GENETICALLY MODIFIED CROPS AND FOOD

GENE TECHNOLOGY REGULATION

Detailed questions on the regulation of genetically modified organisms (GMOs) and genetically modified (GM) foods should be referred to the Department of Health and Ageing.

The regulation of GMOs and GM food in Australia is achieved through an integrated legislative framework which includes the Gene Technology Regulator (the Regulator) and Food Standards Australia New Zealand (FSANZ).

Dealings with live and viable GMOs are regulated under the *Gene Technology Act 2000*. The object of the Act is: "to protect the health and safety of people, and to protect the environment, by identifying risks posed by or as a result of gene technology, and by managing those risks through regulating certain dealings with GMOs". The intentional release of a GMO into the Australian environment such as commercial release of a GM crop, must be licensed by the Gene Technology Regulator, and can only be licensed if risks can be managed so as to protect the health and safety of people and the environment.

Assessment of GMOs intended for release into the environment involves analysis of data supplied by the applicant (e.g. Monsanto, CSIRO) and a comprehensive review by the Gene Technology Regulator of independent, peer reviewed scientific literature.

An independent statutory review of the operation of the Act was conducted in 2005-06, commissioned by the Gene Technology Ministerial Council, consistent with the legislative requirement to conduct such a review. The Review Panel concluded that the regulatory system had been functioning effectively, the Act had been rigorously implemented with a high level of transparency, and the current scope should be maintained. The Australian and all state and territory governments endorsed these findings.

GM foods are regulated under Standard 1.5.2 – Food produced using Gene Technology, contained in the *Australia New Zealand Food Standards Code*. This standard ensures that GM foods cannot enter the food supply unless they have been assessed as safe for sale for human consumption by FSANZ. To allow consumers to make an informed choice, the standard also states human food derived from GM crops must be labelled as GM if any genetic material and/or protein other than that normally present in the food is contained in the final product.

GM CROPS IN AUSTRALIA

To date the Regulator has approved the commercial release of several varieties of cotton, canola, carnations and a rose; and has issued licences for field trials of crops as diverse as sugarcane, wheat and barley, pineapple, white clover and grapevines, as well as the ornamental plant, torenia.

Varieties of GM cotton have been grown in Australia since 1996 and now make up around 95 per cent of the crop.

Agrifood Awareness Australia report that in 2010 around 133,300 hectares of GM canola have been planted in NSW (24,040 ha), Victoria (36,500 ha) and Western Australia (72,790ha). This represents around 8 per cent of the total canola crop in Australia.

On 6 October 2010 the *Weekly Times* reported NSW expects to harvest 42,000 tonnes of GM canola; and Victoria expects to harvest 58,000 tonnes. The report notes GM canola yields in Western Australia may be lower than eastern areas due to drought conditions.

State Moratoria

Decisions on whether to allow GM production in part or all of a state or territory are a matter for that jurisdiction.

In 2003, the Gene Technology Regulator issued licenses for the commercial release of 'InVigor' and 'Roundup Ready' canola after examining their health and environmental impacts and determining these varieties were as safe as conventional canola. Subsequently, all states and territories, except Queensland and the Northern Territory, enacted GM crop moratorium legislation to delay the commercial production of approved GM canola until marketing and trade considerations had been addressed. Most states have now reviewed, or are in the process of reviewing, the need for a moratorium.

South Australia has a moratorium on GM food crops which will expire in 2019. GM crops in South Australia are regulated under the *Genetically Modified Crops Management Act 2004* (SA). Pursuant to the *Genetically Modified Crops Management (Designation of Areas) Regulations 2004* (SA) a prohibition was placed on the cultivation of all types of GM food crops. On 28 April 2008 the Regulations, which designated the whole of the State as an area in which no GM food crops may be cultivated, were extended indefinitely. Under the *Subordinate Legislation Act 1978* (SA) these regulations will expire in 2019 unless reviewed earlier.

Tasmania was declared a GMO-free area pursuant to the *Genetically Modified Organisms Control Act 2004* (Tas). The Tasmanian cabinet announced in November 2008 that the state's moratorium on GM food crops would continue until November 2014.

In Western Australia, the *Genetically Modified Crops Free Areas Act 2003* (WA) prohibits the cultivation of all commercial GM crops in the state unless exemption orders have been issued. On 25 January 2010 the WA government announced an exemption to to allow GM canola to be grown in WA from 2010 onwards. This follows the government's decision in November 2008 to lift its moratorium on growing GM cotton in the Ord River Irrigation Area and to allow a commercial trial of GM canola in 2009. Exemption orders under the Act have also been issued for scientific research and field trials.

