

ABIC 2006

6-9 August

newsletter



April issue index

- 1 Antifreeze for crops
- 2 Canada at ABIC
- 2 Emeritus Professor Nancy Millis
- 3 Victorian scientists come back to earth
- 3 Session: Monday 7, 2pm
- 4 The ABIC foundation
- 4 Exhibition, sponsorship and advertising opportunities

Antifreeze for crops to bring rich rewards

Victorian scientists have discovered antifreeze genes in a unique grass from Antarctica that could mean millions of extra dollars in farmers' pockets, Minister for Innovation John Brumby announced at BIO2006 in Chicago.

Department of Primary Industries (DPI) scientists based at the new state-of-the-art Victorian AgriBiosciences Centre have uncovered genes in Antarctic Hairgrass giving the plant the remarkable ability to inhibit ice crystal growth as a mechanism for freezing tolerance.

Mr Brumby said the findings have major implications for improving frost tolerance in crop and pasture species that underpin the world's agriculture industries.

"Over the next few years we should see the development and application of technologies for frost tolerance in crops based on the knowledge gained from the functional analysis of these antifreeze genes," said Mr Brumby.

Globally five to 15 per cent of agricultural production is lost to frost each year and in the USA there are more economic losses to frost than any other weather related phenomenon.

Victorian Minister for Agriculture, Bob Cameron, said on average frost caused production losses of just under \$140 million a year in Victoria and South Australia's wheat and barley crops alone.

He said Antarctic Hairgrass was one of only two vascular plants and the sole grass species to colonise the Antarctic Peninsula.

"It survives temperatures as low as minus 30C and winters with little or no light," Mr Cameron said.

"DPI scientists have been able to identify related genes in temperate grasses such as ryegrass, and by comparing them with the Antarctic grass's ice recrystallisation inhibition genes have established the technological basis for strategies to improve frost tolerance in some crop and pasture species."

Initially funded as part of the Victorian Government Science and Technology Initiative, this research is now undertaken within the Australian Centre for Plant Functional Genomics funded by the Australian Research Council and the Grains Research and Development Corporation. ■

Host Industry Body



Host State & Principal Sponsor



Major Sponsors



Professor German Spangenberg.

Register now at
www.abic2006.org



Canada at ABIC – Come say hello!

Expect to see a lot of the maple leaf at ABIC this August as plans are well underway for a large Canadian presence in Melbourne. The Canadian Consulate General in Sydney is coordinating a 'Team Canada' approach with partners including Agriculture and Agri-Food Canada (AAFC), Ag-West Bio, Saskatchewan Trade and Export Partnership (STEP), and trade delegations led by senior government Ministers from the Provinces of Manitoba and Saskatchewan. This will add to the growing Canadian contingent that already includes International Patron Dr. Murray McLaughlin, Dr. Gord Surgenor and others.

The Tasman region (Australia and New Zealand) represent a wealth of opportunity for Canada and vice-versa, whether in collaborative R&D, technology licensing, partnering, joint ventures, investment, access to markets or other business. Common strengths and opportunities exist in ag-bio, aquaculture, functional foods, nutraceuticals and other areas. To emphasize these natural alliances, the 'Team Canada' partnership gearing up for ABIC will host a pre-ABIC trade and investment program and visits to New Zealand after the conference.

Canadian companies in the agriculture sector have unique strengths in canola and corn production and are helping to increase productivity and develop new products in the food, environment and natural resource sectors. Nearly half (47%) of Canada's biotechnology companies have substantial presence in areas of ag-bio, primarily in the provinces of Saskatchewan, Manitoba and Ontario, and in aquatic and marine bio-sciences, in British Columbia and Atlantic Canada.

There are strong opportunities for Canada, New Zealand and Australia at ABIC. In the words of Canadian Consul General Rick Kohler "Opportunities and innovation in biotechnology are critically important for Canada and this is reflected in our commerce strategy. Biotech is a priority sector for business development in the Tasman region and we will continue to build on our existing friendships."

The results of 2006 Competitive Alternatives, KPMG's guide to international business costs, show that for the sixth consecutive time Canada ranks as the most competitive G7 country in which to do business. Canada is the lowest-cost G7 country in 12 of the 17 industries examined, including medical devices, pharmaceuticals and biotechnology.

Ranking 2nd worldwide in terms of the biotech companies with 496 firms, 2003 industry revenues were \$3.8 billion with \$1.5 billion spent on R&D. Government of Canada spending on biotech S&T has been increasing yearly by an average of 17% since 2000-2001, reaching \$791 million in 2004-05. Canadian R&D tax treatment is the most generous in the industrialized world, with immediate full write-offs for all expenditures in R&D capital equipment, and appreciable tax credits. The Scientific Research & Experimental Development (SR&ED) program spends about \$460M annually in tax credits to biotech companies.

