



Know-how for Horticulture™

GMOs Guiding Meaningful Opinions



The Gene Technology Newsletter for the
Horticulture Industry

June 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 the newly released booklet titled, *Gene technology in Australia: What's happening in horticulture?*

In 2002-03 approximately \$4.5 million worth of horticultural projects funded through Horticulture Australia Limited (HAL), included a biotechnology component. The biotechnology program aims to keep Australian horticulture internationally competitive by:

- Fostering partnerships between biotechnology and conventional breeding programs;
- Providing knowledge of plant processes and development;
- Discovering new genes and gene technologies;
- Generating new intellectual property to negotiate international research alliances; and,
- Encouraging investment in the area.

The booklet presents a brief overview of some of the gene technology research funded in horticultural commodities in Australia and overseas. It also provides an overview of the science involved in gene technology and the regulation of such research in Australia.

There are no genetically modified (GM) fruit or vegetables commercially available in Australia. Overseas, virus resistant papaya, potato, squash and melon varieties and

tomatoes with a longer shelf-life have been approved for commercial release, however because of consumer concerns about such products, only GM papaya varieties in Hawaii are grown on a wide-scale.

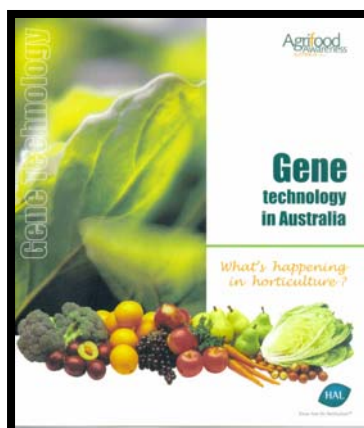
Australia did however produce the first commercially-available GM flower, six carnations with modified colouring ranging from mauve to deep purple have become available since 1996.

Over the past decade gene technology research in Australian horticulture crops has included apples, bananas, carrot, celery, flowers, lettuce, mango, papaya, pineapple, tomato and grapevines. The characteristics investigated include virus resistance, fungal tolerance, disease resistance, and fruit ripening. Not all of this research continues, and certainly none of it is commercially available. The papaya and pineapple projects are the most advanced in the trial stage.

In general, Australia's peak horticulture bodies are taking a 'watch and see' approach to gene technology with concerns about consumer perceptions of gene technology directing their approach. However, many are investing in gene technology research as a means to enhance conventional breeding programs or to develop products should market acceptance become more apparent.

The booklet was produced by Agrifood Awareness Australia Limited with support from Horticulture Australia Limited.

Copies of the booklet can be downloaded from www.afaa.com.au or hard copies can be obtained from Agrifood Awareness Australia Limited by phoning (02) 6273 9535 or emailing info@afaa.com.au



Hot Issues

OGTR RESEARCH LICENCE APPLICATION UPDATES

- ANIMALS

Animal	Modification	Phase
Cattle Department of Primary Industries, Queensland	GM herpesvirus vaccines	Licence approved for controlled field trials to take place involving 180 cattle over five years.

- PLANTS

Reference	Modification	Phase
Cotton Monsanto DIR 055/2004	Herbicide tolerance and insect resistance	Field trial licence granted.
Wheat Grain Biotech Australia Pty Ltd DIR 053/2004	Salt tolerance	Field trial licence granted.
Wheat CSIRO DIR 054/2004	Modified grain starch characteristics	Field trial licence granted.
Indian mustard Bayer CropScience DIR 057/2004	Herbicide tolerance	A field trial license has been sought. The Risk Assessment and Risk Management Plan has been released for public comment prior to a decision by the OGTR.

For more information:

www.ogtr.gov.au/new/index.htm

OGTR FUNDING IN 2005-06 BUDGET

According to the latest Federal Government budget, the Office of the Gene Technology Regulator (OGTR) will receive \$32 million over the next four years. Three reports exploring cost recovery options for the operations of Australia's gene technology regulatory operations have concluded that the gene technology industry and research community are currently unable to fund regulatory costs because very little commercial product or profit is being realised by those investing in the technology.

The latest cost recovery report stated, "At this time, the majority of gene technology activities are being conducted by universities, CSIRO and small Australian private companies and very little commercial product or profit is being realised."

