

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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NEWS

*** GLOBAL ***

FAO PUSHES FOR PUBLIC/PRIVATE AGRIC INVESTMENTS

“Investing in agriculture for food security so that the whole world will profit” — this is the theme of World Food Day 2006. According to Food and Agriculture Organization (FAO) Director-General Dr. Jacques Diouf, there has been a recent significant revival in lending for agriculture, but much still remains to be done. “Increasing the volume of public investment in agriculture but also making it more effective are of absolute necessity,” stated Dr. Diouf. Investments in agriculture are critical in achieving the first United Nations Millenium Development Goal: to halve hunger and alleviate poverty worldwide by 2015.

Readers can access the complete press release at:

<http://www.fao.org/newsroom/en/news/2006/1000424/index.html>.

ENSURED ACCESS TO WORLD’S MOST IMPORTANT GENE BANKS

Users of plant genetic resources such as breeders, farmers and researchers were assured of open access to germplasm collections in international agricultural research centers (IARCs). This follows a signed agreement between the IARCs and the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture during this week's World Food Day celebration.

Signing in behalf of the Treaty was Food and Agriculture Organization's (FAO) Director-General Dr. Jacques Diouf, who said that the “collections represent a substantive investment by the international community. They are a global capital on which all can now draw.” The Treaty, which entered into force in 2004, aims to ensure that plant genetic resources for food and agriculture are conserved and sustainably used, and that resulting benefits are equitably and fairly distributed.

Read the complete press release at

<http://www.fao.org/newsroom/en/news/2006/1000425/index.html>.

INSECT-RESISTANT BIOTECH TRAITS LICENSED

Plant growers can now experience wider access to insect resistant biotech traits, according to Dow AgroSciences LLC and Pioneer Hi-Bred International, Incorporated. The co-developers of the Herculex® family of insect resistance for corn have already agreed to license Herculex RW Rootworm Protection and Herculex XTRA Insect Protection to other seed companies. Herculex I offers above-ground protection against black cutworm, western bean cutworm, and the European corn borer, while Herculex RW provides below-ground protection. Herculex XTRA combines the protective capacities of these two traits.

Readers can visit <http://www.dowagro.com/newsroom/corporatenews/2006/20061018a.htm> for the complete news release.

KILLER FUNGUS DEMYSTIFIED

Scientists with the Agricultural Research Service (ARS) and their collaborators are unlocking the secrets of the killer mold *Aspergillus flavus* by looking at its genetic make-up. ARS geneticist Yiujiang Yu, with collaborators Gary Payne at North Carolina State University-Raleigh and Bill Nierman at the Institute for Genomic Research (TIGR) recently sequenced the *A. flavus* genome and found out that the deadly fungus shares 98 percent or more of the same genetic material with its cousin, the harmless food-grade fungus *Aspergillus oryzae*.

“We’ve discovered that the two fungi are incredibly similar,” says Yu, “so the night-and-day difference that we observe, in terms of their toxin production, may boil down to just a handful of genes.” Yu and colleagues identified 29 genes in *A. flavus* that make the critical enzymes needed for producing aflatoxin. ARS scientists hope to find the master switch in *A. flavus*—the gene that when interfered with, can shut down the fungus’ entire poison factory. Knowing this, scientists could then move a counter gene into vulnerable crops, endowing the plants with built-in protection against poisonous fungi.

Readers can access the press release at <http://www.ars.usda.gov/is/pr/2006/061016.htm>. For more information about the article, visit: <http://www.ars.usda.gov/is/AR/archive/oct06/fungi1006.htm>.

VEGGIE CRUCIFERS FOR VACCINE PRODUCTION

Researchers at the Thomas Jefferson University reported the first successful use of cruciferous crops in the production of pharmaceutical proteins. Recombinant subunit vaccines for smallpox and severe acute respiratory syndrome (SARS) were produced using transgenic collard and cauliflower plants.

The report published in the journal *Plant Science* stressed that collard is desirable for production of the recombinant proteins due to its large leaf area, and cauliflower for its curd or head which can be stored and transported with ease. Both species are relatives of the model plant *Arabidopsis* whose genetic system is well studied.

The full paper can be accessed by subscribers at <http://dx.doi.org/10.1016/j.plantsci.2006.06.017>

BIOTECH COFFEE REVIEWED

Transgenic research in coffee is going to rapidly progress soon. This forecast was written by Vinod Kumar and colleagues in their review published by the journal *Plant Cell, Tissue, and Organ Culture*. The Indian scientists noted that due to the international coffee genomics initiatives, there will be more research on transgenic coffee speeding up the production of varieties with better pest

and disease resistance with improved processing characteristics. Currently, coffee GM research mainly focus on developing caffeine free varieties and resistance to leaf miner pests by using *Bacillus thuringiensis* (Bt).

