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News

GLOBAL

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WHEAT RUST FUNGUS SPREADS FROM EAST AFRICA TO YEMEN

The Food and Agriculture Organization (FAO) confirmed the presence of a more virulent strain of Ug99 in wheat fields in Yemen. The fungus has spread from East Africa to Yemen on the Arabian Peninsula. There is a high risk that the disease could also spread to Sudan. It is estimated that as much as 80 percent of all wheat varieties planted in Asia and Africa are susceptible to this new strain.

Read the complete press release at <http://www.fao.org/newsroom/en/news/2007/1000537/index.html>.

WINNERS OF FELLOWSHIPS TO FOCUS ON WHEAT AND CACAO

Bioversity International announced the winners of this year's Vavilov-Frankel Fellowships, a program that aims to enable outstanding young scientists from developing countries to carry out research that is relevant and innovative outside of their own countries. Adriana Arciniegas Leal, from Colombia, will examine samples of cacao diversity to establish whether plants with a similar molecular profile also have similar agronomic characteristics. Mehrhaj Abbasov, from Azerbaijan, will focus on the ability of wheat to tolerate high salinity. Abbasov will examine variation in two genes known to confer tolerance to salt. Leal will carry out most of her research at the Tropical Agricultural Research and Higher Education Center (CATIE) in Costa Rica, while Abbasov will work with the Commonwealth Scientific and Industrial Research Organization (CSIRO) scientists.

For further information, contact Cassandra Moore at c.moore@cgiar.org or read the press release at <http://news.bioversityinternational.org/index.php?itemid=1772>.

AFRICA

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CAMEROON AND CIFOR SIGN AGREEMENT TO PROTECT FORESTS

The Government of Cameroon and the Center for International Forestry Research (CIFOR) signed an agreement to guarantee the survival of Cameroon's forests and the livelihood of people who depend on forests. "Cameroon is an important piece in the jig-saw puzzle of the six Congo Basin countries, which contain the world's second largest rainforest," noted CIFOR's regional co-coordinator, Cyrie Sendashonga.

Central Africa's Congo Basin harbors enormous plant and animal diversity. Its forests also contribute to the survival and livelihood of millions of people. According to the World Bank, forests around the world provide 1.6 billion people with food, fuel and other life-essentials. One in four western pharmaceuticals is also derived from rainforest ingredients.

For more information, contact Janneke Romijn at j.romijn@cgiar.org or visit <http://www.cgiar.org/monthlystory/april2007.html>.

AMERICAS

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DUPONT TO SUPPORT PLANT BREEDERS IN PURDUE

DuPont pledged \$150,000 to Purdue University to help graduate students interested in plant breeding and genetics research. Two \$25,000 fellowships, renewable each year through 2009, will be rewarded to students in the Department of Agronomy. Purdue also will provide matching funds for a total of \$300,000 over three years. Research and educational programs in Purdue's Department of Agronomy center on four broad areas of emphasis, including genetic improvement of economic crops and crop systems, and plant nutrition.

Read the news article at <http://www.pioneer.com/web/site/portal/menuitem.90bd940940894f0e2ef348c4d10093a0/>.

CBAC RELEASES ADVISORY MEMORANDUM ON BIOTECH, SUSTAINABLE DEVELOPMENT AND CANADA'S FUTURE ECONOMY

After a comprehensive examination of the contribution of biotechnology to Canada's environment and to the competitiveness of its economy, an expert working group led by Dr. Arthur Hanson submitted a report to the

Canadian Biotechnology Advisory Committee (CBAC) for final assessment. The report, *"Biopromise? Biotechnology, Sustainable Development and Canada's Future Economy"*, makes some specific observations, which include the lack of an integrated national or federal strategy to guide the development and deployment of innovative technological approaches to sustainable development.

In response to the report, CBAC urged the federal government to develop an action plan designed to facilitate initiatives aimed at realizing the benefits of applying biotechnology to sustainable economic development. Two areas of immediate government attention are suggested: the development of biorefineries and the development of a program for monitoring ecosystem impacts.

Read the full report at <http://cbac-cccb.ca/epic/site/cbac-cccb.nsf/en/ah00623e.html>.

