CropLife Australia

September 2025

Creating a more dynamic and resilient economy - interim report

Productivity Commission

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. However, our 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 of which are achieved through access to 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 Australia is a member of CropLife Asia and part of the CropLife International Federation of 91 CropLife national associations globally.

Australian agriculture continues to be an important source of export revenue in the economy, contributing over ten per cent of exports of goods and services in 2023-24;[2] however, productivity growth across the sector faces headwinds created by climate change and restrictions on new technologies.[3] Price rises in fruit and vegetables as reported by the ABS has led food inflation for the ten months of FY2024-25.[4] This inflation, which reflects the tightness of supply and demand for fresh produce in Australia, erodes the purchasing power of real wages across the economy. Productivity growth across Australia's

[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/.

[2] ABARES, "Snapshot of Australian Agriculture 2025" (ABARES Insights, Issue 1 February 2025) DOI: https://doi.org/10.25814/gs4g-ys39.

[3] W Chancellor and C Boult, "Australia's farm productivity slowdown – why it matters, and what it means for policy makers", (ABARES Insights, Issue 2, July 2024) DOI: https://doi.org/10.25814/dcvj-7934.

[4] ABS, "Monthly Consumer Price Index Indicator" https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/monthly-consumer-price-index-indicator.

horticultural commodities is important to curbing the impact of food inflation on household budgets while returning fair reward to our nation's farmers.

CropLife appreciates the opportunity to respond to the interim report the Product Commission's has published as part of its inquiry into *Creating a more dynamic and resilient economy.*

As outlined in CropLife's earlier submission to the inquiry (Appendix 1), science-based regulatory schemes underpin the commercialisation of plant science innovations for use by the Australian agricultural sector. These frameworks are:

- The Australian Pesticides and Veterinary Medicines Authority (APVMA) regulates agricultural and veterinary chemicals under the National Registration Scheme established by the *Agricultural and Veterinary Chemicals Code Act 1994* (Agvet Code).
- The Gene Technology Regulator, with the assistance of the Office of the Gene Technology Regulator (OGTR), regulates Genetically Modified Organisms, including GM crops under the *Gene Technology Act 2000.*

These schemes facilitate the benefits that the innovations of the plant science industry contribute to a productive and environmentally sustainable agriculture industry, while preventing harm and promoting community trust in these technologies.

The benefit these technological inputs provide to the productivity of Australian agriculture can be seen in the strength of productivity growth in the cropping sector compared to the rest of broadacre agriculture (see Figure 1). Growth in this sector has been driven by the adoption of science-based farming practices. This practice change has supported improved resilience in drier periods through no-till farming, improved weed control to improve soil moisture and nutrient retention, and has prevented losses due to crop disease.

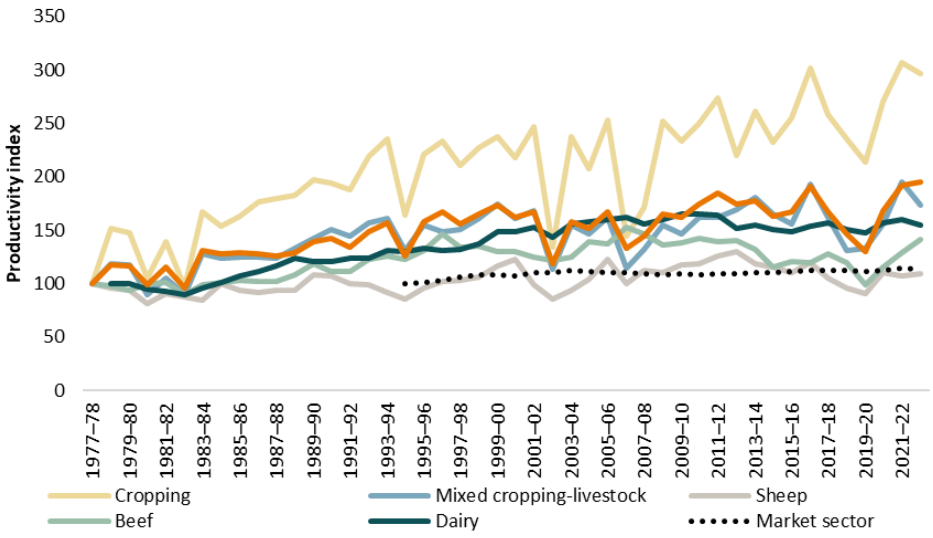

Figure 1: Productivity by farm type. Source ABARES

CropLife supports the findings of the interim report that the administration of Australia's regulatory systems is not supporting business dynamism.

Failure to ensure regulatory objectives are achieved in an efficient and predictable manner risks impacting business confidence in the plant science industry. This in turn threatens the commercialisation of new technologies to support productivity in the paddock, risking the future viability and international competitiveness of our nation's agricultural sector.

Likewise, duplication and a focus on prescriptive regulatory processes compromises the business innovation in packaging stewardship necessary to drive improved outcomes towards Australia's ambition to become a circular economy.

This submission focuses on responding to the draft recommendations and information requests contained within the interim report's chapter on "*Regulating to promote business dynamism*".

2.1 INFORMATION REQUEST 2.1

CropLife supports the taxonomy of regulatory burden outlined within the interim report. Table 1 summarises areas of regulation that are presently impacting the Australian plant science industry's ability to support a productive and sustainable agricultural industry.

Table 1:

Issue	*Band-aid*	*Duplicate or inconsistent*	*Prescriptive and rigid*	*Risk averse*	*Regulatory delay*	*Cumulative burden*
APVMA adherence to statutory timeframes					✗	
APVMA Efficacy Assessment		✗		✗	✗	
Biosecurity Import Conditions for highly refined organic chemicals			✗	✗	✗	
Reform of Gene Technology Framework			✗	✗		
Extended Producer Responsibility – Packaging Stewardship		✗	✗			✗

These issues are expanded upon below with options to alleviate unnecessary regulatory burden while supporting the delivery of high regulatory standards.

APVMA on-time performance

(Regulatory delay)

A predictable and efficient regulator, relying on the best available science, is imperative to ensure that Australian farmers and environmental land managers have timely access to the innovations of the plant science industry in a manner not impeded by unscientific claims.

However, since September 2022, the on-time registration of new products and uses (major pesticide applications) has been deprioritised by the APVMA. This has resulted in a consistent drop in on-time performance for this category over the period, with the APVMA's most recent performance report showing only 54.9 per cent of major pesticide applications were assessed on-time.[5]

[5] Australian Pesticide and Veterinary Medicines Authority (2025) *March 2025 performance report* https://www.apvma.gov.au/about/accountability-and-reporting/performance-statistics/march-2025-performance-report.

