



Review of the Reef 2050 Plan

Submission



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 biological based pesticides) and agricultural biotechnology innovations. CropLife's membership is made up of both large and small, patent holding and generic, Australian and international companies. Accordingly, CropLife advocates for policy positions that deliver whole-of-industry and national benefit. CropLife Australia is a member of CropLife Asia and part of the CropLife International Federation of 91 CropLife national associations globally. CropLife's focus is specifically on sustainable environmental land management and an Australian farming sector that is internationally competitive through globally leading productivity and sustainability practices. Both outcomes are achieved through access to the world-class technological innovation and products of the plant science sector. The plant science industry contributes to the nation's agricultural productivity, environmental sustainability and food security through innovation in plant breeding and pesticides that protect crops against pests, weeds and disease. More than \$31 billion of the value of Australia's agricultural production is directly attributable to the responsible use of crop protection products, while the plant science industry itself directly employs thousands of people across the country.¹

CropLife appreciates the opportunity to make a submission to the Department of Climate Change, Energy, the Environment and Water on the Review of the Reef 2050 Long-Term Sustainability Plan.

2 CROP PROTECTION: ROLE AND REGULATION

This submission addresses matters relevant to the plant science industry, including regulatory frameworks, agricultural chemical use and stewardship and does not seek to address broader matters outside this scope. The Review of the Reef 2050 Plan continues to imply that pesticides pose risks to Reef water quality comparable to sediment and nutrients. As previously raised, including in CropLife's September 2020 submission, this is not supported by the Plan's own evidence base.

The Reef 2050 Plan identifies sediment and nutrients as the primary drivers of water quality decline, and the Great Barrier Reef Outlook Report 2019 found pesticide concentrations in

¹ Deloitte Access Economics. Economic Contribution of Crop Protection Products in Australia. August 2023. <https://www.croplife.org.au/resources/reports/economic-contribution-of-crop-protection-products-in-australia/>.

marine waters to be low.² Detected concentrations, including inshore sites, remain well below levels associated with ecological impact. While crop protection products may be present in the Reef inshore waters, scientific evidence indicates that even the highest levels detected at inshore reef sites are significantly below the levels that would be required to have any impact upon the Reef.³

Recent scientific literature continues to confirm that pesticide concentrations and associated risks are not uniform across the Reef catchment-to-marine continuum.⁴ Rather, concentrations are typically highest in wetlands, lower at end-of-catchment monitoring sites, and lower again in marine environments, with both concentration and risk declining with increasing distance from the river mouth.⁵ This evidence supports the importance of industry stewardship programs by reducing off-site movement through:

- Improved application practices.
- User education and training.
- Adoption of best management practices.

Importantly, previous monitoring and modelling have indicated modest but steady progress towards end-of-catchment PSII herbicide load-reduction targets (Waterhouse et al., 2017),⁶ demonstrating that sustained investment in practice change, stewardship and evidence-based management can deliver measurable water quality improvements.

Reefs are influenced by multiple interacting factors. Phan et al., (2026) highlights that environmental outcomes reflect complex interactions among agricultural activities, policy settings, climatic conditions and other environmental drivers.⁷ This systems-based perspective reinforces that pesticide use should not be considered in isolation or treated as the sole cause of environmental outcomes. Rather, well-regulated use and stewardship form part of a broader adaptive management system.

This framing supports a more balanced understanding in which well-regulated pesticide use and industry stewardship efforts are recognised as components within a broader, dynamic system. It also suggests that crop protection companies operating under strict

² Great Barrier Reef Outlook Report 2019

³ Report card 2016 | Reef 2050 Catchment Water Quality Strategy

⁴ Davis AM, Attard S, Di Bella L, Shannon E, Sluggett R, Milla R and Fillols E (2025) A horizon scan for improving pesticide management and governance in the great barrier reef catchment. *Front. Environ. Sci.* 13:1683340. doi: 10.3389/fenvs.2025.1683340

⁵ Negri, A. P., Taucare, G., Neale, P., Neelamraju, C., Kaminski, H., Mann, R. M., et al. (2024). Question 5.1 what is the spatial and temporal distribution of pesticides across great barrier reef ecosystems? What are the (potential or observed) ecological impacts in these ecosystems? What evidence is there for pesticide risk? in (eds. J. Waterhouse, M.-C. Pineda, and K. Sambrook) 2022 scientific consensus statement on land-based impacts on great barrier reef water quality and ecosystem condition. Townsville, Australia: Commonwealth of Australia and Queensland Government.

