

**Gene Technology (GM Crop Moratorium)
Act 2003 Review**

**Independent Panel Report
To the NSW Minister for Primary Industries**

September 2007

The Hon Ian Macdonald MLC
Minister for Primary Industries, Energy,
Mineral Resources & State Development
Level 33 Governor Macquarie Tower
1 Farrer Place
SYDNEY NSW 2000

Dear Minister

Report of the Independent Panel on the review of the *Gene Technology (GM Crop Moratorium) Act 2003*

In accordance with the Terms of Reference, I have much pleasure in presenting the final report of the Independent Panel on the review of the *Gene Technology (GM Crop Moratorium) Act 2003* which has been signed off by the three members of the Review Panel.

The review has taken into account the views of interested parties and stakeholders, who have made written submissions and been involved in face to face consultations.

On behalf of the Review Panel, thank you for the opportunity to conduct the review.

Yours sincerely

Ian Armstrong
Chair – Review Panel

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EXECUTIVE SUMMARY

The NSW Government appointed an independent panel of three experts to review the *Gene Technology (GM Crop Moratorium) Act 2003* (Act) which expires in March 2008.

The Review Panel assessed the expected impacts on marketing, trade and investment for NSW of extending the Act and maintaining the moratorium orders on the cultivation of genetically modified (GM) canola; amending the Act and removing the moratorium orders on the cultivation of GM canola; and allowing the Act to expire.

The Review Panel received 1,365 submissions, met face to face with 31 stakeholders and reviewed published, publicly available information.

Having considered all information received, the Review Panel identified the following as the key issues from the review:

- segregation and coexistence;
- market access and price premiums for non-GM canola;
- choice for producers and consumers;
- organic production;
- farm level practices;
- liability; and
- investment in technology.

In determining whether or not the market conditions in 2003 which resulted in the introduction of the GM canola moratorium orders were still valid, the Review Panel assessed the changes that have taken place within the Australian grains industry and the domestic and international grain markets.

Taking into consideration all of the information before it, including strong evidence that the introduction of GM canola into NSW will have minimal impact on market access or prices for the majority of Australian canola, and given the overwhelming weight of industry support for NSW producers to be able to choose to grow GM canola, the Review Panel recommends the NSW Government remove the moratorium orders on the cultivation of GM canola.

The work undertaken by the industry through the Single Vision Grains Australia process demonstrates that industry is ready to manage GM canola in such a way that ensures market choice for supply chain participants including consumers.

The Review Panel considers that the timing of the removal of the moratorium orders is a decision for the Government, although the Review Panel's assessment is that it could be done as soon as practicable (eg at the same time as the amendments to the Act) as industry has undertaken a process for GM canola which the Review Panel believes is equivalent to the industry accreditation process being recommended for future GM crops.

The Review Panel recommends that formal industry accreditation for GM canola is not required prior to the removal of the moratorium orders and industry has completed the equivalent assessments through the Single Vision Grains Australia process.

With the removal of the moratorium orders, the adventitious presence levels for GM canola will be removed from the Act. The Review Panel recommends that a regulation should be incorporated into the Act outlining that for an industry accreditation scheme to be approved by the Minister, the scheme would have to specify appropriate adventitious presence levels for the commodity being accredited. Additionally the Government may wish to incorporate the ability to gazette adventitious presence levels into the Act.

Drawing from their examination of the industry and market changes that have taken place in relation to GM canola, the Review Panel recommends that the NSW Government amend the *Gene Technology (GM Crop Moratorium) Act 2003* to provide a positive way forward for regulation of GM crops in NSW.

The proposed amendments to the Act recognise the change in the preparedness of the grains industry to manage GM food crops and the increasing consumer acceptance of GM technology. They also maintain a mechanism to protect Australia's export grain markets, while providing a clear 'path to market' and investment return for future GM food crops in NSW.

The Review Panel recommends that the Act be amended to reflect the following principles:

- if the Office of the Gene Technology Regulator approves a GM food crop for commercial release, the Minister may impose a moratorium unless and/or until the GM food crop is accredited by an approved industry accreditation scheme;
- to be approved, such a scheme would address specific criteria such as those put forward in the Single Vision Grains Australia "*Delivering market choice with GM canola*" document and include adventitious presence thresholds, overseas market acceptance and segregation capability;
- once a GM food crop has been accredited and approved by the Minister, any moratorium order should automatically expire;
- the Minister should provide notice of approved industry accreditation schemes in the Gazette;
- if a GM food crop has been accredited (and therefore there is no moratorium in place) but the Minister believes it is causing harm in relation to trade and marketing, the Minister should refer it back to the industry body overseeing the accreditation scheme for review;
- the Act should include provision for the Minister to have the power to rescind acceptance of the approval of an industry accreditation scheme for a particular GM food crop, providing there was a material change that affected the original accreditation;
- the Act should expire in three years from its current expiry date giving industry time to test and refine industry accreditation schemes; and
- the provisions in the Act relating to Exemptions and the Advisory Council should be removed.

INTRODUCTION

The NSW Government enacted the *Gene Technology (GM Crop Moratorium) Act 2003* (Act) in June 2003. Moratorium orders made under the Act prohibit the cultivation in NSW of a specified genetically modified (GM) food plant or class of GM food plants.

There have been two moratorium orders made under the Act. The first order, made on 22 July 2003, prohibits the cultivation in NSW of Invigor® canola. The second order, made on 19 December 2003, prohibits the cultivation of Roundup Ready® canola. These moratorium orders have prevented the commercial cultivation of GM canola in NSW to date.

The Act established the NSW Agricultural Advisory Council on Gene Technology (Advisory Council). The Advisory Council members are prescribed by the Act and comprise an Independent Chair and representatives of:

- the NSW Department of Primary Industries;
- the NSW Farmers' Association;
- the Network of Concerned Farmers;
- the Nature Conservation Council of NSW Incorporated;
- GrainCorp Limited;
- AWB Limited;
- CSIRO;
- CropLife Australia Limited; and
- the Grains Research and Development Corporation (GRDC).

The functions of the Advisory Council are to investigate any matter referred to it by the Minister for Primary Industries and to provide advice on proposed research trials, developments in relation to GM technology in agriculture and licences issued by the Australian Government Office of the Gene Technology Regulator that relate to GM food plants.

