

## **CropLife submission to the Independent Review of Interactions between the EPBC Act and the Agriculture Sector**



**19 June 2018**

# 1 INTRODUCTION

CropLife Australia is the national peak industry organisation representing the agricultural chemical and biotechnology (plant science) sector in Australia. CropLife represents the innovators, developers, manufacturers and formulators of crop protection and agricultural biotechnology products. CropLife's membership is made up of both patent holding and generic Australian and international companies and accordingly, advocates for policy positions that deliver whole of industry benefit. The plant science industry provides products to protect crops against pests, weeds and diseases, as well as developing crop biotechnologies that are key to the nation's agricultural productivity, sustainability and food security. The plant science industry is worth more than \$20 billion a year to the Australian economy and directly employs thousands of people across the country. CropLife Australia is a member of CropLife Asia and part of the CropLife International Federation of 91 CropLife national associations globally.

CropLife and its members are committed to the stewardship of their products throughout their lifecycle, ensuring human health and safety, and the responsible and sustainable management of the environment and trade issues associated with agricultural chemical use in Australia. Our member companies contribute more than \$13 million a year to stewardship activities that ensure the safe and effective use of their products. CropLife ensures the responsible use of these products through its mandatory code of conduct and has set a benchmark for industry stewardship through programs such as *drumMUSTER*, ChemClear® and Agsafe Accreditation and Training.

CropLife welcomes the opportunity to provide input to the 'Independent review of interactions between the EPBC Act and the agriculture sector'. The Productivity Commission Inquiry into Regulation of Australian Agriculture found that farm businesses in Australia are subject to a vast and complex array of regulations. For farm businesses, reducing regulatory burden means less time spent dealing with regulation and more time spent on productivity enhancing activities.

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) is just one of a myriad of regulations affecting farm businesses applied across all levels of government. A truly productive, competitive and sustainable agricultural industry in Australia that improves market returns at the farm gate is dependent on regulatory systems that are efficient, effective and only commensurate with the genuine risks, costs and benefits to the broader community.

It is essential that government works with industry to reduce unnecessary 'red tape' or regulation that is not commensurate with risk and create nationally harmonised regulations and legislation to maintain the ability for Australian farmers to access the latest innovative tools in plant science.

The Productivity Commission recognised that farmers, as significant landholders, play an important role as managers of the environment, however, environmental regulations are complex and overlap across levels of government. The Commissioners concluded that "[t]he administration of native vegetation and biodiversity conservation regulations could be improved. Governments need to improve the advice and support they provide to landholders, and explain how different regulatory requirements interact."

CropLife supports this conclusion and in this submission, provides examples of the contribution made to environmental protection and sustainability by the Australian plant science industry.



## 2 AUSTRALIA'S ROLE IN SUSTAINABLE AGRICULTURE AND FOOD PRODUCTION

According to the Deloitte Access Economics report released in April 2018 (*Economic Activity Attributable to Crop Protection Products*), 73 per cent of the total value of Australian crop production can be attributed to the use of crop protection products.<sup>1</sup> Without the responsible use of crop protection products, as much as half of the world's food supply could be lost. Ensuring that Australia's farmers have access to modern technologies to protect their crops by reducing regulatory red tape will support the ongoing productivity, profitability, development and innovation of more environmentally sustainable agriculture and food industries in Australia.

The world's population is predicted to increase to 9.7 billion by 2050, requiring an increase in global food production of more than 70 per cent. Providing enough food in the context of production constraints, volatile consumption patterns and a changing climate will be an unprecedented scientific, agricultural, industrial, economic and public policy challenge.

Crop protection products (generally referred to as pesticides and including herbicides, insecticides and fungicides) and crop biotechnologies are crucial to modern farming. By adopting innovative farming practices, such as the sustainable and efficient use of crop protection products and genetically modified (GM) crops, the Australian farming sector will be able to produce more with less, ensuring environmental sustainability while strengthening both the Australian agriculture industry and the regional communities that rely on them.

Australia's agriculture and food sector is a world-class producer of high-quality, safe food, feed and fibre products, and contributes a significant part of the economic, social and cultural fabric. The Australian agriculture sector contributed more than \$80 billion to the economy in 2017-18 and provides the nation with around 1.6 million jobs.<sup>2</sup>

Farmers are responsible for the environmental management of almost 50 per cent of Australia's total landmass and have consistently demonstrated their commitment to reducing the environmental footprint left by agriculture and food production on the land, with significant reductions in greenhouse gasses and water consumption. Significantly, due to advancements in technology and innovation by CropLife members, and strong commitments to product stewardship by farmers, crop protection products are being used in more targeted and sustainable ways. This ensures the product longevity minimises any environmental impact of off-target use and has contributed to an increase in land managed for conservation.<sup>3</sup>

Meeting the challenges presented by sustainably increasing global demand for food will require open, rational and science-based policies that support both existing and future production tools. Profitable, productive and innovative production systems will include the conventional systems reliant on the timely, responsible and considered application of crop protection products in ways that maximise yield and manage potential environmental and other risks.

