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News

GLOBAL

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CEREAL PRODUCTION AND DEMAND UP

The Food and Agriculture Organization (FAO) forecasts a record cereal production of 2195 million tons in 2007, about 4.8 percent over last year's levels. However, supply may be inadequate to meet demand due to the growth of the biofuels industry. In its Crop Prospects and Food Situation report, FAO notes that international prices for most cereals have significantly risen and will continue to remain high.

Of the coarse grains, the bulk of the increase is expected in maize, which has an additional market in ethanol production. This increase is expected to raise total industrial use of coarse grains by 9 percent. While wheat harvest is slightly down, production is still expected to be higher by 4 percent over that of 2006. Rice production is expected

to yield 422 million tons, equivalent to 2005 levels.

Read more on the FAO report at <http://www.fao.org/newsroom/en/news/2007/1000560/index.html>.

THE ARDUOUS JOURNEY FOR A TROPICAL FARMER

It would take long before food producers in developing countries can compete effectively in the world market, according to researchers at Wageningen University who studied the production chains of various food produce in different countries in the tropics. The study shows that a more integrated government policy ensures a better quality control. National institutes also play a role in quality control and improvement, as seen from research on cacao production in Ghana and pineapple production in Ivory Coast. Gains can still be made in various areas, such as an improved coordination of prices, clearer codes of conduct, better understanding of the market, risk management, and cooperation between small producers.

Readers can access the article at http://www.nwo.nl/nwohome.nsf/pages/NWOA_725BM4_Eng.

AFRICA

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AFRICA NEED NOT WORRY, EU NOT OPPOSED TO GM CROPS

The European Union is not opposed to genetically modified (GM) crops, Willy de Greef, the International Agro Biotechnology Research Specialist, said when he spoke in a communications training workshop held in Pretoria, South Africa. De Greef added that "should Africa one day become self sufficient in maize and soybeans, surplus exports of approved GM products to the EU will never be in jeopardy. The President of AfricaBio, Prof Diran Makinde said the majority of Africa's scientists, agricultural research institutions and political leaders have embraced the GM technology and are speeding up the process for the adoption of GM crops. It will not be long before GM maize, soybean, cotton and possibly cassava are grown in African soil.

For the full article, visit: <http://allafrica.com/stories/200705140948.html>

AMERICAS

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BRAZIL BIOSAFETY COMMISSION APPROVES BIOTECH MAIZE

The National Biosafety Technical Commission of Brazil (CTNBio) gave this week the green light, 17 votes against 4, to LibertyLink, a maize biotech variety with tolerance to herbicide (glufosinate) developed by Bayer. The decision has still to be ratified by the National Committee of Biotechnology before commercial planting can take place. The Committee, presided by the Minister Dilma Rousseff, is composed by 17 members of the federal government, and deals with biotechnology policy issues.

"Transgenic maize brings economic profits diminishing the costs of production", said Paulo Barroso, researcher from the Brazilian Agricultural Research Corporation (EMBRAPA). Barroso also affirmed that the environmental impact in terms of herbicide use of LibertyLink maize is not superior to that of planting conventional varieties, which also require the application of herbicides for weed control.

CTNBio will implement a practical plan for monitoring biotech maize, which will include restrictions to prevent its

planting in protected areas. The decision makes LibertyLink maize the third biotech crop to be approved in Brazil, after Roundup Ready soybean (also with herbicide tolerance) and insect-resistant cotton.

More information available (in Portuguese) in <http://www.agenciabrasil.gov.br/noticias/2007/05/16/materia.2007-05-16.0609499640/view> and <http://www.agenciabrasil.gov.br/noticias/2007/05/16/materia.2007-05-16.8930598527/view>

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SCIENTISTS STUDY WILD COTTON FOR USEFUL TRAITS

Scientists at the Texas A&M University System Agricultural Research and Extension are looking into the potential of undiscovered useful traits in the gene pool or germplasm of obsolete and wild cottons contained in U.S., Russian and French cotton collections. These traits could help diversify the gene pool from which breeders develop future varieties that have useful traits such as insect and disease resistance, and drought, salt and cold tolerance.

Cotton genetic diversity has narrowed in recent years with many commercial varieties sharing common parents and ancestors, said Dr. John Gannaway, Texas Agricultural Experiment Station cotton breeder. Present varieties are genetically flexible enough to handle minor changes but lack diversity for significant changes.

Read the full press release at <http://agnews.tamu.edu/dailynews/stories/SOIL/May0207a.htm>. An overview of the Texas A&M University System's cotton breeding program is available online at <http://lubbock.tamu.edu/news/2007/LScapesWinter06.pdf>.