One role of the Advisory Council is to provide advice to the Minister on applications for Exemptions from Moratorium Orders to allow research trials. Exemptions are assessed on a case by case basis. There have been eight Exemption Orders published under the Act for small scale research trials¹.

The Act contains a sunset clause and will be automatically repealed on 3 March 2008 unless extended by the NSW Parliament.

On 16 July 2007, the Minister for Primary Industries announced the establishment of an independent panel to review the Act prior to expiry. The review was undertaken to provide advice to the NSW Government on the continued appropriateness of the Act and consideration of the way forward.

¹ Due to drought conditions only three of the eight research trials were undertaken.

1 THE REVIEW

TERMS OF REFERENCE

The purpose of the review was to determine whether or not the market access and trade concerns resulting from the cultivation of GM crops, specifically GM canola, in NSW which existed in 2003, remain valid in 2007.

The Terms of Reference for the review were:

1. Assess the expected impacts on marketing, trade and investment for NSW of:
 - extending the Act and maintaining the moratorium orders on the cultivation of GM canola;
 - amending the Act and removing the moratorium orders on the cultivation of GM canola; or
 - allowing the Act to expire.
2. On the basis of the above assessments, make recommendations to Government on the most appropriate option to adopt; and
3. In the event that the panel recommends extension of the legislation, recommend appropriate amendments to the legislation.

The review excluded considerations on the regulation of human health and safety and environmental impacts, as these are dealt with under the Commonwealth *Gene Technology Act 2000* and are beyond the scope of the NSW Act.

THE REVIEW PANEL

The review was conducted by an independent panel consisting of three members who have expertise in trade and marketing, agriculture, science, and government policy.

The Review Panel members were the Hon Ian Armstrong OBE (Chair), Kathryn Adams and Professor Timothy Reeves.

Ian Armstrong - Was a member of the New South Wales Legislative Assembly and was the Member for Lachlan from 1981 to 2007. He was awarded the Order of the British Empire in 1978 for services to Primary Industries. Ian Armstrong was Minister for Agriculture and Rural Affairs from 1988 to 1993. From 1993 until 1995, he was Deputy Premier of New South Wales as well as Minister for Ports and Minister for Public Works. He is a Fellow of the Australian Institute of Company Directors.

Kathryn Adams - Agricultural scientist and lawyer. Currently Senior Research Fellow with the Australian Centre for Intellectual Property in Agriculture at Griffith University. She is on the Boards of the Cotton Catchment Communities Cooperative Research Centre, the Forest and Wood Products R&D Corporation, Safe Food Production Queensland, Future Farming Industries CRC and Food Science Australia. She is a Fellow of the Australian Institute of Company Directors.

Timothy Reeves - Has worked for 39 years in agricultural research, development and extension, mostly focused on sustainable agriculture in Australia and overseas. He has received several international and national honours and is a Fellow of the Academy of Technological Sciences and Engineering and in 2003 received the Centenary of Federation Medal. From 1995 – 2002 he was Director General of the International Maize and Wheat Improvement Centre based in Mexico and is chair of the NSW Agricultural Advisory Council on Gene Technology.

THE REVIEW PROCESS

On 25 July 2007, the NSW Minister for Primary Industries announced the details of the review and the public submission process.

The review called for written submissions from interested parties and stakeholders with a closing date of 31 August 2007. An information paper about the submission process (*Attachment 1*) was made available online and submissions were able to be emailed, faxed, posted or submitted online.

A total of 1,365 submissions were received.

The Review Panel also met with 31 key stakeholders (face to face or via teleconference) during July and August 2007.

The Review Panel considered all information presented to them via submissions and consultations, as well as information in published, publicly available documents.

This report was then prepared for the Minister, addressing the Terms of Reference, identifying key issues raised in the review, outlining the key findings of the review, and making a recommendation on the future of the Act and a way forward for regulation of GM crops in NSW.

2 ADDRESSING THE TERMS OF REFERENCE

In addressing the Terms of Reference the Review Panel assessed all information received in terms of whether or not it provided evidence for and support of one or more of the ways forward for regulation of GM food crops in NSW.

In keeping with contemporary regulatory best practice the Review Panel were of the view that governments should only regulate when it is clearly demonstrated regulation is the only effective way to achieve policy objectives and the benefits of regulating outweigh the costs. The review therefore has two related but separate parts:

- 1) assessment of the general arguments for and against retention of the Act, either unchanged or amended and, assuming it is retained, determination of the conditions under which it would be appropriate to establish a moratorium; and
- 2) application of these general criteria to the specific case of GM canola to determine whether the current moratoria should be extended or terminated.

It was considered by the Review Panel that a logical approach to this process would be to:

- a) look in detail at the case of GM canola; why the moratoria were initially established, what we have learned and what has changed since then; and
- b) use GM canola as a case study to deduce broad conclusions and principles that should apply to the moratorium legislation in general.

THE ACT AND GM CANOLA MORATORIUM ORDERS

Original Rationale for the Act

The purpose of the Act was to recognise and designate NSW as an area in which certain GM plants may not be cultivated, in order to preserve the identity of GM or non-GM crops for marketing purposes.

The Act is in keeping with the national regulatory framework for GM crops and was introduced in response to concern about the possible impacts on market access and trade resulting from the cultivation of GM crops in NSW. The Office of the Gene Technology Regulator is not permitted to consider these issues in assessing applications to licence GM crops. The Act was introduced to give the NSW Government time to better understand the agricultural, economic and social impacts of GM crops.

The Moratorium Orders

Specific concerns at the time of the introduction of the Act related to GM canola, following the approval of two licences for the commercial release of GM canola in 2003 by the Office of the Gene Technology Regulator.

The release of Invigor® canola by Bayer CropScience was approved in July 2003 (DIR021/2002) and the release of Roundup Ready® canola by Monsanto was approved in December 2003 (DIR020/2002).

The two moratorium orders made under the Act have prevented the commercial cultivation of Invigor® and Roundup Ready® GM canola in NSW.

Other major canola producing states, Victoria, South Australia, Western Australia and Tasmania, introduced similar moratorium legislation, which has prevented the commercial cultivation on GM canola in Australia to date.

OVERVIEW OF SUBMISSIONS

Arguments for Maintaining the Act and GM Canola Moratorium Orders

The key reasons indicated in submissions² for supporting an extension of the Act and the maintenance of moratorium orders were to maintain market access for Australian crops into international and domestic markets.

