CROPBIOTECH 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)

January 20, 2006

In This Week's Issue:

News
- Viet Scientists Produce GM Rice
- Vietnam to Invest in Biotech
- Ghana Biotech Assessed in Presscon
- Soybean Genome Next to be Sequenced
- EU to Support Promotion of Agri Products
- Small Farmers Benefit from Biotech Crops
- Blueprint for Development of Plant-Derived Vaccines

Research
- Outcross of GM Canola Explored
- Bt Cotton Checked for Efficacy
- Protein Profiles Used to Evaluate GM Potato

Document Reminder: Updated Pocket K 16 Now Available

NEWS

VIET SCIENTISTS PRODUCE GM RICE

The Vietnam News Agency reports that scientists from the Cuu Long Delta Rice Research Institute (CLRRI) have been able to create a nutritious rice variety through genetic modification. This was accomplished by work on three existing varieties of rice: IR64, MT1250 (indica), and Taipei 309 (japonica).

The rice breed is insect resistant and easy to plant. It is also rich in Vitamins A and E, iron, zinc, and oryzanol, and will be planted in remote and disadvantaged areas of the country to raise the quality of nutrition in local communities.

With reports from the Vietnam News Agency and Toui Tre News at **http://www.tuoitre.com.vn.** For more information, contact Le Hien of the Vietnam Biotechnology Information Center (VnBIC) at hienbiotechvn@pmail.vnn.vn or visit **http://www.agbiotech.com.vn.**

VIETNAM TO INVEST IN BIOTECH

Phan Van Khai, Vietnam's Prime Minister, has approved a program to develop the country's biotechnology sector, and to aid it in applying the field in agriculture and rural development. This program will continue until 2020, and involves an investment of 1 trillion Vietnam Dong (US$ 62.9 million) for 2006-2015.

The investment will be used for research activities, trial production runs of major products, and human resource training. The program plans to train doctors, higher-degree holders, and agricultural biotechnologists; and aims to have 70% of land under cultivation used for new varieties of biotech plants, with 30-50% of the acreage reserved for genetically modified (GM) plants by 2020.

With reports from Sai Gon Liberation Daily, Vietnam News Agency, and Vietnam Net Bridge at **http://english.vietnamnet.vn/.** For more information, contact Le Hien of the Vietnam Biotechnology Information Center (VnBIC) at hienbiotechvn@pmail.vnn.vn or visit **http://www.agbiotech.com.vn.**

GHANA BIOTECH ASSESSED IN PRESSCON

Ghana can develop its own genetically modified (GM) seeds, but “the public sector must be ready to absorb the cost.” This was stated by Dr. Walter Alhassan, coordinator for the Program for Biosafety Systems (PBS) in West and Central Africa, during the press conference for the release of the International Service for the Acquisition of Agri-biotech Applications' (ISAAA) Annual Report on GM Crops.

Speaking in Ghana's capital, Accra, Dr. Alhassan also announced that Ghana would host this year's West Africa Ministerial Conference on Biotechnology. This, Dr. Alhassan said, was due to the country's contributions to and interest in the field. Dr. Alhassan also encouraged Ghana's Ministries of Environment and Science, and Food and Agriculture to speed up the approval process of Ghana's National Biosafety Law, which is currently before Ghana's cabinet.
Also speaking at the conference was National Biosafety Project Coordinator Alex Owusu-Biney, who said that the United Nationas Environment Program (UNEP) is considering an additional four years of support to help in the Law's implementation.

With reports from Ghana Today and Public Agenda news at http://news.africast.com/africastv/article.php?newsID=57568. For more information, contact Dr. Walter Alhassan at WAlhassan@fara-africa.org.

SOYBEAN GENOME NEXT TO BE SEQUENCED

The U.S. Departments of Agriculture and Energy announced they will share resources and coordinate the study of plant and microbial genomics. First on the list is the sequencing of the soybean genome, of particular interest to the Department of Energy, as soybean is the principal source of biodiesel, a renewable, alternative fuel.