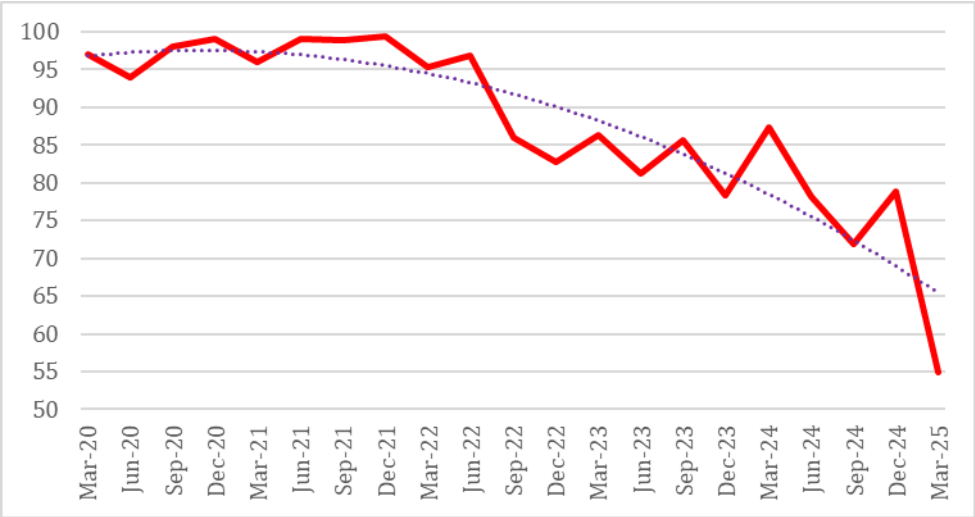

Figure 2: APVMA On-time performance - Major Pesticide Applications 2020 - 2025

These current delays and unpredictability, coupled with the ever-looming threat of substantially increased regulatory costs, have already begun to dissuade registrants from seeking registration of new, innovative products and uses in Australia. This includes the cancellation of some projects.

Compounding this issue, from the Financial Year 2023-24, the APVMA Board has used its Corporate Plan to reduce the regulator's KPI for total on-time assessment performance to 90 per cent of its legislated timeframes. With this measure aggregated across technical and non-technical assessments, the KPI is even further diluted as a measure of the APVMA's ability to facilitate the delivery of new safe and effective crop protection technologies to farmers.

The cost of these assessment delays on productivity cannot be overstated. Historically, delays of lesser magnitude and duration than those experienced in this current state have cost the farming sector hundreds of millions of dollars. The loss of capacity resulting from the relocation of the APVMA to Armidale in 2016 initiated a series of delays that impacted the performance of the regulator across the breadth of its remit. Upon detailed analysis in 2019, the Grains Industry reported as much as $500 million in direct losses to productivity resulted from delayed access to new, novel chemistries which were available to their overseas competitors.[6]

[6] GPA response to the consultation on operation of the amendments in the agricultural and veterinary chemicals legislation amendment act 2013 – March 2019

These calculated losses were attributable to a small handful of products that were only delayed for a season. By comparison, CropLife has recently identified that the cumulative delays in assessment, above and beyond statutory time limits, currently faced by its members add up to a combined total of nearly 40 years. This includes delays that are frequently exceeding 18 months. Given the seasonality of farming, this means that new technologies are not reaching the farm gate until two to three seasons after they were scheduled for launch.

The recent experience of New Zealand should serve as a warning over the long-term effect of consistent delays in regulatory approvals on investment. Earlier in 2025, several global innovators in crop protection technologies publicly stated their withdrawal from R&D and commercialisation activity in NZ due to ongoing delays in regulatory approval.[7]

Options are already available to the APVMA to immediately improve its on-time assessment without compromising safety or scientific integrity. These include the enhanced use of regulatory technologies, such as computer aided decision making and an improved integration of independent experts into the APVMA's assessment pipeline as external scientific reviewers. Likewise, the APVMA should be actively looking to the opportunities that could be created by utilising new scientific methods to support the delivery of consistent, accurate and transparent regulatory assessments in reduced timeframes.

To assist the APVMA to return to the statutory intent of the regulatory scheme, the Board should reinstate its on-time performance indicator to 100 per cent of assessments completed on time in accordance with statutory timeframes. Returning this measure as the key indicator of the regulator's performance will provide the APVMA Board and Management with a clear metric on whether the agency is effectively identifying and seizing the strategic opportunities available to it to create and deliver maximum public value.[8] It would also create the imperative to examine what management initiatives are available that would deliver on-time regulatory assessment in a manner that does not detract from the necessity of also delivering against the APVMA's other regulatory functions.

[7] See reports in NZ Farmer Weekly (https://www.farmersweekly.co.nz/news/red-tape-drives-agrichem-companies-to-drop-nz/) and The Post (https://www.thepost.co.nz/business/360730213/bayer-nz-crop-science-closes-its-hastings-research-facility).

[8] John Braithwaite, 'Responsive Excellence', a paper prepared for the Penn Program on Regulation's Best-in-Class Regulator Initiative (June, 2015). Available at https://www.researchgate.net/publication/304570291_Responsive_Excellence

APVMA Efficacy Assessment

(Duplicative and risk averse)

The APVMA's approach to assessing efficacy under section 5B of the Agvet Code has become increasingly unpredictable, with officers applying standards of statistical certainty far beyond what the legislation or guidance requires.

Rather than focusing on whether a product can, to a reasonable degree, achieve the claimed effect, the regulator has treated efficacy as a matter of scientific purity disconnected from real-world farming conditions. This has created a situation where the APVMA is pursuing its assessment of the efficacy criteria in a manner that duplicates obligations registrants hold to farmers and other users under the Australian Consumer Law.

As a result, more than 80 applications from CropLife members alone have been delayed or withdrawn in the preceding year. This is entirely due to excessive and unnecessary data demands, with delays commonly lasting three to four months, and in some cases exceeding a year. Such delays restrict timely access to fungicides, insecticides and herbicides, leaving farmers without essential tools to manage productivity challenges and biosecurity threats.

A clear, risk-proportionate interpretation of efficacy, consistent with its intended role in supporting safety and trade assessments, would resolve this issue without compromising regulatory integrity.

It is imperative that the necessary high standards of scientific risk-based protection these regulatory systems provide is delivered in a cost-effective, efficient, predictable and responsive manner.[9] This is necessary to enable global and domestic businesses to confidently assess the commercial feasibility of investments required for regulatory approval and commercialisation in the Australian market.

Duplicative Biosecurity Import Conditions (BICON)

(Prescriptive, risk averse, regulatory delay)

The Department of Agriculture, Fisheries and Forestry's (DAFF) BICON permitting system imposes duplicative requirements on refined organic chemicals used in crop protection products.[10] Despite decades of safe importation and repeated assessments confirming their low biosecurity risk, these compounds remain subject to permit applications unless

[9] Agricultural and Veterinary Chemicals Code Act 1994, Schedule – Agricultural and Veterinary Chemicals Code, s.1A.

[10] https://bicon.agriculture.gov.au/ImportConditions/Questions/EvaluateCase?elementID=0005594452&elementVersionID=53

covered by a Goods Determination. This includes commonplace substances such as amino acids, glucose, pectin, and cellulose.

The system has created backlogs and unpredictable delays over the past four years, causing permits to expire before renewals are processed. In practice, this has forced exporters to ship consignments back overseas (commonly to New Zealand) for re-importation under a valid permit, at the cost of tens of thousands of dollars and months of delay. This increases costs for farmers, disrupts supply chains, and discourages companies from expanding portfolios to include newer, biologically derived crop protection products.

This regulatory burden could be resolved through the expansion of the "List of Approved Ingredients for Goods with an Environmental End Use" to incorporate low-risk refined organic chemicals already identified by the regulator. To be effective an update to the Goods Determination would be required.[11] This would eliminate unnecessary duplication, free DAFF resources to focus on genuine risk, and restore supply chain predictability for plant science companies and Australian farmers.

While this solution was identified by industry to DAFF in 2023, little progress towards gazetting these changes is evident.

Example of Inconsistent and Unnecessary Red Tape: Citric Acid and Xanthan Gum

Citric acid and/or Xanthan gum are used in crop protection products. Xanthan gum is a thickening agent but it is also a food additive. Similarly, citric acid is a buffering agent / pH adjuster but it is also a flavouring or preservative agent in food. BICON advice to assess if a biosecurity permit is required for a stockfeed products containing either one of them or both indicates that permit is not required.

