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)

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In This Week's Issue:

Global

FIRST BODY MEETING OF TREATY ON PLANT GENETIC RESOURCES

The Governing Board of the Treaty on Plant Genetics Resources for Food and Agriculture is set to hold its first meeting in Madrid, Spain with representatives of the 100 countries that ratified the treaty. The Food and Agriculture Organization (FAO) considers the signature of the Treaty as a major step in guaranteeing food security in the world and also a historic landmark in North-South cooperation.

Procedures for implementation and other aspects such as a financial strategy, access to plant genetic resources and the sharing of benefits deriving from their use will be tackled during the meeting.

The Treaty is a legally binding instrument negotiated by FAO's member states to safeguard the genetic diversity of crops. It also assures the fair and equitable sharing of benefits from the use of these resources, including any monetary benefits of commercialization.

See details of the meeting and Treaty at
http://www.fao.org/newsroom/en/news/2006/1000316/index.html

STATEMENT ON GM FOR DEVELOPING COUNTRIES

Green biotechnology offers great prospects for developing countries. The technology should be discussed on the basis of scientifically proven facts rather than on ideological beliefs. This was the gist of a statement released by delegates to an international workshop in Berlin sponsored by the Union of the German Academies. The document will be presented as a statement on international science to the general assembly of the Interacademy Panel (IAP) in December in Cairo. The Italy-based IAP is a worldwide network of 92 Academies of Sciences.

In the statement, delegates from China, Egypt, the USA, and Europe stressed, among others that foods from approved genetically modified (GM) crops are safe for humans and animals; and that farmers and consumers should have the freedom to choose crops to plant.

The Berlin workshop is an IAP initiative to evaluate the usefulness of GM plants. The IAP's report on the safety of food from GM plants is downloadable as a PDF file from
http://www.akademienunion.de/_files/memorandum_gentechnik/memorandum_gruene_gentechnik.pdf.

A press release from the Union of the German Academies is available at http://www.akademienunion.de. Details about the workshop can be obtained from Ismail Abdel Hamid of the Egypt Biotechnology Information Center at iamaeg@yahoo.com.

WOMEN PLAY ROLE IN RESTORING DRYLANDS, IFAD RESEARCH FINDS

A new study by the International Fund for Agricultural Development (IFAD) highlights the crucial role the world's rural women can play in restoring the world's drylands. The study, "Gender and Desertification: Expanding roles for women to restore drylands," was released in a recent United Nations conference.

The report highlights the role of women in managing natural resources, as well as the constraints they face while dealing with desertification. Because women have acquired extensive knowledge on managing natural resources through their daily work, they can be major agents of change in combating the phenomenon. The authors also note that women are often not given decision-making authority, and are thus excluded from dryland development projects.

About a third of the earth's land surface is threatened by the desertification, IFAD reports, threatening the survival of over one billion people in more than 100 countries. For more information, read the complete press release at http://www.un.org/apps/news/story.asp?NewsID=18678&Cr=ifad&Cr1=.

Africa

COMESA ENDORSES REGIONAL POLICY ON GMOs

Regional experts and stakeholders in the Common Market for Eastern and Southern Africa (COMESA) have agreed to work together towards the adoption of genetically modified organisms (GMOs) in the region.

In a communiqué read at the end of a meeting in Nairobi Kenya, the experts recommended that commercial planting, trade and food aid on GMOs be centrally assessed in the region. Commercial trade of GM products should be driven by a directive from a central regional clearing house as a way of sharing information. The communiqué will be presented to relevant ministries in the 20-member states regional block.

Other suggestions include the development of a regional center of excellence in biotechnology and biosafety, and the formation of an experts' panel to provide

technical advice on issues pertaining to the development, handling, and management of GMOs within the region.

COMESA's Senior Agricultural Advisor, Dr. Cris Muyunda, said that guidelines on food aid policy will also be developed at the regional level to help facilitate transit of food aid in neighboring states.

For more information contact Daniel Otunge of the Kenya Biotechnology Information Center at dotunge@absfafrica.org.

KENYAN MINISTER ASKS JOURNALISTS TO HIGHLIGHT BIOTECH BENEFITS

The government of Kenya is actively exploring ways of deploying biotechnology into the agricultural system to help boost food production. Hence, media in the region should highlight the importance of biotechnology instead of dwelling on unsubstantiated claims. This was the challenge given to journalists by Deputy Minister for Information and Communications Koigi Wamwere during a media workshop on "Innovative Approaches to Improving Biotechnology Reporting in Eastern Africa", jointly organized by Eastern and Central Africa Biotechnology Information Center (ECABIC) and the African Biotechnology Stakeholders Forum (ABSF).

