



# Review of the National Gene Technology Scheme 2017

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# Table of contents

## Contents

About NSW Farmers.....	2
Executive summary .....	3
Introduction .....	4
Review theme 1: Technical issues.....	4
Review theme 2: Regulatory issues .....	5
Review theme 3: Governance issues .....	7
Review theme 4: Social and ethical issues.....	9
Additional considerations for the Scheme.....	10
Conclusion.....	10

## About NSW Farmers

### *A profitable and sustainable New South Wales farming sector*

The NSW Farmers' Association is Australia's largest State farming organisation representing the interests of its farmer members.

Farmers across New South Wales produce more than \$15 billion worth of food and fibre every year, representing around one quarter of Australia's total agricultural output. Our state's unique geography means a wide variety of crops and livestock can be cultivated and nurtured. NSW Farmers is Australia's only state-based farming organisation to represent the interests of farmers of all agricultural commodities – from avocados and tomatoes, apples, bananas and berries, through grains, pulses and lentils to oysters, cattle, dairy, goats, sheep, pigs and chickens.

Our focus is not just on issues affecting particular crops or animals – it extends to the environment, biosecurity, water, economics, trade and rural and regional affairs. We also have an eye on the future of agriculture; we are advocates for innovation in agriculture, striving to give our members access to the latest and greatest innovations in research, development and extension opportunities. Our industrial relations section provides highly specialised advice about labour and workplace matters.

Our regional branch network ensures local voices guide and shape our positions on issues which affect real people in real communities. Members are the final arbiters of the policies of the Association – through our Annual Conference and elected forums such as Executive Council, members can lobby for the issues which matter to them and their community to become Association policy. Our issue- and commodity-specific Advisory Committees are elected by members to provide specialist, practical advice to decision makers on issues affecting the sector. We are proudly apolitical – we put our members' needs first.

In addition, NSW Farmers has partnerships and alliances with like-minded organisations, universities, government agencies and commercial businesses across Australia. We are a proud founding member of the National Farmers' Federation.

## Executive summary

NSW Farmers appreciates the opportunity to participate in the review of the National Gene Technology Scheme 2017.

NSW Farmers members are often end-users of genetically modified products; as such, we are keen to see the current regulatory scheme continue to deliver productivity and efficiency gains for our farmers, better environmental outcomes, and also allow for the safe research, development and release of future technologies and products. NSW Farmers also looks to ensure that both the development and release of future technologies have been subjected to appropriate levels of transparency and scientific scrutiny in order to verify their safety within the ranks of both producers and consumers.

Continuing market access and maintaining Australia's reputation for safe food production is a key priority for our members. NSW Farmers supports the ability of farmers to make production decisions that suit their business, including the use or otherwise of GM material. We note a number of policy issues in this space, including marketing-based moratoria, could impede the ability of our members to manage their own production. We have highlighted areas where the Office of the Gene Technology Regulator, or other relevant agencies, could consider existing market mechanisms or overseas models to provide assurance to customers and consumers in relation to genetically modified products.

The future application of GM technology and products is exciting for Australian agriculture, including in the areas of pest and weed management, improved biosecurity, and positive animal welfare outcomes. Upcoming developments in gene technology should be appropriately considered and regulated to ensure there is no detrimental impact on agricultural production, or the reputation of the sector. The research and development of safe, effective products should be encouraged to allow Australian agriculture to capitalise on our competitive advantage in research and science. We also encourage relevant agencies to improve communication to the general public on the integrity of Australia's gene technology regulation.

## Introduction

From CRISPR to pollen magnetofection and germline therapy, there are a number of both commercialised and horizon technologies that offer significant opportunities for productivity and efficiency in Australian agriculture. Our industry has already seen substantial gains from the use of genetic technology, including in the cotton and canola industries, allowing producers to reduce reliance on insecticides, decrease labour and fuel usage, improve soil quality and increase yield. New technologies also bring exciting prospects for modifying animal genes to improve biosecurity and animal welfare outcomes.

NSW Farmers represents the downstream users of gene technology and, as such, have an interest in ensuring that the regulation of gene technology is efficient and effective. NSW Farmers believes that existing regulation of access to genetically modified crops through the Office of the Gene Technology Regulator (OGTR) appropriately ensures there are no known detrimental implications for consumers of normal dietary proportions that are grown or fed with genetically modified (GM) produce.

NSW Farmers supports the ability of producers to use genetically modified organisms where it makes sense for their business. Additionally, we believe that farmers' private commercial interests should be assisted and not constrained by the commercial breeding and release of GM technologies.

We recognise that Food Standards Australia and New Zealand has regulatory oversight of food safety and labelling, including for GM products. We support continued labelling of products where a genetically modified organism is present as an ingredient in a food product.

