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## News

### GLOBAL

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#### CLIMATE CHANGE, BIODIVERSITY AT THE TOP OF THE POLITICAL AGENDA

Climate change has been demonstrated to be one of the major driving forces behind the unprecedented loss of biodiversity. On May 22, 2007, the international community will celebrate the International Day for Biodiversity under the theme "biodiversity and climate change".

Ministers of the environment of the G8+5 at their historic meeting held in Potsdam, Germany, from 15 to 17 March 2007, acknowledged that biodiversity and climate are intertwined, and that more efforts are needed to coherently address biodiversity and climate change issues together. For the first time in the history of the G8, their ministers of the environment with their partners from five mega-diverse countries considered and supported a plan – the *Potsdam Initiative – Biological Diversity 2010* – that revolves around ten concrete activities to help achieve by 2010 a significant reduction in the rate of biodiversity loss.

To read more: <http://www.biodiv.org/doc/press/2007/pr-2007-04-13-potsdam-en.doc>.

## FUNDS TO SAFEGUARD 21 FOOD CROPS

Funds will be flowing in to save more than 100,000 varieties of 21 food crops, some of which form the staple diet of people living in developing countries. This latest initiative by the Global Crop Diversity Trust and the United Nations Foundation is being funded by a US\$37.5 million grant from The Bill and Melinda Gates Foundation and the government of Norway.

The private-government-international partnership aims to pool genetic information about the crops, as well as store and maintain live seeds and root-vegetable samples. The selected crops include several that cannot be grown from seed, such as cassava, yam and coconut, for which storage is trickier. The project's grant will fund research into how to best conserve these plants. The money will also support a central database holding all known genetic information about the crops. The project will probably reach its climax with the opening of the Svalbard Global Seed Vault in March 2008.

Read the news article at <http://www.nature.com/news/2007/070416/full/070416-14.html>.

## BIOENERGY FOR RURAL DEVELOPMENT

Top international experts in bioenergy, food security and the environment met in Rome to discuss the impact of the rapidly-expanding bioenergy industry, and agreed that governments could use bioenergy to push for rural development. "In food security terms, bioenergy only makes sense if we know where the food-insecure populations are located and what they need to improve their livelihoods. Environmentally, we must make sure that both large- and small-scale producers of bioenergy fully take into account both the negative and positive impacts," said Alexander Müller, Head of the Food and Agriculture Organization (FAO)'s Natural Resources Management and Environment Department.

The experts agreed to accelerate development of tools for analyzing the food security and environmental impacts of bioenergy production as well as to strengthen data and information needed by countries to assess their bioenergy potential and identify hot spots for development. They also emphasized that bioenergy crops that compete with land and water for food production should not be grown in areas facing food security challenges. "The objective is bioenergy that is environmentally sustainable and socially equitable...It is a challenge that can and must be faced."

Read the press release at <http://www.fao.org/newsroom/en/news/2007/1000540/index.html>.

## AFRICA

### FOCUS ON THE AGRICULTURAL ECONOMY OF SENEGAL [\[Top\]](#)

Senegal is one of the countries in the drought-prone Sahel region of West Africa, and where subsistence agriculture remains prevalent. Senegal grows cash crops such as peanuts, cotton, gum arabic, fruits and vegetables, and must import many basic commodities such as rice, wheat, and dairy products. To unlock the agricultural potential of Senegal, the United States Department of Agriculture (USDA) opened a U.S. Agricultural Affairs Office at the U.S. Embassy in Dakar to expand two-way trade, promote private-sector investment, foster sustainable development, and create economic growth.

As a result, agricultural trade between the United States and Senegal is rapidly expanding, with US imports from Senegal having reached a new record of more than \$8 million so far in 2007, with peanut oil as the main import. In 2006, U.S. exports to Senegal topped \$10 million led by rice, processed fruits and vegetables, and vegetable oil.

Read the news article at <http://www.fas.usda.gov/info/fasworldwide/2007/03-2007/SenegalOverview.htm>.

