



Securing Australia's Cleaner Fuels Industry: Consultation Paper on a Demand Mechanism

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. 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 these 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 Australia welcomes the opportunity to provide a submission to the Department of Climate Change, Energy, the Environment and Water on the *Securing Australia's Cleaner Fuels Industry: Consultation Paper on a Demand Mechanism*.

Enhancing Australia's capacity to domestically produce Low Carbon Liquid Fuels (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 on adding value to the existing strengths of Australia's primary production capacities. By creating further opportunities for domestic inputs and processing, a home-grown LCLF industry can contribute to increased economic resilience, strengthen fuel security and support the objectives of the Government's Future Made in Australia agenda.

Critical to the development of a sustainable and viable domestic low carbon liquid fuels industry is the availability of reliable, low-emissions feedstocks and inputs. CropLife

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

welcomes the consultation paper's recognition of the important role that agricultural feedstocks and the agricultural industry can play in supporting Australia's cleaner fuels industry. However, demand-side measures alone will not be sufficient to deliver the long-term feedstock supply required to support industry growth.² Complementary supply side policy settings that encourage agricultural productivity, innovation, and investment will also be required. As global demand for low carbon fuels continues to grow, the government should support science-based solutions that enable Australia to increase production of food, feed and fuel while maintaining environmental sustainability and supporting Australia's National Food Security Strategy.³

2. Role of Plant Science

The long-term success of a domestic LCLF industry will depend on access to reliable, sustainable and affordable feedstocks. Expanding feedstock supply while maintaining food and fibre production will require continued investment in agricultural innovation, productivity and resource-use efficiency.

Crop protection products play a critical role in supporting the production of agricultural commodities that may serve as feedstock for low carbon liquid fuels. The Deloitte Access Economics report released in 2023, 'Economic Contribution of Crop Protection Products in Australia', illustrates that more than \$31 billion of total Australian agricultural output (or 73 per cent of the total value of crop production) is attributable to the use of crop protection products.⁴ Crop protection products (pesticides) are crucial to modern integrated pest management techniques and systems used by farmers. These tools include the fungicides, herbicides and insecticides underpinning the productivity and reliability of Australia's agricultural sector.

Without access to modern crop protection technologies, significant losses in feedstock production would occur due to weeds, diseases and insect pests. Herbicide use is estimated to directly support approximately \$8.3 billion of agricultural production annually, while insecticides and fungicides protect more than \$8 billion and \$11.7 billion worth of crop

² International Energy Agency, 'Is the Biofuel Industry Approaching a Feedstock Crunch?' (Report, December 2022) <<https://www.iea.org/reports/is-the-biofuel-industry-approaching-a-feedstock-crunch>>.

³ Department of Agriculture, Fisheries and Forestry (Cth), *Feeding Australia: A National Food Security Strategy* (Web Page, 24 March 2026) <<https://www.agriculture.gov.au/agriculture-land/farm-food-drought/food/national-food-security-strategy>>

⁴ Deloitte Access Economics, *Economic Contribution of Crop Protection Products in Australia* (Report, August 2023) <<https://www.croplife.org.au/resources/reports/economic-contribution-of-crop-protection-products-in-australia/>>.

production respectively.^{5, 6} These technologies are therefore essential not only for maintaining food and fibre production, but also for supporting the reliable supply of feedstocks required to develop and sustain a competitive domestic low carbon liquid fuels industry.

Genetic engineering and new breeding techniques (NBTs) such as gene editing offer significant support to the development of future feedstock production and third-generation inputs for biofuel production. NBTs can contribute to the development of crops and biological systems with improved characteristics. Examples of innovation arising from genetic modification and gene editing include:

- **Improved Plant Oil Content:** Australian researchers have developed technologies that increase the accumulation of oils throughout plant biomass, including leaves and stems, rather than being limited to only the plant seeds.⁷ Importantly, the technology was specifically developed to increase oil production for highly efficient biofuel manufacturing without compromising food outcomes.
- **Enhanced and biofortified crops:** Australian researchers engineered plants with altered characteristics such as oil composition and improved oil production in crops such as canola and safflower.^{8, 9} For example, researchers have introduced novel fatty acid pathways (omega-3) into plants, demonstrating the capability to modify crop traits for specific industrial and market applications.¹⁰
- **Improved biomass and resilience to climate change:** Research led by the University of Queensland is using advanced genetics, predictive breeding and gene editing to develop sorghum varieties with improved productivity, resilience to heat and drought, biomass production and input-use efficiency.¹¹

⁵ Murray DAH, Clarke MB and Ronning DA, *The Current and Potential Costs of Invertebrate Pests in Grain Crops* (Report, Grains Research and Development Corporation, 2013) <<https://grdc.com.au/resources-and-publications/all-publications/bookshop/2013/02/the-current-and-potential-costs-of-invertebrate-pests-in-grain-crops>>.

