

Where Nature and Science Meet

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BioLines is AfricaBio's 'Biotechnology Headlines' – a quick guide to what is topical. By design, the articles are not exhaustive, but references are given to follow up points of interest. Let us know what you like and dislike about **BioLines** and what you want to see as part of this service. Articles are edited and some shortened to meet space requirements. It is not the intention of this service to infringe on copyright. **BioLines** is issued free of charge and every effort is made to acknowledge the source of information.

CONTENTS:

NEWS FROM AFRICA

- ◆ STATUS OF BT COTTON CONFINED FIELD TRIALS IN KENYA(1)
- ◆ LIBERIAN PRESIDENT AWARDED HUNGER PROJECT PRIZE (1)
- ◆ ISAAA BANANA PROJECT WINS AWARD(2)
- ◆ PROGRESS IN SOUTH AFRICAN BIOTECH REVIEWED(2)
- ◆ UN AGENCIES CONVENED TO SUPPORT NEPAD(2)
- ◆ AGRICULTURAL RESEARCH COUNCIL OF NIGERIA UNVEILED(3)
- ◆ FARMERS VISIT BT COTTON FIELD TRIALS IN BURKINA FASO(3)
- ◆ \$250M FOR THE SAFE MANAGEMENT OF PESTICIDES IN AFRICA(3)
- ◆ IITA SCIENTISTS URGED TO APPLY R4D CONCEPT TO FEED AFRICA(3)

NEWS FROM OTHER COUNTRIES

- ◆ WORLD BANK GIVES CGIAR GENE BANKS US\$10M GRANT(4)
- ◆ SENESCO AND BAYER PARTNER TO DEVELOP BETTER CANOLA(4)
- ◆ TECHNICAL ADVANCES KEY TO SUSTAINABLE FOOD SECURITY(4)
- ◆ EDIBLE COTTONSEED PRODUCED THROUGH RNAI(4)
- ◆ A WHEAT GENE FOR BETTER NUTRITION(5)
- ◆ PROPANEDIOL FROM MAIZE(5)
- ◆ NOTICE BOARD (5)

AFRICA

STATUS OF BT COTTON CONFINED FIELD TRIALS IN KENYA

<http://www.aatf-africa.org/publications/BtcottonKenya.pdf>

Bt cotton confined field trials in Kenya have enabled the efficacy on the African bollworm and semi-looper to be established. It was also proven that there is no impact of the Bt cotton on key natural enemies and other arthropods. Dr. Charles Waturu, Center director of the Kenya Agricultural Research Institute-Thika, gave these highlights in his presentation in Nairobi during the Open Forum on Agricultural Biotechnology in Africa. He reported on the field evaluation of transgenic Bt cotton varieties DP448B and DP404BG for efficacy on African bollworms and its impact on non-target species.

LIBERIAN PRESIDENT AWARDED HUNGER PROJECT PRIZE

<http://www.africaprize.org>.

H.E. Ellen Johnson Sirleaf, President of the Republic of Liberia and the first woman elected president of an African nation, received The Hunger Project's 2006 Africa Prize for Leadership for the

Sustainable End of Hunger. The award, referred to as the Nobel Prize for Africa, is given to African leaders who "exhibit remarkable courage, vision, and commitment to the well-being of Africa's people".

The Hunger Project is an international NGO that works in partnership with people across Sub-Saharan Africa, South Asia and Latin to sustainably end hunger.

ISAAA BANANA PROJECT WINS AWARD

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The International Service for the Acquisition of Agri-biotech Applications (ISAAA) AfriCenter Tissue Culture Banana Project was voted the best project during the 10th Kenya Agricultural Research Institute's (KARI) Biennial Science Conference, which ended in Nairobi last week.

The project, which started in December 2002, beat over 200 projects for the first prize. The evaluation was done by a team of experts commissioned by KARI prior to the conference, whose theme was "Responding to challenges and opportunities through the development and dissemination of innovative agricultural technologies, knowledge and approaches".

The project aims to establish a self-sustaining system of production, distribution and utilization of farmer-preferred varieties of (TC) banana packaged with suitable micro credit component, and to strengthen its distribution network, orchard management and post harvest utilization.

In 2002 it was voted third best project during the 7th KARI Scientific Biennial Conference. It also won the First Place Medal in the Global Development Network (GDN) Awards for Science and Technology for Development, an initiative of the World Bank and the Government of Japan in 2000.