In relation to canola, additional arguments for supporting the moratorium orders were to capture price premiums for non-GM canola in the international market place, protect organic production in Australia and not impose the costs of segregation and increased supply chain management on growers of canola, particularly non-GM growers. Submissions argued there are currently “no restrictions anywhere in the world for selling non-GE crops” (NSW Nature Conservation Council submission) and that growers would “lose the healthy premium for our Non GE canola over Canadian GE canola which has been achieved during the last two years” (Biological Farmers of Australia submission).

Submissions also cited concerns relating to the increased responsibility of technology management on-farm (eg herbicide resistance) and uncertainty about liability and recourse associated particularly with in field contamination of non-GM crops.

The extension of the Act beyond its current 2008 expiry date was seen as a safety net for the consideration of any future release of GM food crops.

Those supportive of the status quo also indicated an extension would allow for independent field trials and the development of a reliable in-field test for GM content to take place. Submissions indicated “no independent field trials have been conducted to assess any potential yield gains associated with the GE canola varieties approved for commercial production in Australia” (Greenpeace Australia Pacific submission) and that “there is no workable field test available at the point of delivery to test for Bayers Invigor canola” (Network of Concerned Farmers submission).

² Note: In this section where a particular submission is referenced, similar concerns have also been raised in other submissions.

Arguments for Removing the GM Canola Moratorium Orders

Submissions received which supported amending the Act (or allowing it to expire) and removing the moratorium orders indicated that the concerns in relation to markets and trade which existed at the time the moratorium orders on GM canola were put in place are no longer valid.

Submissions called for allowing “producers to exercise choice in what they grow and what they sell” (Grains Council of Australia Ltd submission).

The submissions indicated increasing grower support for growing GM canola citing the “lack of any substantive or prolonged market premium for Australian non-GM canola, the fact that the largest canola exporter in the world, Canada has maintained its world canola export dominance despite its GM status” and “competitive advantage obtained by our international competitors through the early and rapid adoption of GM technology” (NSW Farmers’ Association submission).

The introduction in 2005 of adventitious presence thresholds for the unintended presence of approved GM events was put forward as a critical element to allow GM canola to be grown and managed without impacting on markets. The “development of industry standards for adventitious presence of GM canola seed and grain have assisted in facilitating trade and market choice in an environment where GM, non-GM and specialty production systems can coexist” (Australian Oilseeds Federation submission).

Potential agronomic benefits of increased yield, better weed control, decreased herbicide use and decreased reliance on soil residual herbicides were cited as justification for canola growers to have a choice to grow GM canola (Andrew Broad submission). “Access to gene technology would allow farmers to analyse their production and marketing options and to determine whether organic, conventional or gene technology modes of production (or a combination of these methods) will best meet their business requirements” (National Farmers Federation submission).

In contrast to the position in 2003, industry’s current willingness and ability to meet market access and segregation requirements was highlighted and supported in many submissions (GRDC submission, ABB Grain Ltd submission, Australian Seed Federation submission).

Arguments for Allowing the Act to Expire

Submissions received which supported allowing the Act to expire indicated the concerns that existed at the time the legislation was put in place are no longer valid. The submissions stated that the attitude of growers and the grains industry had changed since the introduction of the legislation in NSW and that the industry had now developed workable segregation plans so that coexistence of GM and non-GM grains is achievable.

There was strong industry support for a proposed industry managed segregation plan to deliver choice to the canola supply chain. Submissions also called for

allowing farmers the choice to grow GM crops, allowing market choice and competition and to remove market barriers.

Concerns were raised in relation to the disincentive to invest in research and development posed by any extension of the legislation and moratorium orders, with submissions noting investment in biotechnology for new varieties was threatened where there is no certainty of a path to market for new technologies even if they are approved by the Office of the Gene Technology Regulator, and that absence of a path to market is a disincentive to investment.

Allowing the Act to expire and encouraging further research into GM crops was seen as leading to increased agricultural competitiveness and increased productivity due to agronomic benefits of GM crops (Charles Sturt University submission).

Submissions also highlighted the potential for further development of new canola varieties, including healthy oils (CSIRO submission) and the potential increased trade opportunities for specialised products and benefits to consumer from access to new healthy products.

Submissions cited the adoption of GM technology in the Australian cotton industry and the resultant environmental benefits including decreased insecticide use.

The Review also considered recent publications highlighting GM food crops can be managed effectively without legislative market and trade controls, including:

- Foster M. & French S. (2007) *Market Acceptance of GM Canola* and Apted S. & Mazur K. (2007) *Potential Economic Impacts from the Introduction of GM Canola on Organic Farming in Australia* Australian Bureau of Agricultural and Resource Economics;
- Holtzapffel R., Johnson H. & Mewett O. (2007) *GM oilseed crops and the Australian oilseed industry* Bureau of Resource Sciences;
- *Delivering market choice with GM canola* - An industry report prepared under the Single Vision Grains Australia process; and
- *A National Market Access Framework for GM Canola and Future GM Crops* Department of Agriculture Fisheries and Forestry.

Overall, submissions calling for allowing the Act to expire indicated that all of the reasons the Act was put in place have now been addressed, and therefore there is no requirement for an extension of the Act.

3 KEY ISSUES RAISED IN THE REVIEW

The Review Panel identified seven key issues raised by stakeholders throughout the Review process:

- segregation and coexistence;
- market access and price premiums for non-GM canola;
- choice for producers and consumers;
- organic production;
- farm level practices;
- liability; and
- investment in technology.

Note: Consumer health and environmental concerns were raised in many submissions, however, as previously indicated these issues are beyond the scope of the NSW Act, and as such were not considered by the Review Panel. These issues were considered in detail by the recent review of the Commonwealth *Gene Technology Act 2000*.

SEGREGATION AND COEXISTENCE

Both those supportive of maintaining the Act and moratorium orders and those supportive of allowing the Act to expire, indicated segregation and coexistence as reasons for supporting their respective positions.