Wamwere told 40 senior science journalists from Ethiopia, Kenya, Uganda and Tanzania who attended the three-day workshop that earlier coverage of the subject has misled others to view it negatively yet it was "a very old science that has been around for many years".

Norah Olembo, Executive Director of ABSF, said that the potential of biotechnology, an evolving science, is yet to be harnessed in Africa. She stressed that while African countries continue to develop their cold feet towards approving the biotechnology policy, many other countries have already embraced this technology after putting biosafety standards in place.

For more information contact Daniel Otunge at dotunge@absfafrica.org.

The Americas

BRAZIL, OPINION: WHO WILL PAY THE PRICE?

Brazil has a very impressive track record on biotechnology. It claims the sequencing of *Xylella fastidiosa*, a very important pest for citric, coffee and tree

crops. In addition, the country has invested heavily in biotechnology: public research institutions, EMBRAPA and Fiocruz, have developed biotech products that would greatly benefit the Brazilian economy and ensure a return of research investments by the Brazilian society. These products include a virus-resistant bean variety. Bean is a very important subsistence crop for familiar agriculture in Brazil, and currently up to 80% of crops are lost to viral pests. The new biotech varieties would therefore have a huge impact on rural economies and greatly benefit the environment, especially with regards to the use of water, an increasingly precious resource. Brazil has also developed a biotech Dengue vaccine. The World Health Organization estimates that over 165 million people have been exposed to the disease in Brazil during the last 16 years. Dengue Fever is therefore a major health problem in the country.

Leila Oda, president of the Brazilian National Biosafety Association (ANBio) asks: "How we can wait for 5, 10 or more years to see a product of the EMBRAPA approved and released for the use and benefit of our society? Biotechnology not only addresses problems that conventional technologies have not been able to resolve, it also generates employment and confers a competitive advantage in a world where many countries are investing heavily in biotechnology.

The institutional paralysis imposed on the Brazilian National Technical Commission for Biosafety (CTNBio) will mainly harm public research efforts, argues Oda, as multinational corporations will always have the option of investing in other countries with regimes that are more supportive of biotechnology. The incompatibility of biotechnology with the conservation of biodiversity is often incorrectly put forward as a reason for such restrictive policies, but such policies will likely have a very negative impact on the environment, Oda reminds us.

To read the full article visit: http://www.anbio.org.br. Contact Leila Oda at: cadastro@anbio.org.br.

PUBLIC-PRIVATE PARTNERSHIP FOR FIRST BIOPESTICIDE AGAINST POTATO MOTH

The Colombian Corporation for Agricultural Research (CORPOICA) has developed a new biological biopesticide based on Baculovirus to control larval moths at the stage of seed storage and preparation. The new biopesticide does not affect human health and the environment, nor harms beneficial insects for agriculture.

Arturo Enrique Vega Varón, executive director of CORPOICA, explained that this is the first product to be released specifically to control Guatemalan potato moth, the most serious pest of potato in Central America and South American countries. Harvest losses in Colombian potato crops frequently attain 50%. The

larvae feed on potato tubers in the soil and are thus largely protected from insecticide sprays. The product will greatly benefit rural communities, and have a large impact on the 180 thousand hectares now under potato cultivation in Colombia, added Vega Varón.

In order to produce the biopesticide industrially, CORPOICA has signed an agreement with a Colombian company, Vecol. The strategic alliance will result in the product being available in the market for interested farmers in the next two or three months.

More information can be obtained from: http://www.corpoica.org.co/

Asia

INDONESIA GOVT URGED TO INCREASE SUPPORT TO AGRI-BIOTECH

Efforts to increase food production to meet the demands of the Indonesia population should be a priority for the government, says Andreas Maryoto of the Kompas National Indonesian newspaper. Support for the agricultural sector will have an impact not only in assuring an adequate food supply for the Indonesian population, but is also required for the generation of alternative energy resources, biofuels. Food production for many important crops, such as rice decreased between 2004 and 2005, demand however is on the rise, notes Maryoto.

In order to address the current constraints to agricultural productivity, such as drought, increased soil salinity and susceptibility to pests and diseases, and to improve the nutritious quality of staple crops, science is needed, adds Maryoto. Biotechnology can address and offer solutions to some of these problems, however the government needs to take immediate action. Without this support, the agricultural sector will be stagnant, and more problems will appear.

With reports from Kompas. For more information contact IndoBIC at: Anggi@biotrop.org or visit: http://www.indobic.or.id

BIOTECH IS PRIORITY FOCUS OF INDO-U.S. KNOWLEDGE INITIATIVE

The Joint Board of the Indo-U.S. Knowledge Initiative on Agriculture Education, Research, Services and Commercial Linkages has identified biotechnology as one of four priority focus areas in India. The other areas are education, learning resources, curriculum development and training; food processing, use of byproducts and bio-fuels; and water management.

