing of crops’ (*Science* online, 29 July 2019) <https://www.science.org/content/article/feed-its-14-billion-china-bets-big-genome-editing-crops>

⁴ Mei Mei Chu, ‘China’s embrace of GMO crops gains momentum with new import, planting approvals’ (*Reuters* online, 19 January 2024) <https://www.reuters.com/world/china/chinas-embrace-gmo-crops-gains-momentum-with-new-import-planting-approvals-2024-01-18/>

⁵ Gene Technology (Recognition of Designated Areas) Principle 2003 (Cth) F2007B00679 (as made 31 July 2003) s5.

⁶ Kym Anderson, ‘Independent Review of the South Australian GM Food Crop Moratorium’ (Report prepared for SA Minister for Primary Industries and Regional Development, March 2019).

⁷ Andrew Whitelaw, Matt Dalglish and Olivia Agar, ‘Analysis of price premiums under the South Australian GM moratorium’ (Report produced by Mecardo and commissioned by Grain Producers South Australia and the Agricultural Biotechnology Council of Australia, March 2018).

⁸ Macquarie Franklin, ‘Market Advantages of Tasmania’s GMO-free Status’ (Report commissioned by the Department of Economic Development, Tourism & the Arts (Tas), April 2012).

produce since this report's release, it is highly likely that the adverse economic impact has continued to grow.

Faced with empirical studies clearly refuting the notion of GM-free price premiums, it is critical that claims of sensitivity and price premiums in the Scan Report be supported with clear robust data.

2.2 Environmental Scan Timing

Recommendation: Involve environmental scans into more contemporaneous process.

Any consideration of the Scan Report should acknowledge that it was conducted from October 2023 to May 2025 and accommodate the weakness arising from the delays.⁹ Consolidating such information takes time. However, the rapid rate of technology of development, growth of public acceptance, especially for genome editing, and regulatory change necessitates greater agility and continuous feedback when developing guidance. Greater currency could be achieved through a process underpinned by continuous monitoring and rapid stakeholder input rather than periodic, static reviews followed by the development of the report.

2.3 Tasmanian SDN-1 Regulation

Recommendation: Amend the Scan Report to accurately reflect the regulatory mechanisms and process used to restrict SDN-1.

SDN-1 regulation in Tasmania is currently via the biosecurity pathway after proposals to enact specific SDN-1 legislation were abandoned. Under the Commonwealth Gene Technology Regulations 2001, SDN-1 edits—being changes “that can occur in nature”—were expressly exempted from GMO regulation by the OGTR in 2019. As noted in the Scan Report, Tasmania initially signalled its intent to continue regulating SDN-1 in order to preserve its “Clean-Green” image, despite the national exemption.¹⁰ However, after consultation and strong opposition from a diverse range of Tasmanian stakeholders, Regulation 17 (covering SDN-1 organisms) was removed from the draft state regulations in July 2022.

However, using existing biosecurity provisions in 2023, SDN-1 was restricted. Gazetted in August 2023, SDN-1 has been exempted from the Group Permit that enables the importation of restricted plant material into Tasmania. As the Tasmanian *Biosecurity Act 2019* does not require oversight for this activity, an order can be made by the Chief Plant Protection Officer or Chief Animal Protection Officer, for their respective areas, with notification either through Gazette or corresponding Website. This risks the integrity of

⁹ ‘The Scan Report’, above n 1, p6.

¹⁰ Department of Natural Resources and Environment Tasmania, Tasmanian Gene Technology Policy 2019-2029, (Policy September 2019)

‘<https://nre.tas.gov.au/Documents/Tasmanian%20Gene%20Technology%20Policy%202019-2029.pdf>’

the biosecurity system and creates a lack of regulatory clarity that impacts investment in agricultural innovation. Interestingly, using Biosecurity provisions in this way does not classify SDN-1 as a GMO nor does it limit the development of SDN-1 organisms within Tasmania. It is completely unscientific to categorise a *technique* as a ‘pest or disease’ that could have impact on Tasmania’s biosecurity. Critically, this categorisation was made by unelected public servants, in secret and without public consultation or any transparent process.

It is clear that such regulatory undertakings are not fit for purpose. The Scan Report should address the difficult situation Tasmania is currently in and provide a more accurate overview of how SDN-1 regulation is undertaken in the State.

2.4 Food Standards Code Alignment

Recommendation: Seek greater cooperation and alignment with other Government agencies.

Although mentioned in a footnote,¹¹ the Scan Report would have greatly benefitted from a nuanced discussion of Food Standards Australia New Zealand (FSANZ) ‘*Proposal P1055 - Definitions for gene technology and new breeding techniques*’.¹² Now entering its seventh year, P1055 represents a thorough examination of the scientific and policy issues surrounding genome editing in food. It seeks to update the Australia New Zealand Food Standards Code by distinguishing products of new breeding techniques from GMOs, on the basis that many genome edited foods are indistinguishable from conventionally bred counterparts and pose no greater risk.