<sup>1</sup> [https://www.croplife.org.au/wp-content/uploads/2018/04/Deloitte-Access-Economics-Economic-Activity-Attributable-to-Crop-Protection-Products\\_web.pdf](https://www.croplife.org.au/wp-content/uploads/2018/04/Deloitte-Access-Economics-Economic-Activity-Attributable-to-Crop-Protection-Products_web.pdf)

<sup>2</sup> <https://www.agday.org.au/farm-facts>

<sup>3</sup> [https://docs.wixstatic.com/ugd/f1f1d0\\_8ba2beb5a0444390ad18a7b97083e85e.pdf](https://docs.wixstatic.com/ugd/f1f1d0_8ba2beb5a0444390ad18a7b97083e85e.pdf)

Crop protection products are currently relied upon to increase global food production by between 30 per cent and 50 per cent. Encouraging the development and introduction of newer crop protection products that are better targeted to local pests, environmental challenges and crops by reducing regulatory red tape will enable Australian farmers to play their part in addressing global food security.

The efficiencies inherent in modern production systems enable farmers to feed more people with less land, water and other resources. This reduces pressure on remaining areas of wilderness to be converted to agricultural production. As one of the key drivers of biodiversity loss globally is loss of habitat for native species, the environmental benefits of producing more food more efficiently is significant.

Modern herbicides and insecticides allow farmers to choose the best crop protection technologies to suit the circumstances of their farm, as well as providing for flexibility in the production system, and minimising effects on off-target species. Replacing tillage with responsible use of herbicides provides improved weed control, increasing yields while also providing ancillary environmental benefits. Reducing the need for tillage reduces carbon emissions, improves soil structure and soil biodiversity, and assists soils retain both water and organic matter.

GM crops, an application of modern biotechnology, are just another natural 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 safe and affordable food to the nation and the world. Despite a proven record of safety, every GM crop is subjected to intense global scrutiny. Globally, government regulators have independently reached the same conclusion – that cultivation of GM crops is as safe as their conventional counterparts. More importantly, they are a necessary and important tool in meeting the global food and nutrition security challenge.

GM crops have, over a period of 20 years, demonstrated their environmental sustainability credentials, including by way of:

- reducing overall pesticide use and encouraging the substitution of older pesticides with pesticides that are better targeted, more efficient and have a reduced environmental impact;
- reducing tillage (facilitating no-till farming);
- reducing on-farm fuel use;
- reducing CO<sub>2</sub> emissions from farming operations;
- reducing pesticide runoff into waterways;
- reducing the need for further land use to maintain current global food production;
- increasing soil carbon storage; and
- increasing water-use efficiency.

GM crops currently under research and development in Australia will help Australian farmers to combat environmental stresses such as drought, acid soils and salinity, which are being caused by climatic changes and previous non-sustainable farming practices.

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. Australian-led research into GM vitamin-rich bananas could assist in vastly improving the lives of children in African countries such as Uganda.



## CropLife Members Recognise they have an Ongoing Responsibility to Ensure the Environmental Sustainability of their Products

For this reason, CropLife globally has developed and supported the *International Code of Conduct on the Distribution and Use of Pesticides*. This Code specifies obligations about the stewardship of agricultural chemicals throughout their lifecycle, from innovation, discovery and development through to ultimate disposal of packaging waste. In addition, CropLife Australia members must also abide by the *CropLife Australia Code of Conduct*, and the *Agsafe Code of Conduct*. These stewardship schemes specify the obligations of CropLife Australia members, including requiring participation in the *drumMUSTER* and ChemClear® industry stewardship programs.

Additionally, many CropLife members engage in significant supplementary stewardship of their products, which ensures that the products sold by a company are being used in accordance with all the conditions and precautions necessary for that product.

Collectively, these controls help maintain the environmental sustainability of Australian agriculture by responsibly and efficiently managing farm inputs. The *drumMUSTER* and ChemClear® industry stewardship programs also address environmental and health and safety concerns by disposing of, and recycling farm chemical waste. To date, *these programs* have disposed of more than 31.8 million chemical containers nationally and 38,160 tonnes of materials have been recycled into re-usable products. It is important to recognise that these programs are undertaken voluntarily by industry, not through any regulation, again reinforcing how the issues of environmental sustainability are culturally entrenched both in Australia and globally.

