

National Reconstruction Fund

Submission



1. INTRODUCTION


CropLife Australia is the national peak industry organisation representing the agricultural chemical and plant biotechnology (plant science) sector in Australia. CropLife represents the innovators, developers, manufacturers, formulators and suppliers of crop protection products (organic, synthetic and biologically based pesticides) and agricultural biotechnology innovations, including GM crops. CropLife's membership is made up of both large and small, patent holding and generic, and Australian and international companies and accordingly, CropLife only advocates for policy positions that deliver whole of industry and national benefit.

The plant science industry provides products to protect both crops and Australia's vast, biodiverse natural spaces against damaging insects, invasive weeds and diseases that pose a serious threat to the nation's agricultural productivity, sustainability and food security. The plant science industry directly enables more than \$20 billion annually to Australian agricultural production and directly employs thousands of people across the country¹.

CropLife welcomes the opportunity to provide comments regarding the National Reconstruction Fund (NRF). As a major international exporter, it is essential to ensure a secure, sustainable and profitable agricultural sector in Australia.

CropLife would like to take the opportunity as part of this submission process to underpin the importance of support for the plant science industry in delivering the broader goals of Australian agriculture. Consideration for proposals made under the NRF should not only provide capital to capture new, high-value market opportunities but also the necessities of infrastructure to support and grow existing industries which contribute so much to the Australian economy.

¹ https://www.croplife.org.au/wp-content/uploads/2018/04/Deloitte-Access-Economics-Economic-Activity-Attributable-to-Crop-Protection-Products_web.pdf



2. THE PLANT SCIENCE INDUSTRY DELIVERS SECURE JOBS AND SUSTAINABLE ECONOMIC GROWTH AND PROSPERITY

The tools and technology of the plant science industry are indispensable in anchoring agricultural productivity and supporting rural and regional communities. The Deloitte Access Economics report released in 2018, *'Economic activity attributable to crop protection products'*, illustrates that crop protection products directly enable up to \$20.6 billion of total Australian agricultural output (or 73 per cent of the total value of crop production)². Crop protection products (pesticides) are crucial to modern integrated pest management techniques and systems used by farmers. These tools include fungicides, herbicides and insecticides which are critical in maintaining and improving Australia's agricultural profitability and productivity to meet future global food security challenges.

CropLife's members are world-leading innovators, developers, manufacturers and suppliers of pesticides derived from both natural and synthetic sources, as well as biologically based compounds and ingredients. Regardless of the source of the pesticide, all are rigorously assessed for safety, efficacy and any potential harm to humans or the environment.

The total cost of weeds across Australia is estimated at over \$5 billion^{3 4}. Chemical weed control across broadacre cropping enterprises and production loss costs among grain, beef and wool industries make up most of these expenditures. This corresponds to a value of produce resulting directly from herbicide use at \$8.3 billion per annum.

In addition to invasive weeds, insect pests also negatively impact agricultural practices. Aggregated across the major Australian grain crops in 2013, the estimated annual loss of food crop quantity and quality due to damage from insect pests totaled \$359.8 million annually⁵. Demonstrating the value of insecticides to food production, over \$8 billion worth of food across all Australian crops can be grown, harvested and consumed as a direct result of insecticides used to manage crop losses by insect pests⁶.

Finally, losses of both quantity and quality of food crops due to infection by various fungal, bacterial and viral plant diseases in Australian grain crops are valued at between \$920 million to \$1 billion per annum – an \$80 million increase since 2010⁷. Concerningly, these figures are expected to increase further due to the negative impacts of climate change. Using fungicides to

² https://www.croplife.org.au/wp-content/uploads/2018/04/Deloitte-Access-Economics-Economic-Activity-Attributable-to-Crop-Protection-Products_web.pdf

³ *ibid*

⁴ Oerke E.C. Crop losses to pests. *J. Agric. Sci.* 2006;144:31–43.

⁵ <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 E.C. Crop losses to pests. *J. Agric. Sci.* 2006;144:31–43.