BRAZIL, US TO COOPERATE IN BIOETHANOL RESEARCH

EMBRAPA, the Brazilian Agricultural Research Corporation, will become a research partner of the National Renewable Energy Laboratory (NREL) of the United States for research on bioethanol. The project portfolio, prepared by EMBRAPA biofuels specialists, will be presented to Alexander Karsner, Assistant Secretary of the Energy Efficiency and Renewable Energy Network (EREN), on visit in Brazil next week.

"We will elaborate a research agenda based on common interests and of mutual benefit", said Silvio Crestana, Director-President of EMBRAPA.

Read more at: http://www.embrapa.br/noticias/banco_de_noticias/2007/abril/foldernoticia.2007-04-16.3340790016/noticia.2007-04-19.3116424979/mostra_noticia

ASIA AND THE PACIFIC

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GRAPEVINE BREEDING IN AUSTRALIA

The Commonwealth Scientific and Industrial Research Organization (CSIRO) continues to breed improved grapevine varieties that will be a part of one's dining experience, gourmet or not. CSIRO has developed varieties such as Tarrango and Tyrian for the wine industry, and has selected clones and varieties such as rain-tolerant currant Carina and rain-tolerant sultana type, Sunmuscat for the dried-grape industry. The table grape breeding program has already released seedless black grape and early ripening seeded grape varieties. The rootstock program, on the other hand, is continuing with an emphasis on tolerance of Phylloxera and nematodes, salt and drought tolerance, stock-scion compatibility and water use efficiency.

Read the article at <http://www.csiro.au/science/psjb.html>.

NEPALI FARMERS GAIN MORE FROM IMPROVED LOCAL RICE VARIETIES

Ten years after the introduction of a rice breeding project in Begnas, Nepal, Nepali farmers are growing their own rice and successfully improving local varieties by cross-breeding. The global project, coordinated by the International Plant Genetic Resources Institute (IPGRI, now known as Bioversity International), aims to help farmers find ways to conserve local varieties of crops in the face of a global trend of relying increasingly on "modern" varieties bred to survive in diverse growing conditions.

Nepali farmers were able to develop a new variety of *Pokhareli Jethobudho* rice, a local variety prized for its soft texture and unique aroma and taste. However, it has problems with "lodging" (falling over) and is susceptible to neck

blast disease. By selective breeding, six lines of *Jethobudho* were chosen for their outstanding qualities. These lines will now become the basis of all future *Jethobudho* grown in the area.

To read more, visit http://www.idrc.ca/reports/ev-110870-201-1-DO_TOPIC.html.

NZ APPLIES TO FIELD TEST GM VEGETABLE BRASSICAS

The New Zealand Institute for Crop and Food Research Ltd. has submitted an application to the Environmental Risk Management Authority (ERMA) to field test in containment vegetable brassicas. The field test will assess the agronomic performance of cabbage, broccoli, cauliflower and kale, modified for resistance to caterpillar pests like cabbage white butterfly and diamond-back moth.

Vegetable brassicas are widely grown in New Zealand for both domestic and export markets. Insect pests are a major problem with the most serious being caterpillar pests such as cabbage white butterfly and diamond back moth. Alternative control methods are being studied to offset concerns regarding the use of excessive pesticides, resistance to these chemicals, and presence of chemical residues in the environment. "As there are no Brassica cultivars or close relatives with caterpillar resistance the introduction of insecticidal genes from Bt into plants offers an alternative method for caterpillar control", said the research team at the Center.

See the application summary at <http://www.ermanz.govt.nz/appfiles/execsumm/word/GMF06001-002.doc>.

VIETNAM COLLABORATES WITH GERMANY ON RESEARCH ACTIVITIES

Vietnam's Ministry of Science and Technology and the German Research Foundation (DFG) signed a memorandum of understanding to do joint research on various areas of specialization. A bilateral cooperation was forged between the two countries to work on biotechnology, information technology, material science, automation, technology transfer, scientific research management, as well as training of researchers and scientific managers.

For further information, contact Hien Le of Biotech Vietnam at hienttm@yahoo.com.

INDONESIA FOCUSING ON JATROPHA DEVELOPMENT

"The Indonesian government is seriously committed to fund the research and development of *Jatropha*", said Achmad Suryana, Head of the Indonesian Research and Development Agency, during a discussion with researches and technicians at *Jatropha* Main Garden, KP Asembagus - Situbondo, in the end of March 2007.

