

HISTORY OF GENETICALLY MODIFIED CROPS IN SA

BACKGROUND

In the late 1980s novel new varieties of soybean, cotton, corn, canola and sugar beet were being developed in North America and Europe by international seed and biotechnology companies using genetic modification techniques to introduce genes from other species. For many people the use of transgenic genetic modification in the development of food crops represented a valuable step in the continuing evolution of plant selection and breeding techniques, while others saw it as a fundamental change to production techniques which raised social, environmental and ethical issues. These conflicting perspectives led to widely diverse views on the use of Genetically Modified (GM) food crops and foods derived from them, such as perceived risk to human health and the environment, and the level of regulatory control which should be applied. Internationally, governments responded in different ways to regulate crops produced by this new technology.

REGULATION IN AUSTRALIA

The first GM crop sown commercially in Australia was in 1996 in NSW. This was an insect resistant variety of cotton developed under licence by CSIRO. However, at that stage Australia had no nation-wide legislation to regulate the commercial cultivation of genetically modified crops.

Prior to that, in 1990, the peak ministerial council for the sector, SCARM (Standing Committee on Agriculture and Resource Management), had agreed that Australian agricultural industries should be able to capture the benefits potentially arising from genetically engineered organisms, and that protocols were urgently needed for the release and use of these organisms.

Subsequently, in 2001, a national regulatory scheme was established in Australia by the *Commonwealth Gene Technology Act*, accompanied by complementary acts in each State enabling the effective and consistent regulation across Australia of all Genetically Modified Organisms. The Commonwealth Office of Gene Technology Regulator (OGTR) was established by this Act to become the primary national regulating authority for all Genetically Modified Organisms, including GM crops.

This scheme did not explicitly cover marketing and trade issues so individual states, rather than the Commonwealth, were specifically left with the authority to regulate GM crops for market purposes only. This was enabled by the *Gene Technology (Recognition of Designated Areas) Principle 2003 (Cmth)*. This principle was issued by the national Gene Technology Ministerial Council under subsection 21 (1) of the *Gene*

Technology Act 2000. This enabled the designation by states of areas for (or not for) the cultivation of genetically modified crops to suit market requirements.

Also, at about this time, a new national standard was established under the *Australia New Zealand Food Authority Act 1991* addressing food produced using gene technology. Overseen by Food Standards Australia and New Zealand, Standard 1.5.2 was included in the Australia New Zealand Food Standards Code to regulate the sale, use and labelling of food produced using gene technology within Australia and New Zealand.

In 2002 the Commonwealth Gene Technology Regulator was finalising consideration of two applications for the commercial release of GM canola cultivars. If these were to have been granted (which they ultimately were in 2003), then Bayer Crop Science's glufosinate tolerant canola cultivar (InVigor) and Monsanto's glyphosate tolerant cultivar (Roundup Ready) might have been available for commercial sowing in Australia as early as the 2004 planting season. In response grain growers and supply chains in Australia needed to consider the implications of coexisting conventional and GM food crop production as well as the positions being taken by local and international markets. Regulatory positions taken by countries importing Australian grains were cautious and sometimes even prohibitive in regard to GM, and local supply chains were examining their capacity to segregate GM and non-GM food crops and grains to avoid unwanted mixing and ensure that products complied with market thresholds for purity, some of which were still being established at that time.

The Australian grain handling industry had, over time, been effectively segregating large volumes across several classifications of cereals, oil seeds and legumes to consistently meet customer specifications and trading regulations using transparent quality protocols, purity standards and testing regimes. These now needed to be expanded to address the forthcoming need to segregate GM and non-GM canola. In 2005, this resulted in the Australian Oilseeds Federation proposing a nationally consistent definition of threshold levels in canola seed and grain for the adventitious presence of GMOs that had already been approved for commercial release by the Gene Technology Regulator. This proposal was agreed to by the Ministerial Council and established an upper threshold for adventitious presence of approved GM canola varieties in non-GM canola of 0.9% in grain and 0.5% in seed for sowing.