We are grateful for the opportunity to have participated in face-to-face consultation with the OGTR, NSW Department of Primary Industries, and the Commonwealth Department of Health. At these sessions, we provided feedback on Review themes 1: Technical issues and 2: Regulatory issues. The feedback contained in this submission expands to include Review themes 3: Governance issues and 4: Social and ethical issues, with some additional discussion on animal welfare considerations.

## Review theme 1: Technical issues

### *Intentional release*

#### **Consultation questions:**

- *What are the potential implications of the release of a GMO targeting an invasive species in Australia?*
- *What are the technical issues to consider in the scenario of a GMO used to target an introduced plant, vertebrate or invertebrate pest?*

Pest animals and weeds have significant impacts on both agricultural productivity and environmental biodiversity. NSW Farmers has ongoing concerns with the management of pests and weeds, and we support increased and upgraded research on biological controls and other control measures for noxious and nuisance weeds and pest animals. The cost to the NSW agricultural industry of pest

animals is estimated at \$151.5 million annually (including rabbits, goats, pigs, foxes, dogs, introduced birds and carp).<sup>1</sup> This does not account for damage from kangaroos and deer.

Weeds cost the New South Wales economy over \$1.8 million each year through weed control costs, productivity losses, expenditure by public agencies and value lost due to price responses in agricultural markets.<sup>2</sup> We specifically support research into biological controls for the flea bane, fireweed, spiny burr grass, blue heliotrope and giant Parramatta grass.

We support research into, and the use of, gene drives and other biological control measures as effective means of control of weeds and pests. There are significant policy determinations for consideration before the approval of any gene drive program, including classification of pest animals. These considerations sit outside the OGTR and would need to be worked through before the OGTR begins approval processes for more biological control. Regulators should also consider whether the Commonwealth approvals process can effectively interact with jurisdictional processes. A paper on biological control of carp noted the difficulty with implementing regulatory decisions on biological control within the current jurisdictional frameworks, stating that:

*Implementation of any genetic method to control invasive fish will be heavily influenced by an as yet unknown level of public acceptability and a regulatory and policy framework for managing environmental applications of genetic technology that is confused at almost all jurisdictional levels.*<sup>3</sup>

This remains true for future biological control mechanisms relying on gene technology. Where opportunities exist for using gene drive technology, we submit this should be appropriately regulated to prevent adverse environmental or agricultural effects. If the OGTR takes a technology approach to regulation, rather than a product approach, it follows that gene drives using CRISPR-Cas9 should be regulated under the OGTR. Harmonisation between states would allow for more efficient release approval for genetic pest and weed control. We encourage regulators to liaise with the Department of Agriculture and Water Resources to understand how gene drives may affect Australia's trading relationships.

## Review theme 2: Regulatory issues

### *Accessibility and managing new potential harms*

#### **Consultation question:**

- *How might the Scheme accommodate the DIY-biology movement?*

DIY-biology (or biohacking) is a growing biotechnological social movement in which individuals, communities, and small organisations study biology and life science using the same methods as traditional research institutions. If the DIY-biology movement continues to grow and operate in

<sup>1</sup> McLeod, R. (2016). *Cost of Pest Animals in NSW and Australia, 2013-14*. eSYS Development Pty Ltd.

<sup>2</sup> Natural Resources Commission (2014). *Weeds – Time to get serious. Review of weed management in NSW: Final report and recommendations*.

<sup>3</sup> Thresher, R. (2008). 'Autocidal Technology for the Control of Invasive Fish.' *Fisheries*. 33. 114-121.

Australia, there is a significant risk that valuable agricultural industries could be compromised by intentional or unintentional environmental release of unsafe organisms, let alone potential impacts to human and environmental health. For this reason, it is important that the Scheme captures biohacking.

We suggest that there could be a carrot and a stick to encourage regulation of DIY biology – incentive for people to access the scheme, and enforcement and compliance activities to ensure its effectiveness. Backyard biohackers may be more likely to avoid regulation if the process is arduous and technical. A simple process for small-scale biohacking could be incorporated into the suggested ‘tiered risk’ approach for approvals. It is also important that outreach is undertaken by the regulator to provide education about the new scheme to the DIY biology movement and ensure open communication between the community and the regulator.

### **Market access and international trade**

#### **Consultation question:**

- *What are the potential impacts on market access for exporters of animal or plant derived food products?*

Perceptions in international markets with sensitivities towards GM products should be carefully managed when considering technology or product approvals. The Department of Agriculture and Water Resources (DAWR) has expertise in this area, and Meat and Livestock Australia (MLA) employ in-country staff in all key markets. These staff work within these markets to understand consumer preferences and provide advice to Australian red meat industries on trade and access issues. As such, these staff could be engaged by Australian regulators to provide feedback on market requirements and attitudes.