“So far, no GM coffee has hit the market”, wrote Kumar and colleagues on their review. But the breakthroughs in in vitro manipulation and regeneration coupled with successful gene delivery systems will help molecular breeders to come up with desired varieties soon.”

The abstract of the review article can be accessed at

<http://www.springerlink.com/content/xk7r6704k5q68845/?p=67342f61e3964e3486ed70fbf7c14de5&pi=6>

*** AFRICA ***

FOOD FOR AFRICA - FROM AFRICA

“Famines are created by policies, not by pests or droughts” writes Douglas Southgate, Professor of Agricultural Economics, Ohio State University, for the Guest Column of Accra Mail. Africa is the only place where agricultural productivity has decreased; poverty and malnutrition affect hundred of millions of Africans; and environmental adversities are omnipresent, and worsening due to prevailing agricultural practices.

“The application of improved farming technologies - fertilizer, pesticides, hybrid seeds - would bring clear benefits to the region” says Southgate. However, the key elements of the “Green Revolution” provide only the start of an answer. “The full answer lies with government and governance.”

Southgate argues that lack of political and economical freedom, low level of public funding for the agricultural sector, and the highest agricultural tariffs in the world are largely to blame for the collapse of agriculture. The involvement of the international community has done little to improve the situation, adds Southgate, as technical assistance and funds have increase the role of governments in the sector, leading to heavier taxes and tariffs, and to state-run monopolies. As a result, private initiatives and entrepreneurship are being stifled.

“Above all, governments need to get out of the way, to cut restrictive tariffs, to remove state marketing boards, to allow businesses to work - because Africans are perfectly capable of feeding themselves if only they were allowed to”, concludes Southgate.

Read the full article at: <http://allafrica.com/stories/200610170484.html>

FRANCE TO BOOST BURKINA FASO'S COTTON SECTOR

The French Development Agency has granted the National Union of Burkinabe Cotton Producers 7.2 billion CFA (US \$13.4 million) to assist build managerial capacity, train farmers and expand cotton production across the eastern and central areas of the country.

The grant also intends to diversify the agricultural sector, boost cereal production, improve transportation and storage facilities, and raise HIV/AIDS awareness.

Cotton is the country's main export, and about half of the population depends directly or indirectly on this commodity for income. Despite remarkable increases in production in recent years, falling world prices, a direct result of cotton subsidies in developed nations, are driving farmers away from growing cotton. According to the article, US cotton producers received last year more than US \$4.5 billion in subsidies. The U.S. has since reviewed its cotton subsidies program to comply with the World Trade Organization (WTO) rules.

Read the full article at:

<http://www.irinnews.org/report.asp?ReportID=55887&SelectRegion=West Africa&SelectCountry=BURKINA FASO>

BIOFUELS TO POWER MOBILE BASE STATIONS

The MTN Group, a mobile network provider for Africa, the Global System for Mobile Communications (GSM) Association, and Ericsson have teamed up to establish biofuels as an alternative source of power for wireless networks in the developing world. The three organizations have set up a pioneering project in Nigeria to demonstrate the potential of biofuels as a source of power for mobile base stations located beyond the reach of the electricity grid. Biofuels from locally-produced crops such as groundnuts, pumpkin seeds, jatropha, and palm oil will be used in the initial pilot tests.

According to Rob Conway, CEO of the GSMA, biofuels have the potential to boost the social and economic welfare of the developing world by giving mobile operators local access to a commercially and environmentally sustainable power supply. Mobile network providers should also expect significantly lower operating costs arising from the use of locally-produced biofuels.

Read the complete news release at <http://www.gsmworld.com/developmentfund/news/index.shtml>.

*** THE AMERICAS ***

APPROVALS FOR BIOTECH MAIZE FIELD TRIALS IN MEXICO DENIED

The Department of Agriculture of Mexico (SAGARPA) has announced this week that the seven requests for authorization for biotech maize field trials submitted to the National Service of Health, Safety and Quality of Agriculture in Mexico (SENASICA), have not been granted approval.

SENASICA has stated that two legal requirements need to be met before approval is granted: a map of the depicting the centers of origin and genetic diversity of maize, and a program outlining measures to protect native species.

