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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GROWER PLANTING INTENTIONS UP IN U.S.

The US Department of Agriculture's National Agricultural Statistics Survey (NASS) has released its report of grower prospective plantings of major crops. It says that corn acreage (which now stands at 79 million acres) is estimated to increase fractionally from 2003 with farmers from the Corn Belt taking advantage of higher corn prices in the market. However, farmers in the Southeast and Southern Great Plains are expected to plant less of the crop as they shift to soybean and cotton which are expected to command better prices. Biotech corn accounts for 46 percent of all corn planted in the US, up by 9.7 percent.

Soybean acreage is expected to increase by three percent which will result in 75.4 million acres planted to the crop. Current price of soybean is attracting more farmers to increase acreage. All cotton plantings for 2004 are expected to total 14.4 million acres or about seven percent higher than last year. Biotech soybean and cotton accounts for 86 and 76 percent, respectively, of all areas planted to the crop.

All wheat acreage, however, is expected to go down by four percent in 2004, pegging total acreage to 59.5 million acres.

See the full report at
http://www.usda.gov/nass/PUBS/TODAYRPT/pspl0304.pdf.

CHINESE AND AFRICAN SCIENTISTS WIN WORLD FOOD PRIZE

The World Food Prize Foundation has awarded the top prize to Chinese and African plant breeders for their work on developing innovative rice technologies. Professor Yuan Longping of China, Director-General of the China National Hybrid Rice Research and Development Center in Changsha, Hunan, China; and Dr. Monty Jones of Sierra Leone, former senior rice breeder at the West Africa Rice Development Center (WARDA), presently Executive Secretary, Forum for Agricultural Research in Africa (FARA), in Accra, Ghana, were given their joint awards during a U.S. State Department ceremony.

Yuan was noted for his achievement in the early 1970s in developing the genetic tools necessary for hybrid rice breeding, known as a “three-line system”. According to the World Food Prize Foundation, his achievement led to the world’s first successful and widely grown high-yielding hybrid rice varieties with yields 20 percent above conventional varieties.

On the other hand, Jones was cited for developing in the 1990s the “New Rice for Africa” (NERICA), uniquely adapted to the growing conditions of West Africa, by successfully crossing the Asian Oryza sativa with the African O. glaberrima strains to produce drought and pest resistant, high yielding new rice varieties. This feat, according to the Foundation, has not been achieved before in the history of rice breeding.

For the full report, visit
http://www.worldfoodprize.org/04laureates/prelease.htm

SURVEY REPORTS GM COTTON BENEFITS INDIAN FARMERS

ACNielsen ORG-MARG Pvt Limited, an international marketing and information group commissioned to survey Bt cotton, particularly Bollgard cotton, in India, confirms the benefits of the crop for Indian farmers. These benefits include increased yields, reduced pesticide sprays against bollworms, and higher profits.

The survey covered five of the six Bollgard cotton-growing states: Maharashtra, Madhya Pradesh, Andhra Pradesh, Karnataka and Gujarat. It estimates that there has been approximately 30% or 1.7 quintals per acre yield increase in Bt cotton fields, when compared with conventional cotton fields. The net profit to farmers from Bt cotton cultivation has increased significantly by nearly 80% or Rs.3126 per acre.

Another significant finding was the reduction in bollworm pesticide sprays, which resulted in an average savings of Rs.1294 per acre (reduction of 2-3 sprays per acre) for farmers. In the survey, more than 90% of users and 42% of non-users express their intention to purchase Bollgard in 2004.

For more information on the survey, contact Ranjit Panda of ACNielsen ORG-MARG at his email address: ranjit.panda@orgcsr.org.

UNLEARNED LESSONS IN BIOTECHNOLOGY

Herbicide tolerant and insect resistant crops are now common in several countries. However, when agricultural biotechnology is compared with pharmaceutical biotechnology, in terms of public perception and reception to the technologies, the differences are apparent. Pharmaceutical products are accepted globally, while resistance to agricultural biotechnology is still an issue. This was the observation of Lawrence Busch of the Michigan State University, USA in his article entitled “Lessons Unlearned: How Biotechnology is Changing Society.”

States Busch, “agricultural biotechnologies have the potential to be quite beneficial. (However), despite a few successes here and there, (agri-biotech) has thus far been a failure. Its proponents have failed to enroll citizens and consumers, and even the food processing and retailing industries around the world. Indeed, it is fair to say that probably no group of technologies has produced the rancor, the protests, (and) the opposition, that agricultural biotechnologies have.”