⁶ Oerke EC, 'Crop Losses to Pests' (2006) 144(1) *The Journal of Agricultural Science* 31.

⁷ Commonwealth Scientific and Industrial Research Organisation (CSIRO), *Science Breakthrough Using Plants as Fuel Without Impacting Food Security* (Media Release, 8 November 2024) <<https://www.csiro.au/en/news/All/News/2024/November/Science-breakthrough-using-plants-as-fuel-without-impacting-food-security>>.

⁸ Commonwealth Scientific and Industrial Research Organisation (CSIRO), *Super High Oleic (SHO) Safflower* (Web Page) <<https://www.csiro.au/en/research/plants/crops/Oil-crops/SHO-safflower>>.

⁹ Commonwealth Scientific and Industrial Research Organisation (CSIRO), *Future Canola* (Web Page) <<https://www.csiro.au/en/work-with-us/industries/agriculture/Future-crops/Future-canola>>.

¹⁰ Commonwealth Scientific and Industrial Research Organisation (CSIRO), *Omega-3 Canola* (Web Page) <<https://www.csiro.au/en/research/production/biotechnology/Omega-3-canola>>.

¹¹ Queensland Alliance for Agriculture and Food Innovation, *GRDC Super Charges Sorghum Research with UQ* (Media Release, 11 November 2025) <<https://qaafi.uq.edu.au/article/2025/11/grdc-super-charges-sorghum-research-uq>>.

3. Supporting a Domestic Low Carbon Liquid Fuels Industry Through Innovation

CropLife supports measures that strengthen Australia's domestic LCLF industry and expand opportunities for Australian agriculture. Australia possesses significant natural advantages in agricultural production and already exports substantial quantities of feedstocks that are suitable for low carbon fuel production, including export of up to 76 per cent of canola produced in Australia.¹² Of note, the consultation paper identifies agricultural feedstocks, including canola, sorghum and sugarcane, as important contributors to future fuel production opportunities. This is particularly important given that first-generation feedstocks currently account for the majority of ethanol produced globally.¹³ Expanding these domestic opportunities has the potential to create additional income streams for growers, attract investment and enhance supply chain resilience. Policy settings should therefore encourage the development of resilient domestic feedstock supply chains that create opportunities for Australian growers and regional communities. To support the integrity of Australia's cleaner fuels industry and ensure fair treatment of Australian producers, imported feedstocks should be required to demonstrate sustainability, traceability and emissions standards equivalent to those applying to Australian agricultural production.

While demand-side measures may stimulate investment in fuel production, the long-term success of any domestic LCLF industry will depend on the availability of reliable, sustainable and affordable feedstocks or inputs. CropLife's position is that increasing demand for agricultural commodities should be met primarily through productivity gains and innovation. Emerging feedstock crops may also create opportunities to utilise marginal land and to be incorporated as rotational, intermediate or complementary crops within existing farming systems, helping to expand feedstock production while continuing to support food and fibre production. Therefore, Australian farmers require access to the full suite of available technologies to maintain productivity, sustainability and international competitiveness. This approach is consistent with the recently released National Bioenergy Feedstock Strategy, which recognises the importance of developing a domestic feedstock industry while ensuring feedstock production continues to complement food and fibre production.¹⁴

¹² Department of Agriculture, Fisheries and Forestry (Cth), *National Bioenergy Feedstock Strategy* (Strategy, 2026) Page 3.

¹³ Ethanol Technologies Ltd (Ethtec), *Bioethanol Market for Australian Producers* (Report, Australian Renewable Energy Agency) <<https://arena.gov.au/assets/2026/03/Ethanol-Technologies-Ethtec-Cellulosic-Ethanol-Pilot-Plant-Bioethanol-market-for-Australian-Producers.pdf>>.

¹⁴ Department of Agriculture, Fisheries and Forestry (Cth), *Feeding Australia: A National Food Security Strategy* (Web Page, 24 March 2026) <<https://www.agriculture.gov.au/agriculture-land/farm-food-drought/food/national-food-security-strategy>>.

Innovation in plant breeding, crop protection and biotechnology has consistently enabled Australian agriculture to produce more using fewer resources. Continuous investment in these technologies will be essential if Australia is to simultaneously:

- support food and fibre production;
- meet growing domestic and international demand for agricultural commodities;
- contribute to emissions reduction objectives; and
- supply feedstocks required by an emerging domestic and established international LCLF industry.

CropLife encourages the Government to ensure that future feedstock eligibility, certification and sustainability frameworks are science-based and technology-neutral. Feedstock eligibility should be determined by demonstrated sustainability, traceability and emissions outcomes rather than broad classifications such as feedstock generation, end-use category or the breeding technologies used to develop a crop. As such, conventional plant breeding, genetic modification and new breeding techniques (NBTs), such as gene editing, should be treated equitably. Assessment frameworks should focus on measurable outcomes and verified performance rather than differentiating between technologies

CropLife therefore recommends that any future feedstock eligibility requirements or sustainability criteria recognise the contribution of all plant breeding technologies where they demonstrably contribute to productivity, sustainability and emissions reduction outcomes.