"To develop *Jatropha* for biofuel, we need additional research and adequate infrastructure" said Suryana. "Indonesia will build several new main gardens for *Jatropha* in Lampung, NTB and Central Sulawesi in 2007. The establishment of these main gardens will be important especially to provide certifiable seeds in the areas, "he added.

Visit <http://www.litbang.deptan.go.id/berita/one/456/> for more information.

EUROPE

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EFSA GMO PANEL RECONFIRMS SAFETY OF GM PLANTS WITH *NPTII* GENE

The European Food Safety Authority (EFSA) GMO Panel has confirmed earlier safety assessments of genetically modified plants and derived food/feed comprising the *nptII* gene, stating that the use of the gene as selectable marker in GM plants (and derived food or feed) does not pose a risk to human or animal health or to the environment. The gene provides resistance to certain antibiotics, such as the aminoglycosides kanamycin and neomycin in plants. The GMO Panel considers it very unlikely that the *nptII* gene would be transferred from plants to bacteria.

Read the news release at http://www.efsa.europa.eu/en/press_room/news/ns_gmo_npt2.html.

EUROPEAN PARLIAMENT PROPOSES RULES ON ORGANIC FOOD PRODUCTS

Members of the European Parliament (MEPs) called for the maximum allowable figure for accidental contamination of organic food by genetically modified organisms (GMOs) to be reduced to 0.1%. The MEPs also proposed to apply the "polluter-pays" principle to prevent GMO contamination throughout the food chain. The Parliament wanted to clarify that there is a ban on "GMOs and products produced from or with GMOs" in organic farming, and that there are no exceptions, even for veterinary medicinal products. Special legislation would be introduced for products from organic fish farms.

The news article is available at http://www.europarl.europa.eu/news/expert/infopress_page/032-4693-087-03-13-904-20070326IPR04618-28-03-2007-2007-false/default_en.htm.

RESEARCHER DEVELOPS TOMATO WITH RESISTANCE TO GREY MOULD

New tomato varieties resistant to grey mould (*Botrytis cinerea*) will be coming soon, thanks to the work of Richard Finkers, a doctorate student from Wageningen University. Finkers started off by crossing the grey mould-resistant wild tomato *Solanum habrochaites* LYC4 with the susceptible *S. lycopersicum* cv. *MoneyMaker*, and identifying two areas with resistant genes in the DNA. Through DNA-marker technology, Finkers was able to track the presence of resistance factors in tomato plants. The leading company De Ruiters Seeds is already applying these methods in its breeding program.

Read the news release at http://www.nwo.nl/nwohome.nsf/pages/NWOA_6ZPA4C_Eng.

HERCULEX® RW ADVANCES TOWARD EU APPROVAL

Developers of the Herculex® RW Rootworm corn trait expressed optimism that the trait would be allowed into the European Union (EU) market in the near future, after the European Food Safety Authority (EFSA) gave a positive safety opinion on the GM maize. In response to EFSA's opinion, the EU Commission now has three months to forward its approval decision to Member States for a vote. Herculex® RW was developed jointly by Dow AgroSciences LLC and Pioneer. The trait provides protection against western, northern and Mexican larval corn rootworm.

Readers can access the press release at <http://www.dowagro.com/newsroom/corporatenews/2007/20070404a.htm>.

Research

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TOWARDS THE IDENTIFICATION OF PHOTOPERIOD GENES IN COTTON

Induced mutations can be used to produce cotton without day-length sensitivity. This technique can allow wild and primitive cotton germplasm to be fully utilized in improvement programs. Most of the cotton exotic germplasm are photoperiod-sensitive that does not flower in long-day conditions of summer cultivations.

A group of researchers from the United States and Uzbekistan have presented conversion studies in cotton that turned photoperiod sensitive germplasm into day-neutral (where flowering is not affected by day-length). The researchers used 32P irradiation to derive the cotton mutants. The mutants were subsequently examined by using 250 microsatellite (SSR) primer pairs to determine patterns of mutation in the SSR loci.

