



Know-how for Horticulture™

GMOs Guiding Meaningful Opinions



The Gene Technology Newsletter for the
Horticulture Industry

June 2006

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

GENE TECHNOLOGY ACT 2000 - REVIEW RECOMMENDATIONS

After months of community consultation and consideration, the Statutory Review of the *Gene Technology Act 2000* was tabled in the Australian Parliament at the end of April. The independent Review Panel also presented their findings to a meeting of Australian and state and territory ministers responsible for gene technology in Melbourne on the same day.

The review recommendation which received the most attention in the media related to the Inter-governmental Agreement on Gene Technology (IGA), particularly, the extent to which state moratoria on the growing of GM crops had undermined the nationally consistent framework which the IGA was intended to support. The review noted that there was no evidence of adverse impacts on markets, and concluded that the moratoria were having detrimental rather than beneficial impacts. It recommended that all jurisdictions should reaffirm their commitment to a nationally consistent scheme, including a nationally consistent approach to market considerations, and work together to develop a national co-existence framework.

Other findings of the review include the following:

Scope of the Act - The review concluded that the existing scope of the Act should be maintained.

Act achieving its object - The review also found that the object of the Act - the protection of the health and safety and of people the environment - is being achieved. It found the Act to be rigorous, transparent, appropriate and effective. However, the operational experience of the first four years has highlighted the need for some amendments to the regulatory system.

Operation of the Act - Changes suggested by the review include:

- the Gene Technology Ethics Committee (GTEC) and the Gene Technology Community Consultative Committee (GTCCC) could be combined.
- there was a case for distinguishing between field trials and commercial releases of GMOs and reducing the time limit for assessing field trial applications but extending it for commercial releases.
- that a time limit be introduced for consideration of licence variations.

After considering the issue in the light of the enforcement guidelines followed by the Regulator, the review concluded that the existing enforcement powers are appropriate and used proportionately.

Regulatory burden - The review recommended lessening the burden of compliance by removing any requirement to report on dealings with GMOs exempted by regulation and reducing the requirement to report on Notifiable Low Risk Dealings (NLRDs) to an annual report. It also recommended that the Regulator and AQIS work on harmonising certification requirements and introducing a system of single audits.

Interface with other systems - The review concluded that the agencies worked very well together to minimise duplication and ensure consistency and coherence. It recommended

that a forum should be established to formalise these arrangements.

Changing circumstances - The review recommended that the Act should be reviewed again in five years to ensure that it continues to accommodate emerging trends. The review concluded that the Australian system is one of the most rigorous, transparent and accessible and it did not find any features in overseas systems that could be adopted to enhance the operation of the Australian system

The Gene Technology Ministerial Council members will now develop a joint response to the Panel's recommendations regarding the operation of the Commonwealth Gene Technology Act 2000 on behalf of their governments. The Council members are listed below:

Commonwealth	Christopher Pyne MP Parliamentary Secretary to the Minister for Health and Ageing
Australian Capital Territory	Mr Simon Corbell Minister for Health
New South Wales (New Chair)	Ian Macdonald Minister for Natural Resources, Minister for Primary Industries, Minister for Mineral Resources
Northern Territory	Konstantine Vatskalis Minister for Primary Industry and Fisheries
Queensland	Anna Bligh Deputy Premier Minister for Finance, and Minister for State Development and Trade
South Australia	Lea Stevens Minister for Health
Tasmania	Steven Kons Minister for Primary Industries and Water
Victoria	Bronwyn Pike Minister for Health
Western Australia	Kim Chance Minister for Agriculture

Further information:

www.health.gov.au/internet/wcms/publishing.nsf/Content/gtreview-report.htm

Hot Issues

GOVERNMENT FUNDS AGBIOTECH STUDIES

Funding of \$851,890 has been provided through the Commonwealth Department of Agriculture, Fisheries and Forestry for eight biotechnology studies to be undertaken by the Bureau of Rural Sciences, the Australian Bureau of Agricultural and Resource Economics and the private sector.

