

ABIC 2006

6-9 August

newsletter



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Australian Minister For Agriculture, Fisheries and Forestry welcomes delegates to ABIC 2006

Finding new ways to improve on-farm productivity is a key to the future of our farm industries.

Already highly efficient, these industries must remain vigilant for any ways to tackle cost-price pressures.

Agricultural biotechnology is one controversial but potentially very important way to achieve new efficiencies.

The Australian Government is committed to doing all we can to help farmers, manufacturers and consumers make informed choices about whether or not to use biotechnology.

This is why the government is strongly supporting the 2006 Agricultural Biotechnology International Conference.

The conference focus, of unlocking the potential of agricultural biotechnology, is a pointer to the future of our primary industries.

As the Australian Government Minister for Agriculture, Fisheries and Forestry, I offer a warm welcome to delegates.

It is fitting that Australia is hosting the first ABIC conference to be held in the southern hemisphere in its 10 year history and the government is pleased to be a major sponsor.

Balanced and rigorous research is the essential base to decisions about biotechnology.

A \$3.8 million commitment to research under the National Biotechnology Strategy has already delivered eleven reports to improve our knowledge and understanding of biotechnology and its application in agriculture.

Earlier this year I announced a further eight studies into the value of non-GMO agricultural biotechnology to Australia, the value of biotechnology for insect, pest and weed control and other issues at a cost of \$850,000.

These reports are not designed to sit on the shelf and gather dust – they are at the cutting edge of science and make a significant contribution to our understanding of biotechnology and its applications.

That means that the best research is publicly available – all completed reports are on our website, www.daff.gov.au/biotech and complimentary copies are available from my Department.

At the conference, delegates will hear from the Bureau of Rural Sciences', Dr David Cunningham, about one of the studies from the latest round of funding, Australian Agricultural Futures: plant molecular farming.

This looks at potential use of GM crops as "biofactories" to make pharmaceuticals and industrial products.

It aims to focus debate on how Australian agriculture can benefit by diversifying from traditional food and feed products into new markets.

Although Australian companies have not yet commercialised any "biopharming" technologies, some applications are well advanced and Dr Cunningham believes there is potential to capture niche markets.

Australia's National Biotechnology Strategy aims to capture the benefits of biotechnology for the Australian community, industry and environment whilst ensuring human health and the environment is safeguarded.

Recognising concerns over some aspects of agricultural biotechnology, the government has established robust but workable regulations to protect human health and safety and the environment.

I trust delegates will draw insight and deeper understanding from the conference, which draws together the best thinkers and scientists working in the agricultural biotechnology field.

I look forward to the findings of the conference and again extend my warm welcome. ■

The Hon Peter McGauran MP

Australian Minister for Agriculture, Fisheries and Forestry



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www.abic2006.org

For more information on ABIC 2006 please visit the official website

ABIC 2006 brings together 26 countries to visit Melbourne

Delegations from 26 countries will be heading to Melbourne in August this year to be part of the first Agricultural Biotechnology International Conference held in the southern hemisphere.

The line up of countries includes Austria, Bangladesh, Belgium, Cambodia, Canada, Fiji, Germany, Ghana, Hungary, India, Iran, Israel, Japan, Kuwait, Malaysia, Nepal, New Zealand, Nigeria, Philippines, Singapore, South Africa, Switzerland, Taiwan R.O.C., Thailand, United Kingdom and the USA.

Canada, Germany, India, New Zealand, Thailand and the USA are sending the largest delegations. In this newsletter we will continue our articles focusing on visiting delegations with a look at agricultural biotechnology in Thailand and New Zealand.

Agricultural Biotechnology in Thailand

Importance of Agricultural Biotechnology to Thailand

Strategically located, Thailand contains as much as 10% of global biodiversity, as well as maintains its position as the world leader in the production and export of agricultural products. The Thai government has recognized the significance of biotechnology in helping achieve enhancements in productivity, particularly in view of the tremendous importance of the agricultural and food sectors to Thailand's economy.

The National Center for Genetic Engineering and Biotechnology (BIOTEC) is an autonomous research development center under the Ministry of Science and Technology, and is poised to build international alliances with potential partners to promote mutual collaboration in the area of agricultural biotechnology.

BIOTEC participation at ABIC 2006

As the national biotechnology agency, it is necessary for BIOTEC to be aware of biotechnology trends and development, and to build networking opportunities. To do this effectively, BIOTEC must strategically participate in events that are considered of vital importance. BIOTEC considers ABIC 2006 an important event in the region and will send a strong Thai delegation including Dr Morakot Tanticharoen a leading researcher in the field of microbiology and biotechnology who will speak on biotechnology in developing countries.

