

CROP BIOTECH UPDATE

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), and AgBiotechNet

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GM COTTON APPROVED FOR BRAZIL

Brazilian President Luiz Inacio Lula de Silva recently signed into law a new biosafety bill that would create a regulatory process for approving genetically modified (GM) crops in the country. Within the same week, the local National Commission for Biosafety (CTNBio) issued its approval for Monsanto's GM cotton 'Bollgard' to be commercialized, allowing farmers to both plant and sell the GM crop.

The approval of Monsanto's Bollgard cotton by CTNBio is an important step in the regulatory process for this product, said Jerry Glover, Vice-President for External Affairs of Monsanto. "This is a positive step forward," he said, "However, commercialization of the product cannot proceed until the Minister of Agriculture registers the various varieties of cotton seed containing the Bollgard trait, and those applications must be done by companies that we can license."

With reports from <http://stlouis.bizjournals.com/stlouis/stories/2005/03/21/daily66.html> and <http://www.scidev.net>. Read the press releases at <http://www.monsanto.co.uk/news/ukshowlib.phtml?uid=8727> and <http://www.monsanto.co.uk/news/ukshowlib.phtml?uid=8763>.

NEW POLICIES FORMULATED FOR INDIA

India's Department of Biotechnology, under the Ministry of Science and Technology, has formulated a new national biotechnology development strategy for the country. Acknowledging that biotechnology can revolutionize agriculture, healthcare, industrial processing, and environmental sustainability for India, the development strategy aims to meet the country's potential of generating revenues through biotechnology as business.

The strategy also aims to integrate its scientific resources to "create a productive enterprise." These include its scientists, laboratories, and its biotech parks, all of which may work together to advance biotechnology, as well as the affordability and accessibility of its products. The challenge, the policy states, "Is to join the global biotech league. This will require larger investments and an effective functioning of the innovation pathway."

The new strategy charts a ten year roadmap for the country, stressing human resource development at the academic and industry interface, infrastructure development, development of laboratories and manufacturing procedures, promotion of industry and trade, development and maintenance of biotechnology parks and incubators, strengthening of regulatory mechanisms, and promotion of public education and awareness building.

Download the document at <http://www.isaaa.org/kc>

EU COMMISSION CONFIRMS SUPPORT FOR GM REGULATORY PROCESS

The European Union (EU) Commission orientation debate on genetically modified (GM) organisms confirmed its support to Europe's regulatory and approval process for GM products. EuropaBio, the association of bioindustries in Europe, noted that the Commission recognized that the EU's legal framework for approving safe GM products must function properly if Europe is to foster innovation and competitiveness in biotechnology.

“It is frustrating that some Member States continue to ignore overwhelming science as to the safety of GMOs and fail to approve these safe and innovative products in Europe. We support the Commission in its goals to ensure the proper functioning of the system and urge all Member States to fulfil their responsibilities,” says Simon Barber, Director of the Plant Biotechnology Unit at EuropaBio.

The association asked the Commission to ensure that Member States that have invoked bans based on “safeguard clauses” and that have failed to provide the required scientific justification to support these bans, withdraw these illegal bans immediately. It welcomed the Commission’s call for establishing practical thresholds for the adventitious presence of GM material in non-GM seed. In addition, it further called on the Commission and Member States to ensure coherence of policy between promoting research and innovation on the one hand and approving the products that are developed out of that research on the other.

See the Europabio release at <http://www.europabio.org> or contact Adeline Farrelly at a.farrelly@europabio.org.

UK STUDY SHOWS GM CROPS COULD ALTER WEED SPECIES BALANCE

A three year study commissioned by the United Kingdom government reported that in fields of transgenic winter oilseed rape (canola), the balance of weed species that thrive on British farmland could be altered causing a decrease in bees and butterflies.

As reported by Nature magazine, the project's weed-control system was pinpointed to cause this incidence. It noted that the crops are engineered to resist a particular herbicide, which hits broad-leafed weeds harder than grassy varieties. Bees and butterflies suffer because they prefer the former type of weed.

While some environmental groups said this could be a problem, Tony Combes, deputy chairman of the Agricultural Biotechnology Council said that "As with all weed-management systems, some weed and insect species will be positively affected while others may be negatively affected, but the vast majority are unaffected."