The New South Wales Parliament passed the *Gene Technology (New South Wales) Act 2003* and the *Gene Technology (GM Crop Moratorium) Act 2003* (NSW) to prohibit the production of specified GM food crops. On 14 March 2008 the NSW Primary Industries Minister announced approval had been granted for GM canola to be grown commercially in NSW after being satisfied that industry had adequately identified the requirements of key markets and can segregate GM product if required. The moratorium remains in place for the commercial production of all other GM food crops in NSW.

In 2004, Victoria introduced an order under the *Control of Genetically Modified Crops Act 2004* (Vic) to prohibit the production of GM canola. Following a review, Victoria's moratorium order on the commercial cultivation of GM canola was allowed to lapse on 29 February 2008, enabling production of GM canola from the 2008 growing season. The default position in Victoria is that all federally approved GM food crops may be immediately commercially released unless an order prohibiting their cultivation is made under the Act.

The Australian Capital Territory, which is regulated by the *Gene Technology Act 2003* (ACT) and the *Gene Technology (GM Crop Moratorium) Act 2004* (ACT), prohibited the growing of commercial GM food crops until June 2006. In April 2008 the ACT introduced the *Gene Technology Amendment Act 2008* (ACT) which made amendments to the

regulatory system to bring it in line with NSW. Under the current legislation, it is an offence to deal with a GMO unless that product has been granted a GMO licence.

GM Canola: Segregation and Coexistence

The grains industry believes it has the capacity to manage the commercialisation of GM canola to maintain or enhance trade in Australian canola and to enable market choice along the supply chain. Farmers make commercial decisions, including to operate organically or to grow non-GM or GM crops. Farmers seeking to capture a premium may incur additional costs.

Growers are required by Monsanto to undertake stewardship training before they can purchase seed. Objectives of the stewardship training include optimising agronomic performance, managing on-farm segregation and managing herbicide resistance.

In February 2010 the Primary Industries Standing Committee Industries Development Committee noted a joint report prepared by Grain Trade Australia and the Australian Oilseed Federation, *Market Choice in the Canola Industry – 2008/9 Final Stakeholders Report*, outlining how the GM canola supply chain performed within the industry's market choice (coexistence) framework in the 2008-09 season. The framework includes identification of market requirements, establishment of adventitious presence threshold levels; and having supply chain processes in place to meet market requirements including segregation protocols. Industry is using buffer zones to assist with segregation of GM and non-GM crops, and has produced guidelines for clean-down of harvesting equipment. The stakeholders report indicated that the market choice protocols adopted by industry in 2008 were effective and no revision of the protocols was required.

The Australian canola industry has historically had one grade of canola. Following the lifting of restrictions on the commercial production of GM canola in NSW and Victoria, the Australian Oilseeds Federation and Grain Trade Australia introduced a second 'specialty' standard for non-GM canola (CSO1-A). The non-GM CSO1-A canola may contain up to 0.9 per cent adventitious presence of material from licensed GM crops. The general standard (CSO1) may contain licenced GM and/or conventional canola. Canola has been segregated and marketed in line with the two canola standards since 2009 season.

GM Canola: Marketing Issues

ABARE's research indicates concerns about markets and prices for GM canola are largely unfounded and that Australian growers could lose significant market share if their access to GM technology is restricted. There is no credible evidence that international and domestic markets will be put at risk if Australia grows GM canola. In the traditional export markets for canola – Japan, Mexico, China, Pakistan and Bangladesh – GM canola is generally accepted as readily as non-GM varieties. ABARE's analysis indicates there has been no consistent premium paid for Australian non-GM canola once transport charges have been taken into consideration.

Future Australian exports of GM 'Roundup Ready' and 'InVigor' canola to the European Union are unlikely to face impediments as these varieties have been approved for food and feed (though not for cultivation) by the European Commission. Barriers affecting Canadian GM canola grain and meal exports to the European Union have arisen because, unlike Australia, Canada grows a number of GM canola varieties not approved by the European Union. In the three years to 2005, over 94 per cent of Australia's canola exports went to countries with labelling thresholds for unintended GM presence greater than 5 per cent.

Organics

The ABARE report *Potential impacts from the introduction of GM canola on organic farming in Australia* (2007) predicts that production of GM canola will have little if any effect on the organics sector. Organic canola is not grown to any significant extent in Australia; organic livestock producers can continue to use organic feedstuffs other than canola meal; and organic honey is not permitted to be produced from either GM or conventionally farmed non-GM canola. In the European Union, certified organic products may contain up to 0.9 per cent by weight of unintended GM presence before losing their certified organic status.

Herbicide tolerance through conventional breeding

Herbicide tolerant canola has been bred conventionally, for example triazine tolerant (TT) canola. However, GM breeding techniques offer increased speed and flexibility introducing new traits. TT canola has been widely adopted in Australia despite inherently lower yield potential and oil content, associated with photosynthetic capacity. Emergence of herbicide tolerant weeds is often cited as an issue with GM canola, however it applies equally to conventionally bred herbicide resistant canola.

