

## **CROP BIOTECH UPDATE**

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A weekly summary of world developments in agri-biotech for developing countries, produced by the Global Knowledge Center on Crop Biotechnology, International Service for the Acquisition of Agri-biotech Applications SEAsiaCenter (ISAAA)

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In This Issue:

- \* Study Shows Ban Harmful for Australian Economy
- \* CIMMYT Field Trials GM Wheat
- \* Vietnam to Boost Biotech Development
- \* Research Proposes New Regulatory Requirements for GM
- \* South Africa Still Ignorant About Biotech
- \* Phytome Dbase Makes Plant Genome Data Available
- \* Blue Rose Blooms
- \* Philippine Province Supports Bt Corn Planting
- \* Rice Genome Shuffles, Loses Plastid Genes, Research Finds
- \* CBT News Feature: International Center for Agricultural Research in the Dry Areas (ICARDA)
- \* Announcement

### **STUDY SHOWS BIOTECH BAN HARMFUL FOR AUSTRALIAN ECONOMY**

A study by Australia's Rural Industries Research and Development Corporation reported that Australia will be left behind if state governments maintain their bans on biotech crops. Researchers from The University of Adelaide found that Australia could gain \$15.31 million a year if biotech crops were adopted. If the EU also dropped their moratorium, Australia could gain \$28.33 million a year. It also raised the point that the ban would drive scientists and their research to countries that are supportive of the technology.

Noting that the country could be at risk for becoming an "agricultural backwater", the study noted that non-biotech GM crops could become a niche market like that of organic produce.

With reports from the April 6 issues of Asia Pulse and The Sydney Morning Herald.

## **CIMMYT FIELD TRIALS GM WHEAT**

The International Maize and Wheat Improvement Center (CIMMYT) is conducting its second field trial of promising transgenic drought tolerant wheat. The transgenic lines carry the DREB gene, given to CIMMYT by the Japan International Center for Agricultural Sciences. The gene, obtained from *Arabidopsis thaliana*, exhibited promise in its initial field trial and in earlier greenhouse trials.

CIMMYT reported that the second trial focuses on four transgenic lines and uses a larger plot to ensure better control and analysis. The experimental lines and control plants will be subjected to both watered and drought conditions to determine their respective performance. After a few months, researchers will determine if results are useful for producing hardy wheat for drought-prone areas.

See the CIMMYT release at <http://www.cimmyt.org>.

## **VIETNAM TO BOOST BIOTECH DEVELOPMENT**

The Secretariat of the Communist Party Central Committee issued a directive to boost biotechnological development and application to serve national industrialization and modernization. The Vietnam News Agency said that the directive highlighted the role of biotechnology in the country's development in ensuring food security, successful crop restructuring, and sustainable development of agricultural and rural development. In addition, biotechnology was noted to help supply essential products for public health care, protect the environment and develop the biological industry.

The directive forwarded the following agenda:

- \* Create quality and high-yield crops and domestic animals to effectively serve economic restructuring, raise the competitiveness of local farm produce, and increase the proportion of processed farm, forest and aquatic products.
- \* Lift the country's biotechnology to the regional level; turn biological industry into a high tech sector, capable of producing key products ensuring a steady growth of the national economy.
- \* Promote the application of biotechnology in agricultural production and rural areas.

In related developments, State President Tran Duc Luong urged the Agricultural Genetic Institute to boost scientific research with the focus on biological technology. During his working visit to the subsidiary of the Ministry of Agriculture and Rural Development in Hanoi President Luong described scientific research, especially biotechnological research, as a pressing need for modern Vietnam. He pointed to the need to raise the country's biotechnological capabilities to the regional level, and to gradually move closer to world standards in the next five to ten years.

For summaries of agri-biotechnology articles in Vietnam, email Vietnam Trade Network (VITRANET) at [vitrانetvn@hn.vnn.vn](mailto:vitrانetvn@hn.vnn.vn).

## **RESEARCH PROPOSES NEW REGULATORY REQUIREMENTS FOR GM**

Genetically modified (GM) crops are stringently regulated before market entry, and the process of regulation itself, although thorough, is growing to be increasingly costly. Kent Bradford and colleagues at the University of California Davis provide new proposals on "Regulating transgenic crops sensibly: lessons from plant breeding, biotechnology and genomics." Their paper is published in the latest issue of Nature Biotechnology.

The researchers admit that a cautious approach to admitting GM was prudent, but the experience of long years of work with GM crops, as well as expanding knowledge of plant genome structure and dynamics, can allow regulatory requirements to be modified, in order to reduce costs and uncertainty without compromising safety. They also propose that, as in conventional breeding, regulatory emphasis should be on phenotypic rather than genomic characteristics once a gene or trait has been shown to be safe.