The full report is published in the Proceedings of the Royal Society B. See the Nature article in <http://www.nature.com/news/2005/050321/full/050321-2.html>

FAO RELEASES WORKSHOP PROCEEDINGS

The Food and Agriculture Association (FAO) held an international workshop on "The role of biotechnology for the characterization and conservation of crop, forestry, animal, and fishery genetic resources" last March 5-7, 2005 in Turin, Italy. Proceedings are now available online.

Covering 20 papers on applications of molecular markers, cryopreservation, and reproductive technologies, the proceedings are organized into three sessions. Session I deals with the status of the world's agricultural biodiversity, with papers covering livestock, fisheries, and forest genetic resources. Session II discusses the use of biotechnology for conservation of genetic resources, and includes papers on the use of various molecular strategies for animal and plant genetic conservation. Lastly, Session III and IV comprise the genetic characterization of populations and its use in conservation decision-making.

The workshop was organized by the FAO Working Group on Biotechnology, the Fondazione per le Biotecnologie, the ECONOGENE project, and the Società Italiana di Genetica Agraria. Download the proceedings at <http://www.fao.org/biotech/torino05.htm> or contact mail@fobiotech.org to request the proceedings by e-mail.

NEW NERICA VARIETIES ADDED

The latest batch of New Rice for Africa (NERICA) varieties were recently named by the Africa Rice Center (WARDA) Variety Nomination Committee, as based on their performance and popularity in the field. The 11 new varieties have been tested in national programs in Burkina Faso, Mali, Congo-Brazzaville and Kenya.

NERICA varieties been planted on more than 100,000 ha across Africa, including 70,000 ha in Guinea and more than 10,000 ha in Uganda. A total of 18 varieties have been characterized and named by WARDA to date, and all are suitable for the upland rice ecology of sub-Saharan Africa (SSA).

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

ICRISAT SIGNS MOU WITH LOCAL AGRI-BIOTECH FIRM

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) signed a Memorandum of Understanding (MOU) with Nandan Biomatrix Ltd., India, a local firm engaged in various agri-biotech activities such

as direct and contract farming of various herbs, aromatic plants, and bio-fuel plants. Nandan Biomatrix is also the first company to set up Horti Processing Park, in association with the Andhra Pradesh Government, to process horticultural produce for greater value addition and integration into the supply chain.

The MOU envisages collaboration on wasteland development through the raising of bio-fuel plantations, as well as research and development of superior varieties and improved agronomic practices. Apart from providing expertise and technical backstopping services, ICRISAT will also extend infrastructure support through its state-of-the-art laboratories and farm facilities.

For further information, contact V Raghavendra Prasad at p.raghavendra@cgiar.org. Visit ICRISAT at <http://www.icrisat.org>.

INCREASED PRO-VITAMIN A CONTENT IN RICE

Scientists from Syngenta reported improving the nutritional value of Golden Rice through increased pro-vitamin A content. Golden rice is a variety of rice engineered to produce beta-carotene (pro-vitamin A) to help combat vitamin A deficiency. They were able to increase total carotenoids by up to 23-fold compared to the original Golden Rice and a preferential accumulation of beta-carotene.

Jacqueline Paine and colleagues noted in an article in Nature Biotechnology that the daffodil gene encoding phytoene synthase (psy), one of two genes used to develop Golden Rice, was the limiting step in beta-carotene accumulation. Through systematic testing of other plant psys, they were able to identify a psy from maize that substantially increase carotenoid accumulation in a model plant system. They were then able to develop Golden Rice 2 by introducing this psy in combination with the Erwinia uredovora carotene desaturase used to generate the original Golden Rice.

For more information email co-author Rachel Drake at Rachel.drake@syngenta.com or read the March 27, 2005 article at Nature Biotechnology.

ALUMINANT-TOLERANT WHEAT

High aluminum levels in soil, which is present in almost 40 percent of the world's arable land, make it difficult to grow wheat. J. Perry Gustafson of the U.S.

Agricultural Research Service hopes to solve this problem by developing wheat that is more aluminum-tolerant by using a gene from rye.

Gustafson and colleagues discovered that the Alt3 in rye makes it tolerant to aluminum. They physically mapped the rye gene to enable its transfer into wheat by marker-assisted selection and breeding. Due to gene similarity, they studied available DNA sequence and gene map of rice to find out where the aluminum-tolerance candidate gene is located.

Gustafson's group was able to narrow the gene's location to a tiny region in rice, but it has not been able to utilize the rice DNA sequence to find the Alt3 gene in rye. Notwithstanding this, Gustafson found that rice is a great source of DNA markers that can be used to map the rye genome.