PROGRESS IN SOUTH AFRICAN BIOTECH REVIEWED

<http://dx.doi.org/10.1016/j.tibtech.2006.10.009>.

In a review published in the journal Trends in Biotechnology, researchers at the University of Pretoria wrote that the investments of the South African government to develop its biotechnology sector are now paying off. There are several biotechnological innovations now available commercially.

However, to further encourage the growth of the sector, the review by Thomas Cloete and colleagues cites that South African researchers should develop their entrepreneurial drive. This is needed to increase the small, medium and micro-enterprises (SMMEs) in the country and help provide employment opportunities to many.

One reason why South African university researchers just publish their results instead of patenting and commercializing their product is the high cost of registering foreign patents. The review said that the South African government can help by simplifying access to research funding and increase support for public research and development efforts.

UN AGENCIES CONVENED TO SUPPORT NEPAD

<http://www.uneca.org/>.

At least 20 United Nations agencies and departments convened last week in Ethiopia to devise ways of working jointly in an effort to support the New Partnership for Africa's Development (NEPAD). The Partnership was designed to address issues such as escalating poverty level, underdevelopment, and the continued marginalization of Africa. Participants of the meeting agreed to coordinate action for Africa's development, in accordance with a "cluster system". By working as a cluster, the capabilities of each UN agency are fully utilized.

"This meeting is a bold attempt to resuscitate the UN cluster system, and to give direction to the joint work of the agencies with regard to NEPAD," said Abdoulie Janneh, UN Under-Secretary General and Economic Commission for Africa (ECA) Executive Secretary. As a convener of different agencies working in support of NEPAD, ECA will host the UN/NEPAD secretariat of the regional consultation mechanism and will act as an agent for crosscutting issues.

AGRICULTURAL RESEARCH COUNCIL OF NIGERIA UNVEILED

http://www.nigeria.gov.ng/aso%20rock%20news_agriculturalresearchcounciltakesoff.aspx.

Nigerian President Olusegun Obasanjo has approved the launch of the Agricultural Research Council of Nigeria, which would coordinate agricultural research in the country, provide effective linkage with production in agriculture, and promote food security. "I believe the Research Council can do a lot to bridge the gap between research and food production, and we will hold them responsible for this. They have to be practical and realistic and establish the appropriate connections necessary for success", he stated.

FARMERS VISIT BT COTTON FIELD TRIALS IN BURKINA FASO

knowledge.center@isaaa.org

The International Service for the Acquisition of Agri-biotech Applications (ISAAA), in collaboration with INERA (the Institute for the Environment and Agricultural Research of Burkina Faso), and INSAH (l'Institut du Sahel), recently organized a travel tour to visit two Bt cotton field trials in Burkina Faso. The workshop's main objective was to provide the opportunity to farmers and journalists to see by themselves the performance of genetically modified cotton in the fields. Bt cotton is genetically engineered to protect the plant against the damage by bollworms. The event was attended by farmers and journalists from Burkina Faso, Mali, Benin, Senegal and Togo.

"In view of the results obtained in the field trials, we are ready to embark in the planting of Bt cotton in Burkina" said Sessouma Tinder, farmer from the Kéné Dougou region. "There is a clear difference between the Bt cotton fields and the conventional varieties, as transgenic plants carry more capsules. In addition, the transgenic fields receive only two pesticide treatments instead of six, which results in an important reduction in the cost of the pesticides. My main worry now is that the transgenic seeds become available, at a good price".

Burkina Faso is the only country in West Africa that has adopted a legal biosafety regulatory system, and field trials in the country are currently in their fourth year. The Bt trait has been transferred to local Burkinabe cotton varieties, and local scientists have carried out extensive biosafety and socio-economic studies. Burkina Faso is expected to commercialize Bt cotton next year, representing the first country in the region to adopt a biotech crop.

\$250M FOR THE SAFE MANAGEMENT OF PESTICIDES IN AFRICA

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About US\$250 million has been set aside to improve pesticide management in Africa. World Wildlife Fund (WWF) regional representative Dr. Kwame Koranteng said the money donated by the African Development Bank, Global Environment Facility, the Netherlands and Canada, would initially benefit seven African countries, including South Africa, Mali, Ethiopia, Morocco, Tanzania, Nigeria and Tunisia.

