**CROP BIOTECH UPDATE**

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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 Issue:



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**NEWS**

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## HEADS OF STATE DISCUSS MDGS, AGRICULTURE

About 170 heads of state are in the United Nations Headquarters in New York to discuss the future of the Millennium Development Goals (MDGs), among others. The MDGs set 8 goals, 18 targets, and 48 performance indicators to reduce poverty and improve people's economic and social development in developing countries. A side event to highlight the importance of agriculture and agricultural research for achieving the MDGs will be hosted by the Chair of the G-77, the Government of Japan, and the Chair of the CGIAR.

The Food and Agriculture Organization (FAO) called on the international community to honor its commitments to cut world hunger in half by 2015. It urged governments and private sector corporations to "adequately fund actions and initiatives that reduce hunger through rural development and reduction of rural poverty, while at the same time strengthening direct access to food by the most vulnerable."

FAO prepared a paper on “Eradication of poverty and hunger” for the summit that outlines a concise strategy to meet the first Millennium Development Goal (MDG) on hunger and poverty reduction.

Additional information on the United Nations World Summit is available at http://www.cgiar.org/monthlystory/september2005.html and http://www.fao.org/newsroom/en/news/2005/107538/index.html.

## INTEGRATING SOCIO-ECON ISSUES IN BIOSAFETY DECISIONS

Environmental, health, and socio-economic concerns need to be considered in decisions regarding biotechnology. Governance mechanisms and opportunities for stakeholder engagement that can assist in minimizing risks while maximizing the potential benefits of the technology are proposed in “Integrating socio-economic considerations into biosafety decisions: The role of public participation,” a White Paper prepared by the United States-based World Resources Institute.

Lindsey Fransen and colleagues provide information and analysis on socio-economic issues related to agricultural biotechnology, and make recommendations to stakeholders for designing and implementing policies and mechanisms that incorporate socio-economic considerations in decision-making. It forwards the following aspects to integrate socio-economic issues:

* Policies that mandate integration of socio-economic considerations into decision-making processes;

* A clear definition of socio-economic considerations and explicit criteria to determine when socio-economic assessments are required;

* Identification of the stages at which socio-economic assessments should take place;

* Efficient and cost effective regulatory processes; and
* Public participation mechanisms to ensure credible assessments and decisions that are more widely accepted.

Visit the World Resources Institute at http://www.wri.org/wri/.

## MYCOGEN GETS PATENT GRANT ON TRANSGENIC BT IN PLANTS

The United States Patent Office has granted patent rights to transgenic *Bacillus thuringiensis* (Bt) in plants to Mycogen Plant Seeds, Inc., an affiliate of Dow AgroSciences LLC. The newly granted patent for Bt in plants gives Dow broad and exclusive U.S. rights to this technology.

The patent was originally filed in 1988, but a decision by the U.S. Patent Office was delayed by interference proceedings by another company. The case was eventually resolved in Dow's favor. Dow's patent on transgenic Bt in plants (United States Patent Number 6,943,282) will be in effect until 2021.

For more information about Dow AgroSciences, visit http://www.dowagro.com or email Garry Hamlin of Dow AgroSciences at garryhamlin@dow.com.

## POSITIVE RESULTS FOR SWISS GM WHEAT FIELD TRIALS

The Federal Institute of Technology in Zurich, Switzerland reports that a field experiment on genetically modified wheat in Lindau near Zurich has yielded positive results. Swissinfo said that the study conducted between March to July 2004 tested wheat's resistance to smut fungi.

The experiment confirmed laboratory results that the KP4 gene improved wheat's resistance to fungi by 10 per cent. Chistof Sautter, project leader, said that safety tests on pollen distribution and soil analysis also showed that the GM wheat posed no increased risk to humans or the environment.

Additional details from Swissinfo at
http://www.swissinfo.org/sen/swissinfo.html?siteSect=107&sid=6072405&cKey=1126188163000

## SELANGOR TO MODERNIZE AGRIC SECTOR

Selangor, Malaysia is keen on making agriculture the nation's third economic growth engine with its Permanent Food Production program. It established eight agrotechnology parks on 974 hectares of land, emphasizing research and development to build up capability to produce high quality food products. This

includes the production of fruits and vegetables, livestock and aquaculture, as well as flowers of commercial value.