If these two compounds are present in bioremediation products then no permit is required either.

Like for stockfeed and bioremediation products, if these two are present in fertilizers then no permit is required. Therefore, these chemicals are already allowed to be imported freely to Australia, without any BICON permit, and they are used widely throughout this continent and in the environment, where they are deemed to pose no biosecurity risk.

[11] https://www.agriculture.gov.au/biosecurity-trade/policy/legislation/list-approved-ingredients-herbicides-insecticides-pesticides

However, if the same two compounds are used in crop protection products (which fall under "Herbicides, insecticides, pesticides and other goods for environmental or industrial purposes") and even though they are both listed on the "List of Approved Ingredients for Goods with an Environmental End Use, Biological Cleaning Agents, Odour Neutralisers or Sanitisation Products" (attached) – which should be enough for them to be allowed without any special permit – the BICON system indicates that "Prior to the importation of goods into Australian territory, a valid import permit issued by the Department of Agriculture, Fisheries and Forestry is required."

[redacted]

Reform of Gene Technology Scheme

(Prescriptive, risk averse)

While historically Australia had been a global leader in the regulation of gene technologies, commercial uncertainty caused by delays in implementing the recommendations of the Third Review of the National Gene Technology Scheme has seen Australia's standing decline.

The Third Review of the National Gene Technology Scheme commenced in 2017 but over seven years later, the recommendations made by the review remain unimplemented. In October 2018, the Legislative and Governance Forum on Gene Technology met to endorse the Third Review and its 27 recommendations. However, the implementation delay has left the Scheme lagging in numerous areas of accumulated scientific evidence, undermining Australia's global reputation as a leader in agricultural innovation and biotechnology investment. This stagnation has had a chilling effect on R&D investment and has delayed the introduction of advanced biotechnologies essential for the agricultural sector's sustainability and growth.

Australia needs to take urgent action to avoid being left behind. The protracted and unresolved regulatory review process has dramatically undermined the confidence required by members of the plant science industry to commercially invest in Australia. Because the regulatory framework also underpins other biotechnology applications, the delay has also stalled the growth to our broader bioeconomy. At the same time other jurisdictions across the world have updated their gene technology regulatory frameworks to better reflect the settled science of the safety of biotechnology. This has resulted in farmers, and other bioeconomy stakeholders, in these jurisdictions having access to new technologies not available in Australia, impacting our international competitiveness.

Progress towards implementation has been made by the Department of Health and Aged Care (DHAC) in the past 12 months, including the release of the draft Gene Technology Bill. However, the lack of certainty on when the reform process will be complete leaves industry without the certainty necessary to plan for the investment needed to support R&D and commercialisation. By comparison, the New Zealand Government has recently released its Gene Technology Bill to establish an entirely new regulatory scheme for gene technology in a little over 12-months. This Bill will incorporate the recommendations made as part of the Australian Third Review of the National Gene Technology Scheme.

The amendments to the National Gene Technology Scheme provided by the Australian Gene Technology Bill remain modest. While the introduction of risk tiering is an important step forward, the scheme will not adequately provide Australia with a future-proofed regulatory framework. Although the continuation of process-based triggers, as opposed to an outcomes-based system, needlessly burdens innovators, this was agreed upon in the review. However, as it stands the amendments will not adequately implement all the agreed recommendations. Furthermore, the definitions governing the organisms under the framework remain overly restrictive, limiting innovation and the integration of emerging technologies.

Packaging stewardship

(Duplicative, prescriptive)

A clear example of regulatory duplication and inconsistency can be found in the treatment of packaging stewardship under the *National Environment Protection (Used Packaging Materials) Measure 2011* (NEPM). Despite the existence and strong industry-participation in outcomes-driven and industry-led national programs (such as drumMUSTER and bagMUSTER, which operate to high environmental and governance standards) business are often required to comply with overlapping or inconsistent state-based requirements. This results in multiple layers of reporting and verification that add cost and complexity without materially improving environmental outcomes.

The current national packaging regulatory reform process provides an opportunity to resolve these inefficiencies. At present, the co-regulatory arrangements under the NEPM allow business to either report directly to the states and territories or join the Australian Packaging Covenant Organisation (APCO). For businesses operating across multiple jurisdictions, this model is both ineffective and duplicative, as each jurisdiction applies different reporting templates and stewardship targets. In practice, this not only increases administrative burden and cost, but also results in inconsistent data sets that cannot be meaningfully aggregated. Compounding this problem, state and territory regulators are not

adequately resourced to carry out compliance monitoring or enforcement, meaning that free-riding persists and overall outcomes are weak.

While in theory, the co-regulatory framework should support industry to manage this duplication between state requirements, the prescription of APCO as the sole mandated vehicle for packaging stewardship under the NEPM has failed. In the absence of recognition of fit for purpose industry stewardship schemes, the model has created a regulatory burden without beneficially contributing progress towards packaging stewardship targets.

The independent review of the NEPM clearly noted APCO's lack of effectiveness in driving meaningful outcomes. Additionally, the model has created high transaction costs for businesses seeking to meet their obligations. Industry frustration with APCO's performance was evidenct in its recent consultation on its EPR approach for packaging stewardship. Strong pushback from across the supply chain led APCO to postpone and revisit its proposed model, demonstrating the limited confidence industry holds in APCO's approach and governance.

By contrast, programs like drumMUSTER and bagMUSTER already provide transparent data, robust governance, and demonstrable recovery outcomes. A centralised, nationally recognised reporting mechanism that accredits such programs, rather than leaving stewardship obligations tied to a single ineffective body, would remove duplication, increase transparency, and restore industry confidence. Aligning with comparable international standards for packaging recovery and recycled content would also allow Australian producers to demonstrate compliance once, rather than navigating a patchwork of inconsistent requirements.

Addressing the NEPM's inefficiencies is both straightforward and high impact. By harmonising packaging stewardship regulation across jurisdictions, and ensuring recognition of existing and effective programs, governments could significantly reduce compliance burden while accelerating progress toward Australia's packaging circularity and waste reduction targets.

2.2 INFORMATION REQUEST 2.2

The Commonwealth should adopt a harmonised set of core metrics that enable economy-wide monitoring and oversight of regulatory effectiveness and impact. This should include measures on timeliness, duplication, burden, as well as the success of regulatory frameworks to deliver a net intended benefit.

This set of metrics can then be utilised to develop transparent, time-bound targets regulator-by-regulator. Publishing a cross-government dashboard, with independent audit

of methods and open microdata, will make the system predictably faster and lighter without compromising safety or integrity.

The following outlines opportunities for improved measures of the quality of the regulation faced by the plant science industry to support consideration of how a set of economy-wide metrics could operate.

Timeliness & predictability of decisions

While the APVMA already tracks the mean decision times by application type, more detail could be extracted for greater accountability to the regulated industries. For example, tracking median and 90th/95th-percentile decisions made within legislated statutory standards (an "on-time" rate), the number of unplanned additional information requests (S-159) per file, and (where relevant) the number and average duration of clock-stops. Together these metrics capture both average performance and tail risk, revealing where applicants face unpredictable delays and where process changes (e.g., triage or clearer guidance) would most improve certainty.

Access-to-innovation lag

Measure the time from first approval in a benchmark peer jurisdiction to approval in Australia (the "launch lag"), reported by product class, and the percentage of relevant, science-equivalent international standards that are recognised or adopted within 12 months. These indicators show whether Australia is keeping pace with comparable regulators and whether reliance/recognition practices are shortening safe time-to-market for new technologies.