⁷ <https://www.ccdm.com.au/about/>

manage these diseases is estimated at generating \$11.7 billion in revenue from food and grains production, annually⁸.

The products of the plant science industry are crucial to maintaining and increasing sustainable food production and thence farm income in Australia. Pesticides have a double role in protecting Australia's biosecurity during containment and eradication of invasive species which could cause catastrophic implications for sustained food production. One recent example is the deployment of insecticide treated baits to eradicate potential infestations of varroa mite in New South Wales. Pesticides are also crucial in managing and mitigating established weeds, diseases and insect pests.

A recent study by researchers at the CSIRO and Flinders University demonstrated that invasive plants are the costliest pests in Australia, costing \$200 billion since 1960.⁹ In 2021, the Invasive Species Council's report '*Glyphosate: A Chemical to Understand*' highlighted that herbicides offer the only truly effective option for removing invasive weeds from Australia's bushland reserves and that, without them, most of the remaining indigenous vegetation in Australia would decline in both quantity and quality¹⁰. The deployment of pesticides in safeguarding Australia's magnificent biodiversity also indirectly supports the long-term sustainability of food production in Australia. A biodiverse landscape is a resilient landscape, better able to absorb and mitigate pest outbreaks.

The current regulatory system for agricultural chemicals in Australia is scientifically competent, technically proficient and globally recognised. CropLife maintains that regulation of the registration and use of crop protection products in Australia must be efficient and effective so that farmers, environmental land managers and municipalities across Australia have access to the innovative tools the plant science industry provides. Each of these products is rigorously assessed by the Australian Pesticides and Veterinary Medicines Authority (APVMA) to ensure they are safe to use and present no unacceptable risk to applicators, consumers, the community as a whole, the environment or Australia's domestic and international trade of agricultural produce. Access to fewer crop protection tools would facilitate faster development of resistance among targeted pests, diminishing the efficacy of remaining chemical options.

In 1995, it took the assessment of 52,500 compounds to develop one effective new pesticide chemical active constituent. It now requires the assessment of more than 160,000 compounds and expenditure of more than \$400 million (\$286m USD) over an eleven-year period to bring

⁸ Oerke E.C. Crop losses to pests. *J. Agric. Sci.* 2006;144:31–43

⁹ Corey J A Bradshaw and others, 'Detailed Assessment of the Reported Economic Costs of Invasive Species in Australia', *NeoBiota*, 67 (29AD), 511–50 <<https://doi.org/10.3897/neobiota.67.58834>>.

¹⁰ <https://invasives.org.au/wp-content/uploads/2020/11/Glyphosate-A-Chemical-to-Understand.pdf>

just one successful pesticide to the market¹¹. More than one-third of this cost directly relates to compliance with regulation and registration requirements.

Ensuring an efficient and effective regulatory system for crop protection products is essential to Australian agricultural productivity. Without access to these tools, farmers could lose as much as 50 per cent of their annual production to pests, weeds and diseases. The flow-on benefit to the Australian environment comes from environmental land managers who have ability to prevent, eradicate and manage threats to the natural environment using the very tools developed for farmers by the plant science industry.

Ongoing research and development to identify new pesticides, be they derived from organic, synthetic, or biological sources, is imperative for maintaining and increasing sustainable farm revenue in Australia. Ensuring these new innovations will be accessible to Australia is vital.

CropLife maintains that the regulation of the use of pesticides must be efficient and effective so that stakeholders have access to the innovative tools the plant science industry provides to mitigate invasive alien species – be they plant, insect or pathogen. Above all, this requires an efficient, adaptive and science-based regulatory environment to encourage both continued innovation in next-generation tools, but also support for existing, proven, effective and safe solutions to be integrated with novel technologies that is then economical for Australian taxpayers, developing an increasingly efficacious and sustainable system.

The innovation, development and production of GM crops, an application of modern biotechnology, have also facilitated farmers future prosperity and driven sustainable economic growth. Globally, GM technology directly increased farm income by US\$18.2 billion in 2016¹², with over half the gains going to farmers in developing countries¹³. According to the meta-analysis published by Klumper and Qaim, GM crops have reduced pesticide use by 37 per cent (in turn, reducing GHG emissions), while increasing crop yields by 22 per cent and increasing farmer profits by 68 per cent¹⁴.

