CROP BIOTECH 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), and AgBiotechNet

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In This Issue:

* Public Sector in India Takes Lead in GM Research
* East African Forestry Conference Held in Nairobi
* EU Boosts Its Environmental Technologies
* GM Information Gap Influences Consumer Choice
* Consumers in Slovakia Think GMOs are Useful
* USDA-ARS: Prospects and Challenges for Soybean Oil
* Legal Risk Management and Biotechnology
* Biotechnology in the Soybean Market Place
* Announcements:
  - World Congress on Industrial Biotechnology and Bioprocessing
  - Exec Summ of ISAAA Briefs 30 in Portuguese
  - Summary Report on the Global Status of GM Crops in 2003
  - Apologies for the Jan 23 Issue

PUBLIC SECTOR IN INDIA TAKES LEAD IN GM RESEARCH

Over 20 public academic and research institutions in India are doing transgenic research and application on 16 crops. In contrast, seven private companies are doing research on 10 crops. This was reported by M. Sharma, K.S. Charak, and T.V. Ramanaiah of the Department of Biotechnology in the journal Current Science and cited in the monograph on “Biosafety Issues Related to Transgenic Crops” prepared by the Biotech Consortium India Limited in Delhi, India..

Academic institutions include the Assam Agricultural University, Delhi University, Jawaharlal Nehru University, Madurai Kamraj University, and the University of Agricultural Sciences Bangalore. Among the research institutions are the Central Institute for Cotton Research, Central Rice Research Insitute, Indian Agricultural Research Institute, Indian Institute of Horticultural Research, and the International Crop Research Institute for Semi-Arid Tropics. These institutes are doing genetically modified (GM) research on chickpea, rice, cotton, potato, tobacco, mustard, tomato, brinjal, wheat, cauliflower, cabbage, banana, and brassica. Twelve of these institutions are doing GM research on rice with such traits as: stress tolerance, herbicide tolerance, and insect and pest resistance.

Representing the private sector are such companies as: Ankur Seeds Ltd, Hybrid Rice International, MAHYCO, and Proagro PGS India. They are presently working on cotton, rice, tomato, cotton, pigeonpea, rice, mustard, brassica, cauliflower,

and maize. The companies have transgenic lines in the advanced stage of development for field trials.

The government of India has already approved the commercialization of three Bt cotton hybrids for a three-year cultivation after extensive field trials. Bt cotton is already being grown in the six states of Madhya Pradesh, Gujarat, Maharashtra, Andhra Pradesh, Karnataka, and Tamil Nadu.

For more information on the BCIL publication, email bcildelhi@vsnl.com.

EAST AFRICAN FORESTRY CONFERENCE HELD IN NAIROBI

The International Service for the Acquisition of Agri-biotech Applications (ISAAA) AfriCentre held a two-day regional conference on Tree Biotechnology in Nairobi, Kenya. The conference, which was officially opened by Kenya's Minister for Environment, Natural Resources and Wildlife, Dr Newton Kulundu, brought together over 60 tree biotechnology stakeholders from Kenya, Uganda, Tanzania, Ethiopia, South Africa and the United Kingdom.

During the conference, the Minister emphasized the need to adopt new forest technologies to enhance the regeneration of forests to meet the demand for trees and tree products. Dr Kulundu also called for the close cooperation and partnership between governments and regional forestry stakeholders, saying that such a move was critical in scaling up forestry development in the region.
The Minister also urged the participants to conceptualize a framework that will address the regional, national and local needs, and meet wider international obligations that will put all African countries at par with the global trends in forestry development. According to Dr. Kulundu, this can be achieved only through wide consultations with interested and affected parties, addressing aspects of forestry policy and legislation to match present needs and the gradual devolution of forest management to grassroots communities.
Prof. Julian Evans, the chairperson of the conference, identified five main issues that emerged from the meeting. This includes:

1. The tree biotech concept is sound, but viable genetic and top quality clonal material is crucial for its success.

2. Best quality material can be wasted if poor site selection or poor care and maintenance cannot be assured.

3. Tree biotech has great potential for both small and large scale farmers.

4. High adoption rates will depend on good promotion, marketing and distribution strategies.

5. Reliance on the state to spearhead forestry development is no longer an option for it can only provide an enabling environment for private sector participation.

For more information about the conference, visit the ISAAA AfriCentre website at http://www.isaaa-africenter.org/

EU BOOSTS ITS ENVIRONMENTAL TECHNOLOGIES

The European Union (EU) Commission recently released its environmental technology action plan or ETAP which aims to boost environmental technologies for innovation, growth and sustainable development. The action plan is envisioned to boost new technologies that have the potential to improve the environment. These said technologies include: recycling systems for waste water industrial processes, energy-saving car engines that uses less fuel, and soil remediation techniques.