The eight studies will cover:

- the value of biotechnology for insect pest and weed control in the cropping sector, including experiences with GM cotton;
- the potential for GM crops to serve as factories for pharmaceutical and industrial compounds, including a review of recent developments world-wide;
- examining the implications of using gene technology in the oilseeds industry;
- developing an overview of the value of using biotechnology tools (excluding those GM organisms that are final products) in Australia's primary industries;
- developing an up-to-date information package on GM canola that covers the particular concerns of government, industry and the wider community;
- reviewing international market access for GM canola, including regulatory arrangements in countries important to the world canola trade;
- a pathway to market for GM canola, including identifying the measures needed to address concerns about its commercial introduction; and
- the economic impact on the organic farming industry of introducing GM crops into Australia, including the treatment of GM organisms in organic certification systems.

The funding is provided through the \$3.8 million Biotechnology Strategy for Agriculture, Food and Fibre, part of the Government's National Biotechnology Strategy. Reports from the studies will be made publicly available, either later in the year or early next year.

Further information:

www.daff.gov.au/content/output.cfm?ObjectID=1D4D973D-01AF-4207-9852D471013316AC

OGTR RESEARCH LICENCE APPLICATION UPDATES

Three early-bird notifications have been released by the OGTR regarding the pending release of Risk Assessment and Risk Management Plans (RARMP) for public comment.

Ref	Crop	Developer
DIR 064/2006	Water-efficient cotton field trials	Monsanto Australia
DIR 065/2006	Insect-resistant cotton field trials	Deltapine Australia Pty Ltd
DIR 066/2006	Insect-resistant and herbicide tolerant cottons – commercial release north of latitude 22° South	Monsanto Australia

For more information: www.oqtr.gov.au

Reports of Interest

EU GM FOOD AVOIDANCE TO BECOME EXPENSIVE

According to research commissioned by Agricultural Biotechnology in Europe (ABE), delivering and maintaining “non-GM” policies in the EU food and feed sector is set to become more challenging in the future.

Three researchers undertook an analysis of the implications for the European food chain of the global GM food chain food labelling requirements and market dynamics. They found that the availability of non-GM soybeans and derivatives from Brazil (the largest supplier) is likely to decline in the next 12 months, resulting in an increase in the price differential between non-GM and GM soy – possible reaching as much as 25 per cent.

The implication for livestock product producers (producing meat, milk and dairy products) is that this widening price differential, for a primary feed ingredient, could result in feed costs rising between six per cent and 10 per cent in the next three years, and lead to a decrease in profitability of between 9 and 29 per cent. This level of loss is likely to be unsustainable.

For more information:

www.pgeconomics.co.uk/GM_food_avoidance.htm

Research Updates

BIOTECHNOLOGY AND THE FUTURE OF AUSTRALIAN AGRICULTURE – HIGH FLYERS THINK TANK

In July 2005, the Australian Academy of Science held one of a series of High Flyer Think Tanks on the topic of biotechnology and Australian agriculture.

The aim of the Think Tank events is “to ensure that the very best science and factual information is available to the policy-makers in government.”

Speakers covered various facets of agriculture including – horticulture, crops, new plant products, livestock and aquaculture.

Biotechnology: horticulture

Dr Steve Swain from CSIRO Plant Industry addressed the topic of horticulture and biotechnology.

Dr Swain noted that a number of commercial GM horticultural products had been developed including the ‘Flavr Savr’ tomato which is no longer available, and the virus-resistant papaya, which now comprises 50 per cent of the US papaya crop. Neither of these crops was developed with the consumer in mind. The modifications are largely benefiting the producer, and this is widely considered to have hampered consumer acceptance of GM products.

One approach being considered to address this issue is the development of GM products with clear consumer benefits such as vegetables with increased anti-cancer compounds.

In Australia most horticulture research involving biotechnology targets quality traits rather than production traits. In horticulture, quality in terms of appearance and taste for example is more important than the input traits which have been the focus of the initial GM products commercially-available.

