



Know-how for Horticulture™

# GMOs Guiding Meaningful Opinions



The Gene Technology Newsletter for the  
Horticulture Industry

**April 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

This edition of *GMOs* will focus on research underway in biotechnology in Asia, and the research and regulatory capabilities of countries in Australia's region. The United Nation's Food and Agriculture Organisation regional office in Asia and the Pacific recently compiled a benchmark study analysing the strengths, weaknesses and gaps of 10 countries in terms of their ability to build capacity with regards to human resources, research and technology development infrastructure, regulations and policies for assessing and managing biosafety risks of GM crops.

The Asia-Pacific region is home to 60 per cent of the world's population, and many of the area's inhabitants rely on agriculture for their livelihood. Because of this, and other factors, these countries are looking at the potential of biotechnology for sustainable development into the future. Most countries with commercial GM crops have focused heavily on broadacre commodities, however Asian countries differ, at least in the early stages of research, with a wide array of horticultural applications under the research radar.

	Research stage	Regulatory infrastructure	Horticulture research
Bangladesh	Introductory research underway.	Inadequate	n/a
China	Commercial releases of GM insect-resistant cotton, virus-resistant green pepper and colour modified petunia.	Needs strengthening in areas related to monitoring the environmental impacts of GMOs, the training of regulatory staff, and information exchange.	Carrot, chilli, Chinese cabbage, melon, papaya, petunia, potato, sweet potato and tomato.
India	Commercial release of GM cotton.	Needs improvement in capacity for risk assessment and risk management and food safety regulations.	Eggplant, potato, tomato, cauliflower, tomato, banana, cabbage, papaya, cucumber, citrus, chilli and bell pepper.
Indonesia	Commercial release of GM cotton.	Needs improvement in ensuring food safety, GM risk analysis and biosafety framework.	Cabbage, cassava, citrus, chilli, papaya, peanut and potato.
Malaysia	All still at laboratory and field trial stage.	Strong.	Chilli, papaya, flower colour, sweet potato, banana, eggplant, orchid and pineapple.
Pakistan	All projects at laboratory phase.	Developing slowly with food safety and the environment key areas needing improvement.	Tomato
Philippines	Laboratory and field trial research underway.	Needs improvement in regulatory human resources, and infrastructure for risk assessment and management.	Banana, coconut, papaya and tomato.
Sri Lanka	Introductory research underway.	Capacity building is required at all levels of GM research and regulation.	n/a
Thailand	Laboratory and field trial research underway.	Major constraints and limitations identified include insufficient human and financial resources and a weak regulatory system.	Pineapple, orchid, tomato, papaya, pepper, beans and cucurbit.
Vietnam	There is uncertainty about the stage of research.	Major improvements are required at all levels.	Papaya, potato and sweet potato.

The report concluded that the capacity of the countries involved varies greatly, and the areas needing the greatest amount of capacity building effort were identified as:

- Development of human resources for research and development, formulation and implementation of regulatory frameworks and risk assessment and risk management.
- Development and improvement in infrastructure for research and development, quarantine and effective implementation of regulatory measures.
- Development of policies related to biosafety, meeting the needs of individual countries.
- Development of regional collaboration.

This information is available in further detail from the United Nations Food and Agriculture Organisation report titled *Capacity Building in Biosafety of GM crops in Asia: Benchmark Document on the Needs and Present Status of the Capacity Building of GM Crops in Asia*.

For more information:

[www.fao.org](http://www.fao.org)

## Hot Issues

### FEDERAL AG MINISTER AND GM

Federal Agriculture Minister Warren Truss has delivered two presentations recently which have made clear his support for grower access to GM crops, at the ABARE outlook conference and at Victoria's Rural Press Club.

Minister Truss also launched the *Australian Agriculture and Food Sector Stocktake* at the ABARE conference. The *Stocktake* details the characteristics and performance of the agriculture and food sector and highlights some key challenges which will need to be addressed in coming years to ensure the sector's prosperity. A Reference Group has been appointed to report by 14 December 2005 on future policy and program directions using the *Stocktake* as a starting point.

Copies of the *Stocktake* document can be downloaded from:

[www.daff.gov.au/corporate\\_docs/publications/pdf/industry\\_dev/Stocktake2005.pdf](http://www.daff.gov.au/corporate_docs/publications/pdf/industry_dev/Stocktake2005.pdf)

The transcript of the Minister's Outlook address can be found at:

[www.maff.gov.au/speeches/2005/outlook05.html](http://www.maff.gov.au/speeches/2005/outlook05.html)

## WA ELECTION RESULT

The Labor party has been returned to Government following Western Australia's state election in February. Kim Chance has retained the agriculture portfolio and continues to support the state's ban on growing commercial GM crops. The Opposition was proposing to review the ban on GM crops if they won office.

## OGTR RESEARCH LICENCE APPLICATION UPDATES

Crop	Modification	Phase
Wheat Grain Biotech Australia DIR053 2004	Salt tolerance	Invitation for public comment on the Risk Assessment and Risk Management Plan for contained field trials sought by <b>15 April</b> .
Cottons Monsanto DIR055 2004	Herbicide tolerance and a combination of herbicide tolerance and insect resistance.	Invitation for public comment on the Risk Assessment and Risk Management Plan for large scale field trials sought by <b>8 April</b> .
Rice CSIRO DIR052 2004	Functional characterisation of the rice genome.	Licence issued on 18 February for contained field trials.