The WWF official made this announcement during the Conference of Parties to the Basel Convention on the control of trans-boundary movement of hazardous wastes and their disposal, at the United Nations Environment Programme (UNEP) headquarters, Nairobi, Kenya. Koranteng said poor pesticide management had affected agriculture, human health, environment, water quality, biodiversity and soils. Most hazardous wastes are industrial and obsolete pesticides. Kenya's Permanent Secretary in the Ministry of Environment and Natural Resources George Krhoda said Kenya had 10,000 tons of obsolete pesticides and that some like DDT had found their way back into the country illegally through Tanzania.

IITA SCIENTISTS URGED TO APPLY R4D CONCEPT TO FEED AFRICA

http://www.iita.org/cms/details/news_feature_details.aspx?articleid=544&zoneid=342.

Why do people still go to bed hungry in Africa? Why is it that Africa still depends on food importation and food aids to meet local demands? These are just some of the questions scientists at the International Institute of Tropical Agriculture (IITA), collaborators, and partners attempted to offer solutions to at a strategic planning activity held last week. DG Hartmann, IITA Director

General, challenged the scientists to articulate the Research-for-Development (R4D) concept in their research design as against Research and Development (R&D). This R4D concept puts farmers at the center of scientific research planning and design.

The week long activity enabled IITA scientists and research administrators to brainstorm on the justification for the Institute's involvement in R4D, to determine the benefits and deliverable International Public Goods (IPGs), comparative advantage of IITA's involvement in development issues and partnerships with both public and private sectors of the economy, scaling out and exit strategies.

WORLD BANK GIVES CGIAR GENE BANKS US\$10M GRANT

<http://www.cgiar.org>

The World Bank has approved a US\$10 million grant to support genebanks in the Consultative Group on International Agricultural Research (CGIAR) system. "Of the many investments needed, none is more fundamental than support for genebanks, which safeguard the crop diversity on which food security depends," noted Katherine Sierra, Vice President of the World Bank's Sustainable Development Network and CGIAR Chair.

More than 600,000 plant samples are kept in 11 genebanks which "represent the most important international effort to conserve genetic resources of staple crops, forages and agroforestry species," said CGIAR Director Francisco Reifschneider.

The Centers will use the new grant to further improve work on collections, increase collaboration, and contribute to the development of a global system for conservation and use of crop genetic resources.

SENECO AND BAYER PARTNER TO DEVELOP BETTER CANOLA

http://www.bayercropscience.com/bayer/cropscience/cscms.nsf/id/20061109_EN?open&ccm=400

Senesco Technologies, Inc. announced a new business relationship with Bayer CropScience. Senesco has given Bayer exclusive access rights to use proprietary genes that were previously demonstrated to increase the seed yield of canola. Bayer intends to use the technology in its InVigor® hybrid canola varieties.

Senesco is a U.S. biotechnology company that has developed a technology that delays cell breakdown and death. By delaying cell breakdown, plant produce can remain fresh longer after harvesting. The technology also has the potential to increase crop yield and resistance to environmental stress. Senesco also has applications of the technology in animals, including humans.

TECHNICAL ADVANCES KEY TO SUSTAINABLE FOOD SECURITY

<http://hir.harvard.edu/articles/1455>

To achieve a future where food security exists, food production is more sustainable and friendly to the environment, governments must recognize the global consequences of agricultural policies and overcome the resistance of entrenched interest groups. Gerald Nelson, professor in the Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, makes this conclusion in an article "Sustainable Food for the World: Rethinking Policy, Technology and the Environment," in the Harvard International Review online edition.

Nelson adds that technological advances will be a key part of that future. In particular, he notes that the improvements in genetics and production practices that involve more knowledge-intensive inputs, including organic practices, will need to be location-specific. Citizens must demand, he says, that their governments allow the private sector to operate profitably while providing a regulatory environment that encourages sustainability, safety, and equality.

EDIBLE COTTONSEED PRODUCED THROUGH RNAI

<http://agnews.tamu.edu/dailynews/stories/SOIL/Nov2006a.htm>

Aside from being a source of fiber, cotton may soon be also used as food. Researchers in Texas announced that they have developed an edible cotton variety using RNA interference (RNAi). RNAi is a mechanism that uses double stranded RNA to significantly reduce the expression level of a gene. This technology was applied by the researchers to target a gene in the gossypol production pathway, thereby 'silencing' it. Gossypol is a toxic compound in cottonseed that is harmful to humans and animals.

An edible cottonseed has the potential to feed millions of people a year, said Keerti Rathore, a member of the research team. In addition, meal residues can also be used as feed for livestock and poultry, making the plant more valuable. Rathore said that it will take about a decade for the edible cottonseed to be available in the market.