It would be worthwhile for the Scan Report to address the impact acceptance of P1055 might have on Tasmania’s complex SDN-1 regulation. Moreover, the analysis undertaken in the P1055 Second call for submissions, captures a clear global picture of the modern regulatory landscape.¹³ By proactively aligning with FSANZ’s science-based determinations, Tasmania will remove regulatory duplication, give industry clarity, and food processing in the State remains both credible and competitive.

3. Ensuring Tasmanian Prosperity

3.1 Gene Technology Innovation

New breeding techniques, such as genome editing and RNAi-based technologies, offer Tasmanian agriculture a powerful suite of solutions to pressing challenges. By

¹¹ ‘The Scan Report’, above n 1, p22.

¹² Food Standards Australia New Zealand, ‘Proposal P1055 - Definitions for gene technology and new breeding techniques’ (Website, accessed May 2025) <https://www.foodstandards.gov.au/food-standards-code/proposals/p1055-definitions-for-gene-technology-and-new-breeding-techniques>

¹³ Food Standards Australia New Zealand, ‘2nd Call for submissions – Proposal P1055’ (Report 297-24, 30 July 2024) <https://www.foodstandards.gov.au/sites/default/files/2024-07/P1055%202nd%20Call%20for%20submissions%20report.pdf>.

introducing targeted genetic changes that mimic naturally occurring mutations, genome editing can increase the efficiency of developing improved crop varieties compared to conventional breeding. Potential traits include waterlogging and frost tolerance,¹⁴ improved nutrient use efficiency,¹⁵ and resistance to endemic pests or diseases.¹⁶ Increasingly, new breeding techniques could also improve the harvest, processing, transport and storage of crops critical to Tasmanian horticulture.¹⁷

Genome editing holds promise for pastures that underpin Tasmania’s dairy and livestock industries. Enhanced forage grasses for improved digestibility and biomass production can increase animal productivity while lowering methane emissions, contributing to both economic sustainability and environmental goals.¹⁸ Similarly, poppy lines that support Tasmania’s existing medical-poppy cultivation by cutting production costs and supporting the State’s leadership in pharmaceutical agriculture.¹⁹

At an industry level, embracing gene technology stimulates research investment, creates high-skilled jobs and attracts commercial partners seeking to trial or licence innovations. Establishing Tasmania as a hub for genome edited variety development and field-trial activity strengthens local R&D capacity, encourages collaboration between universities, government research institutes and agritech companies, and generates spill-over benefits for rural communities. As these innovations move from laboratory to farm, they underpin diversification of the Tasmanian bioeconomy—supporting value-added food processing, seed-production enterprises and export-focused horticulture.

These advances not only bolster Tasmania’s productive capacity and attract industry investment but also set the stage for reinforcing its “Clean-Green” brand credentials (see section 4.1), demonstrating how science-based improvements can deliver both environmental stewardship and premium-quality produce.

¹⁴ Office of the Gene Technology Regulator, ‘DIR 083/2007’ (Website, accessed May 2025) <https://www.ogtr.gov.au/gmo-dealings/dealings-involving-intentional-release/dir-0832007>

¹⁵ Office of the Gene Technology Regulator, ‘DIR 186’ (Website, accessed May 2025) <https://www.ogtr.gov.au/gmo-dealings/dealings-involving-intentional-release/dir-186>

¹⁶ Richard Halleron, ‘First gene-edited crop trials on conventional farms in UK’ (Agriland, accessed May 2025) <https://www.agriland.co.uk/farming-news/first-gene-edited-crop-trials-on-conventional-farms-in-uk/>

¹⁷ See, eg, PotatoPRO, ‘Innate Potatoes’ (Website, accessed May 2025) <https://www.potatopro.com/brands/innate-potatoes>

¹⁸ U Subedi et al, ‘The Potential of Novel Gene Editing-Based Approaches in Forages and Rumen Archaea for Reducing Livestock Methane Emissions’ (2022) 12 *Agriculture* 1780 <https://doi.org/10.3390/agriculture12111780>

¹⁹ Zahra Aghaali and Mohammad Reza Naghavi, “Developing Benzylisoquinoline Alkaloid-Enriched Opium Poppy via CRISPR-Directed Genome Editing: A Review” (2024) 24 *BMC Plant Biology* 412 <https://bmcpplantbiol.biomedcentral.com/articles/10.1186/s12870-024-05412-x>

3.2 Australian Jurisdictional Harmonisation

Recommendation: Align Tasmanian gene technology regulation with other Australian jurisdictions.

A unified national approach to gene technology fosters regulatory certainty, simplifies market access and strengthens Australia's negotiating position with export partners. The Gene Technology Regulator (GTR), supported by the Office of the Gene Technology Regulator (OGTR), provides robust regulatory oversight for gene technology in Australia. This negates the need for replicative regulatory processes.

To achieve National alignment, Tasmania needs to:

- Defer to OGTR determinations and remove SDN-1 restrictions from biosecurity regulations and lift the State GMO moratorium.
- Eliminate State-specific regulatory processes, replacing them with notification requirements consistent with the National Scheme.
- Adopt national approvals and ensure that all organisms assessed as safe by the OGTR for commercial cultivation are treated the same way.