Consultations were held with different stakeholders in India to get feedback regarding the Initiative. In a meeting with industry associations, Dr. Montek Singh Ahluwalia, deputy chairman of the Planning Commission, called for more involvement of the private sector in the Initiative. In particular, he stressed the need to identify trusts and priorities regarding research, human resource development, and commercial linkages. In response, an association representative welcomed the Initiative but emphasized the need to consider the features of Indian farming and the market scenario in designing specific activities. Industry representatives recommended an internal advisory committee to represent the private sector and other stakeholders.

In the same meeting, processing, product development, and value addition were identified as activities to enhance productivity, profitability and well-being of farmers in India. Biotechnology was identified as having a pivotal role in enhancing these activities.

With reports from
http://pib.nic.in/release/release.asp?relid=18212 and
http://www.zeenews.com/znnew/articles.asp?aid=299734&ssid=50&sid=BUS

VIETNAM APPROVES FUNDING FOR BIOTECH

Vietnam's Ministry of Science and Technology has approved a budget of 39 billion Dong (US$2.4 M) to strengthen biotech research in the country. Can Tho University will implement the project on "Strengthening equipment and facilities, and improving science research capability on biotechnology". Specifically, academic institutions in the Cuu Long River Delta Region, and the Biotech Development Research Institute will benefit from the government grant.

The government allotted the grant to purchase research equipment, provide trainings for research staff, and improve facilities for training and education at the post graduate level.

For more news from Vietnam, visit http://www.agbiotech.com.vn or email Hien Le at vitranetvn@hn.vnn.vn.

Europe

GM PLANTS DISCUSSED IN FORUM

Green biotechnology and genetically modified (GM) plants were the order of the day at a discussion forum organized by Biotech Life-Science Baden-Wurttemberg, held recently in Germany. Dubbed the BMBF Biotechnology Days 2006, the forum gathered industry and academe into one meeting to discuss a topic controversial to the country, as well as to recommend ways by which biotechnology could be made more popular.

Only a change in attitude of industry and trade can change public opinion, Professor Müller-Röber said, as he suggested creating better products and using a different strategy to communicate the positive aspects of GM. Dr. Reinhard Nehls from Planta GmbH also attached particular importance to the fact that green biotechnology does not only consist of genetic engineering, but also of genetic analysis, providing an answer to the way plants function

Forum attendees concluded that to move forward, German scientists need to understand that their work is not only about research and development, but commercializing products as well. To reach commercialization, the attendees agreed, scientists need to look at the GM situation not only from the scientific perspective, but also from consumer perspectives.

Other forum topics include new therapies, pharmacogenomics, and regenerative medicine. Read the complete article at http://www.bio-pro.de/en/life/magazin/02169/index.html.

NORWAY TO BUILD "NOAH'S ARK" FOR SEEDS

Norway's government is providing about US$ 4.94 million to build a Global Seed Vault on its island of Svalbard, about 1,000 km (600 miles) from the North Pole. The vault will serve as a "Noah's Ark" for three million seed varieties, including rice, wheat, barley, and other important fruits and vegetables, and will be constructed on a mountainside near Svalbard's main village.

The vault will serve as the remote Arctic back-up for other seed banks around the world, which may be more vulnerable to risks, such as nuclear war or power failures. Seeds are being collected by the Global Crop Diversity Trust, and will be stored under permafrost, which will keep the seeds at -18 Celsius (-0.40F). The vault will also be protected by meter-thick walls of reinforced concrete, two airlocks, and high security blast-proof doors.

Construction will start in June 2006, and is scheduled to be completed in September 2007. This back-up seed bank will allow modern agriculture to meet future challenges, such as population increase and climate change.

With reports from Reuters at http://www.alertnet.org/thenews/newsdesk/L30220505.htm and the British Broadcasting Company (BBC) at http://news.bbc.co.uk/2/hi/science/nature/4605398.stm. Read more about the Global Crop Diversity Trust, as well as the seed vault, at http://www.croptrust.org/main/articles.php.

RESEARCH

HEPATITIS B ANTIGEN EXPRESSED IN POTATO ROOT

About 2 billion people in the world are infected by the hepatitis B virus. Although a vaccine has already been developed, it is difficult to store and ship, and is thus expensive for developing countries, where most hepatitis B infections occur. Scientists are currently engineering plants to produce hepatitis B antigens, leading to the development of plant-based, orally administered vaccines. Potato has been extensively studied as a potential vaccine production system. Hairy roots are an attractive system for the production of recombinant proteins due to their genetic stability, fast growth, and ability to grow in hormone-free media.

G.B. Sunil Kumara and colleagues of the Bhabha Atomic Research Center and Shantha Biotechnics Limited, India work on the “Expression of hepatitis B surface antigen in potato hairy roots.” The results of their research are reported in the latest issue of the journal Plant Science.