A WHEAT GENE FOR BETTER NUTRITION

<http://www.sciencemag.org/cgi/content/abstract/sci;314/5803/1298>

Researchers at the University of California, Davis, the U.S. Department of Agriculture and the University of Haifa in Israel have identified a gene, *Gpc-B1*, that increases the protein, iron, and zinc content of wheat kernels.

The team, who reports their findings in the Science journal, found that kernels harvested from the plants with lowered *Gpc-B1* activity had at least 30% less protein, zinc and iron. *Gpc-B1* increases seed nutrient content by accelerating senescence (ageing) of the plant and thereby increasing the remobilization of nutrients from leaves to developing grains. The finding predicts that adding additional copies of the functioning gene into bread and pasta wheats will be valuable to produce food with enhanced nutritional value.

"Wheat is one of the world's major crops, providing approximately one-fifth of all calories consumed by humans. Therefore, even small increases in wheat's nutritional value may help decrease deficiencies in protein and key micronutrients," said Professor Jorge Dubcovsky, a wheat breeder and lead researcher on the project.

According to the World Health Organization, more than 2 billion people are deficient in zinc and iron, and more than 160 million children under the age of 5 lack an adequate protein supply.

PROPANEDIOL FROM MAIZE

http://pioneer.mediaroom.com/index.php?s=press_releases&item=208

DuPont has announced the first commercial shipments of Bio-PDO™, a product of DuPont Tate & Lyle Bio Products, LLC, an equally-owned joint venture of DuPont and Tate & Lyle. The joint venture uses a proprietary fermentation process to produce propanediol using corn instead of petroleum-based feedstocks. The production of Bio-PDO™ consumes 40 % less energy and reduces greenhouse gas emissions by 20 % versus petroleum-based propanediol. Production of 100 million pounds of Bio-PDO™ will save the energy equivalent of 10 million gallons of gasoline per year.

According to DuPont Tate & Lyle Bio Products President Steven Mirshak, Bio-PDO™ is a versatile ingredient for a number of products including specialty polymers and also is well suited for cosmetics, liquid detergents and industrial applications like anti-freeze.

"We are seeing strong demand for all of our grades of Bio-PDO™ due to its performance, biodegradable nature, and ability to replace petroleum-derived products. Wherever a glycol is being used today, businesses should consider replacing it with our new renewable ingredient", said Mishrak.

NOTICEBOARD

15-17 March 2007 - The University of Agricultural Sciences, GKVK Bangalore, the Institute for Social and Economic Change, Bangalore and Iowa State University, Ames, USA are jointly organizing an International Conference on "21st Century Challenges to Sustainable Agri-Food Systems, Biotechnology, Environment, Nutrition, Trade and Policy" at Bangalore, Karnataka. The conference will bring together education leaders, researchers, and specialists in extension, policy makers, agri business and development

practitioners to draw up a strategy and action plan for dealing with the issues of sustainable agriculture. For detail information contact: Prof PG Chengappa at chengappag@gmail.com or visit <http://www.sustainagri.org/>

20 – 23 March 2007 - A conference entitled "CANOLA – Growing Great 2015" will bring together various sectors of the canola industry will be held in Victoria, BC, Canada. The event aims to map out the future for canola as food and fuel and determine a strategic action to profitably grow all segments of the canola industry. The expected participants include canola input suppliers, processors, exporters, researchers, regulators, marketers and retailers. More information on this event: <http://www.canola-council.org/conference/index.htm>

7 – 12 May 2007 - The 6th International Congress on Plant Biotechnology and Agriculture BIOVEG2007 will be held in Ciego de Avila, Cuba. Topics to be discussed include biotechnology-assisted plant propagation, biotechnology-assisted plant genetic improvement and conservation of germplasm, and metabolic engineering and plant natural products. Registration and submission of manuscripts starts on Nov.1, 2006 and ends on Feb. 28, 2007. For more information, visit: <http://bioveg.bioplantas.cu>.