Using studies of regulatory processes used for genetically modified crops over the years, the researchers proposed to following to streamline the current regulatory process: Deregulate the transgenic process, where the product, and not the process, should be evaluated; Rationalize the basis for transgenic regulation, since some molecules, such as the 35s promoter of the cauliflower mosaic virus, have already been consumed by humans at much higher levels than those in transgenic plants; Exempt selected transgenes and classes of transgenic modification from regulation, such as RNAi, use of nontoxic proteins to modify plant development, well-studied marker genes that impart antibiotic resistance, and selected marker genes that impart reported phenotypes; Create regulatory classes in proportion to potential risk; and eliminate the event-specific basis of transgenic regulation.

Read the complete article at  
<http://www.nature.com/nbt/journal/v23/n4/full/nbt1084.html>.

## **SOUTH AFRICA STILL LOW ON BIOTECH KNOWLEDGE**

Almost 80 per cent of South Africans still have little understanding of biotechnology. The vast majority are uncertain about what it is and whether or not it is good. These are among the key findings reported in a survey conducted by the Public Understanding of Biotechnology (PUB) Programme of the Department of Science and Technology in collaboration with the Human Sciences Research Council. Among the findings are:

- \* Majority (60%) did not know whether GM foods are on sale or whether they have been eating it.
- \* 26 per cent perceived no risk from biotechnology, 21 per cent perceived a risk but the majority of the latter could give no reason for their perception
- \* Support for continuation of biotechnology practices ranged from 49 to 62 per cent for biotech foods, pest resistant crops, medicines and bio-degradable plastics.
- \* 65 per cent would buy GM maize if it is healthier, 52 per cent if cheaper, 55 per cent if more environmentally-friendly, and 50 per cent will eat eggs from chickens fed on GM maize.
- \* The best sources of trustworthy information were universities, government and media. Issues on which more information was desired, were medical biotechnology (44 per cent) and GM foods and agro-biotechnology (24 per cent)
- \* As regards food labeling 51 per cent never read labels and only 1 per cent indicated a need to indicate GM content on the label. Indication for ingredient and health content on labels was 21 per cent in each case.

The report is available at <http://www.pub.ac.za>.

## **PHYTOME DBASE MAKES PLANT GENOME DATA AVAILABLE**

The University of North Carolina (UNC), Chapel Hill, USA currently plays host to the newest plant genome database. Called Phytome, the database contains

information on more than 730,000 unique protein sequences in more than 25,000 protein families with a focus on the angiosperms, or flowering plants.

In addition to its sequence base, Phytome also contains phylogenetic and functional information for predicted protein sequences (or unipeptides). It allows users to search 735,024 Unipeptides in 26,393 multiple-member families (plus many more singleton families) from 39 different plant species. These include many of the world's most valuable crops, such as rice, wheat, corn, and potatoes.

The Phytome project is supported through a five-year, US\$1 million grant awarded in 2002 by the U.S. National Science Foundation (NSF). Visit the database at <http://www.phytome.org>.

## **BLUE ROSE BLOOMS**

Roses are available in red, white, pink, and yellow, but the Holy Grail of rose breeders has always hitherto remained the color blue. Blue roses have long been synonymous with the impossible, for despite all efforts at conventional breeding, a true blue rose would need to create a blue pigment called delphinidin, whose gene is not functional in roses.

SUNTORY Ltd of Japan, in cooperation with Florigene Ltd of Australia, however, recently unveiled the world's first blue roses, created using techniques in genetic modification. Since 1990, both companies have been transferring the genes necessary to create delphinidin from other flower species such as petunia. In the process, Moondust, the world's first blue carnations, were developed and eventually commercialized.

The blue rose is the product of genetic modification of roses through insertion of a gene from the pansy.

Read the press release - and see the roses - at <http://www.florigene.com.au/news/news.php>

## **PHILIPPINE PROVINCE SUPPORTS BT CORN PLANTING**

The Cebu City council, in the Philippine province of Cebu, recently approved a resolution supporting the move of The Department of Agriculture (DA) in propagating Bt corn production in the country. The resolution, authored by

councilor Edgardo Labella, states that the production of biotechnology crops is “a paradigm shift in the field of agriculture.”

The councilor likewise said that there is a need to support the DA in advocating the use of Bt corn to improve production. The resolution, moreover, urges the DA to expedite the nationwide propagation of BT corn production “in order achieve food security as well as to reduce the costly importation of food products that could grow in the country, and even in Cebu City.”

Bt Corn was approved for commercial planting in the Philippines in 2003, making it the first biotech crop to be approved for use in Asia.