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ETHANOL "LEFTOVER" KILLS WEEDS

Scientists are looking into possible novel uses of distillers dried grains or DDGs, the co-products of converting corn into ethanol. Plant physiologist Steve Vaughn and colleagues with the Agricultural Research Service (ARS) have shown that applying DDGs to soil as a surface mulch can not only suppress weeds, but also bolster the growth of tomatoes and some turfgrasses. Aside from seeking to identify chemicals in the DDG mulch that have herbicidal activities, researchers are also examining DDGs for phytosterols, lecithin and other substances with potential use as health-promoting food ingredients.

Read the news article at <http://www.ars.usda.gov/is/pr/2007/070514.htm>.

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BIG THINGS COME IN SMALL PACKAGES: ATTACHING GENES TO MAIZE MINICHROMOSOMES

A discovery has opened new avenues for the development of crops with multiple resistance to a vast array of pests, and for the development of proteins and metabolites that can be used to treat human illnesses. In a paper published in the Proceedings of the National Academy of Sciences (PNAS), a team of scientists at the University of Missouri-Columbia reported creating engineered minichromosomes in maize. Minichromosome are extremely small versions of a chromosome, however, they have the ability to accept the addition of new genes in subsequent experiments.

By stacking genes on minichromosomes, scientists could create crops that have multiple beneficial traits, such as resistance to drought, certain viruses and insects, or other stresses. In addition, minichromosomes could be used for the inexpensive production of multiple foreign proteins and metabolites useful for medical purposes. Because of their protein-rich composition, a part of the maize kernels can be used to grow animal proteins and human antibodies that treat diseases and disease symptoms. Minichromosomes could enable new and better production of these foreign proteins and antibodies. In addition, scientists also may be able to use them to develop plants better suited for biofuel production.

To read more, visit <http://munews.missouri.edu/searchnews.cfm> and http://www.eurekalert.org/pub_releases/2007-05/uom-rag051407.php.

ASIA AND THE PACIFIC

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53 NEW BT COTTON HYBRIDS COMMERCIALY APPROVED IN INDIA

The Genetic Engineering Approval Committee of India (GEAC) approved on May 11 53 new varieties of Bt cotton hybrids for commercial sale in India in 2007. Effectively 49 new hybrids have been cleared and two hybrids of Mahyco have been accorded renewal of permission for commercial release. In 2006, 62 Bt cotton hybrids were available to farmers for planting in three different cotton growing zones. With these new approvals, farmers will have choice to select among 111 Bt cotton hybrids in India in 2007 season. The approval of new hybrids were granted in the light of the Supreme Court recent order, which accorded approval for commercial release of Bt cotton hybrids expressing approved gene events MON 531 event, MON 15985, Event-1 and GFM event.

Event-wise approval of new Bt cotton hybrids in 2007

<i>Events</i>	<i>Bt Cotton Hybrid</i>		<i>Total</i>
	North Zone	Central Zone	
BG-I	13	23	36
BG-II	4	5	9
Event-I	1	3	4
GFM Event	-	4	4
Total	18	35	53

Source: Compiled by ISAAA

For the decision of 76th meeting of the GEAC please visit: <http://www.envfor.nic.in/divisions/csurv/geac/geac-may-76.pdf>. For more information contact: b.choudhary@isaaa.org

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INDIA'S NBRA FULLY FUNCTIONAL IN TWO YEARS TIME

The National Biotechnology Regulatory Authority (NBRA), an independent science-based body, should be fully functional in two years time, said M.K. Bhan, Secretary of the Department of Biotechnology of India (DBT) during his keynote address at the Boston Convention Center during BIO 2007.

The NBRA will be administered by the Department of Biotechnology, of the Ministry of Science and Technology of India. The government is working closely with the US regulatory bodies such as FDA, EPA and USDA to evolve a world class robust science based regulatory structure to expedite application of biotechnology in agriculture,

veterinary and medicine sector, said Dr Bhan.

An advanced school of learning will be a part of the regulatory body in order to update and equip regulators and scientists with the fast changing science of biotechnology. As far as agriculture sector is concerned, Dr Bhan stressed the need to deploy agri-biotech and termed it as a future of Indian agriculture. He said that India not only needs large quantity of food but of high quality too, since a large number of Indians are vegetarians. In this scenario there is a need for leveraging biotechnology to increase yield per hectare and also improve quality of crops.

