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)

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NEWS

EUROPEAN INITIATIVE TO HELP DEVELOP BIOTECH

The Young Innovative Company (YIC), a project supported by France Biotech and EuropaBio, and funded by the European Commission, is expected to encourage the development of biotechnology and could help counter opposition to genetically modified crops in Europe. Biotech associations from Sweden, Finland, Norway, and Estonia have joined this initiative, which is aimed at creating and developing globally competitive R & D-driven companies.

The YIC status can help develop small companies through social cost and tax exemptions by allowing them to reinvest the savings in R & D. France was the first country to adopt a YIC-based fiscal regime, exempting companies up to eight years from taxes and social contributions.

More on this initiative from http://www.nutraingredients-usa.com/news/ng.asp?n=64052-biotech-gm-crops

EC ALLOWS DENMARK TO COMPENSATE LOSS DUE TO GMO PRESENCE

The European Commission has authorized Denmark to pay compensation to farmers with conventional or organic crops that suffer economic losses when genetically modified (GM) material is found. The compensation will be granted only if the presence of GM material exceeds 0.9 % and is limited to the price difference between the market price of a crop that has to be labeled as containing GM material and a crop for which no such labeling is required. The compensation is financed by obligatory contributions from farmers who cultivate GM crops.

Economic losses may occur due to admixture of conventional crops with GM material if a farmer's product has to be labeled as containing GM material and he gets a lower price for them. The compensation fund will be replaced by private insurance as soon as it is available. The duration of the compensation scheme is limited to 5 years.

For further information, visit http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/05/1458&format=HTML&aged=0&language=EN&guiLanguage=en.

ISRAEL COMMITS $30 M TO BIOTECH RESEARCH

The National Institute of Biotechnology in the Negev (NIBN) of the Ben-Gurion University in Israel will receive $30 M from the Israeli government to speed track research. This is part of the $3.6 B 10-year development plan to develop the Negev region. Vice Prime Minister and Minister of Finance Ehud Olmert said that the NIBN is expected to get a $90 research fund.

Swiss banker Edgar de Picciotto provided the incentive, financial support and vision to establish the NIBN. The research institute was established to create a more effective academic platform for an applied biotechnology industry in the Negev in particular and in Israel in general.

See the full article in
http://www.globes.co.il/serveen/globes/DocView.asp?did=1000031548

BORLAUG WINS THE NATIONAL MEDAL OF SCIENCE

Dr. Norman Borlaug, of Texas A&M University, and Father of the Green Revolution, was one of this year's recipients of the National Medal of Science, the United States' highest honor for science and technology. Awarded by the National Science Foundation, the award is honored yearly to individuals for pioneering scientific research in a range of fields, including physical, biological, mathematical, social, behavioral, and engineering sciences.

Other recipients were Kenneth J. Arrow, economist, from Stanford University; Robert N. Clayton, geochemist, from the University of Chicago; Edwin N. Lightfoot, chemical engineer, University of Wisconsin-Madison; Stephen J. Lippard, chemist, Massachusetts Institute of Technology, Cambridge; Phillip A. Sharp, Nobel Laureate in Physiology or Medicine, Massachusetts Institute of Technology; Thomas E. Starzl, "Father of Transplantation," from the University of Pittsburgh School of Medicine; and Dennis P. Sullivan, mathematician, State University of New York at Stony Brook.

For more information about the National Medal of Science visit http://www.nsf.gov/nsb/awards/nms/medal.htm. See the full list at http://www.whitehouse.gov/news/releases/2005/11/20051114-5.html

ASIA NEEDS EDUCATION AND CAPACITY BUILDING FOR BIOTECH

Multi-partner collaboration is necessary for technology to move forward as "a relay race where development of technology, taking it through the regulatory process, preparing the system, including farmers, for its safe and suitable use and market access should be taken with equal importance." This was forwarded by Purvi Mehta-Bhatt and colleagues in "An overview of regulation, perceptions and priorities for GM crops in Asian countries" published in the Vol. 7, No. 3 issue of the Asian Biotechnology and Development Review.