## Resistance Management

CropLife promotes the responsible use of a range of pest management methods to ensure environmentally sustainable agricultural outcomes. Our members are committed to the pursuit of technologies that provide economically viable solutions to pest control.

Crop protection products are an important tool in an integrated approach to pest management. It is recognised that resistance management is a vital aspect of maintaining the crop protection option for integrated crop management. In line with good farming practice, a comprehensive program of alternative management strategies is employed to minimise the development of resistance, whilst contributing towards the quality of the environment.

CropLife's Resistance Management Strategies provide a guide for crop protection product rotation through product groups<sup>4</sup>. The strategies are useful tools that support Australian farmers' adoption of resistance management. Managing the emergence of resistance to crop protection products is an essential part of enhancing environmentally sustainable agricultural practices in Australia.

<sup>4</sup> The CropLife Fungicide, Herbicide and Insecticide Resistance Management Strategies can be downloaded from the CropLife Australia website: [www.croplife.org.au](http://www.croplife.org.au)

## Great Barrier Reef

CropLife and our members recognise that the Great Barrier Reef (the Reef) is a spectacular, fragile and important World Heritage Area that delivers over \$5 billion annually to the Australian economy, and are committed to protecting the Reef from any potential impacts of crop protection products. It is imperative that regulatory requirements for protecting areas of national environmental significance, such as the Reef, are communicated clearly to farmers and are balanced with their production and economic needs, for such a system to be successful and sustainable.

Along much of the Queensland coast adjacent to the Marine Park are some of Australia's most important agricultural areas with grazing, horticulture and sugar farming all occurring in water catchments. Crop protection products are used by farmers to protect crops from pests, weeds and diseases, as well as by other land and environment managers, such as parks and wildlife authorities, to protect Australia's native flora and fauna from noxious weeds and invasive pests. Ensuring the adoption of best practice when crop protection products are applied minimises any risk to the Reef.

Australian and Queensland Government investments in reef management since 2009 and voluntary benchmarking systems across agricultural industries assisting farmers identify and implement practices has resulted in a 36 per cent overall reduction in the annual average pesticide load across the Reef catchments, with pesticides only detected at relatively low concentrations at most sites, as reported in the Reef Plan 2016 report card.<sup>5</sup> This is a commendable outcome and shows that best management practices adopted by growers within the Reef catchment are having a positive result. Continued investment in education and extension will continue to pay dividends in this area.

The current available scientific evidence confirms that the focus for maintaining and improving the health of the Reef should be placed on reducing the risks posed by discharges of nutrients and fine sediments into the Reef from runoff. Ensuring that resources are focused on addressing the known risks posed by nutrients and sediments to coastal and marine reef ecosystems, instead of the possible low risks to inner shore reefs posed by crop protection products, is essential to maintain Reef health.

CropLife supports the Queensland Government's proposal to introduce risk and evidence-based policy to ensure the protection of at least 99 per cent of aquatic species within the various Reef ecosystems, replacing the less accurate policy of simply measuring pesticide load within catchments.<sup>6</sup> This alleviates the previous misconception that the mere presence of a crop protection product equates to damage to the Reef. Utilising a scientifically sound, risk-based approach to identifying potential risks of crop protection products will allow for more realistic protection goals for the Reef's aquatic ecosystems, as outlined in the *Reef 2050 Water Quality Improvement Plan*.

### 3 USING GM CROPS AS A TOOL FOR ENVIRONMENTAL SUSTAINABILITY

Australian farmers must be able to adopt the latest safe and proven agricultural technologies and innovations to combat the threat of food insecurity, the impacts of climate change and increasing costs, while remaining internationally competitive. The first generation of GM crops, with productivity enhancing input traits such as insect resistance and herbicide tolerance, have been rapidly adopted around the globe providing clear agronomic, economic, environmental and social benefits to those 18 million farmers in 26 countries who have accessed the technology<sup>7</sup>.

Regulatory burden, including that imposed by the EPBC Act, if not commensurate with risk can weigh heavily on farm businesses and undermine the agriculture sector's productivity, competitiveness and environmental sustainability goals.

#### GM crops in Australia: a snapshot of GM cotton and GM canola Benefits to Environmental Sustainability

In Australia, growing GM cotton varieties has seen environmental benefits resulting from decreased insecticide use and changes in the type of insecticides and herbicides used. First grown in 1996, almost 100 per cent of Australia's cotton crop is now grown with GM varieties<sup>8</sup>. Cultivation of GM insect resistant cotton varieties has enabled a reduction in the amount of insecticide active ingredient used by up to 85 per cent<sup>9, 10</sup>. This, in conjunction with industry stewardship practices, has greatly reduced the potential for chemical runoff into rivers in cotton growing regions of Australia<sup>11</sup>.