8 – 10 May 2007 - The International Islamic University Malaysia will be organizing the International Conference on Biotechnology Engineering (ICBioE '07) in Kuala Lumpur, Malaysia. The theme of the conference is Harnessing Nature to Enhance Quality of Life, and topics such as biomolecular engineering, biopharmaceutical engineering, agricultural and natural biotechnology products, food and process engineering, and bioenergy will be covered. Submission of papers for the conference is until December 15, 2006. For more, contact through icbioe@iiu.edu.my or visit http://www.iiu.edu.my/icbioe/index.php?option=com_content&task=view&id=33&Itemid=44

GENES ARE GEMS: REPORTING AGRI-BIOTECHNOLOGY - The International Crops Research Institute for the Semi-AridTropics (ICRISAT) and the International Service for the Acquisition of Agri-BiotechApplications (ISAAA) are jointly publishing a sourcebook "Genes are Gems: Reporting Agri-Biotechnology". The book, to come off the press in early December 2006, synthesizes a series of media workshops in Asia and West Africa carried out by ICRISAT and ISAAA between 2004 and 2006 to familiarize journalists to the science behind agricultural biotechnology.

This sourcebook primarily provides insights to readers on the various biotechnological options in improving crop productivity and promoting sustainable agriculture in the dry tropics. At the same time, it also introduces journalists to the nuances of agri-biotechnology reporting and editing.

For more information, email Rex Navarro of ICRISAT at rex.navarro@cgiar.org.

POSITION VACANT - PROFESSOR/ASSOCIATE PROFESSOR/SENIOR LECTURER OF APPLIED BIOTECHNOLOGY (ONE POST), FIXED TERM APPOINTMENT (5 YEARS) AT AFRICAN CENTRE FOR CROP IMPROVEMENT SCHOOL OF BIOCHEMISTRY, GENETICS, MICROBIOLOGY AND PLANT PATHOLOGY, FACULTY OF SCIENCE & AGRICULTURE, PIETERMARBURG CAMPUS, UNIVERSITY OF KWAZULU-NATAL (REFERENCE NO: SA63/2006)

The African Centre for Crop Improvement (ACCI) is an externally funded centre, training plant breeders at the PhD level, from 15 African countries. Students undertake two years of academic study at the University of KwaZulu-Natal, followed by three years of field research in their home countries, working in their national research programmes. The ACCI is also undertaking institutional support of several African universities, in the field of Plant Breeding. The Generation Challenge Programme is funding the position and includes research funding. The School has a well equipped Molecular Biology unit.

The successful candidate will typically be a plant breeder who has developed expertise in the use of biotechnology tools to advance practical plant breeding. S/he will teach postgraduate modules in Plant Biotechnology as it relates to Plant Breeding and

supervise students using biotechnology tools in their PhD research. The post will require visiting students in the field, requiring travel in Africa. S/he will undertake independent research in the application of Plant Biotechnology to African food crops, developing a "biotechnology toolbox" for plant breeders. The incumbent will also assist in the institutional support programme at selected African universities. Applicants at all three levels will be considered.

MINIMUM REQUIREMENTS:

FOR ALL LEVELS:

A PhD or equivalent degree, in an appropriate field of plant breeding;
Experience of supervision of postgraduate students or mentoring of junior staff;
Experience in modern molecular techniques.

PROFESSOR

Ten years of work experience at tertiary institution/s OR ten years in appropriate industry/ies or research institute/s;
Independent research competence as demonstrated by international peer-reviewed publications, with a sustained publication record in the field of plant breeding;
Successful supervision of doctoral students OR management and development of staff in industry.

ASSOCIATE PROFESSOR

Five years of work experience at tertiary institution/s OR five years in appropriate industry/ies or research institute/s;
Independent research competence as demonstrated by international peer-reviewed publications, with a sustained publication record in the field of plant breeding;
Successful supervision of masters and doctoral students.

SENIOR LECTURER

Evidence of current research activity and a record of publication in the field of plant breeding.

ADVANTAGES:

A current rating by the National Research Foundation for South African candidates;
Evidence of sourcing and management of research funding.

Applicants must stipulate the level of appointment at which they are applying.

For further information about the ACCI kindly contact the Director, Professor MD Laing, on +27 (0)33 260 5524, via e-mail at laing@ukzn.ac.za or visit the website at <http://www.acci.org.za>

The remuneration package offered includes benefits and will be dependent on the qualifications and/or experience of the successful applicant. The selection process will commence on 8 December 2006 and will continue until a suitable candidate is appointed or a decision is taken not to fill the post.

Applicants are required to submit a covering letter, highlighting their experience in each of the minimum requirements listed above, together with a detailed CV including the name, full address, fax number and e-mail address of three referees, to Mrs J. Poulter, Human Resources Administration, University of KwaZulu-Natal, Private Bag X01, Scottsville, 3209, Fax. No. +27 (0) 33 260 5356 or e-mail poulterj@ukzn.ac.za