Some submissions expressed doubts in relation to the ability of the supply chain to effectively segregate GM and non-GM canola and the burden of additional costs involved with segregation. The risks of contamination through pollen flow in the field and during storage and handling within the supply chain were also raised with submissions questioning whether coexistence of GM and non-GM canola was possible. Specific concerns included:

- segregation cannot be effectively achieved, resulting in contamination of non-GM canola stocks and potentially leading to loss of markets;
- no satisfactory measures have been suggested that would protect non-GM farmers and consumers from contamination (Greenpeace submission);
- segregation, identity preservation and shipping costs necessary for GM canola would see higher costs imposed on farmers (Ian Cohen MLC submission);
- the costs of segregation will fall to the non-GM grower (Network of Concerned Farmers submission);
- significant operational activities will have to be undertaken at considerable expense for harvesters operating on both GM and non-GM crops (Australian Grain Handlers Association submission);
- it is inevitable that gene transfer from GM canola to non-GM canola will occur; and
- pollen and seed can be spread between fields by multiple vectors and contamination of non-GM crops has occurred in other countries.

Countering these concerns were multiple submissions supportive of a proposed industry-managed segregation plan outlined in “Delivering market choice with GM canola”, an industry report prepared under the Single Vision Grains Australia process. Submissions supporting the removal of the moratorium orders on GM canola indicated segregation was possible and coexistence achievable. Specific responses included:

- Single Vision Grains Australia had been a cooperative approach, with 29 industry organisations including technology developers, researchers, bulk handlers, traders, grower groups, millers and the Australian Food and Grocery Council signing off on the document;
- the introduction of a voluntary industry accreditation scheme should occur to address trade and marketing issues before the commercial release of any Office of the Gene Technology Regulator approved GM food crops in the future;
- the proposed plan is comprehensive and transparent, underpinned by sampling and testing regimes;
- segregation is possible, the supply chain and segregations are managed routinely for discreet quality requirements for a range of grains including Pesticide Residue Free grain, malt barley, organic wheat and quarantined grain (GrainCorp submission);
- the Australian canola industry has adopted production protocols and successfully manages identity preservation systems for new markets such as specialty canola with different oil profiles, condiment mustards and industrial oilseeds (IHD Pty Ltd submission);
- GM canola was imported through Newcastle Port in 2006 and was segregated effectively within the supply chain (GrainCorp submission);
- other GM grains and grain products are routinely handled in the Australian supply chain without contamination issues, including GM soybean meal imported from the US and South America for livestock feed production and it is estimated that almost 400,000 tonnes of GM soybean meal will be imported into Australia this year (Stock Feed Manufacturers Council of Australia submission);
- organic and non-organic production coexists (National Farmers Federation submission) and is segregated (Auscott Limited submission);
- adventitious presence levels have been set for GM canola in seed and grain by the Primary Industries Ministerial Council and they meet the strictest standard for AP set by any of Australia’s canola trading partners (IHD Pty Ltd submission); and
- coexistence is possible with adoption of appropriate Crop Management Plans. Australian canola growers already have experience with stewardship programs for herbicide resistance in canola (CSIRO submission).

The change in attitude of industry participants, in particular the willingness and capacity of bulk handlers to manage segregations, was seen by the Review Panel as a significant change to have taken place since the moratorium legislation was introduced.

On the balance of information presented, the Review Panel determined issues relating to segregation and coexistence of GM canola in NSW are manageable, given the supply chains experience with segregating discrete parcels of multiple grain types and the application of a Crop Management Plan for GM canola which mitigates coexistence issues.

MARKET ACCESS AND PRICE PREMIUMS FOR NON-GM CANOLA

Again stakeholders both for and against an extension of the Act indicated market access and price premiums for non-GM canola were a central issue for their respective positions.

Submissions opposing the removal of the moratorium orders indicated growing GM canola in Australia would threaten access to markets and the premiums being achieved for Australian non-GM canola in the international market place. Specific concerns included:

- the loss of premiums for non-GM canola, an example of a premium being achieved was where Australian prices had exceeded Canadian prices by A\$50 a tonne in May 2006 (Network of Concerned Farmers submission, quoting WA Agriculture and Food Minister Kim Chance);
- Australian GM-free canola has attracted premiums of \$120 per tonne abroad (*domestic price comparison*), compared to its GM counterparts, according to the Australian Bureau of Agricultural and Resource Economics (Ian Cohen MLC submission and Gene Ethics submission); and
- price premiums of \$12 to \$14 per tonne and preferential market access for Australian canola, have been reported in Europe (Greenpeace submission).

Submissions supportive of removal of the moratorium orders on GM canola indicated its production in NSW is unlikely to impact Australia's international canola markets and that there is no premium being achieved by Australia for bulk non-GM canola in the international market place. Where premiums are seen it is generally for reasons other than GM status. Specific responses included:

- Australian Bureau of Agricultural and Resource Economics released a report titled "*Market acceptance of GM canola*" in March 2007 – they found "there is some limited evidence of price premiums for organic and certified GM-free canola, markets for these canola types are still very much small niches ...in the traditional import markets for canola...GM canola is generally accepted as readily as conventional canola and is priced at very similar levels" (*p.46 Conclusions and implications*);
- it has been clearly demonstrated there are no market premiums for bulk non-GM canola and that all of our major canola markets accept GM canola, noting the European Union has now approved Roundup Ready and Invigor canola for import for industrial and feed use (Producers Forum submission);
- Canada and Australia consistently accounted for over 95 per cent of Japan's canola imports between 1999 and 2006 and the Australian Oilseeds Federation found import prices for canola indicated there had been no noticeable change in price relationships for Canadian and Australian canola

- sold to Japan, despite Canada's general use of GM varieties (Australian Oilseeds Federation submission);
- GrainCorp indicated it sells multiple grain types, including canola, in 10 countries and do not receive a premium for non-GM in any of those markets and believe their domestic and international markets will accept GM canola (GrainCorp submission);
- Canadian exports have grown since the introduction of GM canola and they have maintained their share of the Japanese canola market;
- Australian canola exporters indicated to the Review Panel they are unable to achieve a price premium for non-GM in the international market place and that canola prices internationally were dependent on many factors including the size of the market, seasonal influences, domestic prices and freight differences (*stakeholder consultation*); and
- there was acknowledgement that small quantities of specialty canola products could achieve a price premium and the industry perceived that the best opportunity for Australian producers to achieve a price premium for non-GM canola might be after GM canola was introduced and if non-GM canola was demanded as a specialty product.