It was found out that the induced mutagenesis both increased and decreased the allele sizes of SSRs in mutants with the higher mutation rate in SSRs containing dinucleotide motifs. The researchers have also determined that there was significant modification of mutants from their original wild types, with most mutants having improved agronomic qualities. The results may be useful in understanding photoperiod-related mutations, and can aid in the identification of photoperiodic flowering genes in cotton in the future.

For the complete paper published by the Journal of Heredity, please visit <http://jhered.oxfordjournals.org/cgi/content/abstract/esm007v1>.

PRODUCTION OF HUMAN INTERFERON IN LETTUCE

Human interferon-beta (HuIFN-beta) is a compound known to have anti-viral and medical properties and has been proven to be an effective treatment for relapsing multiple sclerosis. HuIFN-beta is commercially produced using microorganisms. Because the demand for the compound is continually increasing, alternative production systems are being explored.

Plant systems are considered good systems for biological drug production. A paper published by a group of Chinese researchers details how they were able to produce HuIFN-beta compounds using transgenic Japanese Glass Lettuce. This is the first report on the successful production of the biologically active therapeutic proteins produced by *Agrobacterium* mediated transient expression in the crop.

The researchers have determined that the HuIFN-beta expressed in lettuce leaves have a high biological activity (3.1 x 10⁴ IU/mL). Their results suggest that the development of an efficient, inexpensive and small-scaled plant expression system for the production of therapeutic protein is possible.

The abstract, with links to the full paper for subscribers to the journal *Scientiae Horticulturae*, can be accessed at <http://dx.doi.org/10.1016/j.scienta.2006.12.047>.

VITAMIN E SHOWN TO ACCUMULATE IN GM POTATO TUBERS

Vitamin E or tocopherol, is important for human health. The compound is only synthesized by photosynthetic organisms. Researchers in the United States have investigated the biosynthesis of this essential compound in potato tubers, an underground, non-photosynthetic tissue. Their study reports the first investigation of vitamin E biosynthesis in a non-photosynthetic tissue and the first attempt to elevate vitamin E levels in potato tubers.

Elizabeth Crowell and colleagues used the *Agrobacterium* method to transform the potato varieties 'Spunta' and 'MSE149-5Y'. The researchers employed high-performance liquid chromatography to determine the expression levels of the *Arabidopsis* genes that were incorporated into the potato varieties. The transgenes used were the *Arabidopsis thaliana* p-hydroxyphenylpyruvate dioxygenase (*At-HPPD*) and *A. thaliana* homogentisate phytyltransferase (*At-HPT*).

Crowell and colleagues have observed that over-expression of *At-HPPD* resulted in a maximum 266% increase in alpha-tocopherol while over-expression of *At-HPT* resulted in a 106% increase. The accumulated amount of tocopherol however is still 10- and 100-fold less than the level of tocopherol in the potato leaves or seeds, respectively. The researchers suspect that physiological and regulatory constraints may be limiting the accumulation of tocopherol in potato tubers.

For more information and to access the full article in the journal Transgenic Research, please visit <http://www.springerlink.com/content/g0515325830j8m74/>.

Announcements

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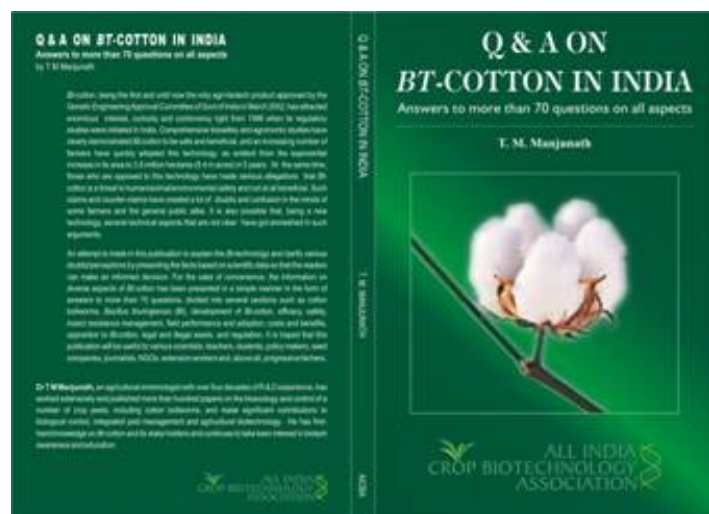
NEW BOOK ON BT COTTON IN INDIA

A new book titled "Q&A on Bt Cotton in India: Answers to more than 70 questions on all aspects" authored by Dr. TM Manjunath was recently released by Prof. MS Swaminathan during the two-day agri-biotechnology conference 2007 held at the Tamil Nadu Agricultural University, Coimbatore from 12-13 April 2007.