For more information visit: http://www.ciionline.org/news_new/newsMain09-05-2007_2.asp or write to: b.choudhary@isaaa.org

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CONTRACT FARMING: OPPORTUNITIES AND RISKS FOR SMALL SCALE FARMERS

In addition to increasing net income of the producer, contract farming has the potential to infuse new technologies, quality inputs and investment into agriculture, said Mangla Rai, Director General of the Indian Council of Agricultural Research (ICAR). This was stated during the workshop on "Contract Farming: Methods and Experiences", part of the Indo-US Knowledge Initiative on Agriculture. The workshop was conducted jointly by the United States Department of Agriculture (USDA) and the Indian Council of Agricultural Research (ICAR) in New Delhi.

During the inaugural speech, the Indian agriculture minister Sharad Pawar explained that the demand for agricultural products is rising because of the growing economy, and due to increasing urbanization and globalization. However, Pawar cautioned about concerns on contract farming, such as the exclusion of small farmers and the possible adverse impact of contract farming on food security. The government's main concern is how benefits of emerging opportunities reach the producers, especially the smallholders, he said. Since the small farmers face problems relating to credit, technology, inputs and market access, Shri Pawar suggested that agribusiness firms integrate farmers in their supply chains through institutions such as cooperatives, producers' associations and contract farming.

The full news story is available at: <http://pib.nic.in/release/release.asp?relid=27533>. For further information contact: b.choudhary@isaaa.org.

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CHINA TO SET UP NATIONAL BIOSAFETY CENTER

The National Development and Reform Commission in China has approved the establishment of a National Biosafety Research Center. To be completed by 2009, this center will manage agricultural and biological related issues. It will house several research departments including laboratories for high risk plant pathogens, insects, and plants, as well as units for agriculture-related information analysis and quarantine facilities. The center will be supervised by the Plant Protection Institute of the Chinese Academy of Agricultural Sciences.

In related developments, the National Development and Reform Commission has also approved the 11th Five Year Plan for the Biotechnology Industry. It was developed in conjunction with several Ministries and 18 government agencies

Biotech developments in China are available online in Mandarin at <http://www.biotech.org.cn/news/news/show.php?id=48578>.

VIETNAM'S BIO-TECH PARK PROJECT

The Hanoi People's Committee has submitted to the Vietnamese Government a project on a bio-tech park, capitalized at \$1B. If approved, this will be the first bio-tech park in the country. The bio-tech park will include a bio-industrial complex, consisting of high-quality laboratories, which will be equipped with modern facilities for research and development, education and training related to biotechnologies. The project has been put forward by the Ireland-based Pacific Land Ltd (PLL).

According to Pacific Land Ltd, the potential clients of the park will be leading world groups and companies from the United States, United Kingdom, Japan, Germany, Switzerland and Sweden which are ready to make investment in new markets.

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

MALAYSIAN FIRM BUYS 70% STAKE IN TWIN RIVERS TECHNOLOGIES

Felda Holdings Bhd, one of the largest Malaysian palm oil producers is expected to acquire at least 70% of one of North America's biggest oleochemical producers, Twin Rivers Technologies (TRT). This move will boost Felda's presence in North America and pave a way to penetrate the European market. The signing of a memorandum of understanding (MOU) between the two parties was witnessed by Deputy Prime Minister Datuk Seri Najib Tun Razak. TRT's technical know-how and existing collaborations with European companies will benefit Felda.

This year's BIO Convention at Boston saw a record number of MOU signed between Malaysian biotech companies and their foreign counterparts. The Minister of Science, Technology and Innovation emphasized that these MOUs will be followed through, and that these collaborations will create more job and business opportunities. This year also saw the biggest Malaysian delegations: 14 exhibitors and 320 participants represented the country.

For more information contact Mahaletchumy Arujanan at maha@bic.org.my.

THAI-FRENCH SEMINAR ON OIL PALM

A Thai-French Joint Seminar on Molecular and Genomic Study of Oil Palm was organized at BIOTEC, Thailand Science Park by the French Institute of Research for Development (IRD), France, the French Agricultural Research Center for International Development (CIRAD) and BIOTEC. The event aimed to present information about research activities in Thai and French laboratories focusing on the molecular and genomic study of oil palm, which will provide important tools for breeding strategies aimed to develop varieties of oil palm with higher yields, which are needed to meet future demand.

More information available at:

<http://www.biotec.or.th/biotechnology-en/newsdetail.asp?id=2342>

SYNGENTA TO ENTER CHINESE SEEDS MARKET

Syngenta recently announced that it would take minority stakes in Sanbei Seed Co Ltd, one of the larger high-value corn seeds companies in China. "Sanbei is an excellent partner for Syngenta to jointly develop innovative corn seed products to meet the growing demand in China for high-quality, high-yielding corn, which is driven by changing agronomic trends and shifting food patterns", said Michael Mack, Chief Operating Officer Seeds at Syngenta. "The company has strong commercial operations and an attractive product portfolio. Together with Syngenta's expertise in corn breeding this will result in improved and broader product availability for Chinese growers."