With regard to existing trade barriers on similar issues, the European Union Cattle Accreditation Scheme (EUCAS) is a market access program for Australian cattle to be sold into the EU. EUCAS is an Australian scheme that guarantees full traceability of all accredited cattle through the National Livestock Identification System, linking individual animal identification to a central database. EUCAS allows Australia to meet the EU market requirements for beef by segregating cattle that have never been treated with hormonal growth promotants (HGP) at any time.

The EUCAS program was introduced in response to the European Union (EU) concern about the potential health impacts of HGP, which are an accepted management tool within the Australian cattle industry. There are parallels between the EU’s imposition of technical trade barriers on HGP treatments and GM products, particularly in regard to public perceptions of safety. MLA notes that numerous reviews and evaluations of safety and public health risks associated with HGP usage have been conducted by national and international regulatory agencies. HGP have also passed rigorous safety and efficacy evaluations by national registering authorities such as the US Food and Drug Administration and the APVMA.<sup>4</sup>

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<sup>4</sup> Meat and Livestock Australia (2011). *Hormone growth promotants and beef production: A best practice guide*.

EUCAS may be a relevant scheme to incorporate any EU or other market requirements for non-GM animals, should gene technology develop to a point where it is commercialised for beef cattle in Australia.

## Review theme 3: Governance issues

### GM moratoria

#### Consultation question:

- *What evidence is there to support economic and trade advantages of GM moratoria – or indeed, the absence of GM moratoria?*

Recent work by Mecardo suggests there is very little economic advantage from South Australia's GM moratorium. The findings from this analysis are summarised below.

*The Mecardo team have undertaken analysis across a variety of crop and livestock prices comparing the historic spread of the SA prices to comparable markets in other states and we have yet to find any evidence in support of the SA Greens claims that the moratorium on GM provides a significant price premium for their producers compared to producers from outside of SA.*

*Indeed, the evidence for cattle suggests otherwise. The long-term average spread for Victorian to SA Trade Steers from 1998 to 2017 sits at 8.3% premium. However, measuring the average spread from 2008 to 2017, which encapsulates the period that the GM moratorium has been in effect, shows that the premium spread has widened to 9.1% in favour of Victorian producers.<sup>5</sup>*

*The South Australian ban on GM cultivation is providing little if no extra premium to prices of livestock and canola. There may be premiums in other sectors such as the seafood and wine industry, however this is of little comfort to canola producers.*

*At present producers do not have access to all the tools to help manage their crops, and evidence has shown from around the world that GM and non-GM crops can co-exist. If there are no premiums available to these growers, then they are effectively subsidising other food industries.<sup>6</sup>*

The Productivity Commission review on Regulation of Australian Agriculture noted that there is “no clear case for governments to support non-GM producers’ marketing activities at the expense of those who wish to grow GM crops”.<sup>7</sup> The Commission also stated that “if GM and non-GM systems can co-exist, producers of non-GM products would realise benefits regardless of whether GM

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<sup>5</sup> Mecardo (2017). *In search of the elusive SA premiums*. 21 November 2017. Available at <http://www.mecardo.com.au/commodities/cattle/analysis/in-search-of-the-elusive-sa-premiums.aspx>

<sup>6</sup> Mecardo (2017). *An honest politician, lamb, cattle & GM Canola*. 19 September 2017. Available at <http://www.mecardo.com.au/commodities/grain/analysis/an-honest-politician,-lamb,-cattle-gm-canola.aspx>

<sup>7</sup> Productivity Commission (2016). *Regulation of Australian Agriculture*, Report no. 79, Canberra.

products were in the market,” and suggested that premiums could be delivered through branding of individual products and companies as there is a lack of demonstrated market failure to justify moratoria. Evidence from the Productivity Commission also suggests that there are no net benefits from moratoria, and that they impose millions of dollars in net costs.<sup>8</sup>

Mecardo’s analysis demonstrates that the suggested outcomes from South Australia’s moratorium are, in fact, often detrimental to growers. Moratoria impact the ability of a state’s primary industries sector to diversify its production, particularly by introducing high-value, high-demand crops such as cotton and thebaine poppies. Moratoria can also disrupt supply chains and imposes costs on other jurisdictions; for example, preventing the transport of GM poppies from growers in Victoria to processing in the Northern Territory through the moratoria zone in South Australia. A similar situation occurs in the inability of canola producers to move seed and product from Western Australia to the eastern states.<sup>9</sup> As noted by Mecardo, GM technology can also help reduce costs for growers, including through reduced pesticide use; where premiums are not delivered back to the grower from a GM moratorium, there is a net loss for the grower.

Moratoria may also discourage research into genetically modified animal organisms that could provide significant benefits for related industries, including animal welfare and associated premiums. One example of this is the potential for breeding GM sheep with altered breeches to prevent the need to mules. As wool from non-mulesed sheep currently attracts a premium from buyers, industry spends a considerable amount of funding on researching both alternatives to mulesing and non-GM breech modification, with little progress achieved to date. Moratoria imposed by jurisdictions would, theoretically, exclude growers in those jurisdictions from breeding GM sheep, therefore attracting a discount on their wool.