For more information:

www.ogtr.gov.au/pdf/public/acumen04.pdf

GENE TECHNOLOGY ACT REVIEW

The terms of reference and closing date for submissions have been released for the independent review of the operation of the *Gene Technology Act 2000* - the legislation which underpins all gene technology research in Australia.

The Ministerial Council, comprised of Ministers from the Commonwealth and each state and territory, which oversees the national regulatory framework for gene technology in Australia is responsible for conducting the review.

An independent panel of three has been appointed, and the terms of reference are wide ranging and include - the scope of the *Gene Technology Act 2000*; the operation and effectiveness of the OGTR; how the Act interacts with other Acts and Commonwealth, state and territory bodies involved in gene technology regulation; the impact of emerging trends and international developments in biotechnology; and, any changes which could be made to improve the effectiveness, efficiency, fairness, timeliness and accessibility of the regulatory system.

Submissions close 15 July.

For more information:

www.ogtr.gov.au

GM CROP FIELD TRIAL LOCATIONS UPDATED

The OGTR website has recently updated its field trial location information. The site includes information on both current and previous (post-harvest) trials that are currently regulated by the OGTR across Australia.

Post harvest trial sites are those where GM trials have previously taken place, and as part of the licence conditions, monitoring of the site is required to manage any regrowth. In the case of some field trials, such as those involving GM canola, the OGTR requires the paddocks used for the trial to be monitored for a period of three years upon conclusion of the trial. This monitoring involves the removal of any regrowth of the GM plants, and can involve inspections by OGTR staff.

The trial location website utilises a web-based Geographic Information System (GIS) to show the location of GMO field trials in relation to other land use activities such as agricultural

areas and conservation areas.

The site enables users to search by:

- particular geographic regions of interest;
- the location of releases of specific GM products across Australia; or
- the location of sites covered under individual licences issued by the Gene Technology Regulator.

To access the field trial location maps, see www.oqtr.gov.au

USA GROWERS CELEBRATE BILLIONTH GM ACRE

The American Soybean Association, National Corn Growers Association and the National Cotton Council of America have issued a joint media statement in recognition of the planting of the one-billionth acre of GM crops. This milestone comes nine years after the first commercial varieties were planted in 1996 and is equivalent to approximately 404.7 million hectares.

For more information:

www.soygrowers.com/biotech/photos.htm

CHINA'S GM RICE EDGING CLOSER TO COMMERCIALISATION

According to an article published in *Nature*, promising results achieved in the latest fields trials of GM rice in China, may see the four GM varieties hit the market within a year. Chinese and USA researchers involved in the development of the rice varieties have published field trial results that suggest that two of the insect-resistant varieties reduce pesticide applications by up to 80 per cent. The article also claims that one of the GM varieties is already being sold illegally in some parts of China.

For more information:

www.nature.com/nature

Reports of Interest

GLOBAL RESPONSES TO GM FOOD AND THE IMPLICATIONS FOR AUSTRALIA

The Rural Industries Research and Development Corporation (RIRDC) recently released a report titled *Global responses to GM food technology: implications for Australia*. The report uses models to gauge

the likely economic effects of alternative responses in Australia and overseas by producers, consumers and policy makers to GM products, with a particular focus on the effects of these responses on Australian farmers, agribusiness and rural research and development.

Economic models examining the implications of adoption of GM coarse grains and oilseeds on trade suggest:

- Australia's trade balance improves slightly if there is no adverse reaction to GM products globally;
- The global benefits for those who have already adopted GM crops are substantial if there are no adverse reactions in any markets;
- If Australia allows GM coarse grains and oilseeds in the future then welfare would improve, but the benefits gained will not match those of USA and Argentina as a percentage of GDP;
- If the EU allows GM adoption, the EU benefits from its own productivity gains, while net exporters of coarse grains and oilseeds would be slightly worse off. Global gains would be particularly enjoyed by developing countries in this scenario.