"Both agencies will leverage their expertise and synergize activities involving agricultural- and energy-related plants and microbes," said Dr. Ari Patrinos, Department of Energy Associate Director of Science for Biological and Environmental Research. "We will enhance coordination of proposed sequencing projects through the Biological and Environmental Research Microbial Sequencing Program or the Joint Genome Institute's Community Sequencing Program."

The DOE Joint Genome Institute (DOE JGI) will carry out the sequencing work. The institute is supported by the DOE Office of Science, and unites the expertise of five laboratories along with the Stanford Human Genome Center.

Read the press release at http://www.energy.gov/news/2979.htm.

EU TO SUPPORT PROMOTION OF AGRI PRODUCTS

The European Commission (EC) has approved 25 agriculture-related programs in a number of its member states to provide information on and to promote agricultural products in the European Union (EU). The total budget of the programs is € 51 million, of which the EU will contribute half.

The programs cover organic products, agricultural quality products, oils, milk, cheese, meat, wine, fruit and vegetables, flowers, and potatoes; originate from Belgium, Germany, Greece and Cyprus, Spain, France, Italy, Hungary, Austria, the Netherlands, Poland, Sweden, Finland, and the United Kingdom; and will run between one to three years.

Read the press release at http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/06/22&format=PDF&aged=0&language=EN&guiLanguage=en.

SMALL FARMERS BENEFIT FROM BIOTECH CROPS

The high adoption rate by 8.5 million farmers worldwide who are planting biotech crops reflects the consistency of the technology in delivering significant economic, environmental, health, and social benefits to both small and large farmers in developing and industrial countries. This was stressed by Dr. Clive James, chair of the International Service for the Acquisition of Agri-biotech Applications (ISAAA) in his report on the global status of commercialized biotech/GM crops in 2005.

James added that ninety percent of these farmers are resource-poor farmers mostly planting Bt cotton in China, India, and South Africa; subsistence farmers cultivating maize in the Philippines; with the balance in the other developing countries where biotech crops were planted in 2005.

The global number and proportion of small farmers from developing countries growing biotech crops are expected to increase dramatically early in the next decade (2006-2015). A similar trend will apply to the less affluent and more agriculturally based countries of Eastern Europe such as Czechia, which has recently joined the European Union; and those expected to join in 2007 and beyond, such as Romania.

For more of the global status of commercialized biotech/GM crops in 2005, visit http://www.isaaa.org/kc.

BLUEPRINT FOR DEVELOPMENT OF PLANT-DERIVED VACCINES

A Blueprint for the Development of Plant-derived Vaccines, which demonstrates that the development of plant-derived vaccines is both straightforward and achievable, was developed by the BioDesign Institute of Arizona State University, USA. Prepared with funding from the Rockefeller Foundation, the Blueprint is based on a series of international consultations.

Richard T. Mahoney, research professor of BioDesign Insitute, says that “plants offer a potentially very important means to produce vaccines that are affordable, heat stable, orally administered, and readily produced in developing countries.”

For more information on the Blueprint, visit http://www.biodesign.asu.edu/centers/idv/projects/provacs or email Richard Mahoney at rmahoney@pdvi.org. Related documents are available at http://www.provacs.net.

RESEARCH

OUTCROSS OF GM CANOLA EXPLORED

According to European Union (EU) rules, foods containing less than 0.9% genetically modified (GM) ingredients need not be labeled as containing GM, provided that this presence is “adventitious or technically unavoidable during seed production, cultivation, harvest, transport, or processing.”

In relation to this, Tristan Funk of Technische Universität, München, Germany and colleagues look at “Outcrossing frequencies and distribution of transgenic oilseed rape (Brassica napus L.) in the nearest neighbourhood.” Their research, published in the January 2006 of the European Journal of Agronomy, focused on the possibility of GM canola outcrossing into nearby non-GM plants, and arose out of work on a two-year field trial.