Read the complete article at

[http://www.thefreeman.com/local/index.php?fullstory=1&issue=articles\\_20050314&id=28321](http://www.thefreeman.com/local/index.php?fullstory=1&issue=articles_20050314&id=28321)

## **RICE GENOME SHUFFLES, LOSES PLASTID GENES, RESEARCH FINDS**

Mitsuhiro Matsuo and colleagues from the Center for Gene Research, Nagoya University, Japan report that “The Rice Nuclear Genome Continuously Integrates, Shuffles, and Eliminates the Chloroplast Genome to Cause Chloroplast–Nuclear DNA Flux.” In the report, Matsuo reports that, although DNA sequences constantly migrate from rice chloroplasts to the nucleus, these sequences are continuously shuffled until they are lost. The paper appears in the latest issue of *The Plant Cell*.

Using the rice nuclear genome database (<http://rgp.dna.affrc.go.jp/>), which includes >85% of the total genome sequence of *Oryza sativa* ssp *japonica*, researchers found that gene sequences are constantly transferred from plastids (such as chloroplasts) to the nucleus, constant gene reshuffling occurs within the nucleus itself, and this reshuffling results in the eventual elimination of plastid DNA sequences within two million years of their integration. Calculations also show that the rice nuclear genome incorporated a large portion of plastid genome at least three times in the past 1.7 million years.

These data indicate that the plant nuclear genome is in equilibrium between frequent integration and rapid elimination of the chloroplast genome, which may explain why plant genomes do not seem to be expanding, despite the frequent integration of plastid DNAs.

Read the complete article at <http://www.plantcell.org/cgi/reprint/17/3/665>

## **CBT NEWS FEATURE: INTERNATIONAL CENTER FOR AGRICULTURAL RESEARCH IN THE DRY AREAS (ICARDA)**

International Center for Agricultural Research in the Dry Areas (ICARDA) Conceived in 1972, born in 1975, and finally raised in Aleppo, Syria, in 1997, the International Center for Agricultural Research in the Dry Areas (ICARDA) is one of the 15 centers strategically located all over the world and supported by the Consultative Group on International Agricultural Research (CGIAR).

ICARDA lies on dry, arid land that not only represents much of the conditions that characterize the land of Central and West Asia and North Africa (CWANA), but is also in the heart of the birthplace of agriculture. Some of history's greatest civilizations - including the empires of Ebla, Assyria, Sumeria, Babylonia, and the Hittites - once held power over the region due to its economic and strategic importance.

Today, ICARDA pays host to a 948-ha farm composed of offices; specialized laboratories studying biotechnology, geographic information systems, pathology, entomology, virology, physiology, seed health, soil physics, soil fertility, food and feed quality, and animal health and nutrition; a library and publishing service; and greenhouses and other controlled environment facilities.

ICARDA's mission is to improve the welfare of poor people and alleviate poverty through research and training in dry areas of the developing world, by increasing the production, productivity and nutritional quality of food, while preserving and enhancing the natural resource base. Current research concentrates on the improvement of barley, lentil, and faba bean; and dry-area developing countries for the on-farm management of water, improvement of nutrition and productivity of small ruminants (sheep and goats), and rehabilitation and management of rangelands. ICARDA is also responsible for the improvement of durum and bread wheats, chickpea, pasture and forage legumes and farming systems; and for the protection and enhancement of the natural resource base of water, land, and biodiversity.

For more information, visit <http://www.icarda.cgiar.org>.

## **ANNOUNCEMENTS**

### **ASTI RELEASES SSA DATA ON CD**

The Agricultural Science and Technology Indicators (ASTI) Initiative recently released individual briefs and data sets for countries in Sub-Saharan Africa. These include Ethiopia, Ghana, Kenya, Madagascar, Mali, Nigeria, South Africa,

Tanzania, and Uganda. Also in the new releases are overview publications on agricultural research trends in the region, as well as statistical briefs.

The documents may be ordered in CD-ROM form from <http://www.ifpri.org/pubs/pubs.htm#asticd>. Web users can also download individual briefs in PDF from <http://www.asti.cgiar.org/pubs-africa.htm>

## **UNIVERSITY HOLDS ONLINE WRITING COURSE**

The Konrad Adenauer Center for Journalism at the Ateneo de Manila University (CFJ), Philippines is now accepting applications for a six-week online course on Reporting on Food and Agriculture to be held from 2 May – 11 June 2005.

The course aims to develop skills on writing about farm topics and will tackle a wide range of issues including environmental degradation, genetically modified seeds, trade policies, and disaster reportage. Major global commodity exchanges and their influence on the decisions of Asian farmers will also be explored.

Fellowships are available to qualified and deserving journalists who are full-time staff of a news media organization in Asia. Applications must be received by Monday, 25 April 2005. Application forms may be downloaded from <http://cfj.ateneo.edu> or requested by e-mail at [newsroom@admu.edu.ph](mailto:newsroom@admu.edu.ph) and submitted by fax at +632 926 3254.

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