In concluding, the report makes a number of key points as listed below:

- Any benefits Australia gains from adopting GM products will depend on how these products are accepted by major trading partners.
- Continuing a ban on GM production is becoming less defensible as consumers show more tolerance of GM products and segregation and identity preservation systems become more common and cost-effective.
- Even if the gains today from GM adoption by Australian farmers seem small, it must be considered that maintaining GM-free status will likely lead to a bias toward more traditional agricultural research that will tend to be slower and less rewarding.
- It would be prudent for Australia's rural research and development corporations to ensure of their portfolio includes the development of GM technologies appropriate to local conditions so that when markets become more accepting, those technologies exist.
- Where price premiums for non-GM varieties exist they are small, meaning that the market for certified non-GM

foods may simply become as niche market, similar to that for organic foods.

- Australia should oppose excessive standards abroad if they are protectionist in intent.

For more information – www.rirdc.gov.au

Research Updates

CURRENT GM HORTICULTURAL PROJECTS INCLUDE:

SCOTLAND – Researchers have produced GM **potatoes** able to produce carotenoids, the pigments usually associated with carrots or other orange and red fruits and vegetables. Carotenoids belong to a large family of substances associated with good health – helping to prevent blindness, certain cancers and heart attacks.

With vitamin A already being transferred to rice varieties (so-called “Golden Rice”), the Scottish researchers can see other root crops, such as cassava, being modified to contain higher levels of carotenoids in the future. The researchers can also see folate, iron and Vitamin C being introduced into crops eventually.

The researchers stated that the potato industry was interested in potatoes with enhanced flavour and texture, however consumers in Europe were not sold on the GM product.

INT - According to the head of the Food and Agriculture Organisation’s Food Quality and Standard Service, researchers in Brazil, France and the USA are researching GM **coffee** varieties with characteristics such as naturally caffeine-free; more easily harvested; and resistant to drought, frost and disease, but they are unlikely to reach consumers' cups soon.

A Brazilian researcher said that Brazil is investing millions of dollars on research but is unlikely to get a GM variety to market for 15 to 20 years because of various technical, legislative and commercial hurdles. Whilst French researchers have seen their trials of disease-resistant coffee in French Guiana ruined by saboteurs. Italian coffee makers believe that the industry should focus on traditional breeding rather than genetic engineering.

Market Research

GM FOOD ATTITUDES IN THE UK

The UK Government’s Food Standards Agency conducts annual surveys of consumer perceptions of GM foods. Their latest report concludes that UK consumers do not have entrenched views on GM food and that concerns have been decreasing since 2000, however consumers remain suspicious and would like more understandable information.

The findings of the survey include:

- Concern about food safety issues is high, with 68 per cent of respondents concerned (compared with 71 per cent in 2000).
- Only seven per cent of respondents spontaneously mentioned concerns about GM foods and five per cent mentioned concerns about GM ingredients, this rose to 36 and 23 per cent respectively when prompted, down from 43 and 27 per cent in 2000.

For more information – www.food.gov.uk/multimedia/pdfs/cas2003.pdf

Events

GENE TECHNOLOGY WORKSHOP

Date: June, August

Description: Agrifood Awareness Australia Limited (AFAA) and CSIRO have developed a new gene technology workshop that 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: Horsham (VIC), Kadina (SA)

Email: RowenaSmith@afaa.com.au

Web: www.afaa.com.au

Telephone: 02 6273 9535

AUSTRALIAN BIOTECHNOLOGY SUMMIT

Date: 26-27 July, 2005

Description: This is an annual event targeting Australia’s biotechnology sector. This event heavily targets the pharmaceutical industry, however some of the more general topics under discussion include: science and sales – bringing invention to market and the role of

state governments in creating a viable biotech sector.

Location: Sydney Convention Centre

Web: www.acevents.com.au/bio

Telephone: 02 8920 2547

Gene Technology Contacts

Regulation

Australian Pesticides and Veterinary Medicines Authority - APVMA

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/>

Phone: 1300 363 400 - CSIRO Enquiries

Public Awareness

Agrifood Awareness Australia Limited - AFAA

www.afa.com.au

Phone: (02) 6273 9535

Biotechnology Australia – BA

www.biotechnology.gov.au

Phone: 1800 631 276 – Gene Tech Enquiries

Industry

Horticulture Australia Limited - HAL

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Phone: (02) 8295 2300

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