On the balance of information reviewed, the Review Panel determined that the weight of evidence indicated price premiums are being achieved for small parcels of speciality canola products and certified non-GM canola from Australia. However the majority of Australian canola sold as bulk non-GM canola is not achieving a premium over GM canola in the international market. The Review Panel also determined that Australian exporters are confident Australian canola will continue to find international markets regardless of its GM status.

CHOICE FOR PRODUCERS AND CONSUMERS

An issue raised consistently by industry organisations, grains industry participants and food industry participants was to provide a choice for growers, supply chain participants and consumers.

The National Farmers Federation submission stated “access to gene technology would allow farmers to analyse their production and marketing options and to determine whether organic, conventional or gene technology modes of production (or a combination of these methods) will best meet their business requirements” (National Farmers Federation submission).

The Australian Food and Grocery Council and the Sanitarium Health Food Company submissions indicated both organisations were supportive of choice for growers and consumers (Australian Food and Grocery Council submission, Sanitarium Health Food Company submission).

A submission from CSIRO raised the potential benefits for consumers of new technologies including: wheat with altered starch for a range of diet-related conditions eg. colorectal cancer, diabetes and obesity; omega-3 oils in land plants including canola; and reducing greenhouse gases by making crops more efficient at using nitrogenous fertilisers thereby reducing fertiliser application (CSIRO submission).

Other potential benefits for consumers raised included lower costs of production and increased yield resulting in lower retail prices.

The Single Vision Grains Australia document recognised “that not all supply chain participants may choose to adopt GM canola, and hence, the supply chain must be in a position to offer and provide choice at all times in order to maximise opportunities for all supply chain participants” (GRDC submission).

The Review Panel considered producer and consumer choice should be market factors and were an important issue for the way forward with GM canola.

ORGANIC PRODUCTION

Concerns about the impact of the removal of the moratorium on GM canola on organic production were centred on the contamination of organic production, resulting in the loss of organic status and subsequent economic loss.

Liability was also raised as an issue for organic production, which is dealt with as a separate issue later in this report.

Issues raised in submissions to the Review Panel indicated:

- the organics industry routinely segregates and handles product separately from conventional product and under organic certification is required to separate production from conventional production;
- Australian organic certification has a zero GM content threshold, resulting in the requirement to segregate and handle organic production separately from all GM production to eliminate the risk of contamination;
- despite the introduction of adventitious presence levels for GM content in seed and grain by the Primary Industries Ministerial Council, the zero threshold required by Australian organic certification, which is tighter than the 0.9% threshold in the European Union, may result in Australian organic growers needing to take additional precautions in relation to GM production;
- GM cottonseed, GM cottonseed meal and imported GM soybean meal are routinely handled in the Australian grain handling system, and the Review Panel was not made aware of any impact from these on the Australian organic sector; and
- the lack of organic canola production in NSW diminishes any perceived risk of GM canola production on the organic industry.

The Review Panel considered the Australian Bureau of Agricultural and Resource Economics report on the “*Potential Economic Impacts from the Introduction of GM Canola on Organic Farming in Australia*” published in May 2007. The report found the Australian organics industry has grown rapidly in recent years, was estimated to have constituted around 0.5 per cent of the value of Australian food purchases in 2003 and that price premiums are achieved in the domestic and export market for organic products.

The report concluded the commercialisation of GM canola would be expected to have very little, if any, direct impact on the organic canola, livestock and honey industries in Australia.

The Review Panel determined that on balance the organic industry is based on the need to segregate from non-organic crops and GM is included in that requirement. In relation to canola the Review Panel also noted the lack of organic canola production in NSW.

FARM LEVEL PRACTICES

Concerns were raised in relation to the changes which would have to occur on farm to manage GM canola production and conversely the changes which would occur on farm if GM canola was not able to be grown in NSW.

The concerns of farmers in relation to the production of GM canola included:

- increased herbicide use;
- herbicide resistant weeds;
- contamination of non-GM canola due to pollen flow; and
- an increase in stewardship requirements.

The concerns of farmers in relation to the existing varieties of canola grown in Australia included:

- the reliance on triazine tolerant (TT) canola, which constitutes approximately 70% of the canola grown in Australia and the use of triazine which as a residual herbicide may not be available to growers in the future (CropLife submission);
- the yield and oil penalties associated with TT canola; and
- competitor nations adopting GM canola and gaining associated agronomic and production benefits.

The reasons for and potential benefits of adopting GM canola varieties that were raised included:

- a demonstrated preference for Australian producers to grow herbicide tolerant canola varieties despite a known yield and oil penalty associated with TT canola;
- Australian canola growers have experience with stewardship programs for herbicide resistance in canola (CSIRO submission) and the stewardship and Crop Management Plans required for the adoption of GM canola would not be unmanageable;
- Crop Management Plans would include provisions to support the right of growers to choose not to grow GM canola and to protect the longevity of the technology including management of volunteers and reducing the risk of pollen flow;
- a five year crop rotation experiment conducted by Charles Sturt University at Wagga Wagga, found Roundup Ready® canola achieved superior weed control and delivered generally higher yields and oil quality when compared

to conventional weed management system options (Charles Sturt University submission);

- results from Canada indicating the adoption of GM canola had resulted in a decreased use of herbicide, increased yield and oil content and a decrease in admixture;
- Canadian adoption of GM canola has also resulted in a shift to minimal tillage or no-tillage production systems, a change also reflected in the Australian cotton industry's adoption of GM varieties, which resulted in benefits such as increased soil carbon, decreased fuel use and other on-farm direct and indirect input costs.

The Review Panel met with several farmer organisations as part of the stakeholder consultations during the review. While some growers still hold concerns about the agronomic benefits of GM canola, the increased management required for its production and the ability to continue to grow non-GM canola unhindered, there has been a considerable shift in grower positions, with the majority supporting the removal of the moratorium on GM canola in NSW.

The Review Panel determined that there is widespread grower support for the introduction of GM canola in NSW and that any associated farm level changes are manageable. The key issues identified were the existing use of Crop Management Plans by canola growers, the potential benefits of GM canola to increase productivity, reduce triazine use and encourage minimum or no till operations and the ability of growers to choose to continue to grow non-GM canola.

LIABILITY

Submissions received in favour of extending the Act and maintaining the moratorium orders expressed uncertainty for producers and supply chain participants in relation to liability. Some called for a strict liability scheme to be introduced, to manage potential contamination and loss of revenue and/or market access.