By checking on the resistance of plants in surrounding acceptor plots, researchers found, among others, that 1) an average gene flow of 0.28%, 0.01%, and 0.0065% was detected for 100%, 1.0%, and 0.1% transgenic donor plots, respectively, clearly below the EU labeling threshold of 0.9%; 2) outcrossing events in short distances are mainly due to insects, such as honey bees and wild bumblebees; 3) a separation distance as low as 1.1m would already be sufficient to comply with the EU threshold.

Subscribers to the European Journal of Agronomy can read the complete article at http://dx.doi.org/10.1016/j.eja.2005.04.002.

BT COTTON CHECKED FOR EFFICACY

The Asian corn borer is an important pest of cotton in China, and is, moreover, difficult to control. Spraying it with pesticides is a short-term solution, as larvae are vulnerable only a short time before they tunnel into the cotton's stalks, squares, and bolls, and are protected.

To test the “Efficacy of transgenic Bt cotton for resistance to the Asian corn borer (Lepidoptera: Crambidae),” Kanglai He of the Chinese Academy of Agricultural Sciences and colleagues evaluated transgenic varieties NC 33B, expressing the Cry1Ac protein; and a Chinese transgenic Bt cotton GK-2, expressing the Cry1A protein for resistance to the borer during the 2001-2002 season. Their findings appear in the February 2006 issue of Crop Protection.
Researchers found, among others, that 1) low larval survival rates were observed on NC 33B and GK-2, contrasting greatly with the high number of survivors found on non-Bt cotton tissue; 2) larval survival was higher on the tissues isolated from

late-season Bt cotton plants than on early season; and 3) higher larval survival was observed on GK-2 than NC 33B in assays with the late season tissues.

Subscribers to Crop Protection can read the article at http://dx.doi.org/10.1016/j.cropro.2005.04.003

PROTEIN PROFILES USED TO EVALUATE GM POTATO

Food safety experts always ask how much genetic variation can occur in a crop plant upon transfer and integration of a single gene, and how this may affect the plant's safety as a food product. These so-called “unintended effects” cover the realm of protein quantities, and are measured in “Proteomic Profiling and Unintended Effects In Genetically Modified Crops,” an article written by Sirpa O. Kärenlampi and Satu J. Lehesranta for the January issue of the Information Systems for Biotechnology News Report.

Researchers carried out protein profiling on eight lines of genetically modified (GM) potato (including controls each containing only a vector, and no gene), and compared the resulting profiles with conventional cultivars. They found, among others, that 1) Nine of 730 proteins showed statistically significant differences among the GM lines and controls, 2) no new proteins that would be unique to the individual GM lines were observed, and 3) variation between the non-GM cultivars was much greater than the differences between the GM lines. Proteins which contributed to the uniqueness of individual non-GM lines appeared to be involved in disease and defense responses, sugar and energy metabolism, or protein targeting and storage.

Read more at http://www.isb.vt.edu/news/2006/news06.Jan.htm. For more information, contact Sirpa O. Kärenlampi and Satu J. Lehesranta at skarenla@messi.uku.fi.

DOCUMENT REMINDER

UPDATED POCKET K 16 NOW AVAILABLE

The updated Pocket K No. 16 on the Global Status of Commercialized Biotech/GM Crops: is now available online at http://www.isaaa.org/kc/Publications/htm/pocketks/pocketk16_rev05.htm**.** It presents a condensed version of this year's Annual Review, as well as highlights from the publication which may be important to researchers and media persons. Pocket Ks are Pockets of Knowledge, packages of information on crop biotechnology products and related issues. They are produced by the Global

Knowledge Center on Crop Biotechnology (KC) of the International Service for the Acquisition of Agri-biotech Applications (ISAAA). Twenty other topics are available at http://www.isaaa.org/kc.

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

To stop receiving this newsletter, please send an e-mail message to knowledge.center@isaaa.org and write, "unsubscribe newsletter" in the subject box.

Please visit CropBiotech Net web pages (**http://www.isaaa.org/kc)** to view previous issues of this newsletter and see other available resources for download.

While we are still developing this site, feel free to e-mail (knowledge.center@isaaa.org) us for your views and comments on any crop biotechnology product and related issues.

Copyright (c) 2006. CropBiotech Net.