In addition to a first-rate science base and business environment Canada enjoys unfettered access to North America - the world's largest and richest market. The Canadian and U.S. economies are intertwined and interdependent. You can look all over the world and you won't find a relationship that is as close - anywhere! As each other's biggest trading partner, US \$500 billion worth of goods and services are exchanged every year. So for Australia and New Zealand biotechnology, Canada provides not only shared values and a comfortable business environment but the experience critical for the North American market as well.

The bottom line is that Canada offers a place of opportunity for biotechnology - somewhere that researchers, scientists and private industry can find the knowledge, the infrastructure and, most of all, the supportive attitude that fosters success. That's why Canada's presence at ABIC will be strong – make sure you stop by and say hello! ■



Speaker biographical

Emeritus Professor Nancy Millis

University of Melbourne

Emeritus Professor Nancy Millis held a personal chair in the Department of Microbiology from 1982 – 87 at The University of Melbourne. Her primary degree was in Agricultural Science. From 1981 to 2001, she chaired the surveillance committee for genetic engineering for the Australian government and has been a member of a number of boards and committees concerned with water quality and environmental issues for State and Commonwealth authorities. She is a Fellow of the Australian Academy of Science and of the Australian Academy of Technological Sciences and Engineering and an Honorary Life Member of Ausbiotech.

Victorian scientists come back to earth

A collaborative project between one of the world's leading scientists and the Victorian Government hopes to unveil and sequence the DNA of the most complex and mysterious ecosystem on earth – soil.

The Victorian Government has committed \$3 million towards a collaborative research project with the prestigious U.S. Venter Institute using the same technique pioneered to map human DNA.

Speaking at the BIO2006 media conference last week, the Premier, Steve Bracks, said technologies developed at the Venter Institute for decoding the human genome would be adapted for environmental applications.

"The sequencing of human DNA was a defining moment in modern medicine and the Victorian Government is pleased to be working with team behind that project to unlock the secrets behind soil's DNA," Mr Bracks said.

"Soil is at the heart of any community's wealth, well being and food production yet we know very little about it.

"Agriculture is of critical importance to the Victorian economy with the state's Farm Dependent Economy estimated to be worth \$21.6 billion.

"Victoria is also responsible for 30 per cent of Australia's food products, while the agricultural sector is a major employer with 131,000 people working in Victoria's industry alone."

Innovation Minister, John Brumby, said under the agreement, scientists from the Victorian Department of Primary Industries will be working closely with Venter to fast-track the development of Victoria's already outstanding capabilities in the rapidly evolving science of environmental genomics.

"Environmental genomics is the examination of the vast and unseen realm of microbes in the soil, water systems and animals, in order to better understand how they drive environmental processes and energy cycles," Mr Brumby said.

"This collaboration will develop an inventory of previously undescribed bacteria and viruses and their gene complement from two environments in Victoria, the soil and the stomach of an animal.

"Decoding this DNA will enable researchers to identify key genes and their role in many environmentally significant processes and in turn will enable the development of a range of new technologies."

Mr Brumby said the investment will contribute to the development of thriving, innovative industries and lead to a healthier environment.

The Victorian Minister for Agriculture, Bob Cameron, said the two-pronged approach would help researchers better understand overall species

diversity and generate new technologies for livestock and plant-based industries.

"The genetic resource contained within the living component of soils – or the microbial community – remains largely untapped," Mr Cameron said.

"This project will uncover many previously undescribed bacteria and viruses as well as many new genes, and provide the opportunity to explore the most diverse ecosystem on this planet."

Mr Cameron said that as much as 90 per cent of the micro-organisms present in our soils were yet to be identified and represent the world's largest 'gene reservoir'.

"We'll be looking for genetic information relating to nutrient recycling, degradation of pesticides and other chemicals, disease organisms of plant livestock and human significance and associated biocontrol microbes," Mr Cameron said.

"At the same time we'll be compiling metgenomic libraries of a rumen microbial community.

"Mammals do not make enzymes that can break down cellulose or related plant polymers so, to use plants as food, ruminants like cows and sheep depend on anaerobic fermentation driven by micro-organisms.

"The microbial community in the rumen has some remarkable features including the capacity to capture nitrogen and utilise cellulose.

"The profiling of DNA from the 90 per cent of previously undescribed soil micro-organisms and their gene complement will allow us to not only identify how soils differ in fertility but also the impact of management on fertility.

"Perhaps of even greater importance are the benefits that will be derived from identifying novel bacteria and their genes that code for important processes such as nutrient generation and recycling and antibiotic production.

"The detection of genes in soil will also provide the potential to develop soil health diagnostic tools based on the 'genetic condition of soils.