Where possible these benefits could be monetarised to enable an aggregated metric across the economy.

Duplication and coordination

Report the share of multi-agency applications processed concurrently versus serially, the incidence of duplicated data requests across agencies, and the average time saved where concurrent assessment is used. Making duplication visible and quantifying the gains from coordinated workflows creates a clear incentive for regulators to standardise evidence lists, align timetables and default to joint processing wherever safety allows.

2.4 INFORMATION REQUEST 2.4

Australia should frame risk and growth as complementary goals delivered through risk-proportionate, science-based regulation that is predictable, timely and avoids unnecessary burden. The APVMA's Strategic Plan already provides an example outlining the intention to:

- Regulate "in an open, accountable and predictable way,"
- Apply "best practice principles for risk management,"
- Engage trusted international regulators to utilise their assessments, and
- Ensure "the quality and timeliness of … decisions are appropriate for the regulatory risk," so the process "does not pose an undue burden."

Embedding these principles across portfolios provides the opportunity to balance risk and growth without diluting protections.

This may be accomplished by developing a whole-of-government Statement of Expectations that requires risk tiering and reliance/recognition of trusted international assessments and making concurrent, not serial, multi-agency assessments the default. Such a statement should emphasise the critical need for open and transparent communication between the expertise housed within regulated industries and the regulator. Metrics that track performance against timeframes and time saved through the use of international assessments and standards should be implemented.

The Government should also direct regulators to clarify purpose-built decision standards where regulatory drift has occurred and to publish guidance that aligns evidentiary asks with regulatory risk.

Lastly, Government should align funding with public benefits. This would see the Government appropriate a defined share of regulatory budgets for public-good functions (compliance, reconsiderations, horizon scanning) to remove perverse incentives created by complete cost recovery in thin markets.

These steps will improve predictability and lower barriers to innovation, thus boosting productivity while maintaining high safety standards.

The following outlines current constraints faced by regulators CropLife has firsthand experience with to illustrate issues that impede regulators and policymakers from better balancing risk and growth objectives.

Structural incentives: full cost recovery pushes cost and timetable risk onto applicants and can entrench risk-averse culture.

Process drift: The APVMA's approach to efficacy assessment has, in places, been applied beyond the intent of the Agvet Code, creating unpredictable data demands and months-long delays.

Fragmentation and duplication: serial assessments and duplicated requests across agencies slows down safe access, whereas OGTR–FSANZ's coordinated GM banana assessment shows the opportunity created by concurrent assessment.

Outdated or incomplete rulebooks: delayed gene-technology and food-standard updates create uncertainty, while border frictions such as BICON permits for low-risk, highly-refined organic compounds (e.g. the *List of Approved Ingredients for Goods with an Environmental End Use, Biological Cleaning Agents, Odour Neutralisers or Sanitisation Products*[14]) cause backlogs, expiry gaps and costly export–re-import loops despite long records of safe import. These are all solvable with clearer guidance, targeted legislative instruments and enhanced coordination.

2.5 INFORMATION REQUEST 2.5

Policy levers beyond statements of expectation and guidance from central agencies to realign incentives, authority, processes, capability, and risk appetite to enable risk-proportionate, science-based, and timely decisions, should be prioritised.

Funding and budget levers (align incentives with stewardship)

Make appropriation a deliberate tool to support public-good functions (for example the APVMA's compliance, chemical reviews, horizon scanning functions) so these do not rely solely on applicant fees in thin markets. The APVMA is unique regarding full cost recovery across the OECD, which distorts incentives and public confidence; a modest annual appropriation to fund the cost of delivering public-good tasks would reduce barriers to entry and support timely, risk-based decision-making.

Public good funding should be subject to transparent performance metrics (on-time rates, tail times, reliance achieved, duplicated requests avoided) to reinforce regulatory stewardship behaviours.

[14] https://www.agriculture.gov.au/sites/default/files/documents/approved_ingredients_-_environmental_end_use_biological_cleaning_agents_odour_neutralisers_or_sanitisation_products_.pdf

Governance and accountability levers (make stewardship visible and rewarded)

Move beyond guidance by building stewardship into Board charters, SES performance compacts, and audit cycles. Require quarterly, public dashboards of on-time rates, 95th-percentile times, clock-stops, duplicated requests, and cumulative time saved through international reliance and concurrent processing.

For scientific regulation, mandate periodic independent validation of scientific quality and staff capability (also contemplated in the APVMA plan) to ensure safety is not traded off against the need for regulatory speed.

Process and cooperation levers (institutionalise concurrency and shared evidence)

Direct regulators to formalise MoUs, shared evidence lists and aligned timetables so multi-agency files are handled concurrently. The recent OGTR–FSANZ tandem assessment of the TR4-resistant GM banana shows how coordination reduces duplication and uncertainty without relaxing safeguards; government can scale this model with joint service standards and public reporting of concurrency rates and time saved. Such an MoU could be adopted between the Department of Health and Aged Care's Therapeutic Goods Authority (TGA) and the APVMA to streamline poisons scheduling decisions. This would improve registration-related poisons scheduling decisions to enable shorter timeframes for assessments, without compromising community safety outcomes.

Capability and workforce levers (professionalise the "regulatory craft")

Invest in cross-APS regulatory craft. Secondments between regulators, joint communities of practice, and calibrated use of specialise external reviewers, such as the APVMA's use of External Scientific Reviewers (ESRs), can provide agencies with surge expert capacity without over-specifying or over-testing beyond that required by risk.

While the APVMA's draft corporate plan explicitly committed to building foresight capability, engaging international regulators, and tracking ESR investment/quality, the final plan watered down its ambition in these areas. Given these elements are specifically enabled by legislation, greater direction to regulators to utilise the regulatory tools they have been provided should be considered.

Appendix 1

CropLife Australia

June 2025

Productivity Commission 5 Pillars Inquiries

- **Creating a more dynamic and resilient economy**

- **Investing in cheaper, cleaner energy and the net zero transformation**

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. However, our 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 of which are achieved through access to world-class technological innovation and products of the plant science sector.

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CropLife welcomes the Australian Government's commitment to prioritising reforms that will underpin ambitious productivity growth and support raising living standards across the Australian community. While Australian agriculture has demonstrated long term productivity growth that outstrips the market sector, creating resilient productivity growth in the industry must continue to be a focus of Government policy. This is necessary not only to protect and grow agriculture as an important source of export revenue but also to underpin the production of fresh produce necessary to curb cost of living pressures faced by Australian families.

Australian agriculture continues to be an important source of export revenue in the economy, contributing over ten per cent of exports of goods and services in 2023-24;[2] however, productivity growth across the sector faces headwinds created by climate change

[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/.

[2] ABARES, "Snapshot of Australian Agriculture 2025" (ABARES Insights, Issue 1 February 2025) DOI: https://doi.org/10.25814/gs4g-ys39.

and restrictions on new technologies.[3] Price rises in fruit and vegetables as reported by the ABS has led food inflation for the ten months of FY2024-25.[4] This inflation, which reflects the tightness of supply and demand for fresh produce in Australia, erodes the purchasing power of real wages across the economy. Productivity growth across Australia's horticultural commodities is important to curbing the impact of food inflation on household budgets while returning fair reward to our nation's farmers.