About 6.59 million kg of food worth RM6.97M (approximately US2.18M) has initially been produced from the agrotechnology parks. Production is expected to increase in the next few months.

Summaries of agriculture news in Malaysia are available monthly from the Malaysian Biotechnology Information Centre (MABIC) by emailing BICalerts@bic.org.my or info@bic.org.my.

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**RESEARCH**
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**REPORT LOOKS AT U.S. ASSISTANCE FOR SSA**

Michael R. Taylor and Julie A. Howard look at “Investing In Africa’s Future: U.S. Agricultural Development Assistance For Sub-Saharan Africa.” Their work appears online. The report moves beyond the traditional understanding of agricultural development assistance to encompass the wide range of investments and activities that may contribute to the ability of agriculture to help Africa. It tackles natural resources management, policy making, as well as market development for agricultural inputs and outputs.

The research seeks to, among others, summarize the policy-level commitments to African agriculture made by U.S., African, and other world leaders and organizations; document levels and trends in U.S. assistance to African agriculture; and present conclusions and recommendations concerning U.S. agricultural development assistance for sub-Saharan Africa.

Researchers found that the total U.S. agricultural development assistance for Africa has grown by only an estimated 2% in real terms since 2000, and the apparent trend in U.S. assistance for African agriculture is not promising. This stands in direct contrast to increases in funding for health programs in the continent.

The report recommends, among others, that the U.S. should 1) invest more in economic growth, making African agriculture a real budget priority, 2) reduce political overhead, 3) improve donor coordination and pooling of resources, 4) foster local ownership of the development process, and 5) improve transparency, accountability, and focus on local ownership and high-impact programs with longer time horizons.

Download the complete report at
http://www.africanhunger.org/uploads/articles/2bf0674bd36a2d7ef43fdc439102ef07.pdf

## CHANGES IN BT COTTON INVESTIGATED

Bt cotton plants with the Cry1Ac protein have shown varying efficacy against field populations of the insect *Helicoverpa armigera*. This may cause *H. armigera* to evolve resistance to the Cry1Ac toxin.

In "Changes in Cry1Ac Bt Transgenic Cotton in Response to Two Environmental Factors: Temperature and Insect Damage," Olsen and colleagues of the Commonwealth Scientific and Industrial Research Organization (CSIRO) of Australia study how changes in temperature and degree of insect damage can contribute to Bt cotton's efficacy in the field. Their work appears in the latest issue of the Journal of Economic Entomology.

Researchers used *H. armigera*, a chewing insect, and the aphid *Aphis gossypii*, a sucking insect, to investigate how the insects could affect the crop's efficacy. They found lower levels of Bt toxin in the cotton after infestation with H. armigera, although attack by the aphid did not affect the Bt toxin levels as dramatically. They also found that cooler temperatures lowered the efficacy of Bt cotton, while plant growth at high temperature increased it.

The study could be a baseline for future research in pest resistance management, and its techniques used to monitor changes in the efficacy of biotech crops.

Subscribers to the Journal of Economic Entomology can access the full article at http://www.bioone.org/bioone/?request=get-document&issn=0022-0493&volume=098&issue=04&page=1382. Other readers may take a look at the abstract at http://www.bioone.org/bioone/?request=get-abstract&issn=0022-0493&volume=098&issue=04&page=1382.

## REVIEW TACKLES MINIMIZING VARIATION OF TRANSGENE EXPRESSION

Although gifted with the promise of rendering a plant immune to disease or insect attack, transgenes can sometimes be unstable and unpredictable. The sources of such variations include inconsistency in the copy numbers of the introduced gene or genes; somaclonal variation, or phenotypic differences amongst the biotech plants created; the site of insertion of the transgene; and RNA silencing in the host plant. As a result, researchers are spending more time and money to both achieve stable transgene expression, as well as to produce biotech crops with the expected level of expression.

Katleen M.J. Butaye and colleagues of the Katholieke Universiteit Leuven, Belgium review these techniques in “Approaches to minimize variation of transgene expression in plants.” The article is published in the latest issue of Molecular Breeding.