The ETAP further includes the launching of technology platforms with stakeholders in areas such as hydrogen and fuel cells, photovoltaics, and water supply and sanitation. It also aims to establish environmental performance targets for various products and services.

Other technologies needed to manage pollution (e.g. air pollution control, waste management), less polluting and less resource-intensive products and services (e.g. fuel cells), and ways to manage resources more efficiently (e.g. water supply, energy-saving technologies) were also included in the plan. White biotechnology, which is already used to make enzymes, vitamins, food additives and drugs; and has the potential to produce energy from biomass, will also be prioritized.

Read the action plan at http://europa.eu.int/rapid/start/cgi/guesten.ksh?p_action.gettxt=gt&doc=IP/04/117|0|RAPID&lg=en&display. More information about white biotechnology and its applications can be see at the EuropaBio website: http://www.europabio.org/pages/white_biotech.asp.

GM INFORMATION GAP INFLUENCES CONSUMER CHOICE

Consumers are likely to buy genetically modified (GM) food if they see the words “genetically modified” spelled out on the label. At present, consumers feel ill-informed about GM foods since producers currently provide little information to educate their customers. Says Pamela Brady of the Institute of Food Science and Engineering, University of Arkansas, and John T. Brady of the Department of Consumer and Textile Sciences, Ohio State University-Lima.

The authors’ research show that people who are more abreast of biotechnology news are more likely to buy food products that are classified as GM. They added that the more educated consumers are, the more knowledgeable they are about GM food. Also, most consumers at all education levels stated that they have heard of GM food, but they felt that the information that they know is not adequate enough. More than 90% of the respondents stated that food labels should carry more information about products that are genetically modified.

Brady and Brady concluded that food companies that produce GM food products and educators should be responsible in educating and proving information about these type of food products.

The press release from the University of Arkansas can be downloaded at http://www.advancement.uark.edu/news/JAN04/brady04.html.

CONSUMERS IN SLOVAKIA THINK GMOS ARE USEFUL

The United States Department of Agriculture (USDA) Foreign Agricultural Service's Global Agriculture Information Network (GAIN) recently published a report on the consumer perceptions of biotechnology in Slovakia. According to the recent survey, more than half of the Slovaks think biotechnology and genetically modified organisms (GMOs) are "useful" or "rather useful" in agriculture, medicine and ecology.

However, majority of the consumers remained negative about the science's use in the food sector. With regards to the available information on biotechnology, 40% of the respondents think that there is limited information about the science in Slovakia, and almost 21% have never heard of GMOs, in general.

Less than 25% of the respondents were also aware that there are already existing laws and regulations for biotech products in Slovakia. Further, scientific institutions, medical associations and non-governmental environmental organizations are the institutions that most Slovaks trust to protect their interests and rights.

Read the GAIN Report at http://www.fas.usda.gov/gainfiles/200401/146105237.pdf.

USDA-ARS: PROSPECTS AND CHALLENGES FOR SOYBEAN OIL

The USDA-ARS Plant Genetics Research Unit, Donald Danforth Plant Science Center, has released a report stating the significant progress made in the genetic improvement of soybean oil for industrial uses and the considerable prospects for continued research progress. In a paper entitled "Genetic Enhancement of Soybean Oil for Industrial Uses: Prospects and Challenges," the author discussed the highlights of improving industrial properties by genetic enrichment of specific fatty acid components and transgenic production of novel fatty acids in soybean oil.

Genetically enriched high oleic acid and high linolenic acid oils were deemed to complement ongoing research aimed at augmenting the industrial value of soybean oil. High-oleic soybeans produce oils with high oxidative stability, a critical property for lubricants. High-oleic soybeans are the only ones with genetically modified oil compositions commercially used for industrial applications.

In contrast, recent research has also produced soybean oils with high levels of linolenic acid, a type of fatty acid with low oxidative stability. This type of genetically modified soybean oil has linolenic acid levels that are parallel to linseed oil. Low oxidative stability is a desirable property for drying oils that are used in coating applications, such as paints, inks, and varnishes.

Developments in the transgenic production of novel fatty acids in soybean oil were also cited. Oils rich in conjugated fatty acids are believed to have superior properties as drying oils in coating applications. Moreover, these oils are more oxidatively unstable than linolenic acid-rich oils.