The author notes some unlearned lessons that could have somehow lessened the opposition to the technology, and might as well have turned the industry around. Some of the insights that Busch shared are as follows:

* Enroll all actors in the supply chain. Ideally, new technology should be beneficial to all the stakeholders.

* Compete and cooperate, and gain by sharing. Despite the competition, cooperation among the stakeholders has a major role in organizing both the economy and society.

* Regulate through the entire supply chain. The current regulatory system is clearly a piecemeal affair. An effective regulatory system must take the entire supply chain into account.

* Holding innumerable debates about the pros and cons of agricultural biotechnology will not resolve the issues raised, as long as the problem is framed as a lack of knowledge.

The full article of Lawrence Busch is downloadable at http://www.cals.cornell.edu/extension/nabc/pubs/nabc_15/chapters/Keynote_Address-Busch.pdf.

RISK ASSESSMENT PROCEDURE FOR GM CROPS

One of the concerns when adopting insect resistant crops is its effect on non-target organisms such as parasitoids and predators (entomophagous arthropods), which have an important function in regulating pests. Despite the fact that regulatory bodies require information regarding the potential risk of releasing transgenic plants in the environment, at present, no specific protocols have been designed for assessing the risks of insect resistant transgenic crops on beneficial insects.

In their study, Anna Dutton, Jörg Romeis and Franz Bigler of the Swiss Federal Research Station for Agroecology and Agriculture (FAL) proposed a framework for the risk assessment and evaluation of the effects of insect resistant plants on

entomophagous arthropods. Using Bt maize which carries the code for the Cry1Ab toxin, the researchers illustrated the procedure necessary for assessing the risks. The suggested procedure is summarized as follows:

Step 1. Determine which entomophagous arthropods play a major role in regulating maize pests, and which may be at risk.

Step 2. Since the risk which transgenic plants pose to entomophagous arthropods depend on the insects' exposure, and their sensitivity to the insecticidal protein, it is essential to determine if and at what level the organisms are exposed to the transgene compound.

Step 3. Sensitivity tests should be performed to assess toxicity. This applies to those organisms which could potentially be exposed to the insecticidal protein.

The green lacewing Chrysoperla carnea was also used as an example to illustrate how the procedure will be undertaken, and to give evidence that Bt-maize poses no risk to this particular predator.

For more information about this research entitled "Assessing the risks of insect resistant transgenic plants on entomophagous arthropods: Bt-maize expressing Cry1Ab as a case study," email Franz Bigler at franz.bigler@fal.admin.ch.

NEW REGULATIONS REPORT FROM PEW

The Pew Initiative on Food and Biotechnology recently released a new report entitled "Issues in Regulation of Genetically Engineered Plants and Animals." This report reviews the existing regulatory system for biotechnology, discusses a number of issues and concerns relating to the adequacy of the system for future biotechnology products, and suggests policy options and perspectives for addressing particular issues.

The Pew report also focused on the analysis of whether the existing regulatory system is "good enough" to protect public health and the environment and to maintain public trust. Based on the analysis, "a range of options exists to enhance the regulatory review process to address new challenges future products of agricultural biotechnology are likely to present, although opinions vary about the need for change."

It was also noted that current agricultural biotechnology products have been widely adopted without evidence of food safety or environmental problems, but the potential complexity of future products may challenge the ability of the existing Coordinated Framework for Regulation of Biotechnology, which is jointly administered by the Environmental Protection Agency (EPA), the Food and Drug Administration (FDA), and the U.S. Department of Agriculture (USDA).
The report also examined the extent to which agency regulatory practices are transparent, clear, and open to public participation. These include all procedural elements that can help build confidence in the integrity of the regulatory system.

Read the full report at http://pewagbiotech.org/.

EUROPABIO WELCOMES DECLARATION FOR BIOTECH

EuropaBio welcomes the recent declaration made by the Heads of State in Europe to ensure that public sector investment in research and development (R&D) would attract private funding and improve the general conditions for R&D investment to further encourage greater investment by the business sector.

This declaration was made in order to create better conditions for research based companies, including those engaged in biotechnology, for them to be able to flourish in Europe. "But what is needed now is action," says Johan Vanhemelrijck, Secretary General of EuropaBio, the European Association for Bioindustries. According to Vanhemelrijck, four years has passed since the leaders made their pledge in the Lisbon Summit, and yet little has been done so far.