The article notes that while investments in research are important, equal attention must be given to education and capacity building efforts so that the products of research reaches its beneficiaries. Yet delays in events and policies can mean rising costs, lack of impact at the rural level, regulatory requirements in need of clarification, loss of confidence among the stakeholders, and more direct accountability. These emerging concerns must therefore be addressed to hasten impact.

More on the Asian Biotechnology and Development Review at http://www.ris.org.in/abdr.html

VIETNAM SEEKS COOPERATION WITH U.S. ON HI-TECH INDUSTRIES

Vietnam is keen on enhanced cooperation with the United States in such areas as communications, new materials, automation, biotechnology, and applicable technologies in agriculture, healthcare, and the environment. This was stressed by Deputy Minister of Science and Technology Bui Manh Hai during an interview with the Vietnam News Agency in Hanoi on the occasion of the Vietnam-US Science and Technology Day.

Bui Manh Hai noted that Vietnamese scientists expect to work with their American counterparts in creating new animal and plant strains, and developing other cutting-edge technologies in the agricultural sector. He affirmed Vietnamese scientists' capability to work on advanced technologies. About 65 joint projects have already been conducted between the two countries.

Email Le Hien of Biotech Vietnam at hienbiotechvn@pmail.vnn.vn for other news summaries on biotechnology.

RECOMMENDATIONS FOR BIOTECH PRODUCT DEVT IN EAST AFRICA

Key challenges continue to be faced by small-scale farmers in the access of technology. John Komen and colleagues in "Biotechnology product development partnerships: emerging institutional capacities in East Africa" recommend that East Africa should consider the following concerns for potential future efforts in research, training, and policy advocacy:

* Developing and implementing clear national policies, legal framework, and regulatory guidelines for biotechnology R & D

* Strengthening of the local private sector

* Financial incentives to promote private sector investment in R & D programs

* Introducing organizational reforms in public organizations to facilitate R & D partnerships

* Designing capacity building and awareness programs to stimulate entrepreneurship and business development

The article, published in the Vol. 7, No. 3 issue of the Asian Biotechnology and Development Review, summarizes a series of studies conducted in East African

countries to analyze product development in biotechnology, including public and private sector roles and interactions.

Read more of the Asian Biotechnology and Development Review at http://www.ris.org.in/abdr.html

ASADI TO STRENGTHEN SCIENCE ACADEMIES IN AFRICA

The African Science Academy Development Initiative (ASADI) recently held its first annual conference in Nairobi, Kenya. Entitled “Harnessing Science and Technology Capacity,” the conference included public sessions, and brought together 150 African academicians, government officials, and outside experts. ASADI was established in 2004 to strengthen African academies' ability to inform government policy-making and public discourse with independent, evidence-based advice. The initiative is supported by a $20 million grant from the Bill & Melinda Gates Foundation and administered by the U.S. National Academies. It will be carried out in Africa over the next decade, focusing on efforts to improve human health.

The initial focal points for the initiative are the science academies of Nigeria, Uganda, and South Africa. Strategic planning grants will also be given to the science academies of Cameroon, Senegal, Ghana, and Kenya, as well as the regional African Academy of Sciences.

Read all about the initiative at http://www.nationalacademies.org/nairobi/

RESEARCH

PAPER DOCUMENTS PLANT DERIVED TRANSFER DNA

Introducing foreign DNA to plant cells may be undertaken through a variety of methods, one of them being the use of transfer DNA. One such kind is Agrobacterium-mediated transfer, wherein a Ti plasmid derived from a plant pathogen is used to allow a foreign gene to integrate into the plant host’s genome.

In an effort to develop “Plant-Derived Transfer DNAs,” Caius M. Rommens and colleagues from Simplot Plant Sciences searched through DNA databases for sequences in plants which matched those in transfer DNAs, and which could possibly be used as alternatives to Agrobacterium. Their work appears in the latest issue of Plant Physiology.

Through isolation of the fragments and subsequent transformation of tobacco cells, researchers described such alternatives from both dicotyledonous (potato, tomato, pepper, alfalfa, and Arabidopsis) and monocotyledonous (rice, barley, and wheat) plant species. Efficacy tests showed that 14 of the elements they found displayed at least 50% of the activity of conventional Agrobacterium transfer DNA.