4. Lifecycle Emissions Assessments Should Reflect Agricultural Innovation

The consultation paper highlights the importance of lifecycle emissions and future carbon-intensity frameworks. CropLife encourages the Government to ensure lifecycle emissions methodologies recognise emission reductions achieved through agricultural innovation. Modern crop protection products, conservation farming systems such as reduced-tillage practices, and improved crop varieties can contribute to lower on-farm emissions, improved resource-use efficiency and enhanced productivity.

Crop protection products support environmental and climate outcomes. Herbicide use has enabled Australia's world-leading adoption of no-till and reduced-tillage farming systems,



reducing soil disturbance, improving moisture retention and supporting carbon sequestration. The widespread adoption of these systems has been estimated to sequester approximately 5 million tonnes of CO₂ practices.¹⁵ Research has also shown that the use of modern crop production systems supported by crop protection products can reduce greenhouse gas emission intensity^{16, 17}

CropLife recommends that future sustainability criteria, lifecycle emissions methodologies and carbon-intensity frameworks recognise the productivity, emissions reduction and resource-efficiency benefits delivered by modern crop protection products and plant breeding innovations. Failure to recognise these contributions risks undervaluing the role of agricultural innovation in supporting Australia's fuel security, food security and emissions reduction objectives simultaneously.

5. Regulatory Certainty Supports Investment

CropLife has consistently highlighted the importance of predictable, science-based regulation in enabling innovation and attracting investment. Regulatory uncertainty surrounding biotechnology has the potential to discourage development, commercialisation and adoption of new crop varieties and other biological systems that could contribute to future feedstock production.

As Australia seeks to establish a competitive domestic low carbon liquid fuels industry, it is important that government policy settings and associated regulatory frameworks provide the stability and confidence necessary to underpin long-term investment decisions throughout the value chain. CropLife encourages the Government to continue efforts to modernise and harmonise Australia's biotechnology regulatory framework to ensure Australian agriculture remains globally competitive and capable of supporting emerging domestic and international low carbon fuel markets. This includes regulatory settings that affect not only fuel manufacturers and processors, but also the agricultural sector responsible for producing feedstocks. Policies should also consider how increased demand for feedstocks can be met in a manner that supports food security objectives, while avoiding

¹⁵ Macintosh A *et al*, *Improving Carbon Markets to Increase Farmer Participation* (Report, July 2019, AgriFutures Australia) <<https://agrifutures.com.au/wp-content/uploads/2019/07/19-026-Digital-1.pdf>>.

¹⁶ Grains Research and Development Corporation, *Greenhouse Gas Emissions* (Web Page) <<https://grdc.com.au/about/our-industry/greenhouse-gas-emissions>>.

¹⁷ Matlock M *et al*, 'Estimating the Theoretical Impacts of Pesticide Removal on the Top Three US Commodity Crops' (Research Highlight, Arkansas Agricultural Experiment Station, University of Arkansas, 2024) <<https://aaes.uada.edu/research-highlights/life-cycle-assessment-of-pesticides/>>.

unnecessary pressure on land use and unintended impacts on food affordability and broader cost-of-living outcomes.

Future low carbon liquid fuel industries will likely utilise a diverse range of feedstocks and biological systems, including enhanced oilseed crops, genetically engineered yeast for fermentation, engineered algae and other emerging biological production platforms. Therefore, it is important that future regulatory and cost recovery settings do not create barriers to research, development and commercialisation, as doing so may limit economic and environmental benefits.

By creating a stable, predictable and innovation-supportive regulatory environment, Australia can maximise its opportunities to develop higher-yielding and more sustainable feedstocks while capturing economic and environmental benefits. This will strengthen Australia's ability to meet growing demand for food, fibre and fuel simultaneously.

6. Conclusion

CropLife commends the move towards the development of a domestic low carbon liquid fuels industry and the recognition of the important role that agricultural feedstocks will play. However, the availability of reliable, sustainable and affordable feedstocks should not be taken for granted. Achieving this outcome will require building policies and regulations that provide stability for science and innovation as well as the agricultural industry. Without a proactive approach, domestic LCLF production is likely to remain reliant on imported inputs, missing the opportunity to support Australian innovation and deliver benefits to regional economies and communities.

To maximise these opportunities, future policy settings should:

- support productivity growth through innovation;
- maintain technology-neutral feedstock eligibility and sustainability frameworks;
- recognise emissions reductions delivered through agricultural innovation; and
- provide regulatory certainty that supports ongoing investment in plant breeding and biotechnology.

By fostering innovation and productivity, Australia can strengthen fuel security, support regional industries, advance emissions reduction objectives and maintain a resilient and productive food system, enhancing Australia's broader economic resilience and sovereign capability.