In the study, the scientists used Agrobacterium to introduce the hepatitis B surface antigen (HBsAg) gene to Bahar, an Indian potato cultivar. After inducing hairy-root growth, they verified the presence of the transgene and its product by PCR and ELISA. Scientists noted that HBsAg was espressed in potato plants, microtubers, and hairy roots. Plants regenerated from hairy roots also exhibited similar levels of HBsAg expression to that of transgenic plants. Expression levels could be enhanced by using root-specific promoters in future gene constructs, the scientists said.

Subscribers to the journal can read the complete article at http://dx.doi.org/10.1016/j.plantsci.2005.12.015.

STUDY COMPARES U.S, CHINESE SORGHUM

Sorghum is one of the world's most important grain crops, and scientists have been seeking to improve it. The introduction of cold tolerance in sorghum cultivars would be very beneficial, as this trait would allow sorghum to be planted in more places, and in the early spring, when soil moisture is higher. To improve sorghum, scientists need to identify a superior germplasm with cold tolerance.

With this aim, Cleve D. Franks and colleagues of the United States Department of Agriculture conducted "A Comparison of U.S. and Chinese Sorghum Germplasm for Early Season Cold Tolerance," and report in a recent issue of Crop Science. Their research focused on sorghum lines and hybrids from Chinese landrace accessions of the working group Nervosum-Kaoliang; publicly available inbred lines from the Texas Agricultural Experiment Station sorghum breeding program; and U.S. grain sorghum hybrids provided by seed companies.

Chinese accessions were compared with 10 U.S. inbred parental lines and 10 U.S. commercial hybrids for cold tolerance under laboratory, growth chamber, and field settings. After tests and statistical analysis, scientists found that: 1) Chinese lines were superior to the other lines, in terms of laboratory germination rates and field-based rates of emergence; 2) Chinese lines were not significantly different from hybrid lines in growth chamber assays, except for shoot length, for which the Chinese germplasm was higher; and 3) although Chinese lines had higher germination rates and lower germination temperature thresholds, they had no advantage in terms of biomass production.

Researchers thus concluded that the accessions could serve as a source of genes for cold tolerance during the germination and emergence phase of growth in the breeding of better sorghum lines.

Subscribers to Crop Science can read the complete article at http://crop.scijournals.org/cgi/content/full/46/3/1371.

Announcements

MALAYSIA TACKLES BIOTECH ISSUES

The "International Symposium on Molecular Farming in Plants: Prospects for the Asia Pacific" and a special half day program on "Business, Commercialization and Regulatory Issues for Plant Made Proteins" will be held June 15, 2006 at the Boulevard Hotel, Mid Valley City, Kuala Lumpur. Both events will be organized by the Centre for Research in Biotechnology for Agriculture (CEBAR); Institute of Biological Science, University Malaya; International Islamic University Malaysia;

Malaysian Biotechnology Information Centre (MABIC), and Malaysian Society for Molecular Biology and Biotechnology.

Email the Malaysian Biotechnology Information Centre (MABIC) at info@bic.org.my for symposium details.

ABIC SLATED AUGUST

The Agriculture Biotechnology Industry Conference (ABIC) will be held at the Melbourne Convention Centre, Victoria, Australia on August 6-9, 2006. This year's theme "Unlocking the potential of agricultural biotechnology" will focus on innovation and commercialization. The conference will be spearheaded by AusBiotech, Ltd, the body for the biotechnology and life sciences industry in Australia. Email abic2006@tourhosts.com.au or visit http://www.abic2006.org for more details.

Document Reminders

UNU/IAS ASSESSES BIOTECH CAPACITY DEVELOPMENT

The United Nations University/Institute of Advanced Studies (UNU/IAS) has undertaken an "Assessment of Ongoing Efforts to Build Capacity in Biosafety and Biotechnology." The study, based on country visits, addresses whether capacity development activities related to biotechnology are responding to country needs and priorities. For more information, contact Sam Johnston at Johnston@ias.unu.edu, or visit http://www.ias.unu.edu/research/details.cfm/articleID/770.

FAO REPORTS ON BIOTECH CAPACITY IN CENTRAL ASIA

The FAO has released country survey reports on biotech capacity of Central Asian countries like Azerbaijan, Armenia, Georgia, Jordan, Macedonia, Ethiopia, Kazakhstan, Kyrgyzstan, Sri Lanka, Tajikistan, Uzbekistan, and Zambia. These reports were used in a regional workshop organized by FAO in Almaty, Kazakhstan to assess and design strategies to strengthen national plant breeding and related biotechnology capacity in Central Asia. For the full reports, visit http://www.fao.org/biotech/index.asp?lang=en.

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