CropLife appreciates the opportunity to comment on the Productivity Commission's inquiries to identify and report on priority reforms in each of the areas under the Government's five pillar productivity growth agenda. Specifically, CropLife seeks to make a submission in response to the following questions:

- Pillar 1 – Creating a dynamic and resilient economy:
    - Reduce the impact of regulation on business dynamism
- Pillar 5 – Investing in cheaper, cleaner energy and the net zero transformation:
    - Reduce the cost of meeting carbon targets

[3] W Chancellor and C Boult, "Australia's farm productivity slowdown – why it matters, and what it means for policy makers", (ABARES Insights, Issue 2, July 2024) DOI: https://doi.org/10.25814/dcvj-7934.

[4] ABS, "Monthly Consumer Price Index Indicator" https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/monthly-consumer-price-index-indicator.

2 PILLAR 1 - CREATING A MORE DYNAMIC AND RESILIENT ECONOMY

2.1 Reduce the impact of regulation on business dynamism

2.1.1 Regulation of Crop Protection Products and Gene Technology

Australia has established science-based regulatory frameworks that underpin the commercialisation and use of plant science innovations by the Australian agricultural sector.

- The Australian Pesticides and Veterinary Medicines Authority (APVMA) regulates agricultural and veterinary chemicals under the National Registration Scheme established by the *Agricultural and Veterinary Chemicals Code Act 1994* (Agvet Code).
- The Gene Technology Regulator, with the assistance of the Office of the Gene Technology Regulator (OGTR), regulates Genetically Modified Organisms, including GM crops under the *Gene Technology Act 2000.*

The science-based regulatory schemes Australia has implemented for these technologies has created frameworks that facilitate the benefits they provide to the Australian agricultural sector while preventing harm and promoting community trust. In doing so, the regulatory arrangements have created pathways that support the commercial investment required to bring new technologies and innovation to Australian farmers.

While the use of these products in the Australian farming system have undeniably contributed towards enhancing the dynamic and resilient nature of our agricultural industry, structural impediments impede the full technological opportunity they offer to our farmers. Specifically, because the Australian market for these products is relatively small, innovator companies face a greater risk of being unable to recoup a return commensurate with their substantial, lengthy investment in R&D and commercialisation.[5] These factors lead to delays in bringing new products to the Australian market compared to other jurisdictions and/or a limited commercialisation of the technology's full potential (eg a partial registration of a crop protection product that does not provide access to minor commodities).

As such, it is imperative that the necessary high standards of scientific risk-based protection these regulatory systems provide is delivered in a cost-effective, efficient, predictable and

[5] Mandala, "An Australian patent credit system: Boosting investment and innovation in agriculture" (report, 30 June 2023). See also AgbioInvestor, "Time and Cost of New Agrochemical Product Discovery, Development and Registration (report, February 2024) and AgbioInvestor, "Time and Cost to Develop a New GM Trait (report, April 2022).

responsive manner.[6] This is necessary to enable global and domestic businesses to confidently assess the commercial feasibility of investments required for regulatory approval and commercialisation in the Australian market. Reforms to Australia's intellectual property settings that compensate innovators for time lost in market while undergoing mandatory pre-market assessment will further support the commercial feasibility of bringing new technology to Australian farmers.

Crop protection products

Agricultural chemicals (commonly known as pesticides or crop protection products) play an important role in driving on-farm productivity in Australian agriculture. Deloitte Access Economics identified that $31 billion of the value of Australia's agricultural production, or 73 per cent of the total value of crop production in 2020-21, was directly attributable to the use of crop protection products.[7]

Importantly, the technologies embedded within these crop protection products have also enabled farmers to implement practice change innovation; most observable in the broadscale adoption of no-tillage and minimum-tillage farming across the Australian broadacre cropping sector.[8] This farming practice, which is enabled by the use of herbicide weed control over summer fallow periods, has increased the productivity of Australian farmers in the face of climate change by improving water use efficiency and declining yield sensitivity to drought conditions.[9] The Grains Research and Development Corporation's Water Use Efficiency Initiative identified the use of herbicides during summer fallow resulted in an average 60 per cent increase in seasonal water use efficiency and returned farmers on average $5.60 for every dollar they invested in weed control.[10]

[6] Agricultural and Veterinary Chemicals Code Act 1994, Schedule – Agricultural and Veterinary Chemicals Code, s.1A.

[7] 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/.

[8] A Read, J Rollan, C Creed and James Fell, 'Environmental Sustainability and Agri-Environmental Indicators – International Comparisons', (ABARES Insights, Issue 2, July 2023), DOI: https://doi.org/10.25814/zzdq-4t23.

[9] Neal Hughes, Kenton Lawson, and Haydn Valle, 'Farm Performance and Climate: Climate-Adjusted Productivity for Broadacre Cropping Farms' (Department of Agriculture and Water Resources, ABARES, May 2017), https://www.agriculture.gov.au/abares/research-topics/climate/farm-performance-climate.

[10] Grains Research & Development Corporation, 'Water Use Efficiency Research Is Transforming the Productivity Potential of Australian Farming Systems, Demonstrating That Efficiency Gains of 20-40 per Cent Are Possible with Optimal Pre-Crop and in-Crop Management Practices', n.d., https://grdc.com.au/about/rde-investment-strategy/delivering-impact/investing-in-water-use-efficiency-yields-results.

Cost shifting public good activities onto the private sector

The APVMA is the only pesticide regulator in the OECD entirely funded by industry fees and levies. This full cost recovery model, combined with Australia's relatively small market, discourages global innovators from registering new, productivity-enhancing technologies for Australian farmers. The result is an undermining of the agricultural sector's international competitiveness.

This funding structure limits the National Registration Scheme's ability to deliver on the public policy objectives set out in Section 1A of the Agvet Code, which prioritise farmer access to safe and effective agricultural innovations through an efficient regulatory system.

Moreover, full cost recovery has led to misplaced public concerns that the APVMA lacks independence from industry. While the system provides no actual scope for undue influence, introducing a public funding component—aligned with other regulators—would strengthen public confidence in the APVMA's integrity.

CropLife recommends that the Government fund the APVMA's public benefit functions in line with its own cost recovery guidelines. According to the Department of Agriculture, Fisheries and Forestry, an additional $8.4 million annually would fully support the APVMA's public good functions, including compliance, enforcement, and chemical reconsideration.

Other regulators already receive public funding:

- The Office of the Gene Technology Regulator (OGTR) receives over $8 million annually via appropriation.
- The Therapeutic Goods Administration (TGA) receives $15 million annually to support its public good activities.

Comprehensive public funding would also reduce barriers for smaller registrants, support innovation for minor crops and niche industries, and help meet the broader public objectives of the regulatory framework.

Changes to the assessment of the Agvet Code's Efficacy Criteria

The Efficacy Criteria, established under section 5B of the Agvet Code, is the most subjective of the statutory criteria for registration of crop protection products. Guidance produced by the APVMA focuses on the binary question of whether a chemical product can, to a reasonable degree, achieve one of the effects listed in paragraphs 4(2)(a) to (e) of the Agvet Code. This assessment is not intended to serve as a guarantee of commercial performance but plays a critical role in setting use rates and patterns, underpinning the assessments required under the safety and trade criteria.

The efficacy criteria need not duplicate obligations registrants hold to farmers and other users under the Australian Consumer Law that a product will perform in accordance with the manufacturer's description.

Registrants of crop protection products have identified an increasing tendency by the APVMA to treat efficacy as a matter of internal scientific certainty or statistical purity, disconnected from its role in a broader regulatory decision. This is misguided. Field conditions are inherently variable; product performance will always depend on the user's judgment, agronomic practices, and local conditions. Therefore, the regulator's role is not to guarantee consistent effectiveness under all conditions, but to determine whether the exposures approved (via label instructions) are justified by a scientifically credible likelihood of benefit under reasonable use.

