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*GMO*s
Guiding Meaningful Opinions

The Gene Technology Newsletter for the Horticulture Industry

April 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

GM ROSE TRIAL GET GREEN LIGHT

Melbourne-based company Florigene has been granted a licence by the Office of the Gene Technology Regulator (OGTR) to undertake field trials of three genetically modified (GM) rose lines.

The roses have been genetically modified to produce light purple/violet coloured flowers. The introduced genes were derived from other plants including black pansy, torenia and iris.

This is the first GM rose trial to be undertaken in Australia, and the trial will take place in an insect-proof greenhouse in Victoria.

The purpose of the trial is to assess the performance of the GM rose lines in comparison with parent and other varieties, conduct biochemical analysis of the flowers and generate data for a possible future large scale trial.

Licence conditions have been imposed on the trial to limit the spread and persistence of the GM plants and their genes. These conditions include growing the plants in an insect-proof greenhouse; restricting the duration of the trial to two years; picking the flowers before they open to limit pollen flow; and, monitoring the disposal site for regrowth.

Florigene already has GM flowers available in florist shops. The world's first GM flower, a carnation marketed as 'Moondust', has been commercially available in Australia since October 1996. It contains genes from petunia and snapdragon flowers, which allow it to express mauve/blue colouring. 'Moondust' was followed by a violet carnation, 'Moonshadow', launched in 1998. Three additional blue-violet/purple coloured carnations have since been commercialised.

For more information:
www.ogtr.gov.au
www.ogtr.gov.au/ir/dir060.htm

Hot Issues

WTO RULING ON TRADE DISPUTE INVOLVING GM CROPS

The World Trade Organisation (WTO) has reportedly ruled in a preliminary finding that the European Union *de facto* moratorium on genetically modified crops, in place from 1998 to 2004, is inconsistent with WTO rules as are barriers still operating in individual EU countries. The official ruling has not been released to the public, but has been delivered to the parties involved.

In a statement released by the US Government, Trade Representative Rob Portmann said, "The facts on agricultural biotechnology are clear and compelling. It is a safe and beneficial technology…We believe agricultural biotechnology products should be provided a timely, transparent and scientific review by the European Union."

According to media reports the European Commission spokesperson for environment issues Barbara Helfferich responded to the WTO ruling stating, "For the moment, we see no consequences for our legislation which we consider to be toughest in the world."

In May 2003, the USA initiated an unfair trade practices complaint to the WTO against the European Union. The USA claimed that the EU

failure to approve GM crops during a six-year period was without a scientific basis and therefore inconsistent with the Agreement on the Application of Sanitary and Phytosanitary Measures.

For more information:
US Government Statement
www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1OB?contentidonly=true&contentid=2006/02/0040.xml

Background information
http://pewagbiotech.org/resources/issuebriefs/useu.pdf

NEW CHIEF SCIENTIST BACKS GM

Dr Jim Peacock, President of the Australian Academy of Science and former Chief of CSIRO Plant Industry has been appointed as Australia's Chief Scientist and will commence in his new role in the coming months.

According to the Chief Scientist's website, "Jim Peacock is prominent in the interfacing of plant science with modern agribusiness. He played a key role in the development and adoption of biotech cotton and he has championed new approaches to wheat, barley and rice breeding. He drives innovative communication efforts to inform the general public as to the outcomes and value of modern science, particularly gene technology. He has brought the excitement of science to a broad cross-section of the community and to Australian school students."

The Chief Scientist provides advice on science, technology and innovation issues to the Prime Minister and Ministers. The role provides a link between government and science, engineering, innovation and industry groups, facilitating active communication and input into strategic thinking.

For more information:
www.dest.gov.au/chiefscientist/default.htm

HEALTHIER WHEAT IN PIPELINE

CSIRO Plant Industry has announced the development of an experimental wheat variety produced using gene technology which has the potential to improve human health, particularly bowel health, diabetes and obesity.

By suppressing the expression of two starch-branching enzymes using a technique called "gene silencing" the resulting wheat had a significantly altered starch composition, increasing amylose content from about 25 per cent to 70 per cent.

The wheat has the potential to be an important component of foods with a low glycaemic index because amylose is a form of starch that is more resistant to digestion. Resistant starch is also expected to have benefits in relation to reducing the incidence of colorectal cancer.

Animal feeding studies have confirmed positive changes in relation to bowel health in rats fed a diet of the high-amylose wheat when compared to those fed a diet of conventionally-bred wheat.

For more information: www.csiro.au

OGTR RESEARCH LICENCE APPLICATION UPDATES

- Field trials

As noted earlier, a field trial licence has been granted for GM roses.

Reference	Crop/characteristic	Developer
DIR 060/2005	Roses with modified colour	Florigene Pty Ltd

A decision is pending regarding field trial licences for the crops below.

Reference	Crop/characteristic	Developer
DIR 061/2005	Salt tolerant wheat	Grain Biotech Australia Pty Ltd
DIR 063/2005	Fungal tolerant cotton	Hexima Limited

- Commercial release

A decision is pending regarding a licence for the commercial release of the crop below.