Dr Manjunath, an eminent entomologist, explains the Bt technology and clarifies various doubts/perceptions by presenting the facts based on scientific data so that the readers can make an informed decision. The information on diverse aspects of Bt cotton is presented in the form of answers to questions, divided into several sections such as cotton bollworms, *Bacillus Thuringiensis* (Bt), development of Bt cotton, efficacy, safety, insect resistance management, field performance and adoption, costs and benefits, opposition to Bt cotton, legal and illegal seeds, and regulation.

An abridged version of the book will be published shortly in several regional languages. The book is published by the All India Crop Biotechnology Association (AICBA), New Delhi.

For a complimentary copy of the book, you may contact: aicba1@yahoo.co.in or tmmanjunath1939@yahoo.com.



AFRICAN CROPS CONFERENCE

The 8th African Crop Science Society Conference will be held in El-Minia, Egypt on 27- 31 October 2007. The general topics to be covered at the conference include crop improvement and physiology, post harvest handling and food sciences, crop protection, rural socio-economics and agricultural extension and education, and crop genetics and biotechnology. For more information, visit <http://www.acss2007.org/>.

BIOECO 2007 IN CHINA

The Ministry of Science and Technology of China and the Tianjin Municipal Government will sponsor the BioEco 2007

symposium slated on June 26-28, 2007 in Tianjin, China. The event will provide a venue for the exchange of knowledge, skills, policies and experiences in the application of biotechnology among biotech professionals, business leaders, government officials, and other stakeholders. The main theme of the event will be "Bioeconomy for everyone." For more information, visit <http://www.cncbd.org.cn/bioeco2007/jichu/bbs.html>.

SCIENTIFIC PAPER WRITING COMPETITION 2007 FOR INDONESIAN TEENS

The Indonesian Institute of Sciences will hold the 39th scientific paper writing competition for teens. The topics are: social science and humanity, nature science and technical science. The scope will include human accomplishments especially on healthcare, agriculture, environment, industry, social economy with exploitation of potential local resources by research results/trials in field.

The deadline for submission is 10 May 2007. For further information, please visit <http://www.tempointeraktif.com/> or <http://www.lipi.go.id/>.

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Document Reminders

OPEN ACCESS CABI MAP OF TOMATO POWDERY MILDEW

CABI, in association with the European and Mediterranean Plant Protection Organization (EPPO), have published this month map number 1000 of Distribution Maps of Plant Diseases- the authoritative source for accurate data on the worldwide distribution of plant diseases of economic or quarantine importance. The maps cover important diseases affecting agriculture, horticulture and forestry. The latest disease to be mapped is tomato powdery mildew (*Oidium neolycopersici*). To celebrate the publication of map no. 1000, the publishers have made this map open access.

For more information visit: http://cabiblog.typepad.com/hand_picked/2007/04/1000_diseases_m.html

REPORT ON PLANT BREEDING AND BIOTECHNOLOGY CAPACITY IN THE CAUCASUS AVAILABLE ONLINE

The report on the workshop held in Tbilisi, Georgia on February 21-22, 2007 is now available online. Participants of the regional workshop represented the three Caucasus countries namely Armenia, Azerbaijan and Georgia. Among the issues discussed, capacity building on plant breeding was ranked as top priority. The scope of capacity building goes from short-term training on specific breeding techniques to improve the educational level of the scientists. Access to information, mechanisms to exchange national and regional information, and facilities to promote the first two came in second. These will strengthen the countries capacity to use plant genetic resources. Other priority issues were the lack of seed production and distribution system at the national levels; long-term support and planning of breeding programs; raising awareness regarding the importance of plant genetic resources conservation and use; and strengthening linkages between universities and research institutes.

