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# GMOs Guiding Meaningful Opinions



The Gene Technology Newsletter for the  
Horticulture Industry

**August 2006**

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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 TORENIA TRIALS IN PIPELINE

The Office of the Gene Technology Regulator (OGTR) has announced that the Risk Assessment and Risk Management Plan (RARMP) for genetically modified torenia flowers will be available for public comment in October.

Florigene is seeking approval for a limited and controlled release of nine torenia lines that have been genetically modified to produce a range of flower colours. Torenias are a member of the snapdragon family.

In greenhouse conditions, the GM torenias produced a range of flower colours including white, pink, yellow, purple, blue and violet. The GM torenias contain snapdragon and geranium genes.

The purpose of the trial is to evaluate the performance of the GM torenia lines by measuring features such as plant size, number and longevity of flowers, flower colour stability and susceptibility to pests and diseases.

The proposed trial would involve growing up to 200 plants in hanging baskets suspended over gravel or concrete in an area not exceeding 100m<sup>2</sup>.

Containment measures proposed at this stage include:

- Destroying any viable plant materials not required for further research following the trial.
- Enclosing the area with a 2.1 metre fence with a lockable gate.
- Sterilising the soil used to grow the GM torenias.

Roses and carnations containing similar genes have been approved for trials in the past. The GM carnations have been commercially available for the past decade.

For more information:

[www.ogtr.gov.au/ir/dir068.htm](http://www.ogtr.gov.au/ir/dir068.htm)

## Hot Issues

### NSW FARMERS VOTE IN FAVOUR OF GM

The New South Wales Farmers' Association (NSWFA) held its annual conference on 18 July, and four motions were debated and passed in relation to GM crops.

In brief, the motions were that the Association:

- lobby the Primary Industries Ministerial Council to set adventitious presence levels of GM for all crops.
- investigate the development of a practical, objective and inexpensive on-farm GM detection test.
- implement a farmer education and awareness campaign regarding GM canola before the end of the current moratorium.
- call for the immediate lifting of the moratorium on GM crops in NSW.

For further information:

[emailus@nswfarmers.org.au](mailto:emailus@nswfarmers.org.au)

### OGTR RESEARCH LICENCE APPLICATION UPDATES

In addition to the GM torenia application outlined, the OGTR is currently addressing the licence applications below, all of which involve GM cotton developments.

Risk Assessment and Risk Management Plan (RARMP) coming soon for:

Reference	Crop/characteristic	Developer
DIR 067/2006	Waterlogging tolerant cotton field trials	CSIRO

RARMP open for comment until 1 September for:

Reference	Crop/characteristic	Developer
DIR 065/2006	Insect resistant cotton field trials	Deltapine Australia

RARMP comment period has concluded for:

Reference	Crop/characteristic	Developer
DIR 063/2006	Fungal-resistant cotton field trials	Hexima Ltd
DIR 062/2006	Herbicide tolerant cotton commercial release	Bayer CropScience Pty Ltd

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

### GM LUCERNE HITS US MARKET

Genetically modified herbicide tolerant alfalfa (lucerne) is the latest GM crop to be grown commercially – joining soybean, corn, cotton, canola, papaya and rice varieties. It is only available to farmers in the United States to-date.

The crop received commercial approval last year and is currently available as part of a limited domestic release (between 20,000 to 30,00 hectares) in its first year of production. Import approvals are currently being finalised in key export markets.

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

### FRANCE AND GM CORN

According to a US Government report, the French GM corn area is expected to increase 10-fold in 2006, rising from 500 hectares in 2005 to 5,000 hectares this year.

The GM corn is resistant to the European corn borer. According to the report, severe infestations of the pest are the reason growers are turning to the GM variety.

For more information: [www.fas.usda.gov/gainfiles/200607/146208209.pdf](http://www.fas.usda.gov/gainfiles/200607/146208209.pdf)

## Reports of Interest

### GM PASTURE RESEARCH IN AUSTRALIA AND NEW ZEALAND

Research underway in pastures to improve virus resistance, lignin biosynthesis and fructan metabolism, and reduce pollen allergens amongst other things was featured in the latest edition of Agrifood Awareness Australia Limited's *Biotech Bulletin*.