The review expounds on such techniques as Cre-Lox co-transformation, where the introduced gene is flanked by DNA sequences which will allow the gene to be stably integrated into the host genome. This technique has proven to be successful in mammalian cells, but is still inefficient for plants.

Other techniques include the use of new gene cassettes, viral suppressor genes, and, according to the researchers, the ultimate genetic engineering tool: plant artificial chromosomes.

Read the abstract at http://dx.doi.org/10.1007/s11032-005-4929-9. Subscribers to Molecular Breeding can access the full article through the same page.

**NOVEL ARABIDOPSIS HAS ENHANCED ETHYLENE RESPONSE**

Ethylene is a gaseous hormone involved in many aspects of the growth and development of plants. Annelies De Paepe and colleagues from Ghent University find that “The *Arabidopsis* mutant eer2 has enhanced ethylene responses in the light.” They describe a new member of the class of enhanced ethylene response mutants, which may aid scientists in understanding the process of development and senescence in plants. Their research is published in the latest issue of the Journal of Experimental Botany.

Using ethylene treatments on Arabidopsis plants, as well as studies of plant RNA, chlorophyll levels, and gene linkage, researchers found that the mutant phenotype is hypersensitive to ethylene applications. It does not senesce faster than the wild type, and can grow even on a low nutrient medium.

Subscribers to the Journal of Experimental Botany can read the article at http://jxb.oxfordjournals.org/cgi/content/full/56/419/2409. Other readers can take a look at the abstract at http://jxb.oxfordjournals.org/cgi/content/abstract/56/419/2409.

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## ANNOUNCEMENTS
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### EUROPEAN CONFERENCES

Lille, France is the site of European Biotech Crossroads on November 28-30, 2005. This will be an opportunity to share new scientific knowledge, foster innovation, and seize new market opportunities. More details at http://www.europeanbiotechcrossroads.com

The 10th Biotech and Finance Forum will be held in Barcelona, Spain on December 1, 2005. This is a pan-European initiative for scientists and biotech investors. Read more on the conference at http://www.europabio.org/events/December1_2005.htm. This will be followed by an Industrial Biotech Forum on December 2, 2005 to allow business venturing and entrepreneurship on biotechnology. See http://www.europabio.org/events/December2_2005.htm for additional information.

### SYMPOSIUM TO BE HELD IN JORDAN

The International Society for Horticultural Science (ISHS) and National Center For Agricultural Research and Technology Transfer (NCARTT) will hold a symposium on Fresh Food Quality Standards: “Better Food by Quality and Assurance.” This will be held on May 7th-11th, 2006, in Amman, Jordan. To apply, visit http://www.ncartt.gov.jo; or contact Mouien ElQaryouti at qaryouti@ncartt.gov.jo, Jamal Alrusheidat at jmoa44@hotmail.com, and Nisreen AlShawahneh at nisreen@ncartt.gov.jo.

### NEW DELHI HOSTS NATIONAL GM CONFERENCE

The South Asia Biosafety Programme (SABP) and the Indian Council of Medical Research (ICMR), in association with Biotechnology Consortium India Limited (BCIL), is hosting a national conference on the regulation and safety assessment of genetically modified (GM) foods. This will be held on Sept. 26-27, 2005 at the Nikko Metropolitan Hotel in New Delhi, India. The themes of the conference are the Regulation and Safety Assessment of GM Foods on Day 1, and Public Participation and the Consumer on Day 2.

You may get more information on the Provisional Agenda, and download the Registration form from http://www.agbios.com/sabp_main.php?action=ActivitiesPage.
You may also contact Dr. Vibha Ahuja at biotechdelhi@vsnl.com.

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**DOCUMENT REMINDER**
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**POLITICAL ECON BOOK AVAILABLE FOR DOWNLOAD**

The Political Economy of Food and Nutrition Policies, edited by Per Pinstrup-Andersen, was first published in 1993 by Johns Hopkins University Press for the International Food Policy Research Institute (IFPRI). Sections include studies on political economy issues at the national level; improving labor productivity through nutritional improvements; and implications for the design of programs, policies, and research needs.

The book is now available to download as PDF as an entire document, or by chapters at http://www.ifpri.org/pubs/books/ppa93.htm.

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