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)

May 20, 2005

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MALAYSIA UNVEILS NATIONAL BIOTECH POLICY

A detailed roadmap for biotechnology development in Malaysia was recently launched by Prime Minister Dato' Seri Abdullah Badawi. It is expected to give impetus to the biotechnology sector in Malaysia as it addresses vital aspects of biotechnology development such as legal, safety, financial, and other issues.

The policy spells out nine development thrusts: agriculture biotechnology, health care biotechnology, industrial biotechnology, R&D and technology acquisition, human capital, financial infrastructure development, and a legislative and regulatory framework. A priority thrust will be to transform and enhance the value creation of the agricultural sector through biotechnology.

With a policy in place, the biotechnology sector in Malaysia is expected to move in the right direction. Government estimates that by 2020, this sector would create 280,000 jobs and contribute five per cent to the country's Gross Domestic Product. Total investment under the National Biotechnology Policy is expected to be around RM30 billion (US$7.9 billion).

For more information, contact Mahaletchumy Arujanan of the Malaysia Biotechnology Center at maha@bic.org.my.

GM FRUIT FUTURE DISCUSSED IN REPORT

Cesar Petri and Lorenzo Burgos of Spain's Applied Biology of the Segura-High Council of Scientific Research (CEBAS-CSIC) discuss "Advances And Future Perspectives In Fruit Tree Transformation," taking stock of research conducted on fruit tree genetic engineering while looking at future perspectives and advances in the field. Their work appears in the latest issue of the Information Systems for Biotechnology News Report.

Temperate fruit trees, such as oranges, have long reproductive cycles (and long juvenile periods), complex reproductive biology, and a high degree of heterozygosity, making conventional breeding difficult. In recent years, gene transfer has been conducted on such fruit trees, with work resulting in (or aiming to effect) fire blight and scab resistant apples and pears, grapes resistant to fungi and viruses, and persimmons and walnuts resistant to lepidopteran pests, among others.

The authors see more genetic transformation techniques for fruit trees emerging in the future, such as methods using only marker genes and integration of putative beneficial genes, eliminating selection genes from the transformed plants, or avoiding selection of transformed cells with antibiotics.

Download the complete article at http://www.isb.vt.edu/news/2005/news05.may.html#may0502.

WORK ON NEW TRANSGENIC RICE REPORTED

Tayyab Husnain of the National Center of Excellence in Molecular Biology, Lahore, Pakistan, reports on his work on "Transgenic Basmati Rice," in an article that appears in the latest Information Systems for Biotechnology News Report.

Husnain and colleagues disclose their work on the first field trial of two transgenic lines of Indica Basmati rice (B-370) expressing either the cry1Ac or cry2A genes, which render the lines resistant to lepidopteran pests. With all biosafety precautions taken, and the presence of the genes in the lines confirmed, researchers found that the transgenic rice lines expressed higher levels of Cry proteins when compared with commercially released cultivars of Bt cotton, maize, and potato; gene expression was constitutive, or present in different parts of the plants; and the transgenic lines had no effect on the presence of non-target insects nor on the germination of three local varieties of wheat.

Read more at http://www.isb.vt.edu/news/2005/news05.may.html#may0503.

PUBRESREG INITIATIVE PREPARES FOR MOP2

The Public Research and Regulation Initiative recently updated its documents and statements, all in preparation for the coming gathering of public research scientists in the Second meeting of the Conference of the Parties, which will serve as the meeting of the Parties to the Cartagena Protocol on Biosafety (MOP2). The event will take place in Montreal, Canada, from May 30 to June 3 of this year.

A preparatory meeting under the Initiative will take place the weekend before MOP2. Two side events will also be held during the meeting, which are aimed at updating the negotiating officials about the ongoing work in the public research sector.

The Initiative will also participate as observer in the Second Meeting of the Parties to the Aarhus Convention, which will be held from 22 – 27 May, 2005, in Almaty, Kazachstan. A draft statement has been made available at its website.

For more information, as well as the documents, visit http://www.pubresreg.org

NEW DNA TEST TO IDENTIFY FUSARIUM HEAD BLIGHT IN GRAINS

Scientists from the US Department of Agriculture Agricultural Research Service (USDA ARS) in Peoria, Illinois have developed a new DNA-based test which can more easily identify fungi that cause Fusarium head blight in cereal grains.

With this technology, all of the major head blight pathogens can be simultaneously identified, and their toxin profiles predicted. It is also being eyed as a possible means to understand the worldwide distribution of these pathogens, and to determine if individual pathogen species have specific preferences of crops or environments. The information garnered is vital to the development of disease control methods, which includes the creation of cereal cultivars resistant to Fusarium head blight pathogens.

The test spots nucleotide variations that are unique to each species of blight. The scientists also use DNA “probes,” which are labeled with fluorescent dyes and designed to bind to the DNA of a head blight sample. Results can be observed by a special camera and a high-power laser. This results to the identification of a certain head blight pathogen and its toxin potential.

See the full news report on http://www.ars.usda.gov/news/docs.htm?docid=1261

‘BLACK ROT’ DISEASE GENES REVEALED

The complete genome of the pathogenic bacterium *Xanthomonas campestris* pathovar *campestris* (Xcc) was sequenced by scientists from four major genomics and plant patholology laboratories in China. Xcc causes “black rot” disease, the most serious disease of vegetable crops. They used whole-genome comparative genomic approaches.

Xcc spreads through plant vascular tissues, causing veins of leaves to turn yellow and black, and leaving V-shaped lesions along leaf margins. Some plants that may be affected by Xcc are broccoli, Brussels sprouts, cabbage, cauliflower, kale, mustard, and radish.