## AMERICAS

### SCIENTISTS TINKER WITH SWITCHGRASS mRNA FOR BIOENERGY [\[Top\]](#)

Now that the biofuels industry is gaining momentum, scientists are studying the genetic make-up of plants to increase ethanol production. At the Agricultural Research Service ([ARS](#)), the focus is on switchgrass, and this time, it is not the DNA of switchgrass that draws attention from scientists but fragments of genetic material called messenger RNA (mRNA). mRNA is produced when genes are expressed (switched on), and it serves as a template for protein synthesis.

Determining the presence and the nucleotide sequences of the mRNA snapshots provides clues as to which genes have been turned on or shut off during such moments, according to Gautam Sarath, ARS molecular biologist. At least 12 out of 12000 switchgrass gene fragments are associated with genes that regulate the production and deposition of lignin. Lignin binds with sugar molecules, and therefore lowers the available sugar for ethanol production. Plant breeders and biofuels producers can use the genetic information to conventionally breed or genetically engineer new varieties of the grass with a diminished capacity to produce lignin.

Read the news article at <http://www.ars.usda.gov/News/docs.htm?docid=1261>.

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### DUPONT AND BP: BIOBUTANOL SIMILAR TO UNLEADED GASOLINE

DuPont and BP recently released the results of new fuel testing on biobutanol, an advanced biofuel being developed by the two companies. Biobutanol was proven to perform similarly to unleaded gasoline on key parameters, based on ongoing laboratory-based engine testing and limited fleet testing.

BP Biofuels program manager Frank Gerry spoke about results of tests that confirm biobutanol is a desirable fuel component. Biobutanol formulations that meet key characteristics of a "good" fuel include high energy density, controlled volatility, sufficient octane, and low levels of impurities.

Readers can access the news article at <http://www.bp.com/genericarticle.do?categoryId=2012968&contentId=7032451>.

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### PROSPECTS FOR BRAZILIAN AGRO-BUSINESS REMAIN BRIGHT

Despite market setbacks in the last two years, Bayer CropScience sees good long-term perspectives for the Brazilian agricultural markets. In fact, the company recently unveiled its plan to launch twenty new crop protection products in Brazil over the next four years. A new product specifically developed by Bayer CropScience for Brazil to cater to the

country's soybean growing industry, is Atento®, a unique solution for the management of Asian rust. Atento® is the first-ever available seed treatment product against this devastating plant pest. Bayer CropScience also plans to increasingly participate in the Brazilian biofuel market by focusing on ethanol extracted from sugarcane. The company is also looking to exploit potential opportunities in the seeds market with a focus on its core crops cotton, rice and vegetables.

Read the press release at [http://www.bayercropscience.com/bayer/cropscience/cscms.nsf/id/20070420\\_EN?open&ccm=400](http://www.bayercropscience.com/bayer/cropscience/cscms.nsf/id/20070420_EN?open&ccm=400).

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## CONOCOPHILLIPS ESTABLISHES BIOFUELS RESEARCH PROGRAM AT IOWA STATE

The energy company ConocoPhillips will establish \$22.5 million biofuels research program at Iowa State University in its bid to create joint research programs with major universities to produce viable solutions to diversify America's energy sources. ConocoPhillips will sponsor studies which give emphasis to crop improvement and production, the harvesting and transportation of biomass, and the impacts of biofuels on economic policy and rural sociology.

Robert C. Brown, the Iowa Farm Bureau Director of Iowa State's Office of Biorenewables Programs, said ConocoPhillips is especially interested in converting biomass to fuel through fast pyrolysis, a process that uses heat in the absence of oxygen to decompose biomass into a liquid product. This so-called bio-oil can be used as a heating oil or can be converted into transportation fuel at petroleum refineries.

To read more: <http://www.iastate.edu/%7enscentral/news/2007/apr/biofuels.shtml>.

## ASIA AND THE PACIFIC

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### VIETNAM TACKLES GM BIOSAFETY REGULATIONS

Any delay in implementing the regulation for risk assessment and field trials for genetically modified (GM) crops in Vietnam will affect the country's opportunity to benefit from the gains that can be derived from biotechnology. This was stressed by Dr. Le Huy Ham, director of the Agricultural Genetics Institute in Vietnam, during the workshop "Implementing biosafety regulations to release and commercialize GM crops in Vietnam", held this week in Hanoi, Vietnam.