Read the press release at <http://www.syngenta.com/en/media/press/2007/05-14.htm>.

LICENSE APPLIED FOR GM COTTON IN AUSTRALIA

Monsanto Australia has applied to the Office of the Gene Technology Regulator (OGTR) for a license for the limited and controlled release of genetically modified herbicide tolerant and/or insect resistant Extra Long Staple cotton. The cotton variety is resistant to the major lepidopteran caterpillar pests of cotton and/or tolerance to glyphosate.

The release will take place in 13 sites in Queensland and New South Wales during the summer growing seasons of 2007/08 and 2008/09.

Questions about the application or comments can be forwarded to the Office of the Gene Technology Regulator at ogtr@health.gov.au.

BIOREFINERIES TO TRANSFORM FORESTRY SECTOR

The forestry sector experiences rapid and vibrant growth as biorefineries sprout to change the face of forestry industries. Dr Simon Potter, a researcher from Ensis – the forestry research joint venture between Australia's CSIRO and New Zealand's Crown Research Institute, Scion – says forestry industries will be transformed by utilizing biorefineries to produce a wide range of new, high-value products such as plastics, textiles, functional food additives, and fragrances.

Ensis is undertaking phenomics gene research to better understand gene function in trees, which will form the basis of the development of whole new industries for the forestry sector. "Our phenomic research is specifically focused on enhancing the growth and wood characteristics of trees, which means they could be grown specifically to make biofuels, plastics or other bio-based products," Dr Potter says.

Read the news article at <http://www.csiro.au/news/Bio2007InBostonMA.html>.

NEW REGULATION STOPS MARKETING OF GM MAIZE SEEDS IN GERMANY

Monsanto is not allowed to market seeds of genetically modified maize MON810 in Germany until Monsanto has provided a monitoring plan for the observation of the potential environmental effects of the genetically modified (GM) plant. This is in accordance with a new regulation issued by the German Federal Office of Consumer Protection and Food Safety (BVL), as a precaution to the potential environmental risks of MON810. However, a research program funded by the German government investigated GM plants for several years and found no indications of such risks. Monsanto responded that they are already operating a monitoring program that fully complies with the new requirements.

The news article is available at <http://www.gmo-compass.org/eng/news/messages/200705.docu.html#117>.

IMMUNE RESPONSE AGAINST PEST ATTACKS NOT SIMPLE AS IT SEEMS

Insect attacks and pathogen infestations elicit immune responses in the form of plant hormones from the affected plant. In thale cress, the response is a complicated defense technique that does not necessarily depend on the same genes, as Dutch researcher Vivian van Oosten found out. Van Oosten exposed thale cress to five different plant pests with various attack strategies: aphids, thrips, caterpillars, bacteria and fungi. The composition and quantity of the plant hormones jasmonic acid, ethylene, and salicylic acid that the plant produces as a response, was specific for each pest. Analysis of the activated genes made it clear that every hormone composition in the plant led to an extremely complex expression file, and that immune responses in thale cress are attacker-specific.

Readers can access the article at http://www.nwo.nl/nwohome.nsf/pages/NWOA_6ZYL8N_Eng.

BIOTECHNOLOGY IN THE COMING DECADE

The next decade will be seeing an upsurge in the number of people employed in biotechnology, and a more dynamic working environment. The outcome of a broad study by the Fraunhofer Institute for Systems and Innovation Research (Fraunhofer ISI), and the German Institute for Economic Research (DIW) Berlin stressed the importance and the role of biotechnology in German industry in the future. Germany must use the potential of this new technology in a more decisive manner and improve relevant framework conditions, so that its industry location is not left behind in dynamic international developments. This is especially true for industrial biotechnology, one of Germany's strong points, and for plant biotechnology, which needs some catching up.

According to the study, almost half a million jobs can be secured or created in biotechnology by 2020. The greatest growth leap for biotechnology would be in the chemical industry, with employment figures rising by up to 200 percent, and shares expected to triple from the current 4-6 percent.

Read the complete article at http://www.europabio.org/articles/Jobpot_study%20Germany_EN_020507.doc.