See the full article in the journal Theoretical and Applied Genetics or for the press release version from the ARS visit <http://www.ars.usda.gov/news>.

DOCUMENT REMINDER

Pocket K No. 17 on Genetic Engineering and GM Crops is now available online at <http://www.isaaa.org/kc>. It discusses the differences between conventional breeding and genetic engineering (GE), the application of GE in crop production, development of transgenic crops, and new and future initiatives in crop GE.

Pocket Ks are Pockets of Knowledge, packages information on crop biotechnology products and related issues. They are produced by the Global Knowledge Center on Crop Biotechnology of the International Service for the Acquisition of Agri-biotech Applications. Sixteen other topics are all available at <http://www.isaaa.org/kc>.

CBT NEWS FEATURE: The International Plant Genetic Resources Institute (IPGRI)

Founded in 1974, the International Plant Genetic Resources Institute (IPGRI) is the world's largest international institute dedicated solely to the conservation and use of plant genetic resources. The Institute is staffed by a network of 300 individuals working in 22 offices around the world. Its headquarters are in Maccarese (Fiumicino), Italy, on the outskirts of Rome.

IPGRI supports research on the use and conservation of agricultural biodiversity, especially genetic resources, to create more productive, resilient and sustainable harvests. Its work aims to allow people to use agricultural biodiversity for sustainable livelihood - one which would entail more food, better nutrition, higher income, and environmental sustainability, especially for those in developing countries.

Its main goals include demonstrating the social, economic and environmental benefits of agricultural biodiversity; ensuring that agricultural biodiversity is conserved, characterized, and used to improve productivity; generating knowledge about agricultural biodiversity through research, and making such knowledge available on the public domain; developing human and institutional capacity to conserve and make effective and sustainable use of agricultural biodiversity; analyzing policies and fostering an environment that supports the conservation and use of agricultural biodiversity; and raising awareness of the values of agricultural biodiversity and the importance of the conservation of genetic resources.

To date, IPGRI has sponsored over 550 germplasm collecting missions in 136 countries. Many national genebanks have been established with the Institute's assistance, and more than 2000 national scientists have been trained. Over 150 countries now participate in the 50 or so networks whose development has been supported by IPGRI. Through its research, IPGRI has contributed to a better understanding of genetic diversity and to major advances in conservation strategies and methods, especially in such areas as in vitro conservation and ultra-dry seed storage.

Dr. Emile Frison, former director of the International Network for the Improvement of Banana and Plantain (INIBAP), one of IPGRI's three programmes, is IPGRI's current Director General. IPGRI is a center of the Consultative Group on International Agricultural Research (CGIAR).

For more information, visit IFPRI at <http://www.ipgri.org>.

ANNOUNCEMENTS

EMAIL CONFERENCE ORGANIZED BY FAO

The Food and Agriculture Association (FAO) has organized an email conference on Biotechnology and the characterization/conservation of genetic resources, where discussions will center around the role that biotechnology can play in the

characterization and conservation of crop, animal, forestry, and fishery genetic resources in developing countries.

The conference is open to the public, and will be free and moderated. Sessions begin on May 30, 2005, and will run until the 26th of June. All messages will be posted on the forum's website at <http://www.fao.org/biotech/forum.asp>. To join, send an e-mail to mailserv@mailserv.fao.org by leaving the subject blank and entering the following text on two lines: <line 1> subscribe; <line 2> BIOTECH-L subscribe biotech-room1. For more information, contact biotech-mod1@fao.org.

SYMPOSIUM ON NATURAL PRODUCTS SLATED IN COLOMBO

The Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre), in association with the Institute of Chemistry, Ceylon, Colombo, and the National Science and Technology Commission (NASTEC) of Sri Lanka, present a symposium on "Herbal Medicine, Phytopharmaceuticals, and Other Natural Products: Trends and Advances." The symposium will be held in Colombo, Sri Lanka, on the 15th to the 17th of June, 2005.

The gathering will broadly address current trends and advances in herbal medicine, phytopharmaceuticals, and other natural products that have taken place in academia as well as industry, with particular emphasis on technological innovations in the spice and herbal industry in developing countries.

The last date for submission of nomination forms is on May 16, 2005. For further inquiries, contact namstct@vsnl.com, or visit <http://www.namstct.org>.

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