⁶ Waterhouse, J., Brodie, J., Tracey, D., Smith, R., Vandergragt, M., Collier, C., et al. (2017). Scientific consensus statement 2017: a synthesis of the science of land-based water quality impacts on the great barrier reef, chapter 3: the risk from anthropogenic pollutants to great barrier reef coastal and marine ecosystems. State Qld. Available online at: https://www.reefplan.qld.gov.au/__data/assets/pdf_file/0032/45995/2017-scientific-consensus-statement-summary-chap03.pdf.

⁷ Phan, T.D., Bertone, E., Neelamraju, C., Nguyen, N., Nguyen, T.Q. and Pham, T.V., 2026. A Systems Thinking Approach to Understand the Impacts of Pesticides on the Great Barrier Reef Ecosystems. *Systems Research and Behavioral Science*, 43(1), pp.64-77.

regulatory regimes and engaging in continuous improvement should be viewed as participants in an adaptive management landscape, rather than isolated drivers of environmental impact.

At the same time, the findings reinforce that achieving water quality goals requires coordinated, system-wide responses and ongoing refinement of practices across all sectors. As such, a systems-thinking approach can be used to support the position that responsible crop protection product stewardship contributes meaningfully to improved environmental outcomes, while also underscoring the need for shared accountability and integrated solutions.⁸

Crop protection products are essential to modern agriculture supporting food production, productivity, and farm viability. In Australia, these products are subject to rigorous assessment and regulation by the Australian Pesticides and Veterinary Medicines Authority under the *Agricultural and Veterinary Chemicals Code Act 1994* (Cth). The Reef 2050 Plan should align with this established national regulatory framework and avoid creating duplicative, inconsistent or overlapping regulatory requirements that may add complexity without delivering additional environmental benefits.

3 POLICY APPROACH

CropLife Australia supports a science-based, risk-proportionate approach to agricultural chemical policy. Products approved for use in Australia have undergone extensive assessment through the national regulatory system. Policy should prioritise correct use rather than restricting access to tools that have already been assessed and approved.

Davis et al., (2025) highlights the need for proactive, science-based approaches to pesticide management that can respond to emerging challenges and opportunities.⁹ This reinforces the need for a science-based, risk-proportionate approach to managing agricultural chemical inputs, recognising the effectiveness of existing regulatory frameworks and the critical role of stewardship, innovation, and on-ground practice change in improving Reef water quality outcomes.

Improving Reef water quality outcomes will be achieved by:

- Strong compliance with label requirements.
- Targeted user education and stewardship.

⁸ Phan, T.D., Bertone, E., Neelamraju, C., Nguyen, N., Nguyen, T.Q. and Pham, T.V., 2026. A Systems Thinking Approach to Understand the Impacts of Pesticides on the Great Barrier Reef Ecosystems. *Systems Research and Behavioral Science*, 43(1), pp.64-77.

⁹ Davis AM, Attard S, Di Bella L, Shannon E, Sluggett R, Milla R and Fillols E (2025) A horizon scan for improving pesticide management and governance in the great barrier reef catchment. *Front. Environ. Sci.* 13:1683340. doi: 10.3389/fenvs.2025.1683340

- Best-practice application methods and technologies.

There has been significant progress across agriculture in adopting practices that minimise off-site movement, including improved application techniques, precision technologies, and integrated management approaches.¹⁰ These advances demonstrate that stewardship and innovation are delivering real improvements and should be central to future policy settings. CropLife supports a continued shift towards targeted, evidence-based interventions, including:

- Using real-world monitoring data to inform decisions.
- Focusing investment on high-risk practices and priority catchments.
- Strengthening partnerships between government, industry and landholders.

Regulatory duplication or the introduction of alternative assessment approaches outside the national system risks undermining consistency, clarity and outcomes.

4 CORRECT USE AND STEWARDSHIP

Education is key to increasing the adoption of best-practice technologies and improving outcomes in agricultural chemical use. Stewardship programs provided by CropLife Australia play a critical role by giving farmers access to the latest information, tools and resources. The uptake of new technologies demonstrates that these initiatives are necessary for meaningful change, with strong support from the plant science industry.¹¹

The effective management of agricultural chemical use ultimately depends on how products are applied in practice. Education, training and stewardship therefore remain central to ensuring responsible and sustainable use.

CropLife Australia supports a policy focus on:

- Compliance with label instructions.
- User training and accreditation.
- Stewardship programs.
- Adoption of best management practices.