For more information:

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

## Reports of Interest

### GM CROP REGULATION IN THE USA - STATE AND FEDERAL ROLES

Australia's state government imposed bans on the introduction of GM canola have been addressed in previous *e-bulletins*. Our federal regulatory system for GM crops and products addresses human health and environmental safety issues relating to the release of a GM product, leaving the market/trade impacts of new technologies for industry and state governments. It appears there are similarities with the system in the USA, which are becoming apparent as crops modified to produce pharmaceutical (pharma crops) or industrial components (industrial crops) near the commercial pipeline. In the USA, 47.6 million hectares of GM soybean, corn, cotton and canola were grown in 2004, however the state-federal dichotomy in relation to the regulation of the next wave of GM crops is feeling pressure according to a new report.

Titled *Tending the Fields: State and Federal Roles in the Oversight of GM Crops*, the report commissioned by the Pew Initiative on Food and Biotechnology, investigates the federal and state legislation in place for regulating GM

crops and products in the USA. Although GM crops and products are largely regulated at the federal level, the report recognises that states are “on the ‘front line’ of agricultural biotechnology, where they serve as the initial responders to the promises and conflicts that can accompany the introduction of any novel technology into the marketplace.”

The novel technology testing the system involves pharma and industrial crops. According to the report, although states tend to defer to the scientific and technical expertise of the federal regulatory agencies on safety issues, they generally want to be a full partner with federal regulators to ensure that state interests are adequately addressed. States with large agricultural sectors are naturally interested in the economic promise of biotechnology, and many are eager to capture the economic benefits of the technology, however, they also realise that they have an important stake in the regulation of agricultural biotechnology not only to protect health and safety, but also to advance and protect important economic interests which could be jeopardized if public anxiety or market access for conventional crops is threatened by crops modified to produce pharmaceuticals or industrial materials.

The report documents some of the state approaches to developing policies that take into account local interests and issues. Examples of these responses include:

- efforts by Colorado to develop a public participation process for the consideration of “pharmaceutical” crops;
- a North Carolina initiative to develop identity preservation criteria for both biotech and conventional tobacco crops; and,
- the efforts in a number of states to develop their own regulatory approaches.

For more information:

<http://pewagbiotech.org/research/fields/>

## Research Updates

### CURRENT GM HORTICULTURAL PROJECTS INCLUDE:

**INDIA** – A team of scientists from India, Canada and France claim to have developed a **cabbage** that is resistant to diamondback moth attack. Like insect resistant cotton, the modified cabbage contains genes from a soil bacterium and produces proteins toxic to the pest.

**UNITED STATES OF AMERICA** – Volunteers have been involved in feeding studies of GM

**potatoes** developed for use as Hepatitis B vaccines. Those who ate the potatoes in the trial produced high levels of immunity antibodies against the virus. The findings of the trials were reported in the Proceedings of the National Academy of Sciences. Each year hepatitis B chronically affects about 350 million people worldwide, and developers of the potato vaccine see it as a cheaper, safer and easy-to-deliver method to administer the vaccine.

## Market Research

### GM FOODS, MASS MEDIA AND PUBLIC PERCEPTION

The role of different sources of the mass media in shaping perceptions and knowledge about GM foods was the focus of a small survey of 105 consumers for a Berkeley University study in the USA.

- Fifty-eight per cent of those surveyed used the mass media (television, newspapers, radio) as their information source. The second most common source of information listed for GM foods was non-government organisations (15 per cent). Thirteen per cent relied on family and friends for information on the topic.
- Within the mass media, more respondents listed newspapers (44 per cent) as the primary source of information, then television news programs (22 per cent), local and national television news (21 per cent), and radio (18 per cent).
- In comparing the coverage of the issue by mass media, respondents perceived television to be more positive about GM foods than radio. Radio when compared to newspapers was perceived to be more negative about GM foods.
- In comparison to other information sources, 38 per cent of those surveyed said that the mass media was more negative about GM foods than other sources, 34 per cent said they heard both negative and positive stories from the mass media.
- Fifty-six per cent of respondents noted that they feel confident enough in the technology behind GM foods to make an informed purchase decision. Thirty-one per cent said they did not feel confident in their understanding.

For more information:

<http://socrates.berkeley.edu/~es196/projects/2002final/Fishman.pdf>

## Events

### GENE TECHNOLOGY WORKSHOPS

**Date:** May, June

**Description:** Agrifood Awareness Australia Limited (AFAA) and CSIRO have developed a new gene technology workshop which offers agribusiness representatives an opportunity to understand the science and regulation of gene technology in Australia. CSIRO teaching and scientific staff deliver the two-day, hands-on course – 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.

**Locations:** Canberra, Horsham

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

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

**Telephone:** 02 6273 9535

### WAGGA WAGGA BIOTECHNOLOGY INNOVATIONS FESTIVAL 2005

**Date:** 12 - 13 May 2005

**Description:** This annual event is an educational exercise mainly for older high school students and the general public and this year's theme is 'Biotechnology in 2020'. The objective is to educate people on all aspects of biotechnology. The format for the day includes industry displays in which the biotechnology industry can display information on their activities. There will also be short talks on various biotech related topics. High school students, university students and staff, members of the public will come and browse, chat and hopefully get to know a little more about biotechnology and what local companies and organisations are doing in this area.

On the Thursday evening (12th) there will be a public forum on 'Biotechnology in the year 2020' where speakers invited by Biotechnology Australia will give short talks and answer questions from the general public. This year the festival is focussed on what biotech will be doing for us in 2020. If you are interested please get in touch with event organisers and register. The event is jointly run by Charles Sturt University, Wagga Wagga City Council and Biotechnology Australia.

**Location:** Wagga Wagga City Council Chambers

**Email:** [nurwin@csu.edu.au](mailto:nurwin@csu.edu.au)

**Telephone:** (02) 6933 2450

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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.afaa.com.au](http://www.afaa.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