The types of chemical being used have also changed. Because of the 'in-built' insecticide in GM insect resistant cotton, insect control can be more targeted and specific meaning there is less of an impact on non-target organisms thereby allowing beneficial insects (i.e. predatory insects) to remain in the crop. It is worth noting that the insecticidal 'Bt' protein expressed in GM insect resistant cotton is also an approved input in organic agriculture. In-crop fuel use is also reduced because of fewer insecticide applications being required.

GM herbicide tolerant cotton has increased the adoption of minimum tillage practices and the replacement of some herbicides with less hazardous alternatives. By facilitating minimum tillage, GM herbicide tolerant cotton has reduced soil erosion, increased retention of soil moisture and increased soil carbon. Reducing the use of some residual herbicides, together with good industry stewardship, has decreased the potential for herbicide runoff into waterways<sup>12</sup>.

<sup>7</sup> ISAAA 2016. 'Global Status of Commercialized Biotech/GM Crops: 2016'. *ISAAA Brief No. 52*. ISAAA: Ithaca, NY.

<sup>8</sup> Cotton Australia Cotton Fact File: Biotechnology <http://cottonaustralia.com.au/cotton-library/fact-sheets/cotton-fact-file-biotechnology> accessed 18 July 2017.

<sup>9</sup> Hattersley P, Johnson H, Glover J, Foster M, Wesley V and Mewett O 2009. 'Plant Gene Technology: Improving the Productivity of Australian Agriculture'. Australian Government Bureau of Rural Sciences, Canberra.

<sup>10</sup> Holtzapffel R, Mewett O, Wesley V and Hattersley P 2008. 'Genetically modified crops: tools for insect pest and weed control in cotton and canola'. Australian Government Bureau of Rural Sciences, Canberra.

<sup>11</sup> *Ibid.*

<sup>12</sup> Hattersley *et al.*, Op. cit.



Economic and social benefits have also been realised through the adoption of GM crops in Australia. For example, in GM cotton growing regions, the incidence of on-farm workplace incidents have decreased because of reduced insecticide spraying and the reduced need for hand weeding in cotton fields. Community perceptions of the Australian cotton industry have also markedly improved since GM cotton was first grown in 1996<sup>13</sup>. Cultivation of GM cotton varieties has allowed cotton farmers to spend less time on the tractor and more time with their families, an important social implication for rural Australia that should not be overlooked.

The adoption of GM herbicide tolerant canola varieties in Australia has also resulted in environmental benefits and increased environmental sustainability. For example, just as for those farmers growing GM herbicide tolerant cotton, cultivation of GM herbicide tolerant canola has allowed farmers in New South Wales, Victoria and Western Australia to use selective, targeted and lower hazard crop protection products.

Herbicide tolerant canola provides farmers with more effective weed control, particularly for those broad leaf weeds, such as wild radish, that are closely related to canola. Varieties of non-GM herbicide tolerant canola have been grown in Australia since 1993 (triazine tolerant) and 2000 (imidazolinone tolerant). The introduction of glyphosate tolerant GM canola merely adds another weed management option to farmers' weed control toolbox. Both non-GM and GM herbicide tolerant canola technologies have led the shift to no-till or conservation tillage systems with associated environmental benefits such as reduced soil erosion and increased soil water retention.

The agronomic benefits of GM (when compared to non-GM) herbicide tolerant canola include increasing the options for in-crop weed control, allowing herbicide rotations that address the risk of herbicide resistant weeds developing and increasing the yield in subsequent cereal crops, which could be adversely affected by herbicide carry over from the herbicides used in non-GM herbicide tolerant crops.

## The global socio-economic and environmental impacts of GM crops

The most recent annual report on the global socio-economic and environmental impacts of GM crops from the independent British consultancy firm, PG Economics, indicated continued considerable economic and environmental benefits to the farmers and public in countries where GM crops are grown<sup>14</sup>. The report indicated that the net global benefit at the farm level in 2015 from growing GM crops was US\$15.4 billion. For the 20-year period (1996-2015) covered by the report, the global farm income gain has been US\$167.8billion. Australian GM cotton and canola farmers have realised a benefit of over US\$1.02 billion in the period 1996-2015<sup>15</sup>.

<sup>13</sup> Holtzapffel *et al.*, Op. cit.

<sup>14</sup> Brookes G and Barfoot P 2017. 'GM crops: global socio-economic and environmental impacts 1996-2015'. PG Economics, Dorchester, June.