Seventy-five (75) different genes for Xcc virulence were identified in the study. These were shown to belong to 13 different functional categories or related metabolic pathways. The researchers hope that these results may lead to the formulation of a treatment for “black rot” disease.

The study is published online in the journal Genome Research.

For details of the study, visit http://www.genome.org

CBT NEWS FEATURE: The International Rice Research Institute (IRRI)

“Rice science for a better world” is helping farmers in developing countries produce more food despite having limited land and using less water, labor, and chemical inputs, while at the same time preserving the environment. This is the thrust of the International Rice Research Institute (IRRI).

IRRI is an autonomous, nonprofit, agricultural research and training center established in 1960 by the Ford and Rockefeller Foundations in cooperation with the Philippine government. Its headquarters are located in Los Baños, Laguna, Philippines, with offices in other countries.

The institute aims to improve the well-being of present and future generations of rice farmers and consumers, with focus on those with low income. Its objectives are to produce and circulate rice-related knowledge and technology of short- and long-term environmental, social, and economic benefit to help and enhance national rice research and extension systems.

IRRI’s strategy is comprised of five interdisciplinary research programs. These are anticipatory research initiatives exploring new scientific opportunities; conservation and responsible use of natural resources; sharing of germplasm, technologies, and knowledge; participation of women in research and

development; and partnerships with farmers, farming communities, research institutions, and other organizations that share their goals. The principles that guide their research agenda are poverty alleviation, sustaining natural resources in spite of increasing populations, fast-tracking scientific and technological interventions, fostering research and development linkages, and reducing costs in program implementation.

IRRI has a core of scientific and support staff, 50 of whom are internationally-recruited scientists. A number of these scientists are also posted to other rice-producing countries such as Cambodia, India, Indonesia, Japan, Lao PDR, China, and Thailand. The institute is governed by an independent Board of Trustees, headed by Director General Robert Zeigler.

IRRI is backed by the Consultative Group on International Agricultural Research (CGIAR), of which it is part. The CGIAR is co-sponsored by the Food and Agriculture Organization of the United Nations (FAO), International Fund for Agricultural Development (IFAD), the United Nations Development Program (UNDP), and the World Bank. IRRI is also supported by governments, agencies, and foundations.

The institute is contributing its efforts towards meeting six of the United Nations Millennium Development Goals, and these are to eradicate extreme poverty and hunger, achieve universal primary education, promote gender equality and empower women, reduce child mortality, improve mental health, and ensure environmental sustainability. IRRI also faces the future challenge of addressing the adverse effects of intensive rice cultivation on natural resources and the environment.

For more information, visit http://www.irri.org

DOCUMENT REMINDERS

SYNGENTA RELEASES BT10 STATEMENTS

Syngenta has released its statements regarding its genetically modified (GM) corn variety Bt10, reporting that there are no safety concerns regarding its use, and that the company will continue to cooperate with all government authorities regarding the issue. This is due to recent reports of unauthorized release of the corn variety in the European Union (EU). Download the statements at http://www.syngenta.com/en/news/bt10_docs.aspx. Also available for download are a brief backgrounder on Bt10 Maize, as well as the EU's detection and certification methods.

Syngenta's GM maize varieties continue to be commercialized around the world. In the Philippines, for instance, Bt11 was recently approved, making it the third biotech crop successfully tested for safety and efficacy, and released for commercial use in the country (and not the second, as was earlier reported).

INSTRUCTIONS PUBLISHED FOR STRIGA FIGHT

Ua Kayongo is the latest hybrid maize designed to fight Striga, a parasitic weed prevalent in African countries. Ua Kayongo seeds are coated with the Strigaway herbicide (and not the maize itself, to clarify a related article in last week's Update) and will be distributed by the African Agricultural Technology Foundation (AATF), in partnership with several NGOs, research organizations, and seed companies. A field testing package, field instructions, and press releases may be accessed at the African Crops Net site.

The instructions, as well as other relevant documents, may be downloaded at http://www.africancrops.net/striga/

LIST OF APPROVED BY COTTON HYBRIDS IN SELECTED ZONES IN INDIA

A fact sheet on approved Bt cotton hybrids for India has been released, detailing which varieties have been approved for the Central, Northern, and Southern Zones for the year. For a complete list of approved Bt cotton hybrids in India, go to http://www.isaaa.org/kc.

AFRICABIO CALLS FOR HIGHER YIELDING MAIZE

Africa needs higher yielding maize and other grain crops to meet its food requirements. Agricultural biotechnology is one of the technologies that can be used to increase maize production, Professor Jocelyn Webster said, as she spoke before the South African National Consumer Union’s general meeting in Pretoria.

Professor Webster is executive director of AfricaBio, an organization for stakeholders in the GMO industry. For more, download the press release at http://www.isaaa.org/kc

ANNOUNCEMENT: NEW OPEN ACCESS E-JOURNAL LAUNCHED

An open access electronic “Journal of Land and Water” has recently been launched, with the aim of publishing scientific papers of international significance covering basic, applied, and strategic research in the area of land and water. The journal is also peer reviewed and will focus on the integration of the various aspects of land and water management and conservation at a range of scales.

Submissions of manuscripts are welcomed and should be sent through the on-line submission section of the journal at http://ejlw.sakia.org/. For more information, contact Thomas M. Stein at thomas-manuel.stein@sakia.org.

Do not hesitate to tell other colleagues/contacts about this mail list. If they wish to join, they should send an e-mail message to knowledge.center@isaaa.org leaving the subject blank and entering the one-line text message as follows: SUBSCRIBE Crop Biotech Network

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