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# GMOs Guiding Meaningful Opinions



The Gene Technology Newsletter for the  
Horticulture Industry

October 2005

Welcome to this edition of *GMOs*, the bi-monthly gene technology newsletter for the horticultural industry. *GMOs* is compiled by Agrifood Awareness Australia Limited in conjunction with HAL.

We welcome any comments or enquiries you may have regarding the content of this publication. We also encourage the use of this information in industry newsletters and web pages.

## Knowledge Bank

### GM FOOD RESOURCE UPDATED

Australia's food safety regulator Food Standards Australia New Zealand (FSANZ) has launched a new publication titled *GM Foods*. The booklet is an updated version of a publication released by FSANZ in 2000.

As at June 2005, FSANZ has approved 25 genetically modified (GM) foods, all of which come from the six crops listed in the table below. Of these, cotton varieties are the only commercially-grown GM crops in Australia, and potato and sugarbeet are not currently grown overseas.

Crop	Characteristic	Examples of potential food uses
Soybean	Herbicide tolerance High oleic acid content	Soy foods – soy drinks, tofu, soy oil, soy flour and lecithin. Products containing soy – breads, pastries, snack foods, baked and fried products, edible oil products.
Canola	Herbicide tolerance	Canola oil. Products made with canola oil include fried and baked products and snack foods.
Corn	Insect protection Herbicide tolerance Insect protection + herbicide tolerance	Corn foods – kernels, oil, corn flour, sugar and syrup. Products containing corn – snack foods, baked and fried foods, edible oil products, confectionery and soft drinks.
Potato	Insect protection Insect protection + virus protection	Whole potatoes. Potato products - snack foods, processed potato products and other processed foods.
Sugarbeet	Herbicide tolerance	Processed foods.
Cotton	Insect protection Herbicide tolerance Insect protection + herbicide tolerance	Cottonseed oil and linters may be used in blended vegetable oils, fried and baked foods, snack foods, edible oil products and small good casings.

The booklet covers how GM food is regulated; the basics of gene technology; the safety assessment process for GM foods; GM foods available in Australia and overseas; how GM foods are likely to develop in the future; and, GM food labelling requirements.

In general, a GM food is considered safe for human consumption if FSANZ is satisfied that:

- All new genetic material is examined in detail;
- The new genetic material stays the same and is passed on in a predictable way from generation to generation;
- All new proteins have been examined in detail;
- The new proteins are unlikely to be toxic or allergenic;
- The new proteins do not cause any detectable toxicity in animal studies;
- The potential transfer of new genetic material to bacterial cells in the human digestive tract will not have a significant impact on human health; and,
- The composition of the food, including naturally occurring toxins, allergens and antinutrients, is not significantly altered compared to the non-GM food.

For more information – [www.foodstandards.gov.au](http://www.foodstandards.gov.au)

## Hot Issues

### **NSW GM FOOD CROP BAN EXTENDED**

The NSW Government has announced that it will extend the current ban on the commercial cultivation of GM food crops for another two years, until March 2008.

According to NSW Primary Industries Minister, Ian Macdonald, the extension of the ban was "due to the fact that there had yet to be any on-farm research trials in NSW that explored marketing and trade matters."

This extended moratorium in NSW sees the state fall into line with Western Australia and Victoria, and leaves South Australia as the only major canola-growing centre with a ban due to be lifted in 2006.

Legislation to extend the *Gene Technology (GM Crop Moratorium) Act 2003* will go before NSW State Parliament by the end of this year. The legislation will continue to allow for exemption orders for research purposes.

The NSW Farmers' Association has expressed their disappointment with the State Government's decision to extend the ban without consulting the industry first.

Chair of the Association's Grains Committee, Angus McLaren, said "We are extremely concerned about the lack of consultation with this decision and believe there needs to be stronger direction and more industry involvement on this issue."

"The current moratorium only discourages trials, both small scale and paddock sized. How can industry make any progress and conduct the necessary research, if the Government keeps putting up these barriers?"

For more information:  
NSW Government Media Release  
[www.afa.com.au](http://www.afa.com.au)

NSW Farmers' Association Media Release  
[www.nswfarmers.org.au](http://www.nswfarmers.org.au)

### **GM CANOLA IN THE HEADLINES**

#### **- GM CANOLA AND VARIETY TRIALS**

According to media reports a number of conventional canola trials planted across Australia as part of National Variety Trials

(NVT) have tested positive for the presence of traces of Monsanto's GM herbicide tolerant canola. The source of the GM canola is being suggested by the media as seed imported from Canada.

The NVT program is an initiative of the Grains Research Development Corporation (GRDC).