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

### TEN YEARS OF GM CROPS IN THE USA

According to the 2006 *Agricultural Resources and Environmental Indicators* report compiled by the US Department of Agriculture, farmers adopting the current generation of GM crops derive tangible benefits, even though not all benefits are reflected in standard measures of net returns.

The report says that according to USDA surveys conducted in 2001-03, most farmers growing GM corn, soybean and cotton did so to:

- Increase yields through improved pest control (59-79 per cent);
- Save management time and make other practices easier (15 to 26 per cent); and,
- To decrease pesticide use (9-17 per cent).

For more information: [www.ers.usda.gov/publications/arei/eib16/eib16\\_3-3.pdf](http://www.ers.usda.gov/publications/arei/eib16/eib16_3-3.pdf)

### ANIMALS FED GM FEED AND THE SAFETY OF THEIR MEAT, MILK AND EGGS

The Council for Agricultural Science and Technology (CAST) has released its latest information paper in a series looking at the future of animal agriculture through biotechnology. Titled, *Safety of Meat, Milk and Eggs from Animals Fed Crops Derived from Modern Biotechnology*, the paper was written by an international taskforce of scientific experts from the United Kingdom, Germany, the United States of America, and Brazil.

The information paper states, "results of the most up-to-date research compiled by this international taskforce conclude that meat, milk and eggs produced from farm animals fed GM crops are as wholesome, safe and nutritious as similar products produced by animals fed conventional crops."

For more information: [www.cast-science.org](http://www.cast-science.org)

## Research Updates

### FRUIT GENES ENHANCE FLAVOUR AND FRAGRANCE POTENTIAL

According to a media release, HortResearch scientists in New Zealand say they have fine-tuned the science of gene discovery to such a degree that they can now accurately determine which genes create the individual flavours and fragrances found in fruits and flowers. Combined with traditional biofermentation techniques this means that it should be possible for the natural tastes and aromas of fruit to be recreated.

Chemical synthesis or extraction from harvested raw materials are the main methods currently used by food, perfume and cosmetic developers globally to mimic nature's flavours and fragrances, so this announcement has major implications for them.

Neither approach is ideal according to researchers because they are expensive, reliant on fossil fuels, cannot truly recreate the smells of nature, and extraction produces only limited quantities of the product, reducing the number of commercially viable options for the extract.

Biofermentation can produce large amounts of a desired compound at a low cost and with little environmental impact. As biofermentation uses the actual genes that plants use in the wild, the resulting flavour or fragrance compound has exactly the same molecular make-up – termed "Nature Identical".

HortResearch has proven the bioproduction concept can be used to produce fruit flavours and fragrances by perfectly recreating a fruit compound called alpha-farnesene, responsible for the distinctive aroma of green apples. The company has filed international patent applications on this development and for another plant gene responsible for making a compound that smells like the heady scent of red roses. The use of the biofermented compounds is also being investigated for the health food market.

Source:

[www.hortresearch.co.nz/index/news/484](http://www.hortresearch.co.nz/index/news/484)

### CURRENT GM HORTICULTURAL PROJECTS INCLUDE:

**BRAZIL** - Four Brazilian research institutions have started contained greenhouse trials of 120 lines of GM **oranges** to select varieties resistant to the main pathogens and pests attacking this crop. Researchers aim to select varieties resistant to *citrus leprosis*, which currently accounts for up to 50 per cent of yield losses. In addition, the team also intends to select for resistance to *Citrus Tristeza Virus* (CTV). New, resistant varieties will then require field trials before any release to growers would be considered.

**INDIA** – A decision to conduct large-scale field trials of insect resistant **eggplant** is currently pending in India. Scientists involved in the USAID-funded project for development of the pest-resistant brinjal said it would reduce agriculture losses due to fruit and shoot borer larva. Initial studies show that the GM eggplants also require fewer pesticide applications. Commercial cultivation in 2007 is the target by researchers.