"Today's summit conclusions will be really valuable if the Competitiveness Council in May takes them up and leads the way forward on biotechnology when Ministers will discuss the Commission's progress report, " says Feike Sijbesma, Chairman of EuropaBio. EuropaBio also hopes that the Competitiveness Ministers will show political leadership both at the EU level and in the Member States to support an industry that matches economic growth, improves quality of life and a high level of environmental protection all at the same time.

More information about EuropaBio at http://www.europabio.org.

VIETNAMESE NEWSPAPERS FEATURE BIOTECH NEWS

Fourteen various publications in Vietnam featured articles on biotechnology in 2002 and 2003. Of these publications, three newspapers – Vietnam News, Saigon Times Daily and Han Dan – published over half of the articles for the study period. This is a major finding of the media monitoring study conducted by the Global Knowledge Center on Crop Biotechnology of the International Service for the Acquisition of Agri-biotech Applications in collaboration with a network contact in Vietnam. The network contact scanned national papers and sent monthly summaries of all news stories that were featured from January 2002 to May 2003.

Articles were generally generic in nature, hence there was no clear pattern of reporting as stories were mere highlights of certain events or activities. Topics covered such areas as government investments for agriculture, establishment of certain infrastructure, research projects and activities. The level of coverage was basically on the awareness stage while topics tended to be positive and economic in orientation.

Since newspapers are owned by the government, articles tended to reflect the prevailing government policy or program. Since economic development is a main focus of the government and biotechnology is a priority program to attain it, then it is expected that news center on these areas of concern.

For more information on this study, email m.navarro@isaaa.org.

BULGARIA AND RUSSIA SET UP BIOTECH INFO CENTERS

Bulgaria and Russia have set up their respective Biotechnology Information Centers (BICs) to increase awareness of biotechnology initiatives and foster a science-based debate on the technology. The BICs recently joined the network of the Global Knowledge Center on Crop Biotechnology of the International Service for the Acquisition of Agri-biotech Applications (ISAAA) upon the initiative of their respective governments.

The Bulgaria BIC is hosted by the AgroBioInstitute at Sofia, Bulgaria while the Russian BIC is at the IACC GE in Moscow.

The two new BICS recently participated in the ISAAA and BIC Network Meeting in Manila, Philippines where they had an opportunity to share experiences on communicating biotechnology information with colleagues in Asia, Africa and Latin America.

For more on the BIC network, visit http://www.isaaa.org/kc or email knowledge.center@isaaa.org. Contact Denitsa Marinova of the Bulgaria BIO at denistsa@abi.org or Irina Iakovleva at iacgea@biengi.ac.ru.

HERBICIDE- AND ANTIBIOTIC-FREE SELECTION OF GM PLANTS

Researchers at the Plant Science Centre in Umeå, Sweden have developed a unique marker system for identifying transgenic plants that does not rely on antibiotic or herbicide resistance. The use of such markers has often been a significant public concern and a reason for opposition against the technology.

Torgny Näsholm and his colleagues developed a method which relies on transforming plants with a gene called dao1 which encodes D-amino acid oxidase (DAAO). DAAO catalyses the oxidative deamination of a range of D-amino acids, and the selection strategy is based on the toxicity of different D-amino acids and their metabolites to plants.

Although the current research reported in the April issue of Nature Biotechnology describes work carried out in Arabidopsis, Näsholm is optimistic that this selection method will prove feasible for use in agriculturally important species.

Visit the website of the Plant Science Research in Sweden at http://www.upsc.nu. For more information about the research, contact Torgny Näsholm at: torgny.nasholm@genfys.slu.se

ANNOUNCEMENT: FAO E-mail Conference

The FAO Electronic Forum on Biotechnology in Food and Agriculture is devoting its next e-mail conference to the theme of biotechnology in food processing in developing countries. The conference is open to everyone, is free and will be

moderated. It runs from 14 June to 9 July 2004. All messages posted during the conference will be placed on the Forum website (http://www.fao.org/biotech/forum.asp). To join the Forum (and also register for the conference), send an e-mail to mailserv@mailserv.fao.org leaving the subject blank and entering the following text on two lines: subscribe BIOTECH-L subscribe biotech-room3. For more information, contact biotech-mod3@fao.org.

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