"Likewise, the rumen research could lead to improved feed conversion efficiency and even a reduction in greenhouse gases generated by livestock." → Australia, meanwhile, is well positioned for the biotech age, with strengths in research, manufacturing, agriculture and food production and international recognition for its advances in medical and biological sciences.

Trans-Tasman collaborative ventures in agbio have been underway for a number of years, some supported by the NZ\$12 million (US\$7.6 million) Australia New Zealand Biotechnology Partnership Fund. (Cont.)

Session synopses

Each month the ABIC 2006 newsletter will feature a session that will be held at the conference

**Monday 7th
August 2006
2:00pm - 3:30pm**

Livestock Genomics

Recent years have seen the advent of high quality genome sequence for cattle and chickens, paralleling the much greater investment in the human and mouse genomes. Genome sequences of other livestock species will follow. Resources for high throughput genotyping and gene expression studies have become available on a commercial basis. These, when interfaced with substantial, existing phenotypic data for large flocks and herds are greatly enhancing genetic research and gene discovery. This session will explore the potential of these resources to impact on the future of livestock agriculture.

Speakers for this session

Dr. John McEwan
(AgResearch, New Zealand)

Prof. Mike Goddard
(University of Melbourne and PIRVic Australia)

Ass Prof Peter Williamson
(CRC for Innovative Dairy Products Australia)

Sponsored by

CRC for Innovative Dairy Products





The ABIC foundation

Supporting continuous learning and networking in agricultural biotechnology is a key mandate of the ABIC Foundation.

The Foundation encourages attendance at ABIC Conferences from among young scientists in emerging nations by offering a travel bursary. The bursary enables a promising new researcher to access the ABIC network of agbiotech contacts, attend the conference, and participate in the poster session.

Applications are accepted from graduate students or post-doctoral fellows at accredited post-secondary institutions whose studies are closely focused on agricultural biotechnology. The applications are reviewed and a final candidate is selected by a committee of the Foundation board.

The Foundation received 21 applications for the 2006 bursary. The successful applicant who will attend ABIC 2006 is Ms. P G Kavitha, a PhD student from Rajiv Gandhi Centre for Biotechnology, Kerala, India. Ms. Kavitha's poster submission is entitled "Biotechnological approaches towards developing ginger (*Zingiber officinale* Rosc.) cultivars with improved resistance to soft-rot disease."

The ABIC Foundation is managed by Ag-West Bio Inc., located in Saskatoon, Saskatchewan, Canada. More information on ABIC is available on the website at www.abic.ca or by sending an email to abicfoundation@abic.ca.

Dr. Ashley O'Sullivan

Chair - ABIC Foundation Inc.
Saskatoon, Saskatchewan, Canada

Victorian scientists come back to earth (Cont.)

One example is the joint venture company *ensis* (www.ensisjv.com), a partnership between Scion and CSIRO, Australasia's two leading forestry research and development organisations. The increased scale of *ensis* and its depth of research capacity mean the company can tackle complex problems that will help the sector remain globally competitive.

New Zealand's Crop and Food Research and Horticulture Australia are collaborating to identify common vegetable varieties that exhibit enhanced functionality. The first target in this NZ\$22 million (\$US14 million) project is broccoli, which is well known for its cancer reducing effects.

Other trans-Tasman collaborations in agbio innovation are taking place in the areas of research into 'designer pastures' which could produce more herbage and reduce pollen allergens, bovine genome sequencing and applying biotechnologies in the meat, wool and dairy sectors. ■

Exhibition, sponsorship and advertising opportunities

Use ABIC 2006 as a platform to promote your organisation directly to this international gathering of the leaders in the AgBio Industry. High visibility sponsorship and advertising packages are available to suit all budgets and provide maximum exposure both leading up to and during the conference.

A comprehensive Trade Exhibition will run concurrently with the Conference. This will be the largest exhibition dedicated to the AgBio industry in Australia in 2006. Exhibiting is a must for any company within the industry.

For more information on taking advantage of this marketing opportunity please contact the Conference Managers or download a copy of the Sponsorship Prospectus from the Conference website www.abic2006.org
Telephone: +61 2 9265 0700 or
email: abic2006@tourhosts.com.au

Contact details

AusBiotech Ltd

Address for Communications
ABIC 2006 Conference Managers
GPO Box 128
Sydney NSW 2001 Australia
Tel: +61 2 9265 0700
Fax: +61 2 9267 5443
Email: abic2006@tourhosts.com.au
Website: www.abic2006.org

Register now!

...to be a part of the
Agricultural Biotechnology International Conference (ABIC)
6-9 August 2006, Melbourne, Australia

Register at www.abic2006.org for more information on the program, sessions, speakers, local tours & bookings.

Book before 2 June 2006 and receive the Early Bird rate of \$1100

www.abic2006.org

For more information on ABIC 2006 please visit the official website.