Read the complete report on the workshop, "Assessing and Designing Strategies to Strengthen Regional Plant Breeding and Associated Biotechnology Capacity in the Caucasus" at <http://apps3.fao.org/wiews/docs/Workshop%20Draft%20Report%2004%20Regional%20230207.pdf>. To read more: http://www.fao.org/biotech/news_list.asp?thexpand=1&cat=131.

PROCEEDINGS OF FAO EXPERT CONSULTATION NOW ONLINE

The proceedings of the expert consultation hosted by the Food and Agriculture Organization (FAO) in Rome, Italy in 2005 are now available online. The consultation recommended that all responsible deployment of GM crops needed to comprise the whole technology development process, from the pre-release risk assessment to biosafety considerations and post-release monitoring. For more information on the consultation, "Genetically modified organisms in crop production and their effects on the environment: Methodologies for monitoring and the way ahead" visit <http://www.fao.org/docrep/009/a0802e/a0802e00.htm> or contact kakoli.ghosh@fao.org. To read more: http://www.fao.org/biotech/news_list.asp?thexpand=1&cat=131.

DOCUMENTS FOR THE SESSION OF CGRFA AVAILABLE ON THE WEB

Documents for the 11th Regular Session of the Commission on Genetic Resources for Food and Agriculture (CGRFA), slated on 11-15 June 2007 in Rome, Italy are now available on the web, some of which are directly related to biotechnology.

Visit <http://www.fao.org/ag/cgrfa/cgrfa11.htm> to access the documents (documents will eventually be available in Arabic, Chinese, English, French and Spanish) or contact cgrfa@fao.org for more information. To read more: http://www.fao.org/biotech/news_list.asp?thexpand=1&cat=131.

FROM THE BICS

TAMIL JOURNALISTS ATTEND BIOTECH MEDIA WORKSHOP

The Tamil Nadu Agricultural University (TNAU) organized a two- day media workshop on agricultural biotechnology at Coimbatore, Tamil Nadu, India from April 16-17, 2007 to strengthen the understanding of Tamil media regarding biotechnology, biosafety and related issues. The workshop was supported by the Ministry of Environment and Forest (MOEF) under the GEF-World Bank capacity building project on biosafety and co-organized by the International Service of Acquisition of Agri-biotech Applications (ISAAA).

The workshop was conducted in the Tamil language and attended by more than 40 journalists from across Tamil Nadu. The inaugural session was addressed by Dr. CD Mayee, Chairman-ASRB, Sh G Balachandhran, Joint Secretary of the Ministry of Environment and Forest (MOEF), Dr. C. Ramasamy, Vice Chancellor-TNAU, Dr. V. Krishnasamy and Dr. Balasubramanian of TNAU, and Bhagirath Choudhary of ISAAA.

In the keynote address, Dr CD Mayee stressed that the media should be provided with all the details about new technologies. This will help provide authoritative news from a direct source and help remove misconceptions among the people. At present, most of the news on technologies is based on a lot of wrong information from indirect sources in the media, he said.

For more information contact Bhagirath Choudhary of ISAAA South Asia Center at b.choudhary@cgiar.org.

BIOTECH DISCUSSION IN BANGLADESH

The Bangladesh Biotechnology Information Center of the International Service for the Acquisition of Agri-biotech Applications (ISAAA) joined forces with the Bangladesh Biotech Limited (BBL), Bangladesh Agricultural University (BAU) and Bangladesh Institute of Nuclear Agriculture to organize a seminar series on "Biotechnology: A Road To Prosperity". Scientists from Pakistan (Prof. Anwar Nasim), Canada (Dr. M.H. Rahman), and Bangladesh (Prof. Lutful Hassan) shared their experiences on various issues and concerns about biotechnology.

Dr. M. A. Halim Khan, Executive Vice Chancellor of BSMRAU, in his opening remarks stressed that biotech crops are an integral component for agricultural development in a country like Bangladesh. Prof. Dr. Muyeen Uddin Ahmed (Dean, Faculty of Agriculture, BAU), Dr. M. A. Hamid (Director General, Bangladesh Institute of Nuclear Agriculture) and Mr. A. R. Malik (Managing Director, BBL) echoed the utility of biotech crops and suggested the need for close

cooperation between public and private sectors.

For more information about the seminar series, contact K.Nasiruddin of the Bangladesh Biotechnology Information Center at nasirbiotech@yahoo.com.



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