<sup>15</sup> Australian GM cotton farm income benefit US\$949 million 1996-2015; GM canola farm income benefit US\$74 million 2008-2015.



If crop biotechnology had not been available to the more than 18 million farmers using the technology in 2015, maintaining global production at the 2015 levels would have required additional plantings equivalent to 40 per cent of the arable land in Australia. That's more than 19 million hectares of forest and natural habitat not used for agricultural purposes in 2015 alone.

The PG Economics report also notes that GM crops have contributed significantly to reducing the release of greenhouse gas emissions from agricultural practices. This results from less fuel use and additional soil carbon storage from reduced tillage associated with GM crops. In 2015, this was equivalent to removing 28.7 billion kg of carbon dioxide from the atmosphere, or equal to removing more than 12 million cars (72 per cent of cars registered in Australia) from the road for one year<sup>16</sup>.

The report notes that agricultural biotechnology has contributed to a significant reduction in the environmental impact associated with insecticide and herbicide use on the areas devoted to GM crops. From 1996-2015, the use of pesticides on the global GM crop area was reduced by 620 million kg of active ingredient (8.1 per cent total reduction) and the environmental impact associated with herbicide and insecticide use on GM crops, as measured by the Environmental Impact Quotient indicator, fell by 19 per cent<sup>17</sup>.

A 2012 study reported in the science journal *Nature*, found that in China over a period of 16 years, vast plantings of GM insect-resistant crops have helped to control several major insect pests and reduced the need for additional insecticide applications by promoting the bio-control services offered by beneficial predatory insects<sup>18</sup>. On conventional crops, these beneficial insects were killed by the broad-spectrum insecticides used to control the major target pests (for example, cotton bollworm). This study found a marked increase in the abundance of three arthropod predators (ladybirds, lacewings and spiders) and a decreased abundance of aphid pests associated with the widespread adoption of GM insect-resistant cotton and reduced insecticide sprays in this crop<sup>19</sup>.

A 2014 study by the International Food Policy Research Institute measures the impacts of agricultural innovation on farm productivity, prices, hunger and trade flows to 2050 and identifies practices that could significantly benefit developing nations. The study reinforces that no single agricultural technology or farming practice will provide sufficient food for the world in 2050<sup>20</sup>. This highlights the need for a combination of agricultural technologies and practices, such as heat-tolerant crops and no-till farming. It also reinforces the importance of functional regulatory systems commensurate with risk to facilitate the timely adoption of plant science innovations.

<sup>16</sup> Brookes G and Barfoot P 2017, *Op. Cit.*

<sup>17</sup> *Ibid.*

<sup>18</sup> Lu Y, Wu K, Jiang Y, Guo Y and Desneux N 2012. 'Widespread adoption of Bt cotton and insecticide decrease promotes bio control services'. *Nature* doi: 10. 1038/nature11153 published online 13 June 2012.

<sup>19</sup> *Ibid.*

<sup>20</sup> Rosegrant Mark W. et al. 2014 'Food Security in a World of Natural Resource Scarcity: The Role of Agricultural Technologies' *International Food Policy Research Institute (IFPRI)*

## 4 CONCLUSION

Farm businesses in Australia are subject to a vast and complex array of regulations, of which the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) is just one. For farmers, reducing regulatory burden means less time spent dealing with regulation and more time spent on productivity enhancing activities. It is imperative that regulatory systems are commensurate with risk and that farmers understand their obligations within the regulatory environment to ensure Australia's agricultural system remains productive, competitive and sustainable.

Because of the wide variety of farming systems and circumstances throughout Australia, growth in agriculture will only be delivered by enabling farmers to make management choices and decisions that best suit their individual circumstances. Any decisions made by farmers in consideration of their circumstances can support both improved productivity and environmental sustainability. It is therefore imperative that farmers fully comprehend their obligations and responsibilities for protecting the environment whilst making decisions about how best to manage pests and diseases. Ultimately, it is farmers that best understand the pressures faced by a farm enterprise and the environments within which they live and work. Regulatory environments in Australia that support agriculture and food production must continue to allow farmers to make decisions in the best interests of their own business. This means enabling farmers to adopt any of a range of farming systems, or a combination of them, whilst ensuring the environmental sustainability of their operations.

CropLife and its members are committed to supporting all farming systems in Australia by providing farmers with the innovation, technologies, tools and products that they need to ensure productive, profitable, sustainable and innovative farming practices. It is essential that government works with industry to create efficient nationally harmonised regulations and legislation that is commensurate with real risk, and maintains the ability for Australian farmers to access the latest innovative tools in plant science.