The Australian Grain Harvesters Association (AGHA) raised specific concerns in their submission to the review in relation to any contamination caused by the movement of harvesting machinery between properties. The Review Panel concluded that the concerns raised can be managed by a cleandown protocol such as the "Workable & Practical Operational Harvester Hygiene" protocol developed by the AGHA and the application of adventitious presence levels for GM content set by the Primary Industries Ministerial Council.

The Review Panel noted that the issue of liability was dealt with in some detail during the review of the Commonwealth *Gene Technology Act 2000* and that the issues raised had been the same as those raised in this review. On balance, the Commonwealth review concluded a strict liability regime should not be introduced into the Commonwealth Act as strict liability is generally reserved for issues of a catastrophic nature and that GM issues were more consistent with those dealt with effectively by common law.

The Review Panel supports this position and recognises that it is consistent with similar determinations both in Australia and internationally, on the basis that there are no unique legal risks posed to agricultural production by GM crops.

INVESTMENT IN TECHNOLOGY

Australian government agencies, Cooperative Research Centres, universities, technology providers, industry bodies, grains industry participants and farmer groups all voiced concerns the moratorium on GM canola in NSW has resulted in a decreased investment in research and development of not only GM canola, but the general application of gene technology to agricultural production.

CSIRO noted a 40 per cent reduction in expenditure on projects specifically aimed at developing a GM food crop since the introduction of the moratoria on commercial production of GM canola in 2003 (CSIRO submission).

Other agricultural industry groups including the Australian Cotton Industry Council, Cotton Australia, Australian Dairy Industry Council and the Stock Feed Manufacturers Council of Australia commented they believed the moratorium had been a disincentive for investment in research and development.

To address this issue, the Review Panel accepted the need for a clearly defined 'path to market' for investors in research and development of new GM products. The Review Panel's assessment is that this can be provided through an industry accreditation scheme as proposed in the Single Vision Grains Australia "Delivering market choice with GM canola". This is a potential process that would address the trade and marketing issues at the State level and work in harmony with the Federal government's regulatory framework for gene technology requiring approvals from the Office of the Gene Technology Regulator, the Australian Pesticides and Veterinary Medicines Authority and Food Standards Australia New Zealand.

The Review Panel's view is that an industry accreditation process for trade and marketing would be most effective if it was adopted as part of a nationally consistent scheme for the management of gene technology in Australia.

4 KEY FINDINGS OF THE REVIEW

THE REVIEW OF THE GM CANOLA MORATORIUM ORDERS

A key consideration for the Review Panel was what had changed since the introduction of the moratorium legislation. The Review Panel identified that changes with a bearing on the validity of the moratorium on GM canola in NSW were within the grains industry and domestic and international grain markets.

In the four years since the introduction of the moratorium legislation, there has been a fundamental shift in the approach of grains industry participants to the introduction of GM canola. The industry has indicated it supports the right of producers to choose whether or not to grow GM canola; the production of GM and

non-GM canola can coexist; and that segregation can occur to ensure market choice.

Through the Single Vision Grains Australia process, the grains industry, from growers through to millers, have committed to the industry's preparedness, competency and willingness to manage GM canola. The principle of an industry accreditation scheme outlined in the Single Vision Grains Australia document is echoed in the Department of Agriculture, Fisheries and Forestry report "*A National Market Access Framework for GM Canola and Future GM Crops*".

The establishment of adventitious presence levels for GM canola in canola seed and grain by Primary Industries Ministerial Council, the setting of similar standards in importing countries and approval of the two Office of the Gene Technology Regulator approved GM canola varieties in countries that import Australian canola have assisted the grains industry to be confident in their ability to manage GM canola in a way that "maintains or enhances trade in Australian canola" (Single Vision Grains Australia document).

The lack of a clear 'path to market' for GM crops under the moratorium legislation and the subsequent decline in investment in research and development in GM technology in agricultural production has also motivated the industry to ensure it has the required systems in place to effectively manage the technology.

Changes to the domestic and international grains markets include the development of adventitious presence thresholds in Australia and in our export destinations and the continued global adoption of GM technology. There is no evidence the adoption of GM canola in Canada has resulted in any loss of international market share. Indications are that Canada has increased the production and export of canola, while incurring no discount for commingled canola and maintaining its share of the Japanese market. Despite concerns held at the time of the introduction of the moratorium legislation there is no compelling evidence that any price premiums for bulk non-GM canola exist.

Other changes of note in the international market place include the introduction by the European Union of an adventitious presence threshold for GM content in organic products of 0.9% and the import approval of the two Office of the Gene Technology Regulator approved GM canola varieties for feed and industrial use.

Increasing consumer awareness and acceptance of GM food products and the introduction of labelling standards for food with GM content were also noted.

GENERAL PRINCIPLES DEDUCED FROM THE REVIEW OF THE GM CANOLA MORATORIUM ORDERS

The Single Vision Grains Australia "*Delivering market choice with GM canola*" document outlines five market choice criteria that have been developed to evaluate GM canola against, to provide assurance that GM canola meets the requirements for market choice. They are:

- GM canola varieties approved by the Office of the Gene Technology Regulator;

- market segments and supply chain logistics identified to gain understanding of their requirements;
- approval for food and feed importation and consumption in customer countries identified;
- adventitious presence thresholds for the unintended presence of approved GM events, both in Australia and in importing countries for contractual or labelling purposes, are established (if required); and
- supply chain ability to provide product traceability, verification and contingency plans.

The industry, as outlined in the document, has presented evidence to the Review Panel that each of the five criteria has been met for GM canola.

The same confidence cannot be yet extended to future GM food crops. Accordingly removing the ability to impose moratorium orders, when the production of a GM food crop could potentially damage market and trade opportunities for NSW producers, would seem an unacceptable risk.

Whilst moratorium orders are a valuable tool which can be utilised to protect markets and trade opportunities for NSW producers, the lack of a clearly defined 'path to market' for developers of new GM food crop technology, has proven to be a disincentive for research and development in gene technology for agricultural production.

The Review Panel determined that an approved industry accreditation scheme, such as that outlined above for GM canola, that ensures that any new GM food crop would have to have met market access criteria in order to ensure that a moratorium order on the cultivation of that crop would not be imposed, is a robust solution to the problem of protecting markets whilst providing a clearly defined path to market for new GM food crops.