Further, the report emphasized the difficulty in obtaining the above traits through conventional plant breeding methods rather than through genetic engineering.
Despite the technical successes, the wide use of genetically engineered soybean oils still face an uncertain future due to costs associated with regulatory approval and identity preservation.

A copy of this report is available at: http://www.agbioforum.org/v6n12/v6n12a04-cahoon.htm

LEGAL RISK MANAGEMENT AND BIOTECHNOLOGY

In a legal backgrounder entitled “Engineering Legal Risk Management Into Agricultural Biotechnology,” Thomas Redick, chair of the Agricultural Management Committee for the American Bar Association’s Section on Environment, Energy and Resources discussed the importance of a coordinated strategy between growers and biotech companies needed to prevent economic cataclysmic impacts and devastating legal precedents.

Citing Starlink ™ corn’s seminal “public nuisance” decision and the Liberty Link ™ soybean negotiations, the author presented the need for agricultural biotechnology companies to contain unapproved biotech crops in closed-loop production systems. He stressed that it is necessary for the biotech industry to neutralize threats posed by legal actions in order to play its important and inevitable role in agricultural production.

Moreover, it was also explained that the economic threat posed by biotech crops to the marketplace is vastly outweighed by the threat to the agricultural biotechnology industry from such novel legal management. Redick concluded that the economic impact upon the U.S. and world economy from the threatened loss of future innovation in agricultural biotechnology can be avoided through careful legal planning and cooperation.

The full article can be downloaded at:

http://www.wlf.org/upload/1-16-04-reddick.pdf

BIOTECHNOLOGY IN THE SOYBEAN MARKET PLACE

The paper of Steven Sonka entitled “The Dynamics of Biotechnology in the Soybean Marketplace,” explored the market system dynamics connected with the recent and potential future adoption of biotechnology in the soybean marketplace. It was observed that the “rapid” and “dramatic” adoption of herbicide-tolerant varieties has had a focal production impact in the United States, Argentina, and Brazil.

The economic benefits from such adoption increased and benefited both the adopting and non-adopting producers as well as firms providing the technology. However, firms providing substitute weed control systems were found to suffer from economic losses. Sonka stated the need for alternative market channel

mechanisms and infrastructure in order to deliver soybeans with differentiated traits to customers and extend the capabilities of today's commodity system.

Investigation on the dynamics of marketing systems facing technological changes resulted to a mismatch in the decision expectations between investing in biotechnology and investing in transportation, handling, and logistical infrastructure. Further, it was established that it is probable for relationships along the agricultural supply chain to change substantially. These changes can include horizontal and vertical consolidation as well as alliances among agricultural firms replacing the traditional commodity channel.

The study can be viewed at:
http://www.agbioforum.org/v6n12/v6n12a09-sonka.htm

ANNOUNCEMENTS

WORLD CONGRESS ON INDUSTRIAL BIOTECHNOLOGY AND BIOPROCESSING

The first World Congress on Industrial Biotechnology and Bioprocessing will be held on April 21 to 23, 2004 at the Walt Disney World Swan and Dolphin Hotel in Orlando, Florida. Jointly hosted by the Biotechnology Industry Organization (BIO), the American Chemical Society, and the National Agriculture Biotechnology Council, the congress focuses on how industrial biotechnology is currently used to transform manufacturing, chemical synthesis, and energy production. The conversion of agricultural wastes, such as corn stalks and rice, into new consumer goods will also be highlighted. More information about the World Congress can be seen at www.bio.org/worldcongress.

EXEC SUMMARY OF ISAAA BRIEFS 30 IN PORTUGUESE

The Portuguese version of the Executive Summary of ISAAA Briefs 30, written by Dr. Clive James, Chair, ISAAA Board of Directors, is now available online at http://www.isaaa.org/kc. The press release of ISAAA Briefs No. 30 is also available in French, German, Hindi, Indonesian, Italian, Japanese, Spanish, Spanish-Argentinian, and Thai, which are all downloadable from the same site.

SUMMARY REPORT ON THE GLOBAL STATUS OF GM CROPS IN 2003

The Global Knowledge Center on Crop Biotechnology (KC) has recently released the summary report on the current global status of GM crops. This latest data is downloadable at http://www.isaaa.org/kc.

APOLOGIES FOR THE JAN 23 ISSUE

We would like to again convey our sincerest apologies for the technical problem experienced last January 23, 2004, where a number of subscribers did not receive their copies of the Update. We hope that all of our valued subscribers have already received the said issue by now. To view the said issues, please visit our website, http://www.isaaa.org/kc.

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