REGULATORY DEVELOPMENT IN SOUTH AUSTRALIA

By 2002 some Australian State Governments were flagging the possible introduction of moratoria on GM Canola or even on GM crops in general. South Australia was preparing for the March 2002 State election, and the matter of GM food crops created considerable political activity. After that election the incoming State government acted on a pre-election commitment to regulate GM crops and the Minister for Human Services, Hon. Lea Stevens MP, put the motion to the House of Assembly in August

2002 to establish a Parliamentary Select Committee on Genetically Modified Organisms. This Select Committee was established that year to consider and advise Parliament on the impact GM plants might have in South Australia on human health, the environment and agricultural market access. This Committee, chaired by the Hon Rory McEwen MP, narrowed the terms of reference and determined that the Committee's Final Report would not address issues relating to the impacts of GM plants on human health or the environment which were issues controlled by the *Commonwealth Gene Technology Act 2001*

The Select Committee's final report was tabled in both Houses in February 2003. It made 16 recommendations, all of which were accepted.

Recommendation 2 in the Select Committee's Report stated that: "*The South Australian Government should as soon as practicable introduce new legislation to protect the State's markets, under the Minister responsible for Agriculture. The aim of the legislation is to ensure that the commercial release of GM crops into South Australian agriculture is only permitted when: Coexistence to meet market demands for different classes of crops and products, e.g. GM free, non-GM and GM, can be guaranteed by industry through the establishment of rigorous and cost effective segregation and IP systems throughout the total production and supply chain.*"

Most of the remaining recommendations provided the structure for what would become the *South Australian Genetically Modified Crops Management Act 2004*.

The Hon Rory McEwen MP, by now Minister for Agriculture Food and Fisheries, assumed the lead responsibility for developing the new legislation and PIRSA prepared drafting instructions for the new Act along the lines of the Select Committee's determinations. The Government also determined that the Act should be in place before the next planting season commenced in South Australia. The Act was duly proclaimed in March 2004 and was to be reviewed after three years of operation.

The *Genetically Modified Crops Management Act 2004* enabled the Minister to make regulations to designate what GM food crops can be cultivated within the State, and where they may be cultivated for marketing and trade purposes. The Act does not enable regulation of genetically modified non-food plants such as ornamentals or forestry species but does apply to any genetically modified pastures and crops for livestock consumption. Regulations were made to apply a moratorium on the cultivation of any GM food crops and the initial Regulation under the new Act was issued designating that no GM food crops were to be cultivated anywhere within the State. This regulation was to expire in 2008.

Around that time NSW and WA introduced moratoria on the cultivation of GM food crops. In 2008 NSW subsequently permitted the cultivation of GM canola, and then in 2021 removed the moratorium on all GM crops. The WA moratorium was lifted in 2010. In 2004 Victoria introduced a moratorium which was lifted in 2008. Also, in 2008 the

ACT and Tasmania established, and at the time of writing, still retain these moratoria on all GM crops.

Since its introduction in Australia GM canola has traded at a lower price than non-GM canola. The price differences, rates of uptake and reasons for grow GM canola have been examined widely since permission in other states was provided. Anticipated grain sale price is a significant factor for grain growers in crop selection, but production costs, crop yields and weed control and seasonal risk management strategies also play critical roles in determining what crop types growers plant.

The industry's adoption of grain testing and segregation protocols enabled problems of grain segregation to be avoided since the introduction of GM canola in other States.

The Act refers to "dealing" with GM food crops, and the broad definition of "dealing" used in the Act includes, amongst other things, the transport of GM crop material. The Moratorium therefore placed a prohibition on the transport of certified GM canola seed from Eastern States seed companies across South Australia by road or rail to supply the large areas sown to GM canola in Western Australia.

Genetically Modified Crops Management Act 2004 had a provision that the Minister could confer exemptions for the cultivation of OGTR approved GM food crop(s) on a limited scale and contained under prescribed operational conditions. Exemptions were issued under the Act to allow for small scale field trials and later transport under strict conditions to mitigate the risk of mixing with non-GM food crops.