DEFRA APPROVES SECOND SITE FOR GM POTATO TRIAL

The Department of Environment Food and Rural Affairs (DEFRA) of the United Kingdom has approved the second site, located in East Yorkshire, for the GM potato field trials. The other approved site is in Cambridge. The Advisory Committee of Releases to the Environment (ACRE), who evaluated the site, said that the trials that will be done will not have adverse effects to human health or the environment.

The GM potato is said to be resistant to late potato blight, a significant disease problem for UK potato growers. The field trials will find out the effectiveness of the potato's resistance to pathotypes of the disease present in the United Kingdom.

Read the article at <http://www.defra.gov.uk/environment/gm/regulation/pdf/07-r42-01.pdf>

Research

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SILICA NANOPARTICLES FOR PLANT TRANSFORMATION

Silica nanoparticles are frequently used to deliver DNA and drugs into animal cells and tissues. Iowa State University researchers have recently shown that a similar system may work in plants to deliver both a transgene and a chemical inducer that triggers the expression of the co-delivered transgene in the cell. The system works by loading chemicals inside the honeycomb of the nanoparticles, then capping it with gold particles.

Francois Torney and colleagues used the gene gun method to bombard cells of tobacco and maize with these mesoporous silica nanoparticles (MSN). The MSNs either contained the green fluorescent marker gene together with b-oestradiol or just the marker gene alone.

The researchers observed that by uncapping the MSNs, the chemical inducers present inside the honeycomb was released and triggered the expression of the marker gene. Torney and colleagues concludes that pore enlargement and multifunctionalization of the MSNs may offer new possibilities in target-specific delivery of proteins, nucleotides and chemicals in plant biotechnology.

For more information, the paper published in Nature Nanotechnology may be accessed by subscribers at <http://dx.doi.org/10.1038/nnano.2007.108>.

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AUTOMATION OF DNA MARKER ANALYSIS FOR MOLECULAR BREEDING

DNA markers have helped a lot in speeding up several steps in the plant breeding process. Among its many applications include use in marker assisted selection for superior genotypes, and for checking for genotype uniformity.

DNA marker analysis can be automated to meet both the high-throughput and low cost requirement of many breeding programs, says researchers in Sweden and Denmark. The group presented the fully automated polymerase chain reaction system used in Svalof Weibull AB (SW) for evaluating barley and canola lines.

The system was presented to be capable of analyzing up to 2200 samples per day at a cost of 0,24 € per analysis for marker assisted selection and quality control of genetically modified organisms.

The complete paper with the detailed description of the SW system was published by the journal Plant Breeding and available for subscribers at <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1439-0523.2007.01306.x>.

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HIGH-DEF GENOME PROFILING AIDS MARKER DISCOVERY

Genetic maps allow the genetic position of genes and markers associated with phenotypic traits to be identified. With the recent advances in microarray technology, high definition maps are now possible. These maps will allow the precise pinpointing of genes of interest.

In a review paper, researchers in Syngenta discussed how single feature polymorphisms (SFPs) from microarray analysis can help in genetic mapping and in the identification of genetic variation. SFPs are DNA hybridization polymorphic markers detected by a high-density microarray.

The SFPs have emerged as attractive alternatives to single nucleotide polymorphisms (SNPs) for high-definition genetic mapping. The researchers foresee that they will play a profound role in steps towards high definition genetic discovery and genomic analyses of crop traits in the near future.

The review paper in the journal Trends in Plant Science is accessible online at <http://dx.doi.org/10.1016/j.tplants.2007.03.013>.

Announcements

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BIOECO 2007 IN CHINA

Tianjin, China is the venue for the Bioeconomy partnership conference or BioEco 2007 on June 26-28, 2007. Sponsored by the Ministry of Science and Technology of China and Tianjin Municipal Government, the conference will provide an opportunity for biotech professionals, government officials, and business leaders to exchange knowledge and experiences about biotechnology.

For more information, visit <http://www.cncbd.org.cn/bioeco2007/jichu/bbs.html> where an English version is available.

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Document Reminders

ECOLOGICAL IMPACTS OF GENETICALLY MODIFIED CROPS - EXPERIENCES FROM TEN YEARS

The study, "Ecological impacts of genetically modified crops - experiences from ten years of experimental field

research and commercial cultivation", by the Biosafety group of the Agroscope Reckenholz Tänikon Research Station ART, Switzerland, is now available from the peer reviewed Advances in Engineering/Biotechnology Journal.

The abstract can be read at: <http://www.springerlink.com/content/a38331087k305514/?p=eac07ee14a80462aa019fc081239fc85&pi=0>. For more information contact: Dr Olivier Sanvido at olivier.sanvido@art.admin.ch.

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