Read the full news release at <http://www.sagarpa.gob.mx/cgcs/boletines/2006/octubre/B262.htm>

BIOFUELS RESEARCH GETS US\$4M FUNDING

The Departments of Energy and Agriculture of the United States (DOE and USDA) recently announced \$4 million for bio-based fuels research that will accelerate the development of alternative fuels. Dr. Ray Orbach, DOE Under Secretary for Science, made the announcement at a conference jointly hosted by the two host agencies in St. Louis. The program will take advantage of significant advances in breeding, molecular genetics and genomic technologies to enable researchers to confidently predict and manipulate biological functions of plants for bioenergy resources. Solicitation for research proposals for new plant feedstock genomics research projects has already been issued by the DOE and USDA.

For the news release, visit:

<http://www.usda.gov/wps/portal/!ut/p/s.7.0.A/7.0.1OB?contentidonly=true&contentid=2006/10/0408.xml>. Information about the joint research program, the current solicitation and currently funded projects is available at <http://www.genomicsgtl.energy.gov/research/DOEUSDA/>. The solicitation is posted on <http://www.grants.gov>.

PIONEER DEVELOPS 19 NEW RR SOYBEANS

Nineteen of the twenty new soybean varieties from Pioneer Hi-Bred for 2007 contain the Roundup Ready® (RR) gene. Aside from herbicide resistance, the new varieties offer better protection against insect pest and diseases found in the US Midwest and Southeast regions such as brown stem rot (BSR), Phytophthora root rot, soybean cyst nematode (SCN), and sudden death syndrome (SDS). A number of the varieties were developed for soils prone to iron chlorosis, some are more resistant to drought, or have better stand when planted in hilly terrain. The company states that overall, the new varieties promise better performance and yield.

For the complete press release:

http://pioneer.mediaroom.com/index.php?s=press_releases&item=191

*** ASIA ***

BAYER'S HYBRID RICE LAUNCHED IN VIETNAM

Bayer CropScience launched its hybrid rice Arize® B-TE1 in Can Tho, located in the Mekong Delta region. The event made Bayer the first company to introduce hybrid rice seeds in Vietnam. The hybrid rice was touted to have higher yield than the best inbred under similar conditions. In addition, it also claims to have superior grain, cooking, and taste qualities.

The introduction of Arize® in Vietnam is a move by Bayer to expand its rice business. Bayer is already marketing hybrid rice in India and the Philippines, but it aims to expand its market in 10 countries in 10 years.

For the complete press release:

http://www.bayercropscience.com/bayer/cropscience/cscms.nsf/id/EN_NR20060928?open&ccm=400

CSIRO SAYS GM COTTON 'MAYBE MORE WATER EFFICIENT'

Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO) Plant Industry reports that preliminary research results show that genetically modified insect-resistant cotton may also be more water efficient. CSIRO's researchers Dirk Richards and Stephen Yeates said that under normal full irrigation, Bollgard® II cotton used 10 per cent less water than an equivalent conventional variety and had higher yields. Australia plants Bollgard® II extensively and has reduced pesticide use by up to 80 per cent.

CSIRO adds that Bollgard® II and conventional cotton extract soil water at a similar rate, but Bollgard® II has a more compact growing season so it uses less water overall for the same or higher yields.

Read more on CSIRO's work at

<http://www.pi.csiro.au/enewsletter/previousEditions/015story1.htm>.

ICAR ADOPTS AGRI-TECH IPR GUIDELINES

The Indian Council of Agricultural Research (ICAR), in recognition of the importance of Intellectual Property Rights (IPRs) to promote agricultural development and innovation, has developed and adopted a comprehensive guideline on intellectual property management, technology transfer and commercialization. The guideline came into effect on Oct 2, 2006. The broad components of the guidelines include policy framework, management of IPR, patent and plant varieties protection, technology transfer and commercialization of IP/Technologies and plant varieties, public-private partnership and incentives and benefit sharing.

Mangla Rai, Director General ICAR, said the logical transfer of IPR enabled ICAR technologies through public-private partnerships, and added that commercial routes will gain as much importance as the public system for the adoption and diffusion of technologies developed by public sector institutions.

Access the ICAR guidelines at <http://www.icar.org.in/miscel/icar-ipmttcguide.pdf>.