The Act also established a statutory ministerial advisory body, the GM Crop Advisory Committee, which continues to be chaired by former Member of Parliament Hon Anne Levy.

The Act also deals at length with compliance with the Act and its Regulations. The compliance function was incorporated into PIRSA's, Plant Health Services. This included ongoing monitoring and compliance of Bayer's GM canola development program.

REVIEW OF THE MORATORIUM

In 2008 a statutory review of the Act was undertaken, resulting in the promulgation of the *Genetically Modified Crops Management Regulations 2008* which extended the Moratorium to 1/9/2018.

In 2017, the Hon Mark Parnell introduced the *Genetically Modified Crops Management Regulations (Postponement of Expiry) Bill 2017* into the Legislative Council. This Bill was passed by the Parliament and extended the Regulation establishing the Moratorium until 1/9/2025.

LIFTING THE MORATORIUM

The incoming Government in 2018 had a pre-election commitment to review the GM food crop moratorium. It commissioned an independent review of the moratorium, *Review of the South Australian GM Food Crop Moratorium*, by Prof Kym Anderson, completed in February 2019. In parallel a Select Committee of the Legislative Council on the Moratorium on the Cultivation of Genetically Modified Crops in South Australia was established, following a motion from the Independent, Hon John Darley MLC. The Report of this Committee was tabled in Parliament on 28 October 2019.

The review examined the benefits and costs of the moratorium to the South Australian economy and agriculture industries. After consultation on the finding of this review and advice from the GM Crop Advisory Committee, the Government decided to pursue changes to lift the moratorium in all parts of South Australia, except Kangaroo Island.

In October 2019 the then Minister for Primary Industries and Regional Development, Hon. T Whetstone, sought to alter the wording of the Regulation so that cultivation of GM food crops could be undertaken on mainland South Australia. The process followed the consultative requirements of the Act, but the regulation was subsequently disallowed by the Legislative Council in December 2019.

The Minister for Primary Industries and Regional Development then introduced the *Genetically Modified Crops Management (Designated Area) Amendment Bill 2019* which, while passing the House of Assembly, was not passed by the Legislative Council.

The *Genetically Modified Crops Management (Designated Area) Amendment Act 2020* was introduced into the House of Assembly in February 2020. Following debate and amendments, the Bill gained bipartisan support and was assented to on 15 May 2020 with a 6-month implementation period. The passing of this Bill resulted in major changes to the method of designation of areas where GM food crops may/may not be cultivated in the State. It specifically designated only Kangaroo Island as an area in which no genetically modified food crops may be cultivated, revoked the *Genetically Modified Crops Management Regulations* and removed the Minister's authority to make such regulations. It also modified the definitions in the Act to exclude transport removing any prohibition on transporting of GM food crops in the State.

The Act also provided local councils with a once-only opportunity to apply to the Minister to be designated an area in which no genetically modified food crops may be cultivated until 15 November 2020. This provision included requirements for councils to consult with their community, including persons engaged in primary production activities and food processing or manufacturing activities before making an application and for the Minister to consult with the GM Crop Advisory Committee before making a determination on any application.

The advice given to councils stated that these applications should be based on market related matters, as health and environmental issues are separately managed under Commonwealth legislation.

Eleven of the 68 councils made applications to the Minister and as required by the Act were referred to the GM Crop Advisory Committee for advice.

In its publicly released advice to Hon David Basham MP, who had replaced Tim Whetstone as Minister for Primary Industries and Regional Development in July 2020, the GM Crop Advisory Committee advised that they had unanimously agreed that none of the 11 applications presented sufficient evidence for the Committee to recommend designation as areas where growing GM food crop is prohibited.

Minister Basham accepted the unanimous recommendations of the Committee. Therefore from 2021 onwards farmers across mainland South Australia will have the option to consider growing commercially approved GM food crops and pastures.

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References

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