GM crops play a crucial role in providing secure jobs and sustainable growth in both the farming sector and the global biotechnology industry. They are just the next natural stage in centuries of plant breeding innovation, a step along the same path of technological innovation that led to Australian agricultural inventions such as the combine harvester and 'Federation' wheat varieties. The utilisation of these innovations has delivered significant profitability, productivity and environmental sustainability improvements in farming. Over 400 million hectares of GM crops have been cultivated worldwide since 1996 and over 1

¹¹ <https://www.agriculture.gov.au/sites/default/files/documents/agvet-chemicals-market-drivers-barriers.pdf>

¹² Brookes and Barfoot (2018) *Op. Cit.*

¹³ ISAAA (2019) *Op. Cit.*

¹⁴ Klumper, W. and Qaim, M., (2014). 'A meta-analysis of the impacts of genetically modified crops'. *PLoS one*, 9(11), p.e111629.

trillion meals containing GM food ingredients have been consumed globally. GM crops are the most tested and regulated food product in history. They continue to accomplish this with no substantiated scientific reports of any food safety issues related to the consumption of genetically modified crops, nor any deleterious effects on ecosystems.

The development, planting and consumption of an approved GM crop is safe. Every scientific and regulatory body that has examined the evidence has arrived at the conclusion that GM crops and the foods they produce are as safe as their conventional counterparts. This includes the World Health Organization, the Australian Academy of Science, the European Commission, the American National Academy of Sciences and the Royal Society of Medicine. Fearmongering and the spread of misinformation regarding GM crops is a direct barrier to Australia, and global population, realising the full value of biotechnology innovations.

Since being first commercially cultivated in Australia in 1996, GM crops have contributed to global food security, sustainability and helped farmers to adapt to and mitigate climate change by:

- Increasing the value of crop production by US\$186 billion¹⁵
- Reducing pesticide usage (kg active ingredient) by 671 million kg¹⁶
- Reducing CO₂ emissions in 2018 alone by 27.1 billion kg¹⁷ (equivalent to taking 16.7 million cars off the road for one year, more than all the passenger vehicles registered in Australia; and 86% of all vehicles registered in Australia)
- Increasing the incomes of more than 17 million small farmers and their families – some of the poorest people in the world, and thereby helping to alleviate poverty¹⁸

GM crops under research and development in Australia will help our farmers address the unprecedented challenges they are facing in a changing climate. GM traits being investigated at the national level will be crucial tools for farmers to combat the negative consequences of climate change, including drought, soil acidity or salinity, as well as emergent diseases. There is also considerable Australian research into GM traits that will bring health benefits to consumers, such as healthier starches and oils modified to be lower in saturated fats and with improved cooking qualities.

¹⁵ Brookes G and Barfoot P (2018) 'GM crops: global socio-economic and environmental impacts 1996-2016'. PG Economics, Dorchester, UK.

¹⁶ *Ibid.*

¹⁷ ISAAA (2019) 'Global Status of Commercialized Biotech/GM Crops in 2018: Biotech Crops Continue to Help Meet the Challenges of Increased Population and Climate Change. ISAAA Brief No. 54. ISAAA: Ithaca, NY.

¹⁸ *Ibid.*

Another threat to the potential success of this important agricultural innovation is the frustratingly slow implementation process following the Third Review of the National Gene Technology Scheme. As it stands, the National Gene Technology Scheme is not fit for purpose, as it does not cater to innovative technologies. An adaptive, future-oriented National Gene Technology Scheme is urgently needed. This future-proof Scheme needs to be informed by the accumulated knowledge and experience gained from previously assessed GMOs and applied to similar newly developed products. This will help achieve a better balance between regulating the process involved in creating products of gene technology and regulating the risks (if any) to human health and safety and the environment associated with the final products.