This requires that Tasmania review their existing SDN-1 provisions and the current State GMO moratorium.

Gene technology will continue to evolve, but Tasmania does not need to reinvent the wheel. By harmonising with the National Gene Technology Scheme, Tasmania can participate in and enjoy the benefits of this advancing field.

4. Marketing & Coexistence

4.1 Strengthening Tasmania's Brand

Far from diluting Tasmania's premium environmental identity, transparent adoption of safe genome editing tools can substantiate its Clean Green credentials. Much like it did with microbially produced insulin and rennet, gene technology continues to facilitate efficiency, sustainability and productivity. Precision breeding outcomes—such as reduced agrochemical use, enhanced nutrient use efficiency and climate resilient varieties—are demonstrable sustainability advances. A clear, science-based policy will reassure consumers and international buyers that Tasmania upholds the highest environmental and safety standards.

There are also a growing body of products that provide unique health benefits, niche branding opportunities, and improved consumer-focused benefits. Due to the potential health benefits, Japan has seen wide consumer and public acceptance of genome edited products like the GABA-enriched tomato.²⁰ Other jurisdictions have seen the

²⁰ Sanatech Life Science, 'The Sicilian Rouge High GABA tomato is now certified with 4 functional claims' (Website, accessed May 2025) <https://sanatech-seed.com/en/221226-2/>

introduction of genome edited leafy greens with an improved taste.²¹ There have also a growing number of new GM traits making their way to market such as pink pineapple,²² and omega-3 containing canola.²³

4.2 Coexistence

Tasmania is able to support the co-existence of differing production systems, including organic certification, without the need for a state-wide GM moratorium, as has been demonstrated in the mainland States. Such segregation practices are employed throughout the value chain, be it by quality characteristics or to differentiate conventional cultivation versus organic cultivation.

Within Australia the coexistence of GM and non-GM crops has been achieved through the practices outlined in the industry-led Market Choice Framework. The framework was not a single piece of legislation or regulation but rather a series of best practice guidelines, recommended industry protocols, scientific studies, and tools that, combined, maintain coexistence. These works were developed through extensive stakeholder dialogue that included governments, both federal and state, grain grower representative bodies, trade organisations, GM licence holders, researchers, and the broader agriculture sector.

Although focused on the grains industry, the current primary user of GM technologies in Australia, the Market Choice Framework is applicable to any cultivation where co-existence and market choice is needed. The Framework provides high-level guidance on implementing these technical measures, encouraging collaboration between industry groups, regulators, and growers. By detailing best practices, the framework helps ensure Australia can reliably supply both GM and non-GM products, depending on consumer preferences and market requirements. Training sessions and industry workshops disseminate the latest technical protocols, while field audits, quality certification schemes, and third-party verifications ensure compliance and credibility. A Western Australian parliamentary inquiry found that:

[t]he handling practices of Co-operative Bulk Handling Group have ensured that there has been no loss of markets due to contamination by genetically modified material and that this has helped to ensure that there has been no significant economic loss to the agricultural industry in Western Australia.²⁴

²¹ Emily Mullin, 'Gene-Edited Salad Greens Are Coming to US Stores This Fall' (Wired online, May 2024) <https://www.wired.com/story/gene-edited-salad-greens-fall-pairwise-bayer-crispr-gmo/>

²² Fresh Del Monte, 'Pinkglow Pineapple' (Website, accessed May 2025) <https://www.pinkglowpineapple.com/>

²³ CSIRO, 'Omega-3 Canola' (Website, accessed May 2025) <https://www.csiro.au/en/research/production/biotechnology/omega-3-canola>

²⁴ Standing Committee on Environment and Public Affairs, Parliament of Western Australia, Mechanisms for Compensation for Economic Loss to Farmers in Western Australia Caused by Contamination by Genetically Modified Material (Report 49, 14 May 2019) 44.

Market segregation and coexistence has proven to be effective industry-led systems that provide farmers with the full gamut of tools while supporting diverse market requirements. In addition, marketing standards, such as organic certification, already require adherence to product segregation. Therefore, biotechnology poses no greater risk than any other non-organic produce. Moreover, the South Australian GM moratorium provides a clear case study highlighting that restricting innovation did not result in a price premium or improve market access.^{25,26}

5. Conclusion

Tasmania's unique "Clean-Green" positioning and its agricultural prosperity depend on policy that is both scientifically sound and economically competitive. By harmonising its SDN-1 regulation with the national scheme, transforming the Environmental Scan into a living document, clarifying unscientific biosecurity-based controls, and lifting the GMO moratorium to allow cultivation of GTR-approved organisms with robust coexistence frameworks, the State can unlock the full potential of gene technologies. We urge the Tasmanian Government to adopt these recommendations swiftly, ensuring that Tasmanian farmers, communities and industries to leverage the sustainable, science-driven agriculture the world is rapidly adopting.

²⁵ Anderson, above n 6.

²⁶ Whitelaw et al, above n 7.