This escalating and unpredictable situation has affected the registration of fungicides, insecticides and herbicides. Among CropLife Australia members alone, **at least 50 applications have gone overtime or have had to be withdrawn** in the past year as a result of these new and completely unwarranted demands for efficacy data. Delays of three to four months are common (reported for over 20 applications), with a few even exceeding one year and at least one application experiencing a 16-month delay.

The current state of overdue and delayed applications not only poses a serious threat to Australia's farming productivity but also impedes our nation's ability to properly prepare and respond to a range of potentially catastrophic biosecurity threats. As such, it is our view that this matter be escalated substantially to ensure it is addressed as a matter of urgency.

These changes have occurred despite there has been no change to the regulation or to guidance material to have caused these delays or led to the current level of unnecessary bureaucratic requests and decisions being made by officers of the APVMA.

Intellectual property (IP) – Patent extension and data protection enhancements

A patent system that recognises the specific commercial realities of Australia's plant science sector is essential. Patent term extensions and enhanced data protection are practical, internationally validated mechanisms to address market thinness and regulatory-induced delays.[11]

[11] OECD (2014), Guidance Document on Regulatory Incentives for the Registration of Pesticide Minor Uses, Series on Pesticides and Biocides, No. 63, OECD Publishing, Paris, https://doi.org/10.1787/9789264221710-en.

Australia's agricultural innovation ecosystem depends on timely access to new technologies that improve productivity, sustainability, and resilience in food and fibre production. However, the structure of Australia's intellectual property (IP) system does not adequately account for the realities of bringing agricultural chemical and crop biotechnology products to market in a small and highly regulated jurisdiction.

Patent term extensions and enhanced data protection provisions are essential reforms to ensure that the Australian market remains attractive to global innovators and that farmers retain access to the tools they need to remain internationally competitive. Their adoption would increase the likelihood of timely product launches and support greater investment by companies developing transformational technologies that will support productivity growth in the agricultural industry.[12] In doing so, an Australian patent credit scheme would work to prevent the high opportunity costs of foregone production currently borne by Australian farmers when crop protection products available elsewhere in the world do not have specific permitted uses in Australia.[13]

The plant science sector is subject to mandatory, rigorous, and science-based regulatory approval processes administered by the APVMA and the OGTR. These processes, while essential for ensuring safety and efficacy, can span multiple years, during which time patent-protected technologies are denied access to the market.

Unlike other sectors, this pre-market barrier results in the real erosion of patent value. During the regulatory review period, patent time continues to lapse, but the innovator is prevented from generating any commercial return. This reduces the effective patent life and undermines the incentive to invest in Australia-specific research and development (R&D).

In recognition of this issue, many jurisdictions, including as the United States of America, European Union, and Japan, have implemented patent term extension mechanisms to compensate innovators for time lost during the regulatory approval process. These provisions apply not only to human pharmaceuticals but, in several cases, also extend to regulated agricultural products.

Australia's IP framework; however, offers such extensions only for pharmaceutical patents under section 70 of the *Patents Act 1990*, despite agricultural and biotech products

[12] See W Chancellor and C Boult, "Australia's farm productivity slowdown – why it matters, and what it means for policy makers", (ABARES Insights, Issue 2, July 2024) DOI: https://doi.org/10.25814/dcvj-7934.

[13] See Grain Producers Australia, preliminary submission to the Independent Review of the Pesticides and Veterinary – Medicines Regulatory System in Australia, Issues paper review of the agvet chemicals regulatory system Future reform opportunities, February 2020.

undergoing similarly intensive regulatory scrutiny. This inconsistency disadvantages the plant science industry. It discourages the Australian launch of new technologies, reduces R&D investment, and creates a market environment less favourable to innovation compared to international peers.[14]

In particular, the development of an Australian patent credit scheme for plant science technologies would complement the "springboarding reforms" introduced by the 2012 *Raising the Bar reforms*. It would do this by supporting the commercial feasibility of bringing new and transformative technologies to market, while still facilitating generic competition at the conclusion of the protected patent period.

Australia represents a small share of the global agricultural technology market. The cost of regulatory compliance in this environment makes Australia a low priority for product development and commercialisation, especially when coupled with uncompensated patent erosion. This is particularly acute for minor uses and specialty crops, which are already under-served.

The absence of patent term extension for highly regulated crop protection products presents a structural disincentive to investment. The result is a thinning innovation pipeline, delayed or forgone product launches, and reduced access to technologies that support productivity, environmental outcomes, and food security.

Documents appended:

- Deloitte Access Economics, 'Economic Contribution of Crop Protection Products in Australia', August 2023.
- Mandala, "An Australian patent credit system: Boosting investment and innovation in agriculture" (report, 30 June 2023).

Gene Technology

Over the period 1996-2015, PG Economics calculated that the use of genetic modification in cotton and canola production had increased farm income by $1.37 billion.[15] Farmers would have been required to plant an additional 350,000 hectares of conventionally bred cotton and canola over the same period to achieve the extra productivity gained by the use of genetically modified crops.[16] The value of crops bred using gene technology will only grow more important under climate change scenarios, characterised by hotter and drier

[14] Mandala, "An Australian patent credit system: Boosting investment and innovation in agriculture" (report, 30 June 2023).
[15] Graham Brookes, 'Adoption and impact of genetically modified (GM) crops in Australia: 20 years experience', May 2016.
[16] Ibid.

production environments. A climate change risk assessment undertaken by the Commonwealth Bank in 2019 identified that biotechnologies, such as GM, can increase the climate resilience of crops, including pasture crops, by up to 40 per cent over the next 40 years.[17]

National Gene Technology Scheme

While historically Australia had been a global leader in the regulation of gene technologies, commercial uncertainty caused by delays in implementing the recommendations of the Third Review of the National Gene Technology Scheme has seen Australia's standing decline.

The Third Review of the National Gene Technology Scheme commenced in 2017 but over seven years later, the recommendations made by the review remain unimplemented. In October 2018, the Legislative and Governance Forum on Gene Technology met to endorse the Third Review and its 27 recommendations. However, the implementation delay has left the Scheme lagging in numerous areas of accumulated scientific evidence, undermining Australia's global reputation as a leader in agricultural innovation and biotechnology investment. This stagnation has had a chilling effect on R&D investment and has delayed the introduction of advanced biotechnologies essential for the agricultural sector's sustainability and growth.

Australia needs to take urgent action to avoid being left behind. The protracted and unresolved regulatory review process has dramatically undermined the confidence required by members of the plant science industry to commercially invest in Australia. Because the regulatory framework also underpins other biotechnology applications, the delay has also stalled the growth to our broader bioeconomy. At the same time other jurisdictions across the world have updated their gene technology regulatory frameworks to better reflect the settled science of the safety of biotechnology. This has resulted in farmers, and other bioeconomy stakeholders, in these jurisdictions having access to new technologies not available in Australia, impacting our international competitiveness.

Progress towards implementation has been made by the Department of Health and Aged Care (DHAC) in the past 12 months, including the release of the draft Gene Technology Bill. However, the lack of certainty on when the reform process will be complete leaves industry without the certainty necessary to plan for the investment needed to support R&D and commercialisation. By comparison, the New Zealand Government has recently released its

[17] 2019 Annual Report' (CommBank, 2019), https://www.commbank.com.au/about-us/investors/annual-reports/annual-report-2019.html.