The recent removals of GM crop moratoriums in South Australia and New South Wales are best-practice examples of how crucial it is to base regulatory decisions on science. After being denied opportunities for over two decades, farmers in these states can choose which cropping systems best suit their business operations. To give the agricultural sector a chance to achieve its goals, science-based regulation must remain at the forefront of all government policies.

Without new, innovative agricultural products, Australian agriculture's productivity cannot grow, nor face the challenges of a changing climate. Crop protection and GM products are core components of agricultural innovation, enabling Australian farmers to be better equipped while facing unprecedented challenges, to remain competitive internationally, to benefit the Australian economy and to address global food security issues.

3. DOMESTIC MANUFACTURING INVESTMENT: NEEDS AND OPPORTUNITIES

Given the crucial nature of crop protection products in securing and bolstering farming production, profitability and sustainability, the opportunities of crop biotechnology innovations and the essential role of pesticides in generating the raw materials for value-adding in sectors like food processing, textiles, clothing and footwear, links between crop primary production and manufacturing cannot be underestimated.

The IBISWorld Australia 2020 report cited that imports of pesticides currently account for 52 per cent of the Australian market. It is further true that for the remaining amount, only a small amount of technical active ingredient is manufactured in Australia and that the domestic manufacture of pesticides is predominantly the formulation of imported ingredients. This means imports from a small number of nations – China, the United States, Japan, Thailand, India and Germany – account for the majority of the imports of important constituents of crop protection products.

However, this recognition does not demand a self-sufficient approach to the manufacture of vital crop protection products. Despite Australia's producers growing similar crops and facing similar pest and disease challenges to producers in other countries, the Australian crop protection market is less than five per cent of the global market compared to other OECD markets such as the US and EU, which are each around seven times larger¹⁹. This indicates that it is important to recognise Australia's role in extensive and complex global supply chains and this matter should be evaluated and prioritised to support existing production capability and capacity.

Recent national and international crises, not limited to the COVID-19 pandemic, have caused the single greatest disruption to and pressure on global agricultural industries supply chains in generations. Throughout, the Australian agriculture sector, including the plant science industry specific, has delivered the essential products for productive farming and continuity in supply of safe and nutritious food, feed and fibre to domestic and global markets. CropLife Australia's member companies effectively managed the challenges associated with access to these critical farm inputs throughout this period however, it did highlight areas where improvement could be achieved. The supply chains for crop protection products are long, encompassing imports through various nations and means. The delivery of these products is extremely time sensitive. Owing to the biology of plant growth and development, crop programming by farmers, as well as the ecology of pest species such as weeds, pathogens and insect predators, even slight delays in the availability of these products could – and do – have catastrophic implications for crop yields.

In addition to developing capabilities in transport, manufacturing and supply chains for cars, trains and shipbuilding, the vital infrastructure upon which these vehicles operate should be prioritised as an enabler of successful private sector investment in each of the priority areas.

To continue to combat the threat of not only food and nutritional insecurity but the impacts of climate change and increasing production costs, while remaining internationally competitive, farmers must have predictable, reliable and timely access to the latest safe and proven agricultural technologies and innovations. Maintaining and strengthening domestic supply chains, while promoting and incentivising diversification is critical in achieving sustainable economic growth in the agricultural sector and its downstream industries.

¹⁹

Deloitte (2019) Agvet Chemicals – Market Drivers and Barriers

4. CONCLUSION

CropLife is pleased to provide these comments to the National Reconstruction Fund (NRF) consultation paper. The essential role of the plant science sector in delivering Australia's long-term food security is incontrovertible. Pesticides, be they organic, synthetic, or biological in origin will continue to prevent large crop losses and support increased food and fibre production to underpin secondary and tertiary agricultural industries such as food processing, textiles and clothing. This is not limited to agricultural production; it includes environmental conservation and fostering human health through effective management of insects and diseases.

CropLife will continue to work collaboratively with all stakeholders – government, farmers, academia and the public – to further the plant science industry's contribution to foster and enable Australia's goal of producing \$100 billion in farm gate output by 2030, which is the foundation upon which future sustainable growth is built.