No official statements have been released regarding the issue. Under state government moratoria there is a zero threshold for GM material in non-GM crops. With much of Australia's canola research and development derived from North America (where GM crops are widely grown) the establishment of sensible thresholds will be an important topic of discussion over the coming months.

#### **- WESTERN AUSTRALIA CANOLA CONSIGNMENT**

Several months ago, claims were made in the media that GM canola traces had been found in a conventional canola consignment out of Western Australia. Grain marketer Cooperative Bulk Handling (CBH) has now announced that detailed analysis of canola samples received and stored in Western Australia from the 2004-05 harvest have tested negative for traces of GM canola.

For more information:  
CBH Media Release  
[www.cbh.com.au/index.html](http://www.cbh.com.au/index.html)

#### **- TASKFORCE ESTABLISHED TO INVESTIGATE VICTORIAN INCIDENT**

As mentioned in the last edition of *GMO* trace amounts of GM canola were found in a conventional canola consignment in June. A taskforce has now been convened by the Oilseeds Federation of Australia to investigate the incident.

For more information:  
[www.afa.com.au](http://www.afa.com.au)

#### **MOVING BIOTECHNOLOGY FORWARD IN AUSTRALIAN AGRICULTURE**

Dr Jim Peacock, President of the Australian Academy of Science addressed the National Press Club on the topic "Biotechnology and the Agribusiness Economy" last month. During this presentation, Dr Peacock said that the canola industry should become "intimately involved" in trying to overturn the current bans imposed by state and territory governments in relation to

GM food crops, adding that, "The major premise on which the moratoria were based are without foundation."

Further information:

[www.science.org.au/events/npc2005.htm](http://www.science.org.au/events/npc2005.htm)

### REGULATORY UPDATES

**GM CARNATIONS UPDATE** – Developed by Melbourne company Florigene Limited, GM carnations which exhibit blue-to-mauve colouring have been commercially available in Australia since 1996.

The OGTR has received an application from Florigene Limited to include future dealings with the blue carnations on the GMO Register. Items on the Register no longer require licences from the OGTR to be propagated, grown or distributed. This is the first application that the OGTR has received to place an item on the Register.

The OGTR has prepared a comprehensive Risk Assessment and Risk Management (RARMP) to assess Florigene's application. In the absence of information indicating any identified risks to people or the environment, the continued commercial release of GM blue carnations appears suitable for inclusion on the GMO Register. Submissions close on **19 October** 2005.

### PROPOSED GM ROSE FIELD TRIAL –

Florigene Australia has applied for a licence to conduct field trials of three imported GM rose lines in Victoria. The GM roses have been modified to express blue pigments in their flowers. The OGTR has advised that public comment will be sought in November regarding the risk assessment and risk management plan for this proposed trial.

**GM COTTONS** - The OGTR has advised that public comment will be sought from this month regarding Monsanto Australia's licence application to commercially release its herbicide tolerant Roundup Ready Flex and herbicide tolerant/insect resistant Roundup Ready Flex/Bollgard II GM cotton.

The OGTR has asked for public comment by 7 October on the risk assessment and risk management plan developed for field trials of an insect resistant cotton developed by Deltapine Australia.

A licence has been granted for Bayer CropScience's application to conduct field trials of herbicide tolerant and herbicide tolerant/insect resistant cotton varieties.

### ETHICS AND SCIENTIFIC ADVISORY COMMITTEE UPDATES

A Communique has been released by the OGTR regarding the latest Gene Technology Ethics Committee (GTEC) meeting. Items discussed included:

- the revised draft of the GTEC *Ethical Issues Associated with Transpecies Gene Transfer* paper; and,
- an update on the progress of the *Ethical Statement in relation to Genetically Modified Organisms*;
- a paper destined for the Biological and Toxin Weapons Convention (BWC) regarding links between gene technology, environmental ethics and biological weapons.

A summary of past Gene Technology Technical Advisory Committee (GTTAC) meetings is also available from the OGTR website. Information regarding the decisions made about recent licence applications comprise much of the document.

For more information:

[www.ogtr.gov.au/new/index.htm](http://www.ogtr.gov.au/new/index.htm)

### INDEPENDENT PANEL REVIEWING GENE TECHNOLOGY ACT SUBMISSIONS

Almost 300 submissions have been made regarding the review of the *Gene Technology Act 2000*. The submissions are available from the Department of Health and Ageing website and are currently being considered by the Review Panel. The Panel intends to visit organisations that use gene technology, release issue papers and conduct consultations throughout Australia in October and November.