**INDIA** - Indian scientists are genetically modifying **potato** plants to produce hepatitis B antigens, leading to the development of plant-based, orally administered vaccines. Hairy roots are an attractive system for the production of GM proteins due to their genetic stability, fast growth, and ability to grow in hormone-free media. About two billion people in the world are infected by the hepatitis B virus. Although a vaccine has already been developed, it is difficult to store and ship, and is thus expensive for developing countries, where most hepatitis B infections occur.

**PHILIPPINES** – GM **papayas** resistant to ringspot virus are currently undergoing field trials. The virus has devastated papaya production in a number of areas. Commercial GM varieties will be directed to the domestic market. Enough non-GM varieties will be produced to meet export market demands which account for 10 per cent of production.

**USA** - A project to map the genetic sequence of the **cassava** will be undertaken by US researchers. By mapping the cassava genes researchers hope to make dramatic improvements in the development of breeding and biotechnology approaches. Cassava is a root crop that accumulates large quantities of starch very efficiently, and it is an important source of calories within many developing countries.

## Market Research

### AUSTRALIAN CONSUMERS STILL DIVIDED ON GM

The latest Swinburne National Technology and Society Monitor results have been released. According to the 1013 respondents surveyed on their perception of new technologies, such as stem cell research, the internet and GM foods in Australia:

- Australians are very comfortable with the rate of technological change, rating it as 6.71 on a scale of 0 (not at all comfortable) to 10 (very comfortable).
- Australians most strongly trust CSIRO, universities, hospitals and scientists for information about new technologies. They do not trust the media.
- Australians are very uncomfortable with GM plants for food. Only 30 per cent of participants were comfortable with this technology.
- In relation to GM animals used in the food supply chain, only 18 per cent were comfortable with such a use. However, since 2003, the level of comfort with GM animals for food has increased significantly.

The Monitor is developed by the Australian Centre for Emerging Technologies and Society at Swinburne University of Technology.

For more information:

[www.swinburne.edu.au/lss/acets/monitor/2005MonitorFULL.pdf](http://www.swinburne.edu.au/lss/acets/monitor/2005MonitorFULL.pdf)

## Events

### AGRICULTURAL BIOTECHNOLOGY INTERNATIONAL CONFERENCE (ABIC)

**Date:** 6-9 August 2006

**Description:** The Agricultural Biotechnology International Conference (ABIC) is the major global conference for agricultural biotechnology. This year's theme is 'Unlocking the potential of agricultural biotechnology'. Conference organisers aim to address what they consider to be two of the most important challenges in the AgBio sector - the public perception of what "biotechnology" means; and, the lack of effective commercialisation of innovative technologies.

**Location:** Melbourne Convention Centre, Melbourne

**Web:** [www.ABIC2006.org](http://www.ABIC2006.org)

### TROPICAL CROP BIOTECHNOLOGY CONFERENCE

**Date:** 16-19 August 2006

**Description:** The conference aims to address two critical research issues in the future development of tropical crops. Firstly, the potential for tropical crops as biofactories in the production of industrial biomaterials, renewable energy, functional foods and pharmaceuticals. Secondly, developing and using functional genomics in tropical crops to facilitate a quantum leap in the performance of tropical crop plants.

**Location:** Cairns International Hotel, Cairns

**Email:** [s.mckell@uq.edu.au](mailto:s.mckell@uq.edu.au)

**Telephone:** 07 3214 2998

**Web:** [www.tcbc2006.com.au](http://www.tcbc2006.com.au)

### GT WORKSHOPS – REGIONAL SA

**Date:** 22-23 August

29-30 August

31-1 September

**Description:** The two-day course, run by CSIRO is a hands-on educational opportunity, allowing participants to gain a basic understanding of the laboratory techniques that underpin gene technology. Training includes laboratory work in DNA extraction, gene isolation and gene transfer, as well as formal lectures. Participants will gain an understanding of the research involved, the advances currently provided by gene technology, an insight into future research opportunities, and details of the regulatory system underpinning gene technology research. Attendees will also have the opportunity to participate in discussions about key issues, such as the social and economic implications of gene technology.

**Location:** Wudinna, Clare, Murray Bridge

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

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

**Telephone:** 02 6273 9535

## Gene Technology Contacts

### Regulation

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

### 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  
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### Industry

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