The underlying principles would be that:

- the industry accreditation scheme must be approved by the Minister and should follow the model provided by the Single Vision Grains Australia process for canola;
- to be eligible for approval a scheme must detail adventitious presence levels for the commodity for which approval is being sought and include the provision of appropriate Crop Management Plans for the commodity and specific trait for which approval is being sought;
- to be eligible for approval a scheme must also allow the Government the right to conduct audits of the scheme and its approvals;
- if a new GM food crop obtains Office of the Gene Technology Regulator approval and industry accreditation, a moratorium order would not be imposed, *thereby providing a clear path to market*;
- if a new GM food crop obtains Office of the Gene Technology Regulator approval, but has not obtained industry accreditation, a moratorium order can be imposed, *thereby providing protection of markets*, but would automatically expire once industry accreditation is obtained;
- if a new GM food crop has been accredited (and therefore there is no moratorium in place) but the Minister believes it is causing or may cause harm

- in relation to trade and marketing, the Minister can refer it back to the industry body overseeing the accreditation scheme for review, however during the review process a moratorium would not be imposed;
- the Act should include provision for the Minister to have the power to rescind acceptance of the approval of an industry accreditation scheme for a particular GM food crop, providing there was a material change that affected the original accreditation (ie one or more of the criteria for accreditation were no longer being met); and
 - Annual Reports should be provided to the Government by the schemes overseeing body.

The Department of Agriculture Fisheries and Forestry report, *A National Market Access Framework for GM Canola and Future GM Crops*, outlines the potential role of the National Agricultural Commodity Marketing Association (NACMA) as the industry body overseeing the accreditation scheme. The Review Panel would encourage the NSW Government to pursue a solution whereby any industry accreditation scheme would be adopted as part of a nationally consistent scheme for the management of gene technology in Australia and that this would follow the model established for canola under the Single Vision Grains Australia process, with NACMA as the overseeing body. Other industries may propose a similar model with NACMA or another body administering the scheme.

In line with a nationally consistent scheme for the management of gene technology in Australia, the Review Panel would also encourage the NSW Government to engage the governments of Victoria and South Australia, who are currently reviewing moratoria legislation, to facilitate the coordinated and effective implementation of legislation on agricultural trade and marketing concerning the three states.

In reviewing the provisions of the Act, considering that the introduction of a moratorium order would only occur when industry accreditation had not been achieved, the Review Panel considered the ability to issue Exemptions under the legislation would no longer be required.

The Review Panel decision was premised on the position that the provision for field trials would have been available under the relevant field trial licence from the Office of the Gene Technology Regulator, prior to a commercial release licence being issued. The timeframes involved with Office of the Gene Technology Regulator approval allow adequate time for industry to assess a product for both technical and trade and marketing issues.

The Review Panel also reviewed the role of the Advisory Council, the functions of which, as outlined in the Introduction, included providing advice to the Minister on applications for Exemptions from Moratorium Orders to allow research trials.

It was concluded that with the introduction and effective operation of an industry accreditation scheme and the establishment of an industry body that oversees the scheme, the Minister would have access to a marketing and trade focussed industry body that could provide advice as required, removing the requirement for an Advisory Council.

5 RECOMMENDATIONS

1. Taking into consideration all of the information before it, including strong evidence that the introduction of GM canola into NSW will have minimal impact on market access or prices for the majority of Australian canola, and given the overwhelming weight of industry support for NSW producers to be able to choose to grow GM canola, the Review Panel recommends the NSW Government remove the moratorium orders on the cultivation of GM canola.

The work undertaken by the industry through the Single Vision Grains Australia process demonstrates that industry is ready to manage GM canola in such a way that ensures market choice for supply chain participants including consumers.

The Review Panel considers that the timing of the removal of the moratorium orders is a decision for the Government, although the Review Panel's assessment is that it could be done as soon as practicable (eg at the same time as the amendments to the Act) as industry has undertaken a process for GM canola which the Review Panel believes is equivalent to the industry accreditation process being recommended for future GM crops.

The Review Panel recommends that formal industry accreditation for GM canola is not required prior to the removal of the moratorium orders and industry has completed the equivalent assessments through the Single Vision Grains Australia process.

With the removal of the moratorium orders, the adventitious presence levels for GM canola will be removed from the Act. The Review Panel recommends that a regulation should be incorporated into the Act outlining that for an industry accreditation scheme to be approved by the Minister, the scheme would have to specify appropriate adventitious presence levels for the commodity being accredited. Additionally the Government may wish to incorporate the ability to gazette adventitious presence levels into the Act.

2. Drawing from their examination of the industry and market changes that have taken place in relation to GM canola, the Review Panel recommends that the NSW Government amend the *Gene Technology (GM Crop Moratorium) Act 2003* to provide a positive way forward for regulation of GM crops in NSW.

The proposed amendments to the Act recognise the change in the preparedness of the grains industry to manage GM food crops and the increasing consumer acceptance of GM technology. They also maintain a mechanism to protect Australia's export grain markets, while providing a clear 'path to market' and investment return for future GM food crops in NSW.

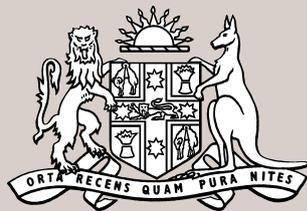
The Review Panel recommends that the Act be amended to reflect the following principles:

- if the Office of the Gene Technology Regulator approves a GM food crop for commercial release, the Minister may impose a moratorium unless and/or until the GM food crop is accredited by an approved industry accreditation scheme;
- to be approved, such a scheme would address specific criteria such as those put forward in the Single Vision Grains Australia *“Delivering market choice with GM canola”* document and include adventitious presence thresholds, overseas market acceptance and segregation capability;
- once a GM food crop has been accredited and approved by the Minister, any moratorium order should automatically expire;
- the Minister should provide notice of approved industry accreditation schemes in the Gazette;
- if a GM food crop has been accredited (and therefore there is no moratorium in place) but the Minister believes it is causing harm in relation to trade and marketing, the Minister should refer it back to the industry body overseeing the accreditation scheme for review;
- the Act should include provision for the Minister to have the power to rescind acceptance of the approval of an industry accreditation scheme for a particular GM food crop, providing there was a material change that affected the original accreditation;
- the Act should expire in three years from its current expiry date giving industry time to test and refine industry accreditation schemes; and
- the provisions in the Act relating to Exemptions and the Advisory Council should be removed.