For more information:

[www.health.gov.au/internet/wcms/publishing.nsf/Content/gtreview-submissions-index.htm](http://www.health.gov.au/internet/wcms/publishing.nsf/Content/gtreview-submissions-index.htm)

### Reports of Interest

#### MODERN FOOD BIOTECHNOLOGY, HUMAN HEALTH AND DEVELOPMENT: AN EVIDENCE-BASED STUDY

The World Health Organisation (WHO) has released a report which presents an evidence-

based analysis of GM foods in relation to five key areas:

- The current and future food use of GM foods;
- Human health and environmental risk considerations for GM foods;
- The need for capacity building in developing countries;
- The issue of food security; and,
- Social and ethical concerns as they relate to GM foods.

Some of the conclusions of the report include:

- Genetically modified foods currently available on the international market have undergone risk assessments and are not likely to present risks for human health in any form than their conventional counterpart.
- The potential risks associated with GMOs and GM foods should be assessed on a case-by-case basis taking into account the characteristics of the GMO or the GM food and possible differences of the receiving environment.
- Many developing countries cannot afford the seemingly considerable capacities required for the adoption of modern biotechnology. Measures must be taken to ensure that developing countries are not impeded in effective regulation by development problems, and that they derive benefit from their participation in international regulatory instruments.
- The continued marginalisation of developing countries from international trade will have a negative impact on the adoption and application of emerging technologies, including modern biotechnology.
- There is a need to investigate opportunities to shape social and market conditions where biotechnology can contribute to the secure generation of nutritious foods according to regional needs. Such opportunities should be based on sustainable food production preserving biodiversity and respecting the values of nature, while taking into consideration ethical objectives and social equity in respect to regional conditions, needs and wants.

For more information:

[www.who.int/foodsafety/publications/biotech/biotech\\_en.pdf](http://www.who.int/foodsafety/publications/biotech/biotech_en.pdf)

## **GM-FREE FOOD LABELS BOOST SALES**

According to research conducted at the USA's Montana University, voluntary GM-free labels used by dairy companies have increased their sales and the price people were willing to pay for their milk products.

Published in the May edition of *American Journal of Agricultural Economics*, the research focused on milk labelled as having no added GM bovine growth hormone. Genetically modified bovine growth hormone (rBGH) has been approved for commercial use in the USA since the late 1990s. Critics claim that rBGH is a human health hazard, however according to the report, there is no scientific evidence to back these claims. This GM hormone is not used in dairy production in Australia.

Because of the unfounded claims, some dairy companies began to voluntarily label their milk as having not been produced with rBGH. Data obtained from supermarket scanners highlighted the fact that these voluntary labels were effective in increasing the prices consumers were willing to pay for milk without rBGH.

Such studies have not been undertaken in Australian supermarkets. Whilst modelling for hypothetical products has been undertaken, direct GM/non-GM comparisons with real supermarket products have not been made.

Because of the labelling legislation in place in Australia, such a study might have a very different outcome. The USA does not have mandatory labelling for foods with GM content, whilst in Australia any food with more than one per cent must identify the GM ingredient in the ingredient panel for consumer choice purposes according to the GM food labelling laws implemented by Food Standards Australia New Zealand (FSANZ) in 2001. Negative labelling claims (such as GM-free) used in Australia are the responsibility of the Australian Competition and Consumer Commission (ACCC).

For more information:

[www.montana.edu/commserv/csnews/nwview.php?article=2435](http://www.montana.edu/commserv/csnews/nwview.php?article=2435)

## **GM CROPS AND POLAND**

The latest report produced by UK-based, PG Economics, investigates the potential impact of GM crops on Polish agriculture. It claims that Polish farmers have the potential to gain more from the adoption of GM crops than their European Union (EU) counterparts because

they are starting from a lower average of technical efficiency.

Titled, *The farm level impact of using GM agronomic traits in Polish arable crops*, the report outlines the potential benefits Poland could expect by the uptake of GM herbicide tolerant canola, sugarbeet and maize, and insect resistant maize. It lists the national benefits for Poland as:

- Production increases between 10 and 19 per cent in crop output of canola, and a similar level of increase for sugar beet is possible depending on EU production quotas. Production levels of maize would remain unaltered (or possibly increase by just over one per cent).
- Adoption estimates see the impact on the annual added value for Polish production of the three crops would be between 55 and 116 million euros. This is equivalent to an annual gross agricultural output of between +0.46 and +1 per cent.
- Income on farm (gross margin income) is estimated to increase between 67 and 123 million euros.

The report states that finding outlets for any GM crops produced by Poland is likely to be very straightforward, especially in the feed sector.