For more information contact: b.choudhary@isaaa.org

FARMERS' POLICY PANEL BACKS AGRIC BIOTECH

The National Commission on Farmers, while submitting the revised draft National Policy for Farmers to the Government of India, has strongly recommended the deployment of new technologies to enhance land productivity and optimize the use of water. Frontier technologies like biotechnology, information and communication technologies and nanotechnology provide opportunities for launching an "Ever-Green Revolution" capable of improving productivity in an environmental friendly way. Biotechnology is flagged as one of the important tool in the ten major goals to be achieved under the policy.

The safe and responsible use of biotechnology will need credible and capable regulatory mechanisms. A National Biotechnology Regulatory Authority should be set up for this purpose, with farmers' representatives on it. The report also calls for increasing scientific literacy and for a better understanding of the benefits and potential risks of biotechnology.

Access the Revised Draft National Policy for Farmers at: <http://krishakayog.gov.in/revdraft.pdf>. For more information contact: b.choudhary@isaaa.org

INDIAN PM OFFERS NEW DEAL FOR RURAL INDIA

Manmohan Singh, India's Prime Minister, has stated that the route to economy-wide growth rates has to be through accelerated agriculture investment and the infusion of new technologies. Addressing the Second Agriculture Summit 2006 on 18th Sept, the Prime Minister said that the strategy for agricultural development must be based on improving the real incomes and the quality of life of the farming community.

The PM called for the greater application of new scientific and technological knowledge to improve farming, particularly in dryland areas, with a focus on farming systems as a whole. In order to revive agriculture sector, Singh has proposed to bridge four deficits: the public investment and credit deficit; the infrastructure deficit; the market economy deficit; and the knowledge deficit.

To read the full document visit: <http://www.pib.nic.in/release/release.asp?relid=21415>. For further information contact b.choudhary@isaaa.org.

THAI SCIENCE & TECH MINISTER IN SUPPORT OF BIOTECH

Yongyuth Yuthavong, the new Science and Technology Minister of Thailand, has designated three key technologies as essential for the country's development: Information and Communication Technology (ITC), Biotechnology, and Industrial Technologies. His policy framework will address the role of science and technology to promote Thailand's economy and to increase the country's competitiveness.

The development in biotechnology is envisaged for the health and agricultural sectors. In agriculture, biotechnology should help farmers increase productivity and yields, said Yuthavong.

For more information contact Thailand's Biotechnology Information Center (BBIC) at safetybio@yahoo.com.

*** EUROPE ***

EFSA SIGNS DECLARATION OF INTENT FOR COOPERATION ON RISK ASSESSMENT IN EU

Members of the European Food Safety Authority (EFSA) Advisory Forum signed a Declaration of Intent expressing commitment to strengthen scientific cooperation and information exchange on risk assessment in the European Union. EFSA will work with members and the Scientific

Committee in developing a strategy and roadmap for scientific cooperation which will be presented to the Advisory Forum by the end of 2006.

The members likewise discussed possible opportunities to strengthen collaboration. These include identifying more formalized channels of communications; sharing data on specific dossiers; setting up ad hoc liaison groups on forthcoming risk assessments; encouraging exchange of information between scientific staff of EFSA and scientific panels at national level; and sharing draft opinions under embargo on issues of particular importance.

The text of the Declaration of Intent is available at http://www.efsa.europa.eu/en/advisory_forum/adv_meetings/af_18th_meeting.html while EFSA's press release is at http://www.efsa.europa.eu/en/press_room/press_release/adisory_forum_decl_intent.html

RESEARCH

BT CORN, INSECTICIDE EFFECTS ON SOILS ASSESSED

Bryan S. Griffiths and colleagues from various research institutions in the UK, France, and Denmark assessed the effects of Bt corn on the soil by quantifying microbial and faunal numbers. Their article, "Soil Microbial and Faunal Community Responses to Bt Maize and Insecticide in Two Soils" is published in a recent issue of the Journal of Environmental Quality.

The team assessed the effects of Bt maize and an insecticide on soil and microbial faunal communities in sandy loam and clay loam soils, in order to compare results between soil in glasshouse conditions and in the field. Bt corn plants were grown in both soils, and half of the plants were sprayed with a pyrethroid insecticide.

After quantifying microbial and faunal communities, the researchers found that: 1) the main effect on all measured parameters was that of soil type, and there were no effects of the Bt trait or the insecticide on plant growth; 2) Soil grown with Bt maize had more soil nematodes and protozoa; 3) there were no significant differences in soil phospholipid fatty acid content as a result of the Bt trait or insecticide applications; 4) and there were no effects of insecticide application on the amounts of Bt protein detected in soil. The researchers also observed that plants treated with insecticide had higher concentrations of the Bt toxin than untreated plants in some instances, a finding which, they said, may warrant further investigation.