Le Huy Ham warned that GM crops, such as corn, soybean and cotton, are already introduced illegally into Vietnam, which may damage biodiversity and may result in production problems for farmers since technical supervision is absent. The adoption of biosafety legislation is therefore an urgent concern. Vietnam intends to conduct field trials of selected GM crops between 2006 and 2010, and expects to commercialize and grow GM crops on over 30% of the land under cultivation in the near future.

Over 50 participants from the Ministry of Agriculture and Rural Development, Ministry of Environment, and Ministry of Health, as well as academics and scientists, attended the workshop. The event aimed to provide a detailed understanding of issues in regulation, food safety, biosafety, IP, and public awareness. The workshop was sponsored by Vietnam's Ministry of Agriculture Rural Development and by the International Service for the Acquisition of Agri-biotech Applications (ISAAA).

For more information contact Dr. Randy Hautea at [r.hautea@isaaa.org](mailto:r.hautea@isaaa.org).

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## COCONUTS, INCOME AND EQUITY IN ASIA [\[Top\]](#)

The poverty reduction project operated by the International Coconut Genetic Resources Network (COGENT) has been helping coconut farmers improve their standard of living. In the Philippines, about 3.4 million farmers depend directly on what has been called the 'Tree of Life.' Partners at a diverse range of pilot sites undertake a four-pronged approach to improving community livelihoods: first, the production and marketing of high-value products from all parts of the coconut; second, growing cash crops and extra food between the coconuts; third, the production of livestock and fodder; and fourth, the establishment of nurseries managed by the community to provide high-quality seedlings that enable farmers to diversify while at the same time conserving coconut diversity. It has been shown that diversification will ultimately improve the livelihood of coconut farmers.

In Thailand, one family depends entirely on coconut farming. It seems that all parts of the coconut tree, especially the fruit, can be put into good use. Aromatic young coconuts can be sold directly as ready-to-drink nuts, and the husk can be used for other purposes. From the sap collected from the MAWA hybrids, coconut sugar can be obtained, which fetches reasonable prices in the market. A young and thriving business from coconut is virgin coconut oil (VCO) production. Having a good life keeps Thai farmers motivated in maintaining their coconut farms.

To read more updates from COGENT, visit the Coconut Google Groups at <http://groups.google.com/group/coconut/web/poverty-reduction?hl=en>. Read the news article at <http://news.bioversityinternational.org/index.php?itemid=1739>.

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## IPR REGIMES AND PUBLIC SECTOR R&D

The Human Genome Sequencing Project (HGP) spurred many similar projects that sequence crop varieties. One example is the International Rice Genome Project to sequence the variety Nippon bare, a Japonica or temperate type of rice. China, in another public sector effort, tackled the genome of one parent of the super hybrid rice, an Indica or tropical type. Giant seed companies Monsanto and Syngenta also entered the foray, probably struck by the potential economic and business windfall from the rice genome sequencing project. Monsanto quickly shared their draft sequence to the public, while Syngenta has applied for patents for its sequence data.

What will be the impact of Intellectual Property Rights (IPRs) on publicly funded research? IPRs grant holders all legal rights to the property they created and prevent others from taking advantage of their ingenuity. *Ronilo A. Beronio, head of the Philippine Rice Research Institute's Intellectual Property Management Office, said that the Institute should see IPR as facilitating rice breeding, and added that with IPR, researchers can foresee possible complications in their use of technologies and circumvent the problems at a very early stage.* IPRs will also help researchers obtain valuable information about a genome of interest. Dr. Leocadio S. Sebastian, PhilRice's executive director, admitted that public sector R&D in the Philippines is passing through a challenging phase with advances in genomics under the current IPR regime. "We in public sector institutions should act immediately, redefine our roles, and upgrade our expertise with new norms in R&D due to IPR", Dr. Sebastian said.

For more information, contact SEARCA Biotechnology Information Center at [spt@searca.org](mailto:spt@searca.org).