For more information:

[www.pgeconomics.co.uk/pdf/Possible\\_farm\\_level\\_impact\\_GM\\_crops\\_Poland.pdf](http://www.pgeconomics.co.uk/pdf/Possible_farm_level_impact_GM_crops_Poland.pdf)

## Research Updates

### CITRUS GENES IN ACTION

A CSIRO team led by Dr Steve Swain and Dr Fui-Ching Tan has confirmed the function of several citrus genes by inserting them into the model plant Arabidopsis.

As part of a CSIRO research project aiming to develop a Citrus Floral Index, several candidate citrus flowering genes are under investigation.

The aim of the Citrus Floral Index project is to develop a practical and inexpensive method of predicting flowering intensity in the coming spring, by sampling dormant buds collected in winter and measuring the activity of the genes involved in flower production. An important part of the project is identifying and confirming the function of citrus flowering genes.

The team cloned several genes likely to be involved in flower production, and introduced them into the model plant Arabidopsis using the Agrobacterium-mediated transformation technique.

By expressing the citrus genes in Arabidopsis, the team has established the function of the *CsAP3*, *CsSL1* and *CsWUS* genes as similar to that of their counterparts in Arabidopsis.

Preliminary results show that the citrus *APETALA3*-like gene (*CsAP3*) is capable of substituting for its Arabidopsis counterpart in controlling petal and stamen formation.

Constitutive expression of one of the citrus *SOC1*-like gene (*CsSL1*) in Arabidopsis ecotype Columbia or the *soc1* mutant causes delayed senescence of floral organs.

Initial results suggest that the citrus *WUSCHEL*-like gene (*CsWUS*) is likely to be involved in meristem development, as is the case in Arabidopsis.

These experiments confirm that two citrus MADS-box flowering genes and a meristem identity gene have been successfully identified.

These results also confirm that knowledge gained from genetic and molecular biology research in model plants such as Arabidopsis can help with the study of commercially important species such as citrus.

In addition to being an essential component of a Citrus Floral Index, this knowledge provides tools for the development of new citrus varieties, with improved fruit characteristics.

The research is supported by the Murray Valley Citrus Board and by Horticulture Australia Ltd.

For more information:

Steve Swain  
CSIRO Plant Industry, Merbein  
(03) 5051 3159  
[Steve.Swain@csiro.au](mailto:Steve.Swain@csiro.au)

### CURRENT GM HORTICULTURAL PROJECTS INCLUDE:

**FRANCE** – Researchers from France's National Institute for Agricultural Research (INRA) are conducting field trials of GM **grapevines** as they try to find a way to battle the virus known as "court noue" (literally short-

knotted), which reportedly affects one-third of the nation's grapevines.

**PHILIPPINES** – A GM **coconut** with increased levels of lauric acid is reportedly being developed by University researchers to compete with canola on the vegetable oil market. Coconuts currently have 47-48 per cent lauric acid content compared to GM canola levels of up to 60 per cent.

**POLAND** – Plant-based vaccines in **lettuce** have proven successful in mice according to Polish researchers looking to develop vaccines for Classic Swine Fever Virus and a particular liver worm. The next phase of the research will involve other animals, including pigs.

## Market Research

### NEW ZEALAND - IMPACT OF GM CROPS ON COUNTRY IMAGE

Marketing researchers from New Zealand's Otago University have recently investigated whether the image of a country is damaged, in European markets in particular, if they grow GM crops.

According to the research, "No evidence was found that presence of GM crops in a county causes negative perception of non-GM food imported from that country. Provided adequate steps are taken to avoid accidental contamination of conventional crops, producer countries do not appear at great risk of damaging their overall country image for food producers if GM technology is introduced."

The research consisted of in-depth interviews with Chief Executive Officers, food buyers or other decision-makers of 17 importers, distributors, retailers or industry organisations in Germany, Italy, UK, Netherlands and Greece.

The perception of both New Zealand and Australia as food producers was highly rated by respondents in relation to food safety and quality. Researchers state that this perception appears to be largely product specific, and relates to factors such as hygiene, traceability, inspection standards, low chemical residues, high packaging and quality control standards, and lack of scandals and disease outbreaks.

Specific scenarios presented to those interviewed included:

- Insect-resistant GM fruit trees (reducing need for insecticides);
- GM animals for improved meat production;
- GM pasture to lessen the need for parasitic worm control drenches;
- GM bacteria in animal rumens to lessen methane emissions;
- GM fish for more rapid aquaculture production; and,
- GM use in mammalian pest control (eg rats) to lessen reliance on poisons.

A negative reaction was held to both GM farm animals and GM pasture plants, and this was largely associated with recent disease outbreaks and food scares in Europe based on contamination of animal feed.