Gene Technology Bill to establish an entirely new regulatory scheme for gene technology in a little over 12-months. This Bill will incorporate the recommendations made as part of the Australian Third Review of the National Gene Technology Scheme.

The amendments to the National Gene Technology Scheme provided by the Australian Gene Technology Bill remain modest. While the introduction of risk tiering is an important step forward, the scheme will not adequately provide Australia with a future-proofed regulatory framework. Although the continuation of process-based triggers, as opposed to an outcomes-based system, needlessly burdens innovators, this was agreed upon in the review. However, as it stands the amendments will not adequately implement all the agreed recommendations. Furthermore, the definitions governing the organisms under the framework remain overly restrictive, limiting innovation and the integration of emerging technologies.

Food regulation

Commencing in June 2017 and with the final report being published December 2019, FSANZ undertook a review of food derived using new breeding techniques (NBTs). Subsequently, proposal P1055 was commenced by FSANZ to amend definitions of food produced using gene technology in the Australia New Zealand Food Standards Code (the Code). With the recent completion of the proposal P1055 public consultation, it is critical that these amendments to the Code be finalised as soon as possible.

CropLife supports updates to the Code that result in foods being regulated in a manner proportionate to the risk they pose. The recognition that NBT foods have the same characteristics as conventional foods and therefore should be regulated in the same manner as conventionally produced food is welcomed. This is consistent with current scientific knowledge and understanding, as elaborated in FSANZ's detailed safety assessment of NBTs. Furthermore, this approach is in line with progressive approaches being implemented in other international jurisdictions.

As noted in CropLife's submission to the second P1055 call for comment, the proposed definition amendments are a significant step towards a science-based regulatory system but still fall short in the development of a risk-proportionate outcome-based system. The proposed definitions potentially regulate food as GM even if they are indistinguishable from those developed through conventional breeding. This includes the classifying intragenesis as GM, despite its similarity to naturally occurring processes.

An outcome-based, rather than process-based, risk-proportionate regulatory approach ensures Australian consumers benefit from biotechnology innovations by having rapid access to food that is potentially both cheaper and better for the environment.

Furthermore, continued delays in updating the code are having a chilling effect on innovation and investment in the bioeconomy. With the rapid global expansion of NBT-related products, many of our largest trading partners are leaping ahead by introducing modernised regulatory frameworks.

CropLife would like to acknowledge the considerable body of work undertaken as part of P1055 with respect to the analysis and summary of stakeholder concerns and the relevant scientific literature that relates to the proposed changes.

CropLife recommends that sufficient resourcing and support is provided to FSANZ to ensure the timely completion of P1055 in a manner consistent with science-based regulatory practices. This will provide industry with the certainty necessary to introduce additional products to the comparably small Australian market and thus provide access to Australian consumers.

Reducing Regulatory Duplication

Regulatory duplication can significantly delay the commercialisation of cutting-edge technologies and create additional administrative burdens for innovators. When multiple agencies assess the same product or process, overlapping requirements and inconsistent timelines increase costs and uncertainties. This, in turn, can discourage investment in Australian R&D and slow the delivery of potential benefits—whether in agriculture, medicine, or the broader economy. CropLife supports efforts to reduce regulatory duplication through improved coordination between regulators.

An excellent recent example of effective inter-agency collaboration is the simultaneous assessment of a GM banana developed for resistance to Fusarium wilt tropical race 4 by the Queensland University of Technology.[18] The OGTR and FSANZ worked in tandem to review the GM banana, streamlining data requests and coordinating approvals. This alignment not only reduced duplication of effort but also provided greater certainty for the project's proponents. By receiving timely, coordinated feedback, researchers and investors were better able to manage resources and prepare for eventual commercialisation. Such collaboration could also be expanded to other regulatory agencies. For example, between the APVMA and OGTR. This is critical for GM crop varieties with herbicide resistance traits—a space that has seen significant delays.

[18] See, eg, Office of the Gene Technology Regulator, 'DIR 199:Commercial release of banana genetically modified for resistance to Fusarium wilt tropical race 4 (TR4)' (Website, Accessed March 2025) <https://www.ogtr.gov.au/gmo-dealings/dealings-involving-intentional-release/dir-199>.

This kind of inter-agency cooperation should be the norm rather than the exception. When agencies proactively share information, standardise protocols, and synchronise review timelines, Australia's regulatory frameworks become more transparent and efficient. This fosters an environment that attracts global innovators, secures funding for local research projects, and brings novel technologies and products to market sooner—without compromising safety or integrity. By prioritising cohesive, science-based regulatory approaches, Australia can strengthen its leadership in agricultural, environmental, and medical innovation.

2.1.2 Extended Producer Responsibility

CropLife Australia supports high regulatory standards that achieve measurable environmental and economic outcomes. However, the regulatory framework must also enable commercial predictability and support private sector investment if it is to contribute meaningfully to a dynamic and resilient economy.

Extended Producer Responsibility (EPR) schemes, when poorly designed, risk embedding structural inefficiencies and inflationary costs into supply chains. This is particularly evident where regulation mandates a single provider or prescribes centralised delivery models that limit flexibility, stifle innovation, and crowd out more cost-effective, industry-led approaches.

CropLife and its members have a proven record of delivering effective national product stewardship through programs such as drumMUSTER® and bagMUSTER®. These industry-led schemes demonstrate that high regulatory outcomes, such as reduced environmental impact and circularity in packaging stewardship, can be achieved efficiently when regulatory settings are:

- Outcome-focused, not input-prescriptive.
- Competitively neutral, allowing multiple providers to delivery stewardship outcomes.
- Commercially predictable, providing confidence for long-term investment e.g., recycling infrastructure.
- Science-based and risk-proportionate regulation to ensure actual risks are mitigated and also enabling dynamic adaptation.

Embedding overly rigid or monopolistic EPR models into regulation risks undermining this investment confidence. It bakes in fixed compliance costs, increases inflationary pressure, and discourages innovation in packaging design, recovery logistics, and data systems—each of which are critical to achieving circular economy outcomes.

CASE STUDY – APCO

One such example is the EPR scheme currently being developed by the Australian Packaging Covenant Organisation (APCO). While APCO provides services that are essential to the current co-regulatory scheme for packaging stewardship, it has consistently failed to meet national targets despite decades of data collection.

Its centralised approach, lack of accountability to participating businesses and government, and its historical unwillingness to embrace successful industry stewardship schemes make it ill-suited to lead the next generation of packaging reform. More critically, APCO's model imposes non-transparent, non-contestable cost structures on businesses. Such an approach is inherently inflationary and incompatible with the need for regulatory systems that promote efficiency and resilience and deliver outcomes for Australians and our natural environment.

The Government's national reform of packaging regulation and stewardship must take these structural concerns seriously. Embedding a single, underperforming body into regulatory design risks entrenching inefficiencies, undermining public trust, and deterring commercial investment in packaging innovation and recovery. Instead, the reform process must ensure that the regulatory architecture promotes competition, enables multiple fit-for-purpose stewardship providers, and maintains flexibility for industry-led investment in circular economy outcomes.

To support economic dynamism, regulation must therefore evolve beyond compliance enforcement and become a framework that actively encourages private investment in public outcomes. A well-calibrated regulatory system provides the certainty needed for businesses to invest, while retaining the flexibility for market-led solutions to emerge and succeed.

3 PILLAR 5 INVESTING IN CHEAPER, CLEANER ENERGY AND THE NET ZERO TRANSFORMATION

3.1. Are there gaps in the emissions-reduction policies in the industrial, electricity and transport sectors which should be addressed?