The BIOTEC delegation which consists of 11 people (researchers, project analysis, and policy study) will travel to Melbourne, Australia to participate in ABIC 2006. BIOTEC will also participate as an exhibitor at ABIC 2006 (Booth# 34). The BIOTEC delegation looks forward to discussions with colleagues on potential collaborative initiatives.

The BIOTEC exhibition booth will highlight both on-going basic research (Genome, DNA Markers, and Bird Flu) and research that has been successfully commercialized (test kits, embryo transfer, and biocontrol). ■

Agricultural Biotechnology in New Zealand

For New Zealand agricultural biotechnology is a natural development.

"New Zealand has been successfully adding value to agriculture with science for decades," says venture capitalist Andrew Kelly. His fund recently invested NZ\$4 million in nutraceuticals from kiwifruit. "We have unparalleled marketing networks supporting agriculture and it's only a small step further to use these networks for the products of agricultural biotechnology," he says.

New Zealand's strength in agricultural biotechnology is reflected in the strong delegation at ABIC, organised by New Zealand Trade and Enterprise. Twenty three companies will be represented, covering everything from wool proteins for repair bones, to bioplastics from trees, to better meat and dairy products.

▲ NZ\$4 million invested in kiwifruit biotechnology to produce Omega 3 and Omega 6 fatty acid dietary supplements from kiwifruit seeds and a digestion remedy, based on an enzyme complex extracted from kiwifruit pulp. These products build on the long history of using kiwifruit in traditional Chinese medicine



PHOTOGRAPH COURTESY NZTE

What are some of New Zealand's strengths in agricultural biotech?

Disease freedom

New Zealand has unique disease-free animal populations and the best possible animal health status. There is no history of List A diseases and New Zealand is one of only five countries in the world to achieve a category 1 rating by the OIE in respect of BSE and related diseases.

Animal-based biotechnologies

A deep understanding of animal health, nutrition and reproduction is leading New Zealand to the effective use of sheep, cows, goats, pigs and deer as animal models for research into human health conditions such as allergy control, foetal growth and premature births and heart disease.

Expertise in gene discovery and gene function in cows and sheep is used to develop products and therapies for veterinary and human use. Coupled with extensive national herd databases and regular

herd testing, this work provides an invaluable resource to support gene linkage studies. The Livestock Improvement Corporation/ViaLactia/BoviQuest consortium, for example, is using a combination of the advances in bovine genomics, and over 60 years of herd testing records to identify unique genotypes that could be used to improve milk and beef production and quality.

New Zealand scientists are developing reproductive technologies in ovulation control, reproductive physiology, pregnancy establishment and embryology. Significant breakthroughs in understanding both human and animal fertility have come out of access to unique germplasm.

Companies such as LactoPharma are discovering biologically active compounds in milk and colostrum for the development of functional food products, specialty ingredients, nutraceuticals and pharmaceuticals.

Plant-based biotechnologies

New Zealand's strong tradition in plant science research is transforming crops, without the fears of genetic modification (GM). A new technique to modify crop cultivars without introducing DNA from unrelated species will not only improve food production and lower costs, but also shake-up perceptions of GM. Research institute Crop & Food Research has developed a technique where everything used in the process of GM is derived from the target plant species, or a closely related species.

While the use of intragenic vectors is particularly valuable in crops which are propagated vegetatively, such as potatoes, fruit trees, cassava and sugarcane, it will also have a role in the breeding of major crops such as maize, soybean, rice and wheat.

Plant science expertise is also contributing to developments in the industrial and environmental biotechnology sectors. Key research includes identifying genes impacting on flowering control, branching, lignin and cellulose cell wall constituents, flavour, aroma and nutrition.

Research institute Scion is developing biomaterials from plants, including improved biodegradable bioplastics and biopolymers, through the manipulation and modification of plant cell wall development.

Companies are also focused on improving productivity through improved genetics and enhancing specific traits in plantation trees to produce trees that are straighter, more disease resistant and produce lumber that better meets manufacturing specifications, thereby reducing wood waste. In addition biotechnology companies are developing databases in the areas of forestry, forage grass and fruit trees and capturing valuable IP from screening these databases for novel molecules.

Producing fruit, vegetable and arable crops and seafood with improved nutrition, flavour, colour,

fragrance and production characteristics, such as pest and disease resistance, is also a focus.

The seed and livestock industries are collaborating to develop ryegrass and arable cultivars with enhanced energy sources to improve the nutritional quality of pastoral plants for livestock.

Some NZ stories to look for

Wool proteins to repair bones

A protein isolated from wool could assist with bone repairs.