For more information: [info@afaa.com.au](mailto:info@afaa.com.au)

## Events

### "SCIENCE, POLITICS AND DECISION MAKING"

**Date:** 17-29 October, 2005

**Description:** AFAA, the Australian Academy of Science, CSIRO Industry Link and CSIRO Plant Industry will host Dr Karin Metzloff, Executive Director of the European Plant Science Organisation (EPSO) in Australia in October. EPSO based in Belgium, aims to improve the impact and visibility of the plant science industry in Europe. Dr Metzloff will discuss the work of EPSO and the topic of "science, politics and decision making".

**Location:** Canberra, Melbourne, Adelaide and Brisbane

**Email:** [RowenaSmith@afaa.com.au](mailto:RowenaSmith@afaa.com.au)

**Web:** [www.afaa.com.au](http://www.afaa.com.au)

**Telephone:** (02) 6273 9535

### GENE TECHNOLOGY GRAIN WORKSHOP

**Date:** 18-19 October, 2005

**Description:** Agrifood Awareness Australia Limited will host a gene technology grain workshop, in conjunction with CSIRO Industry Link next month in Canberra. The hands-on workshops aim to provide an overview of gene technology issues including the science involved, the world status of GM crops and laboratory work.

**Location:** CSIRO Black Mountain, Canberra

**Email:** [RowenaSmith@afaa.com.au](mailto:RowenaSmith@afaa.com.au)

**Web:** [www.afaa.com.au](http://www.afaa.com.au)

**Telephone:** (02) 6273 9535

## AVCARE SUMMIT

**Date:** 26-27 October, 2005

**Description:** Topics to be addressed at this year's Avcare Summit include: science, politics and decision making; celebrating 10 years of agricultural biotechnology; issues that will change Australian agriculture, animal welfare and animal rights – the new area of attack by NGOs; and, intellectual property issues in agriculture.

**Location:** Radisson Resort, Gold Coast

**Email:** [Samantha.Young@avcare.org.au](mailto:Samantha.Young@avcare.org.au)

**Web:** [www.avcare.org.au](http://www.avcare.org.au)

**Telephone:** (02) 6230 6399

## AUSBIOTECH CONFERENCE 2005

**Date:** 20-23 November 2005

**Description:** The theme of the AusBiotech 2005 National Conference is "Linking the Region". The conference program, seeks to address the topical and challenging aspects of doing business in the key biotechnology sectors, and in driving partnering opportunities in the Asia Pacific Region. Topics that will be addressed across the various biotechnology sectors include:

- Biotechnology opportunities from South East Asia and the Indian Ocean Rim regions
- The Trans Tasman Agreement – issues and challenges.
- Commercial applications of biotechnology in agriculture
- Converting Australian biotechnology into an international currency
- Pitfalls and difficulties in taking out IP – and how to minimise them

**Location:** Perth Convention Exhibition Centre

**Email:** [ausbiotech@tourhosts.com.au](mailto:ausbiotech@tourhosts.com.au)

**Web:** [www.ausbiotech2005.com/index2.html](http://www.ausbiotech2005.com/index2.html)

**Telephone:** (02) 9265 0700

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## Gene Technology Contacts

### Regulation

Australian Pesticides and Veterinary Medicines Authority - APVMA

[www.apvma.gov.au/](http://www.apvma.gov.au/)

Phone: (02) 6272 5852

Australian Quarantine and Inspection Service - AQIS

[www.aqis.gov.au/](http://www.aqis.gov.au/)

Phone: 1800 020 504

Food Standards Australia New Zealand – FSANZ

[www.foodstandards.gov.au](http://www.foodstandards.gov.au)

Phone: (02) 6271 2241

Office of the Gene Technology Regulator - OGTR

[www.ogtr.gov.au](http://www.ogtr.gov.au)

Phone: 1800 181 030

Therapeutic Goods Administration – TGA

[www.health.gov.au/tga/](http://www.health.gov.au/tga/)

Phone: (02) 6270 4318

### Science

Commonwealth Scientific and Industrial Research Organisation - CSIRO

<http://genetech.csiro.au/>

Phone: 1300 363 400 - CSIRO Enquiries

### Public Awareness

Agrifood Awareness Australia Limited - AFAA

[www.afa.com.au](http://www.afa.com.au)

Phone: (02) 6273 9535

Biotechnology Australia – BA

[www.biotechnology.gov.au](http://www.biotechnology.gov.au)

Phone: 1800 631 276 – Gene Tech Enquiries

### Industry

Horticulture Australia Limited - HAL

[www.horticulture.com.au/](http://www.horticulture.com.au/)

Phone: (02) 8295 2300