Expanding the role of Low Carbon Liquid Fuels (LCLF) provides a key opportunity to decarbonise Australia's economy. Moreover, the domestic production of LCLFs presents opportunities to the Australian economy beyond the role it will play in lowering emissions in hard to abate industries, such as transport and logistics. In particular, the production of LCLF will see the development of domestic manufacturing focused around adding value to the existing strengths of Australia's primary production capacities.

Although there is considerable policy work on the LCLF sector, feedstock production has received scant attention. A sustainable and commercially viable Australian LCLF industry depends on secure access to low-emissions feedstock. The consultation paper does recognise the importance of efficient crop production to this aim, but beyond advocating consistent demand for feedstock crops, it neglects the policy measures needed to guarantee supply. Any policy response must also heed global concerns that low-carbon biofuels are confronting a feedstock crisis and growing scrutiny over competing uses of arable land for food versus fuel.[19]

Feedstock production depends on Australian farmers. However, our primary producers face uncertain times. They are at the rockface of climate change while also contributing to the range expansion of invasive pests, weeds and disease. They need access to every possible tool available.

This primarily includes access to inputs, most notably Crop Protection Products (CPPs). More than $31 billion of the value of Australia's agricultural production, or 74 percent, is directly attributable to the responsible use of CPPs. Herbicide use in particular has underpinned the widespread adoption of no-till farming in Australia. Consequently, Australian farmers are world leaders in the adoption of no-till practices.[20] These no-till practices preserve soil structure, reduce erosion and maintain crop residues as a protective cover. This cover conserves moisture, fosters microbial activity and contributes to carbon

[19] International Energy Agency, 'Renewables 2022' (2022 IEA Report) 'https://www.iea.org/reports/is-the-biofuel-industry-approaching-a-feedstock-crunch'

[20] A Read, J Rollan, C Creed and James Fell, 'Environmental Sustainability and Agri-Environmental Indicators – International Comparisons', (ABARES Insights, Issue 2, July 2023), DOI: https://doi.org/10.25814/zzdq-4t23.

sequestration, aligning with efforts for carbon neutrality and climate change mitigation in Australian agriculture. Across the Australian crop production landscape, the high adoption of no-tillage practices over the 1990s and 2000s resulted in the sequestration of approximately 5 million tonnes CO2~e annually compared to conventional tillage practices.[21]

This is not unique to Australia. A life cycle analysis study recently published by the University of Arkansas bolsters the global literature describing the vital role of CPPs in fostering improved carbon outcomes.[22] Importantly, without pesticides, the yields of corn, cotto, and soybeans declined up to 70 percent. Cultivating corn, cotto, and soybeans without pesticides resulted in upwards of three times more land, water, energy use and greenhouse gas emissions. The targeted and judicious use of pesticides not only enhance productivity but significantly reduce pressure on water, land and energy resources per unit of production.

Enhancing yield per cultivated area through sustainable intensification has been identified as a climate change abatement tool. This is because it eliminates the need to convert more land (and the resultant emissions created by this deforestation) to meet the increasing global food and fuel demand.[23] Consequently, this approach may contribute to a global reduction in GHG emissions associated with crop production. As a nation whose sustainable agricultural practices are already world-leading, increasing production intensity also alleviates the requirement to convert natural habitats elsewhere in the world into arable land as global demand for food and feedstock increases.[24]

The toolbox must also include the latest developments in biotechnology. With recent unprecedented advances, there are numerous innovations capable of supporting decarbonisation while also providing resistance to adverse conditions. With GM technology already providing enormous opportunity for canola feedstock production, Australian farmers could soon have access to hundreds of new varieties through gene editing.

[21] Macintosh A et al, 'Improving Carbon Markets to Increase Farmer Participation' (July 2019 Agrifutures Report), 'https://agrifutures.com.au/wp-content/uploads/2019/07/19-026-Digital-1.pdf'.

[22] Thoma G et al, 'Life cycle assessment of impacts of eliminating chemical pesticides used in the production of U.S. corn, soybeans, and cotton ' (25 March 2024 CropLife America Report) 'https://static1.squarespace.com/static/5faeee45a363746603d1c6e1/t/661e95a6e057f947a1185c5e/1713280424229/CLA+LCIA+ISO+Finalized+Report.pdf'.

[23] Maartje S et al, 'Australian Grains Baseline and Mitigation Assessment' (January 2022 CSIRO Report) 'https://publications.csiro.au/publications/publication/PIcsiro:EP2022-0163'.

[24] A Read, J Rollan, C Creed and James Fell, 'Environmental Sustainability and Agri-Environmental Indicators – International Comparisons', (ABARES Insights, Issue 2, July 2023), DOI: https://doi.org/10.25814/zzdq-4t23.

Gene editing technologies have already emerged as a tool for small-scale crop development. They reduce both the time and number progenitor plants needed to develop a novel crop variety. This means that despite our small and niche market size, Australian innovators can rapidly develop Australia-adapted varieties. When combined with conventional breeding and GM, we can rapidly enhance our agricultural sector. So far, innovation in this area has included:

- **Enhanced Crop Yield**s: As a major exporter of agricultural products, Australia could increase its global market share with gene-edited crops. Uncertain regulations, however, may dissuade agribusinesses from adopting these innovations.
- **Pest Resistance**: Although Australia is fortunate with respect to biosecurity, it is a constant battle. This might be best exemplified by recent emergence of fall armyworm, varroa mite and red ants as agricultural major pests. However, solutions to these problems are constantly emerging. For example, rust disease resistance in wheat[25] and Panama's disease in banana.[26]
- **Ensuring Sustainability**: With ambitious environmental targets, Australia requires significant innovation to ensure these targets are met while not adversely impacting food security. Since the emergence of gene editing techniques, there are continuously new examples of novel crop varieties with improved yields and resistance to numerous abiotic or biotic stresses.[27]
- **Investment in Bio-Fortified Crops**: With Australia's focus on premium and nutritional food exports, there's a window to lead in bio-enhanced food production. Unclear regulations could halt ventures from investing in this niche yet growing segment. One example, approved last year for use in Norwegian fish farms, is the Australian-developed Omega-3 canola.[28]

[25] Grains Research and Development Corporation, 'ACRCP Phase 5: Optimising genetic control of wheat rusts through identification of gene editing targets for broad spectrum wheat rust control', (04 April 2023 Webpage) 'https://grdc.com.au/grdc-investments/investments/investment?code=CSP2304-010RTX'

[26] Hort Innovation, 'A platform for gene editing vegetative propagated crops (AS20000)', (February 2023 Webpage) 'https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/as20000'

[27] Hamdan MF et al, 'Genome Editing for Sustainable Crop Improvement and Mitigation of Biotic and Abiotic Stresses' (2022 Plants, 11, 2625).

[28] Aquaterra, 'Norway Approves Aquaterra Omega-3 Oil for Use in Aquafeed' (28 June 2023 Webpage) 'https://aquaterraomega3.com/norway-approves-aquaterra-omega-3-oil-for-use-in-aquafeed'.

- I**mproved Plant Oil Content**: In addition to bio-fortification, Australia continues to develop crops for highly efficient biofuel. This is achieved through the selection and engineering of plants for increased oil production.[29]

Attachments:

- Submission to the Ag and Land Sector Plan
- Submission to the Low Carbon Liquid Fuel consultation

[29] Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia's next oil boom might just come from plants, (4 April 2017 Webpage) 'https://www.csiro.au/en/news/All/News/2017/April/Australias-next-oil-boom-might-just-come-from-plants'.