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## EUROPE

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## GREECE BANS 16 NEW GM MAIZE VARIETIES

Greece raised its total maize bans to 47 by disallowing sixteen additional genetically modified maize varieties. Doubts about the crops' biosafety prompted the Greek government to prohibit the planting of GM maize, despite these crops having been approved by the European Union for commercial cultivation.

The news article is available at <http://www.gmo-compass.org/eng/news/messages/200704.docu.html#108>.

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## CHANGES IN PESTICIDE SPRAYING COULD REDUCE LOSS OF BIODIVERSITY IN GM FIELDS [\[Top\]](#)

By leaving two rows in every 100 unsprayed with pesticides, British crop researchers found that loss of biodiversity of weeds and seeds can be curtailed in transgenic crop fields. This reduction would allow weeds to produce seeds in the unsprayed rows, preserving plant diversity and giving birds and insects a source of food, according to John Pidgeon and his colleagues in a paper published online by *Proceedings of the Royal Society B*.

Pidgeon claims that this method will allow farmers to boost their profits and completely avoid the damage to weed and seed diversity. Genetically- modified herbicide-tolerant (GMHT) sugar beet, for example, is thought to be worth more extra per hectare than conventional varieties. "If you leave 2% unsprayed, GMHT sugar beet is actually better for the environment [than normal sugar beet]," he says. "It's a win-win: economically and environmentally."

Read the complete news article at <http://www.nature.com/news/2007/070416/full/070416-8.html>.

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## BIO4EU: BIOTECH HELPS SPUR EUROPE'S ECONOMY [\[Top\]](#)

The key findings of The Biotechnology for Europe Study (Bio4EU), a major component of the mid-term review of the European Union's Strategy on Life Sciences and Biotechnology, identified that the production and use of modern biotechnology contributed to almost two percent of the European Union's economy, and to 10-20% increase in labor productivity. The market for biotechnological products such as biopharmaceuticals has also experienced exponential growth in the past ten years. The report showed that the primary production and agro-food sector benefited from the wide variety of biotechnology applications supporting production efficiency, and reduction of resource consumption and of emissions per unit output or food safety. The study represents the first comprehensive compendium of information on the status of biotechnology applications in Europe and on its impacts and challenges.

Read the press release at <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/07/141&format=HTML&aged=0&language=EN&guiLanguage=en>.

## Research

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## GM GRAPES EXHIBIT HIGHER YIELD AND MORE INFLORESCENCES

Varieties of grapes (*Vitis vinifera*) have been cultivated widely in the Old World for centuries. Since then, there are efforts to improve the quality of grapes through conventional breeding and genetic engineering. In the paper, "Auxin Synthesis-Encoding Transgene Enhances Grape Fecundity" published in *Plant Physiology*, scientists in Italy observed an increase in shoot fruitfulness in transgenic grapes compared with the wild-type cultivars.

An ovule-specific auxin-synthesizing (*DefH9-iaaM*) transgene that increases the indole-3-acetic acid (a plant hormone) content of grape transgenic berries was transformed into cultivars Silcora and Thompson Seedless. Thompson Seedless naturally has very low shoot fruitfulness, whereas Silcora has medium shoot fruitfulness. The average number of inflorescences per shoot in *DefH9-iaaM* Thompson Seedless was doubled compared to its wild-type control. The berry number per bunch was increased in both transgenic cultivars. Researchers found that the quality and nutritional value of transgenic berries were substantially equivalent to their control fruits.

Read the full article at <http://www.plantphysiol.org/cgi/content/full/143/4/1689>.

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## WEED TO WEED TRANSFER OF GLYPHOSATE RESISTANCE

Crop to weed transmission of glyphosate resistance via gene flow has been frequently researched but little information is available on weed to weed interactions. To determine the possible occurrence of weed to weed transfer of the glyphosate resistance, researchers at the Iowa State University and University of Delaware examined hybridization in *Coryza*, a prevalent weed species in the Midwestern United States.