The plant science industry has an established role in developing and delivering stewardship initiatives, education programs and guidance materials to support responsible product

¹⁰ Geoff Kuehne & Will Higham & Kevin McCosker & Adam Northey & Rob Hassett & Emily Brooks & Paul Humphreys, 2026. "A Methodological Refinement for Evaluating Adoption of Priority Practices for Water Quality Improvement in Australia's Great Barrier Reef," *Environmental Management*, Springer, vol. 76(5), pages 1-16, May.

¹¹ Geoff Kuehne & Will Higham & Kevin McCosker & Adam Northey & Rob Hassett & Emily Brooks & Paul Humphreys, 2026. "A Methodological Refinement for Evaluating Adoption of Priority Practices for Water Quality Improvement in Australia's Great Barrier Reef," *Environmental Management*, Springer, vol. 76(5), pages 1-16, May.

use. These mechanisms are practical and effective tools for promoting appropriate use and should remain central to policy settings. Evidence from Reef monitoring and reporting demonstrates that these stewardship, education and best-practice initiatives are contributing to improved environmental outcomes across Reef catchments. The results achieved to date highlight the value of collaborative approaches that combine industry leadership, grower engagement and targeted government investment.

Importantly, the evidence indicates that this approach is already delivering results. CropLife has a long history of supporting stewardship, grower education and responsible product use across Reef catchments. Previous Reef reporting documented a 36 per cent reduction in annual average pesticide loads across Reef catchments,¹² while approximately 66 per cent of major catchments were either meeting aquatic species protection targets or assessed as posing a low risk from crop protection products.¹³ These outcomes were achieved through a combination of government investment, voluntary industry stewardship programs and grower adoption of best management practices.

More recent research and reporting continue to recognise the importance of industry investment, stewardship, innovation and practice change in improving water quality outcomes. Ongoing adoption of improved application practices, precision technologies, integrated management approaches and targeted extension programs reflects a continuing commitment to reducing off-site movement and improving environmental performance. Subsequent Reef Report cards including the Reef 2050 Water Quality Report Card 2020,¹⁴ reported continued progress towards water quality targets and recognised improvements driven by better land management practices, industry-supported extension and sustained investment in practice change.

These positive outcomes provide evidence that collaborative stewardship, education and best-practice adoption can contribute to improved environmental outcomes. CropLife's stewardship programs, together with the actions of growers, advisers and industry partners, represent a proven example of responsible industry leadership and effective self-management. The progression of Reef reporting, from documenting substantial pesticide-load reductions to tracking continued improvements through practice adoption and management change, highlights the contribution that industry-led stewardship has made to ongoing water quality improvement efforts. Industry-led stewardship, supported by science-based regulation and continuous improvement, remains one of the most effective pathways for delivering meaningful environmental gains while maintaining productive and sustainable Australian agriculture. CropLife and its members remain committed to working

¹² <https://www.reefplan.qld.gov.au/measuring-success/report-cards/2016/assets/report-card-2016-detailed-results.pdf>

¹³ Report card 2017 and 2018 | Reef 2050 Catchment Water Quality Strategy

¹⁴ Report card 2020 | Reef 2050 Catchment Water Quality Strategy

with government, industry and other stakeholders to support practical, evidence-based policies that build on these positive outcomes achieved to date.

5 IMPLEMENTATION, GOVERNANCE AND MONITORING

Effective implementation requires policies that are practical, targeted and consistent.

Policy settings should:

- Focus on implementation of approved practices.
- Support consistency across jurisdictions.
- Avoid unnecessary complexity or duplication.

Targeted approaches focused on specific practices or locations are more effective than broad or prescriptive restrictions that do not reflect how products are used in practice. Ensuring clarity and consistency in policy will support compliance and effective implementation. The Review should reinforce alignment with existing national systems and avoid creating parallel processes. Monitoring data must be interpreted within established scientific and regulatory frameworks. Policy responses should rely on validated methodologies and support continued investment in stewardship, education, best-practice adoption and improved technologies.

6 CONCLUSION

CropLife Australia supports the continued Review of the Reef 2050 Plan as a mechanism for coordinating policy and management. For agricultural chemicals, policy must remain aligned with Australia's national regulatory framework, be science-based and risk-proportionate, focus on correct use, compliance and stewardship, and avoid regulatory duplication or inconsistency.

Crop protection products are already subject to rigorous national assessment and regulation. Strengthening this framework, alongside practical implementation, stewardship and education, is the most effective pathway to improved environmental outcomes. Future policy should continue to support targeted, evidence-based interventions informed by sound science, real-world monitoring and collaborative partnerships between government, industry and landholders.

CropLife and its members remain committed to working constructively with governments, researchers and stakeholders to support practical, effective and evidence-based approaches that improve environmental outcomes while maintaining productive and sustainable Australian agriculture.