Subscribers to the journal can read the complete article at <http://jeq.scijournals.org/cgi/content/full/35/3/734> or <http://dx.doi.org/10.2134/jeq2005.0344>.

IN VITRO CONSERVATION OF VANILLA PLANTS

A report of more than seven years of research on how to successfully conserve vanilla plants in vitro was published in *Scientia Horticulturae*. Vanilla plants are the source of natural vanillin compound used by the flavoring industry.

Minoo Divakaran and colleagues described their standardized protocols used in conserving a large collection of vanilla germplasm by using synthetic seeds and slow growth storage. The authors wrote that the protocol they have developed "is efficient in the production of more multiple shoots and extendable to different species". This makes possible the large-scale multiplication of disease free plants in many vanilla species.

The authors also note that, to date "vanilla germplasm is (still) conserved in clonal repositories belonging to botanical gardens and in scientific institutions." Conservation in vitro will be complementary to these traditional ways of safeguarding plant biodiversity.

For the abstract of the research paper please visit
<http://dx.doi.org/10.1016/j.scienta.2006.07.003>

ANNOUNCEMENTS

BIOSAFETY CLEARING-HOUSE LAUNCHES NEW LMO REGISTRY

The Secretariat has introduced an easily accessible central registry of all living modified organisms (LMOs), including information on the transformation event, gene insert and characteristics of the modification, and its unique identification code (if available). Links to all decisions that refer to one of these organisms are provided at the bottom of each LMO record accessible through the registry.

The Directory is available at: <http://bch.biodiv.org/informationsharing/default.shtml>

NEW DIRECTORY OF BIOSAFETY ORGANIZATIONS

The Secretariat of the UN Convention on Biological Diversity (CBD) has announced the launch of a new directory of organizations involved in biosafety activities. The directory currently contains 134 records and is accessible through the Biosafety Clearing House (BCH) mechanism of the Cartagena Protocol on Biosafety. It profiles the nature of work undertaken by each organization, focusing on its relevance to biosafety, and provides detailed contact information as well as links to relevant records in the BCH. The directory is available online at this link
<http://bch.biodiv.org/resources/organizations.shtml>

INDIA HOSTS INTERNATIONAL BIOSAFETY CONFERENCE

The Ministry of Environment and Forest in India is organizing an international conference on biosafety issues of genetically modified organisms (GMOs) in the context of the Cartagena Protocol on Biosafety. The conference will take place 20-22 Nov 2006 in New Delhi, India. The objective of the conference is to provide a forum for exchange of information on the important issues for strengthening the capacity of various stakeholders, and to identify areas for further development and harmonization of activities.

For further information please visit: <http://www.envfor.nic.in>

DOCUMENT REMINDERS

FAO REPORTS ON THE USE OF ARTHROPODS IN AGRICULTURE

Proceedings of the joint Food and Agriculture Organization and the Secretariat of the International Plant Protection Convention meeting on the "Status and risk assessment of the use of transgenic arthropods in plant protection" are now available online. The meeting held in Rome in April 2002 reviewed the current status of GM in pest arthropods; identified risks associated with the release of transgenic arthropods; and drafted provisional risk assessment protocols.

The 155-page report is available at http://www-pub.iaea.org/MTCD/publications/PDF/te_1483_web.pdf

NEW REPORT ON DIRECT SOWING OVER PERMANENT VEGETATION TO COMBAT DESERTIFICATION

CIRAD, the French Agricultural Research Centre for International Development, has released a report on the role of direct sowing over permanent vegetation cover to combat desertification. This innovative production system prevents the damage caused by plowing and thereby guarantees soil conservation.

The document, available in French, can be accessed at:
<http://www.cirad.fr/fr/actualite/communique.php?id=549>

WIKIBOOK - GENES, TECHNOLOGY AND POLICY

Among the open-content textbooks collection is "Genes, Technology and Policy", a book authored by Jose Maria Ochave. The book, published in 2003 was donated by the UNDP Asia-Pacific Development Information Programme (UNDP-APDIP) for open access online. It features a chapter with answers to frequently asked questions on the applications of modern biotechnology in agriculture.

Browse or update the wikibook pages at:
http://en.wikibooks.org/wiki/Genes%2C_Technology_and_Policy

ERRATA

The International Plant Genetic Resources Institute will be known as Bioversity International or Bioversity in December 2006 and not Biodiversity International as announced in last week's issue.

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

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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.

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