The researchers observed that hybridization and transfer of herbicide resistance can occur between *C. canadensis* and *C. ramosissima*. The researchers have determined that approximately 3% of ova were fertilized by pollen of the opposing species and produced viable seeds. The interspecific hybrids were found to have intermediate phenotype between the parents but exhibit superior resistance to glyphosate compared to the herbicide resistant *C. canadensis* parent.

The possibility of introgressive hybridization suggest complications in the management of glyphosate resistant weed populations in glyphosate resistant crops and the containment of glyphosate resistance genes within these agroecosystems. The researchers reiterated that weed control should be combined with alternative management tactics to mitigate the evolution of herbicide resistance in the current agroecosystems.

The paper published by the American Journal of Botany, can be accessed at <http://www.amjbot.org/cgi/content/abstract/94/4/660>.

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## IDENTIFICATION OF GENES CONTROLLING COTTON FIBER LENGTH

Cotton fiber is an extremely elongated single cell. It is considered as an ideal system for studying the mechanisms controlling plant cell elongation and research on the area is attractive because of its theoretical and practical importance.

A study by Chinese researchers has shown that the mechanism responsible for cotton fiber elongation is mediated by calcium signal transduction. This mechanism has been reported by other research to play important roles in the growth of plant cells, such as pollen tube and root hair cells.

The group of Peng Gao used a technique called suppression subtractive hybridization (SSH) to identify genes that are specifically or preferentially expressed in cotton fiber cells. Four genes were found to have high homology to calcium signaling components, calmodulin (CaM), glutamate decarboxylase (GAD) and calcineurin B-like (CBL) protein-interacting protein kinases (CIPKs).

For more details, the full paper published by Plant Science can be accessed at <http://dx.doi.org/10.1016/j>.

[plantsci.2007.04.008](#).

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## CHARACTERIZATION OF THE BLOOD DISEASE BACTERIUM OF BANANA

The blood disease bacterium (BDB) affects banana and plantain in Indonesia, and causes major decline of production in many places throughout the country. A reddish brown discoloration of vascular tissues and fruits are typical symptoms of the disease. The causal agent of blood disease was originally named *Pseudomonas celebensis*, but the description is inadequate by modern standards. The bacteria are believed to be closely related to *Ralstonia solanacearum*, the causal agent of wilt disease on various plants, including banana.

Dr. Baharuddin and Tutik Kuswinanti, from the Agriculture Biotechnology Laboratory of Research Center of Hasanudin University in Indonesia, investigated characteristics of the BDB and also the relationship between BDB and *R. solanacearum*. They have found that despite many similarities between the two pathogens, these can be clearly distinguished by their host range, nutritional characters, metabolic capability (Biolog system), fatty acid profiles and serological properties.

For more information contact Dr. Baharuddin at [baharunhas@yahoo.com](mailto:baharunhas@yahoo.com).

## Announcements

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### EUROPEAN COURSE ON BIOTECHNOLOGY ETHICS

The 4th European Course on Biotechnology Ethics will be held on August 20-27, 2007 in Vilnius University, Lithuania. The graduate course is aimed at Ph.D. students / young researchers of Life Sciences and Ethics. It is designed to provide, through a case-based approach, an interactive, interdisciplinary forum of discussion, covering the themes of ethical theory and practice, European law on biotechnology and New Member States problems, risk and risk perception, social & ethical factors in new research and developments, and technological policy and politics. Participations in the course are limited to 30 selected candidates. Deadline for applications is June 1, 2007.

For more information about the course and the requirements for application, visit <http://www.biotethics.org/> and <http://www.biotethics.org/downloads/conferences/vilnius/Announcement.pdf> or email [lbek@sam.lt](mailto:lbek@sam.lt).

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### AGRICULTURE IN TRANSITION

Wageningen University will be hosting a course, "Agriculture in transition" on June 18-29, 2007. The course aims for the participants to actively exchange and generate information on technical issues and aspects of societal/ institutional change with respect to more sustainable farming. The course will conclude with a special seminar, to which outside participants will also be invited.



For more information, visit [http://www.cdic.wur.nl/UK/newsagenda/agenda/Agriculture\\_in\\_transition.htm](http://www.cdic.wur.nl/UK/newsagenda/agenda/Agriculture_in_transition.htm).

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