Examples of this type of research in Australia include:

- The development of the ‘blue’ **flower** - GM carnations of various shades of purple and mauve are commercially

available, and field trials of the elusive 'blue' rose are taking place in Victoria.

- **Potatoes** with reduced browning – A particular series of genes (PPO) in potatoes has been found to control fruit going black once they are cut. By switching this PPO gene off scientists can prevent fruit from browning after it has been cut. This technology has been around for about a decade but has not been commercially deployed in Australia because of consumer perceptions regarding the technology.

As has been reported in previous editions of *GMOs*, research in Australia is underway in the area of fruit development – particularly in relation to colour and seed development. The content of the fruit, the appearance, its taste are the key research targets for the future for horticultural biotechnology according to Dr Swain.

In conclusion, Dr Swain said, "Obviously, GM crops are going to be a large part of the future, in terms of improved appearance, quality and health properties...but...they are not the only way of delivering the advantages of biotechnology and they are not the only biotechnological things that we use in horticulture."

He noted faster breeding, molecular markers and improved management of plants as key biotechnology uses of the future.

For more information:

www.science.org.au/events/

CURRENT GM HORTICULTURAL PROJECTS INCLUDE:

AUS – CSIRO technology will be deployed free of charge by a major international project "BioCassava Plus" to address problems affecting one of Africa's key staple crops – the **cassava**. The CSIRO technology allows researchers to switch off particular genes within a plant. It will be used to develop virus-resistant cassava varieties.

EUROPE - German-based company BASF is set to begin the regulatory approval process for a high-starch GM **potato** in the EU next year. The potato is designed for use by paper, textile and adhesive industries in Europe.

USA - BASF has also begun field testing a drought-resistant **corn** in the USA, and hopes to market the product soon after 2010 pending agronomic performance and regulatory approvals.

INDIA – One of the most devastating viruses affecting **tomatoes** is a group with the generic name Tomato Leaf Curl Virus (ToLCV), which are transmitted by whiteflies, and which cause tomato leaf curl disease (ToLCD). Previous efforts to breed tomato varieties resistant to the disease have been unsuccessful, since natural sources of resistance are not available. Laboratory-based research by scientists at the Indian Agricultural Research Institute has resulted in GM tomato plants resistant to ToLCV.

Market Research

US CONSUMERS REMAIN AMBIVALENT BUT BECOMING SKEPTICAL OF GM FOODS

According to researchers from Cornell University, US consumers are split evenly about the safety or otherwise of GM foods, but have become slightly more sceptical about GM foods over the past three years.

Looking at seven surveys undertaken between 2003 and 2005, the researchers found that out of a scale from one to 10 (with 1 being not supportive at all) in 2003, the mean was 5.6, but by 2005 this declined slightly to 5.2. Similarly, risk perception of GM foods increased from 5.4 in 2003 to 6.1 in 2005.

Associate Professor James Shanahan said, "Overall, research shows that GM foods are safe and effective, though some people still harbour reservations about it...I suspect that the more people are exposed to the news, the more aware they are of biotechnology and, therefore, more supportive of it."

For more information:

www.news.cornell.edu/stories/Feb06/AAAS.agbiotech.ssl.html

Events

GT WORKSHOP – REGIONAL NSW

Date: 15-16 June, 2006

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.

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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

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

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Web: 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.

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Regulation

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www.apvma.gov.au/

Phone: (02) 6272 5852

Australian Quarantine and Inspection
Service - AQIS

www.aqis.gov.au/

Phone: 1800 020 504

Food Standards Australia New Zealand –
FSANZ

www.foodstandards.gov.au

Phone: (02) 6271 2241

Office of the Gene Technology Regulator -
OGTR

www.ogtr.gov.au

Phone: 1800 181 030

Therapeutic Goods Administration – TGA

www.health.gov.au/tga/

Phone: (02) 6270 4318

Science

Commonwealth Scientific and Industrial
Research Organisation - CSIRO

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

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Public Awareness

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