Ref	Crop/characteristic	Developer
DIR 062/ 2005	Herbicide tolerant cotton	Bayer CropScience

A licence has been granted for the commercial release of the application below.

Ref	Crop/characteristic	Developer
DIR 059/ 2005	Herbicide tolerant cotton (Roundup Ready Flex®) and herbicide tolerant /insect resistant cotton (Roundup Ready Flex®/Bollgard II®)	Monsanto Australia

For more information:
www.ogtr.gov.au/new/index.htm

Reports of Interest

CREATING OUR FUTURE: AGRICULTURE AND FOOD POLICY FOR THE NEXT GENERATION

The Agriculture and Food Policy Reference Group commissioned by the Federal Minister for Agriculture, Fisheries and Forestry to report on future directions in Australian Government policies and programs impacting on the agriculture and food sector has released its report titled, *Creating Our Future: agriculture and food policy for the next generation*.

The Group was asked to develop broad policy recommendations to improve the profitability, competitiveness, and sustainability of the Australian agricultural and food sector.

According to Federal Minister for Agriculture, Fisheries and Forestry, Peter McGauran, the report highlighted that future success for Australia's agriculture and food industries will rest largely on increasing self-reliance, innovation and competitiveness across the sector.

Issues covered by the reference group include market dynamics and supply chains, labour supply, food regulation, infrastructure, biosecurity, water resources, climate change and biotechnology. In relation to biotechnology, the Group recommendation is:

"In view of the potentially significant human health, environmental and economic benefits from using biotechnology in agriculture and food production, and the costs to Australians of failing to capture them:

- Governments must give a higher priority to communicating the benefits of current and emerging agrifood biotechnology, and to publicising the robustness of the regulatory regime for the safety of research and the resulting products.
- Agriculture and food businesses should work with government to facilitate the rapid uptake of agrifood biotechnologies that will contribute to better health, a cleaner environment and more globally competitive industries.
- State governments should lift their moratoriums on the commercial use of GM crops immediately, and work with the Australian Government, industry and researchers to achieve nationally consistent traceability and tolerance protocols, and to clarify legal liability issues surrounding the use of GM organisms in agriculture and food products."

Fore more information:
www.agfoodgroup.gov.au/next_generation.html

TOWARDS COEXISTENCE

Agrifood Awareness Australia Limited has recently released a new publication titled *Towards Coexistence: Management practices for agricultural production systems.* The rapid global adoption of GM crops alongside organic, specialty and conventional crop production systems has resulted in much attention being given to the concept of coexistence. This increase in attention is due to the growing demand for consumer and producer choice, and the need for traceability in the food supply.

Some of the management practices producers can implement to maintain integrity of coexisting production systems are outlined in the booklet. Many growers are already adopting such systems within their conventional, organic or specialty farm production systems.

Globally, many countries, including Australia, have developed or introduced coexistence protocols. The aim of these is to manage the introduction of approved GM crops in such a manner that the consumer and producer desire for choice and traceability is delivered.

The booklet encourages all growers to be aware of agricultural practices, regulations, thresholds, testing procedures, neighbours and their crops, farm equipment, transport and storage facilities, records, buyers, risks and insurance policies in relation to the type of crop they are growing.

To download a copy: www.afaa.com.au

NEW AGRI-BIOTECH APPROVALS DECLINING IN USA

Despite being the leading producer of GM crops globally, the Centre for Science in the Public Interest (CSPI) Biotechnology Project has found that commercial GM crop approvals have decreased by two-thirds from 2000 to 2005 compared to the proceeding five years in the USA, and despite this decrease the time required for federal agencies to complete their review of biotech crops had doubled.

In order to reverse this trend, the CSPI makes five recommendations:

1. The federal government needs to ensure a more efficient review process, and include the adoption of streamlined regulatory procedures for crops modified with genes already used in previous applications.
2. Public investment should be streamlined into research on traits and crops not pursued by the private sector, with aims of increasing the output of novel biotech applications.
3. The federal government needs to increase public investment in risk assessment and safety studies for crops ready for commercialisation.
4. GM crops that address the specific needs of farmers in developing countries need to be developed. The USA and other developed nations need to increase public funding for agricultural research on such crops, and agricultural biotechnologies should invest part of their profits to developing technology beneficial to developing countries.
5. Steps should be taken to improve public acceptance of agricultural biotechnology.

For more information – http://cspinet.org/new/pdf/withering_on_the_vine.pdf

Research Updates

GWRDC joins Flagship wine research

The future competitiveness of the Australian wine industry has been boosted by a new partnership between CSIRO's Food Futures Flagship and the Grape and Wine Research Development Corporation (GWRDC). This venture will provide substantial resources to further research focused on improvements and tangible benefits for the wine industry.

Flavour and aroma are major determinants of consumers' preference in wines. However there is still a large gap in our knowledge about which compounds in the grape berries are important, how they contribute to the final flavour and aroma characteristics of wine and how those berry compounds are influenced by management, genetics and the environment.