GM wheat: Considering the future

No GM wheat has been approved by the Gene Technology Regulator for commercial production. However, field trials of GM wheat have and are being conducted in Australia, looking at traits such as starch composition and tolerance of environmental stresses, including dryness. It is anticipated that the outcomes of Australian R&D will not near commercialisation for at least seven years.

On 15 May 2009 (Australian time) three grain industry organisations from each of the United States, Canada and Australia released a joint statement on 'wheat biotechnology commercialization'. The Australian organisations were the Grains Council of Australia, Grain Growers Association and the Pastoralists and Graziers Association of Western Australia. The statement supported the use of biotechnology in developing improved wheat varieties and noted that the signatory organisations will work toward the goal of synchronised commercialisation of biotech traits in wheat in order to minimise market disruption.

GM FOOD IN AUSTRALIA

Food Safety Assessment and Labelling

All GM foods intended for sale in Australia and New Zealand are subject to a pre-market safety assessment by Food Standards Australia New Zealand (FSANZ) and approval by the FSANZ Board. The Australia and New Zealand Food Regulation Ministerial Council is then notified of the Board's decision. Gazettal occurs in the *Australia New Zealand Food Standards Code* (the Code). More than 40 GM foods have been approved to date.

FSANZ carries out safety assessments on a case-by-case basis, which means each new genetic modification is assessed individually for its potential impact on the safety of the food. FSANZ compares the GM food with a similar, commonly eaten non-GM food from a molecular, toxicological, nutritional and compositional point of view. If the genetic modification causes an adverse effect in the food, such as increasing its allergenicity or toxicity, it will not be approved. The safety assessment protocol used by FSANZ for GM foods is based on internationally recognised principles for assessing the safety of whole foods.

The Code also requires that food (including ingredients, food additives and processing aids) derived from GM crops be labelled as GM if any genetic material and/or protein other than that normally present in the food is contained in the final product. Highly refined foods such as oils and sugars, that do not normally contain any genetic material or protein, may require labelling if they possess characteristics that are significantly altered from the non-GM counterpart. This labelling requirement ensures consumers are advised where there is GM content and can make informed choices.

The Code allows a food to contain up to 10g/kg (1 per cent) unintended new genetic material and/or protein per ingredient without being labelled but only where the manufacturer has actively sought to avoid using GM food or ingredients. In addition, food prepared for immediate consumption, for example at restaurants and through vending machines, is not required to be labelled.

GM soy and corn in infant formula

On 26 September 2010 Greenpeace alleged it had found traces of GM soy and corn in the popular infant formula S-26, despite the product not being labelled as containing GM ingredients. Media reports indicate the test results showed less than 0.1 per cent of GM content, well below the Australia New Zealand Food Standards Code trigger of 1 per cent before labelling is required. Wyeth Nutrition, the manufacturer of the formula, released a statement that any contamination was adventitious as the company has a policy of not using GM ingredients.

Greenpeace and Mothers are Demystifying Genetic Engineering (MADGE) held sit-ins at two supermarkets, a Woolworths store in Sydney and a Coles store in Melbourne to highlight the perceived GM labelling issue. MADGE has indicated it will take further action 10-16 October 2010. The allegations and sit-ins received significant media coverage.

On 30 September 2010 Senator Siewert and Senator Xenophon moved that on the next day of sitting (25 October 2010) that the Senate:

(a) notes recent reports in Australia that found infant formula had been contaminated with genetically modified (GM) soy and corn;

(b) acknowledges the significant level of community concern about food labelling and safety issues in Australian food products, particularly those being fed to infants and young children; and

(c) calls on the Government to introduce clear and effective labelling standards that require all GM additives in Australian food products to be labelled.

NATIONAL ENABLING TECHNOLOGIES STRATEGY

The Australian Government has provided $38.2 million over four years (2009-2013) to a National Enabling Technologies Strategy to support the responsible development of enabling technologies, focusing primarily on biotechnology and nanotechnologies. The Department of Innovation, Industry, Science and Research is the lead agency. The Strategy's aim is to improve the management and regulation of biotechnology and nanotechnology in order to maximise community confidence and community benefits from the use of new technologies.

In 2010 the department (Australian Bureau of Agricultural and Resource Economics-Bureau of Rural Sciences) was provided with $175,000 under the Strategy to investigate the role of enabling technologies, including biotechnology, in addressing food security and sustainability issues in the agriculture sector.

Current as at 7 October 2010

SENATE ESTIMATES – OCTOBER 2010
SUPPLEMENTARY BRIEF

SES Lead:	**Allen Grant** **Agricultural Productivity Division,** s. 47F(1)
SES Support:	**Matthew Worrell** **Research and Development and Food Security,** s. 47F(1)