ATTACHMENT 1

Invitation to make a submission to the

Independent Review of the
Gene Technology (GM Crop Moratorium) Act 2003



New South Wales
Government

Introduction

The New South Wales (NSW) Government enacted the *Gene Technology (GM Crop Moratorium) Act 2003* (Act) in June 2003.

The Act enabled a moratorium to be imposed on the cultivation of certain genetically modified (GM) plants in NSW. Moratorium Orders introduced under the Act prohibit the cultivation in NSW of a specified GM food plant or class of GM food plants.

The Act was introduced in response to concern about the possible impact on market access and trade resulting from the cultivation of GM crops in NSW, specifically GM canola following the approval of commercial release licences for Invigor® and Roundup Ready® canola in 2003 by the Office of the Gene Technology Regulator (OGTR).

There have been two Moratorium Orders introduced under the Act that prohibit the cultivation of Invigor® and Roundup Ready® canola in NSW.

Other major canola producing states, Victoria, South Australia, Western Australia and Tasmania introduced similar moratorium legislation which has prevented the commercial cultivation of GM canola in Australia to date.

The Act expires on 3 March 2008.

On 16 July 2007 the NSW Minister for Primary Industries announced the establishment of an independent panel to review the Act prior to expiry.

This Review is being undertaken in order to provide advice to the NSW Government on the appropriateness of the Act and a consideration of the way forward.

The Review

Purpose of the Review

The Act was introduced in 2003 in response to concern held about possible impacts on market access and trade resulting from the cultivation of GM crops, specifically GM canola, in NSW. The purpose of the review is to determine whether or not such market access and trade concerns remain valid in 2007.

While the Review will focus on GM canola, the potential impact of future GM crops will also be considered.

Scope of the Review

The review will assess the expected impacts on marketing, trade and investment of extending or amending the Act, or allowing it to expire, and will recommend a course of action.

The review will not make recommendations on the regulation of human health and safety and environmental impacts, as they are beyond the scope of the Act. The OGTR evaluates these in deciding whether to allow the release of GM varieties under the national gene technology regulatory scheme.

Terms of Reference for the Review

The Review Panel will:

1. Assess the expected impacts on marketing, trade and investment for NSW of:
 - extending the Act and maintaining the moratorium orders on the cultivation of GM canola;
 - amending the Act and removing the moratorium orders on the cultivation of GM canola; or
 - allowing the Act to expire.
2. On the basis of the above assessments, make recommendations to Government on the most appropriate option to adopt; and
3. In the event that the panel recommends extension of the legislation, recommend appropriate amendments to the legislation.

Process of the Review

The Review will be conducted by an independent panel consisting of three members who have expertise in trade and marketing, agriculture, science, and government policy.

The review will encompass written public submissions and consultation with key stakeholders.

The review panel members are Ian Armstrong (Chair), Kathryn Adams and Professor Timothy Reeves.

Ian Armstrong - Was a member of the New South Wales Legislative Assembly and was the Member for Lachlan from 1981 to 2007. He was awarded the Order of the British Empire in 1978 for services to Primary Industries. Ian Armstrong was Minister for Agriculture and Rural Affairs from 1988 to 1993. From 1993 until 1995, he was Deputy Premier of New South Wales as well as Minister for Ports and Minister for Public Works. He is a Fellow of the Australian Institute of Company Directors.

Kathryn Adams - Agricultural scientist and lawyer. Currently Senior Research Fellow with the Australian Centre for Intellectual Property in Agriculture at Griffith University. She is on the Boards of the Cotton

Catchment Communities CRC, the Forest and Wood Products R&D Corporation, Safe Food Production Queensland, Future Farming Industries CRC and Food Science Australia. She is a Fellow of the Australian Institute of Company Directors.

Tim Reeves - Has worked for 39 years in agricultural research, development and extension, mostly focused on sustainable agriculture in Australia and overseas. He has received several international and national honours and is a Fellow of the Academy of Technological Sciences and Engineering and in 2003 received the Centenary of Federation Medal. From 1995 – 2002 he was Director General of the International Maize and Wheat Improvement Centre (CIMMYT) based in Mexico and is chair of the NSW Agricultural Advisory Council on Gene Technology

Timetable for the Review

The closing date for written submissions to the Review Panel is 31 August 2007.

The Review Panel will also undertake a series of consultations with key stakeholders during July and August 2007.

The Review Panel's final report for consideration by the Minister for Primary Industries will be submitted by 30 September 2007.

An invitation to make a submission to the Review

The Review Panel invites written submissions from interested parties and stakeholders.

The closing date for written submissions to the Review Panel is **31 August 2007**.

While submissions may address any matters respondents wish, the Review Panel would particularly welcome input on issues addressing the Terms of Reference. Issues related to human health and safety and the environment will not be considered as they are beyond the scope of the Act and, consequently, this review.

Multiple identical submissions will not carry more weight than the merits of an argument in a single submission. As such, the Review Panel supports joint applications where applicable.

The Review Panel encourages respondents to make submissions publicly available. Unless marked "CONFIDENTIAL" all submissions will be treated as public documents and may be placed on the NSW Department of Primary Industries website.

Note: Submissions treated as confidential will still be subject to Freedom of Information access requirements.

Respondents are required to provide their contact details with their submission. Please include your name, your organisation (if applicable), a postal address and a telephone contact number.

Respondents are also requested to include an Executive Summary in their submission.

Respondents are encouraged to make submissions electronically by email or by posting a disc containing the submission. Submissions may also be sent by mail or fax.

Email: gmcrops.review@dpi.nsw.gov.au

Postal address: GM Crop Moratorium Review Secretariat
NSW Department of Primary Industries
Locked Bag 21
ORANGE NSW 2800

Fax: 02 6391 3167

This paper is also available at www.dpi.nsw.gov.au/reviews/gmcrops

All enquires to the Review Panel should be directed to the Review Secretariat.

Review Secretariat: Ruth Frater

Telephone: 02 6763 1260

Email: gmcrops.review@dpi.nsw.gov.au