The Flagship's Quality Biosensors research is addressing this gap by the application of advanced technologies to identify, match and monitor chemical characteristics to products that will have strong consumer appeal. The GWRDC is partnering with this initiative to further promote research into the identification of grape-derived molecules that contribute to flavour and aroma in wine. Key vineyard elements, such as management treatments, genotype and the impact the environment has on these grape compounds, will also be investigated as part of this project.

Benefits for growers and winemakers

This research will deliver a suite of benefits for the grower and winemaker, including technologies to measure the abundance of flavour compounds and precursors in grapes and providing more objective measures of fruit quality linked to wine flavour and aroma. Improved understanding of impact of viticultural management on fruit composition will lead to an improved ability to grow and harvest grapes in a manner that meets desired wine specifications. Knowledge of changes in fruit composition during ripening will help optimise harvest timing for specific flavour levels.

The Flagship's current research is investigating differences between fruit and wines made from different commercial vineyards. This new partnership will link with other GWRDC funded research projects, in utilising trial sites and viticultural treatments that have been shown to affect the sensory properties of fruit and their resulting wine.

This will build on the collaboration of CSIRO Divisions, including Entomology and Plant Industry's laboratories in Adelaide and Merbein, and Food Science Australia, a joint venture of CSIRO and the Victorian Government, together with a number of leading wine companies that will be providing grape and wine samples for analysis.

Industry priority

This research partnership is tailored to enhance productivity for wine producers. A major driver for the wine industry is to improve the capability

for the producer in managing the consistency of the quality and flavour dimensions of grapes and wine. In this way, wines can be developed that satisfy consumer and market requirements and maximise earnings to the producer.

The production of better quality wine and improved ability to target wine to specific markets will assist the industry to remain internationally competitive and to grow export markets.

The potential for adoption by industry of the successful technologies for managing or measuring grape flavour is high, as the majority of the research will be conducted in commercial vineyards, creating strong industry partnerships.

For more information:
Tony.Steeper@csiro.au

CURRENT GM HORTICULTURAL PROJECTS INCLUDE:

AUS – Researchers from the Queensland Agricultural Biotechnology Centre have identified the genes associated with ripening in the **papaya.** This development may be used to improve the nutritional quality of papaya through conventional breeding or with the assistance of gene technology. The research team also found genes contributing to fruit softening, aroma and colour.

INDIA – India's Defence Minister as been reported as saying that the Government is developing GM **tomatoes** which could grow in high altitude, cold environments such as the Himalayas in order to provide fresh vegetable to soldiers guarding the borders.

Market Research

THE MEDIA AND PERCEPTIONS OF GM CROPS

According to surveys conducted by Cornell University Professor James Shanahan and graduate John Besley in 2003, 2004 and 2005, support for agricultural biotechnology applications decreases as media attention given to the topic decreases.

The main findings of the surveys include:

- Awareness, trust in institutions, and media coverage impact opinions on the technology.
- People who read newspapers or watch television tend to be more supportive of the technology.
- Media coverage about the technology tended to be quite accurate.
- Environmental and health impacts were the two main concerns of those surveyed.
- The surveys reported no relationship between religious views and whether an individual supported the technology or not.

Overall, the surveys concluded that attitudes towards GM foods were becoming more negative.

For more information: www.afaa.com.au

NEW ZEALAND, PUBLIC IMAGE AND GM CROPS

Researchers from the University of Otago have recently published the results of market research in the *British Food Journal* in an article titled, "Genetically modified crops and country image of food exporting countries". The purpose of the research was to test whether a perceived negative reaction to GM food crops in export and domestic markets was in fact a reality. Interviews were undertaken in Germany, Italy, United Kingdom, Netherlands, and Greece. Key findings include:

- Perceptions of both New Zealand and Australia as country-of-origin of food products was highly rated in relation to food safety and quality. This perception appears to be largely product-specific and relates to factors such as very high standards of hygiene, traceability, government inspection standards, lack of scandals and lack of disease outbreaks.
- Presence or absence of nuclear power generation was used as an indicator of how "environmentally questionable" practices may or may not influence perceptions of food products from a given country. New Zealand's nuclear free policy was unknown to most respondents, and appeared to have slight impact on perceptions of country image for food products, as did Australia's role as a major producer of uranium.
- The prospect of genetic modification being used in farm animals that produce meat or milk for food received an almost universal negative reaction.

- The prospect of GM pasture plants for animal consumption also received a high negative reaction.
- The presence of GM cotton in Australia had no apparent impact on perceptions of food from Australia.
- Negative consumer attitudes towards the concept of GM may not translate directly into negative purchasing behaviour of GM foods by consumers.
- There is evidence to suggest that a sizeable proportion of consumers in New Zealand will buy GM products provided there is a consumer benefit.

For more information – info@afaa.com.au

Events

AGRICULTURAL BIOTECHNOLOGY INTERNATIONAL CONFERENCE (ABIC) 2006
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

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.afaa.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
www.horticulture.com.au/
Phone: (02) 8295 2300