With their work, researchers were also able to construct an all-native alfalfa transfer DNA vector that can be used for the production of intragenic plants.

Subscribers to Plant Physiology may read the article at http://www.plantphysiol.org/cgi/content/full/139/3/1338.

Other readers may still view the abstract at http://www.plantphysiol.org/cgi/content/abstract/139/3/1338

RESEARCH FINDS APHID RESISTANCE IN CHINESE SOYBEAN CULTIVARS

The soybean aphid is a major pest of the crop, and is difficult to control and remedy. There are currently no commercial cultivars with resistance to the pest, but headway has been made in the latest issue of Crop Science, where Clarice Mensah of Michigan State University, and colleagues, document the “Resistance to Soybean Aphid in Early Maturing Soybean Germplasm.”

Soybean aphids can transmit viruses such as Alfalfa mosaic virus, Soybean mosaic virus, and Bean yellow mosaic virus. To identify sources of resistance to such a pest, researchers evaluated 2,147 soybean accessions originally from northern China by hand inoculating them with aphid populations, and evaluating them 10 days after. After two years of evaluation, researchers found that four accessions from Shandong province, PI 567543C, PI 567597C, PI 567541B, and PI 567598B, were resistant to the soybean aphid.

Researchers hope that these strains can be incorporated to soybean germplasm in order to develop commercial cultivars with aphid resistance for use in the United States.

Subscribers to Crop Science may read the complete article at http://crop.scijournals.org/cgi/content/full/45/6/2228

HIGH CALCIUM MEANS LONGER SHELF LIFE FOR TOMATO

Calcium is an essential mineral to plants, and without it, most tissues can be rendered susceptible to parasitic diseases during storage. Such problems with

calcium in plants can be traced to the soil – and such problems may be alleviated by engineering high expression of calcium transporters and binding proteins into plant cells.

Sunghun Park of Texas A&M University, and colleagues report on “Increased Calcium Levels and Prolonged Shelf Life in Tomatoes Expressing Arabidopsis H+/Ca2+ Transporters” in the latest issue of Plant Physiology. They evaluate plant growth and development after introduction of the traits, and see how increased calcium can affect a plant’s morphology.

By transforming tomato plants with either sCAX1 or CAX4, two Arabidopsis genes, researchers found that tomato fruits had higher levels of calcium and prolonged shelf life. Plants expressing sCAX1, however, had altered plant development and morphology. The CAX4 plants, on the other hand, although expressing calcium at lower levels, showed no remarkable changes in plant growth. In either case, there were no significant increases of other plant minerals, such as iron, magnesium, and zinc, as compared with controls.

Subscribers to Plant Physiology can access the complete article at http://www.plantphysiol.org/cgi/content/full/139/3/1194.

Other readers may still view the abstract at http://www.plantphysiol.org/cgi/content/abstract/139/3/1194

ANNOUNCEMENTS

BRAZIL CONFERENCE SLATED

“Biotechnology and Brazil: Implications and Opportunities for Global Agriculture” is scheduled to take place on March 8 - 9, 2006, in São Paulo, Brazil. The conference will examine the implications of biotechnology regarding cost of production of soybeans and future GMO crops; the positions and policies that Europe has taken with regard to GMO soybeans, cotton and corn, and consumer concerns surrounding GMO labeling.

For more information, visit http://www.agra-net.com/biotech06

DOCUMENT REMINDER

CBU AVAILABLE IN OTHER LANGUAGES

The Crop Biotech Update is now available in other languages. The documents have been updated, and can be downloaded in the following languages and formats:

Chinese, November 11 issue at
http://www.isaaa.org/kc/CBTNews/2005_Issues/Nov/november11_chinese.pdf

Chinese, November 18 issue at
http://www.isaaa.org/kc/CBTNews/2005_Issues/Nov/november18_chinese.pdf

Italian, November 21 issue at
http://www.isaaa.org/kc/CBTNews/2005_Issues/Nov/CBT_Nov_21.htm

French, October issue at
http://www.isaaa.org/kc/CBTNews/2005_Issues/Oct/CBT_October_2005.htm

Portuguese (Brazilian), September 2-16 issue at
http://www.isaaa.org/kc/CBTNews/portuguese_pdf/Sept2005_2.pdf

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