Wellington-based Keratec is working with an Australian company, Australian Biotechnologies, to commercialise its patented bone graft technology using Functionalised Keratin, a structural protein extracted from wool. Among the applications for the technology are bone graft and fixation devices, wound dressings, adhesives, bioplastics and fibres.

Omega 3 from kiwifruit

BioPacificVentures, an Australasian venture capital fund specializing in agricultural biotechnology, is investing NZ\$4 million kiwifruit biotechnology through Vital Foods, a New Zealand company producing an Omega 3 and Omega 6 fatty acid dietary supplement from kiwifruit seeds. Harvesting kiwifruit just for its seeds is not cost effective, so the company also sells a digestion remedy based on an enzyme complex extracted from kiwifruit pulp. It is used especially with geriatric patients in many New Zealand hospitals. The products build on the long history of using kiwifruit in traditional Chinese medicine.

More efficient cows

Hamilton company Livestock Improvement Corporation is collaborating with Australia's Dairy Cooperative Research Centre to develop genotyping methods to identify cows with the potential for higher metabolic efficiency, enabling higher milk production.

Could blackcurrants improve memory loss?

HortResearch NZ scientists are attempting to determine if a glass of blackcurrant juice a day can reduce memory loss.

New Zealand blackcurrants are high in anthocyanins and antioxidants and a US study has indicated that certain berry fruit extracts can enhance memory and coordination. HortResearch is conducting a three-month trial in people over sixty five years old with memory loss. ■

For further information about New Zealand visit stand 56 at ABIC or www.newzealand.com

New Zealand companies to look for at ABIC

Abacus Bio Ltd
 Agmax Industries Ltd
 Agriquality
 Ag Research Ltd
 BioPacific Ventures
 Crop and Food Research Ltd
 Encoate Ltd
 Genesis Research Ltd
 GroChem Ltd
 Hill Laboratories Ltd
 HortResearch Ltd
 ICP Bio Ltd
 Keratec Ltd
 Livestock Improvement Corporation
 NZ Bio Inc
 Ovita Ltd
 PGG Wrightson Ltd
 PhytaGro Ltd
 Scion Ltd
 Sensortec
 Staron
 Vialactia - Pastoral Genomics
 Waikatolink

▼ HortResearch NZ scientists are attempting to determine if a glass of blackcurrant juice a day can reduce memory loss





Speaker biographical

Dr. Morakot Tanticharoen

Dr. Morakot is a leading researcher in Thailand in the field of microbiology and biotechnology. Her specialty includes research and development of an anaerobic wastewater treatment for biogas production and algal technology research, and she is also a pioneer in biosensor research in Thailand. Dr. Morakot is also well recognized for her involvement at the regional and international level, being an active member and working on the executive of several societies and organizations, as well as serving on the editorial board of a number of noted international journals. Under directorship of Dr. Morakot, Thailand's National Centre for Genetic Engineering and Biotechnology (BIOTEC) has been appointed as the Executive Secretary of the UNESCO Regional Network for Microbiology and Microbial Biotechnology in Southeast Asia since 2002. She also serves as a member of the ASEAN Sub-Committee on Biotechnology (SCB), and assumed the leadership of the Sub-Committee in June 2005.

Dr. Morakot served as Deputy Director of the National Center for Genetic Engineering and Biotechnology (BIOTEC) during 1994–2000 and has been Director of BIOTEC since 2000. She was elected the President of the Thailand Society of Biotechnology in 1999 and completed her presidency in 2003. She remains an active member of the society. ■

Session synopsis

Tuesday 8th August 2006
4:00pm – 5:30pm

Investing in Ag Bio

AgBio requires patient, long term investors. 'Spin-off' companies often arise from university or public sector research funded by government grants or early shareholder capital, but after the initial euphoria of establishment they soon suffer the challenges of ongoing funding - with the timelines to market frequently stretched by circumstances beyond the control of the fledgling company. Start-up companies also face a myriad of funding options for the ongoing financing of research and development, and product commercialisation. These include research grants; government grants; seed capital; angel investing; and private and public capital-raising. Premature listing on a national stock exchange when the company has a low capitalisation can often present a special set of challenges.

The venture capital industry often presents a viable option, and excellent funds are now available with different investment strategies. What makes a company an attractive investment? How do we assess management strength and the probability of success with new technologies? In this session experts in their field discuss the opportunities and pitfalls of investing in agbio, and offer advice for those seeking to make their company attractive to investment partners.

Speakers

Chair: Mr Selwyn Snell
 CEO, Single Vision Grains, Australia

Mr Doug Rathbone
 Nufarm, Australia

Dr Andrew Kelly
 BioPacific Ventures Partners, New Zealand

Dr Murray McLaughlin
 formerly of Foragen, Canada

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 the Agricultural Biotechnology
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 speakers, local tours
 & bookings.**