**Consultation question:**

- *What other mechanisms could be utilised in order to realise the outcomes currently achieved through moratoria?*

The intent of some GM moratoria may be to create marketing premiums on the basis of end-user discomfort with GM products, regardless of whether this discomfort is science-based. NSW Farmers submits that the OGTR does not have a role to play in determining the need (or otherwise) for moratoria, as the imposition of such is a trade-based decision, made on a political level. As noted in the Productivity Commission’s report, moratoria can be imposed for market access and trade reasons, but not safety reasons.

These moratoria may be designed to provide a level of comfort to consumers; we suggest that good communication of the OGTR’s rigorous assessment process and the safety of approved products may provide an alternative and allow for well-informed consumers. This is also reflected in the Productivity Commission report, which recommended all jurisdictions remove moratoria on GM crops by 2018, as well as removing legislation that gives jurisdictions power to impose moratoria. This would prevent the political cycle from disrupting growers’ business operations by repeatedly imposing and/or repealing moratoria.

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<sup>8</sup> *ibid.*, p 280

<sup>9</sup> Productivity Commission (2016).

## Review theme 4: Social and ethical issues

### *Public understanding and confidence in the Gene Technology scheme*

#### Consultation questions:

- *What does the public need to know?*
- *Who is best placed to provide that information?*

Information about gene technology can empower consumers to decide based on facts rather than misinformation, provided that this information can be interpreted by the general population. Relevant information would include processes undertaken by the Regulator and conditions that need to be satisfied for a product or technology to be approved, rather than specifics of the product or technology itself.

We note that the consultation paper mentions transparency of commercial GM crop locations as being of concern to respondents. NSW Farmers would not support disclosure of GM crop locations, as this presupposes that GM crops are an inherent safety concern. Such a move could pose a security risk to producers growing GM crops. Where GM crops are grown in proximity to produce with specific certification requirements, arrangements for buffer zones and other considerations should be worked out privately between adjoining landholders and other affected stakeholders.

As outlined in our submission to the Productivity Commission report, NSW Farmers supports the ability of a farmer to select the farming system they seek to implement, including the use of genetically modified crops, such as cotton and canola, or alternatively the implementation of conventional and organic farming systems. Research surveying canola growers over the period 2008-2010 found that co-existence did not appear to be a major factor within the majority of the farming community.<sup>10</sup> As part of continuing the goodwill between those who seek to engage in separate production systems, NSW Farmers encourages those within the supply chain to make the appropriate arrangements to segregate GM and non-GM products.

According to the Productivity Commission, governments have “a role in addressing knowledge gaps that prevent consumers from making well-informed decisions,” for example “providing information about vaccinations to counter misleading safety claims.” The Commission recommended that the government take a similar approach for informing the public on GMOs, including through consultation with the CSIRO and the Commonwealth Chief Scientist.

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<sup>10</sup> Hudson, D and Richards, R (2014). ‘Evaluation of the Agronomic, Environmental, Economic and Coexistence Impacts Following the Introduction of GM Canola to Australia (2008-2010)’, *The Journal of Agrobiotechnology Management and Economics*, 17(1) 9-10.

## ***Access and equity for Australian agricultural research and development and industry***

### **Consultation question:**

- *Is the Scheme putting up barriers to research and development and commercialisation of agricultural applications?*

An effective regulatory scheme should provide certainty for companies to invest in gene technology, and also for public institutions to pursue genetic research for the benefit of Australia's agricultural industries and consumers. It is important that the regulatory scheme allows for research where the end product may never be commercialised, e.g. the CSIRO's field pea studies.

## **Additional considerations for the Scheme**

### ***Animal welfare***

A potential risk to expanding the use of CRISPR of other technologies to animals in Australia is opposition from animal activists and the community on ethical and welfare grounds. The Canadian Council on Animal Care has developed welfare guidelines for animals used in genomics research. Developing similar approach in Australia could be considered to address potential concerns about animal welfare, in consultation with relevant industries.

## **Conclusion**

NSW Farmers is grateful for the opportunity to engage with the OGTR, Department of Health and NSW Department of Primary Industries on the review of the National Gene Technology Scheme. We consider the current scheme to generally function well, but acknowledge that a review is timely, given the rapid advances in gene technology on the horizon. We commend the involved agencies on the inclusive and intensive consultation that has occurred as part of the review of the scheme.

We note that there are currently a number of marketing issues that impede the full effectiveness of any national gene regulation scheme, including state moratoria. While this is a concern for policymakers, we appreciated that feedback on these issues have been sought through this consultation.