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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ITALY SAYS GO TO GM PLANTING

The Italian parliament approved the planting of genetically modified (GM) crops on January 25, 2005. "We sought to guarantee freedom of choice for Italian producers, while heading off the risk of diffuse and uncontrolled contamination by GM (organisms)," said Agriculture Minister Gianni Alemanno in an ANSA news service release. The approval stressed that safeguards needed to be in place to prevent any possible contamination of traditional crops.

Reuters reported that it will be up to each of Italy's regions to set the detailed rules, although most of them want to remain GM free. It was perceived that the law would still uphold a moratorium on GM crops since the co-existence law sets out rules to ensure conventional and organic crops are not contaminated by GM seeds.

See the Reuters article at
http://www.alertnet.org/thenews/newsdesk/L25681379.htm.

POLICIES TO COMBAT HUNGER OUTLINED

Pedro Sanchez and MS Swaminathan outline the recommendations by the United Nations (UN) Hunger Task Force for "Cutting World Hunger In Half." Their focus is on Africa, and their paper is published in the January 21, 2005 of Science.

The Hunger Task Force has seven recommendations to address the issue, namely: 1) moving from political commitment to action, 2) performing policy to create an enabling environment for hunger reduction, 3) increasing agricultural productivity of food-insecure farmers, 4) improving nutrition for chronically hungry and vulnerable groups, 5) reducing vulnerability through productive safety rights, 6) increasing incomes and making markets work for the poor, and 7) restoring and conserving natural resources essential for food security.

Sub-Saharan Africa is the only region in the world where hunger prevalence is over 30%, the authors say, and the recommendations can be easily applied. Sanchez and Swaminathan suggest "entry points" for possible programs, including community nutrition programs, school feeding programs, and increased investment in soils and water.

The article may be downloaded at www.science.com.

PAPER LOOKS AT GM DEVELOPMENT IN AFRICA

In "Putting GM Technologies to Work: Public Research Pipelines in Selected African Countries," Idah Sithole-Niang, of the Department of Chemistry, University of Zimbabwe, and colleagues identify and examine public research pipelines for GM crops in Zimbabwe, Egypt, Kenya, and South Africa, and offer suggestions on improving the state of GM research for each country based on their findings. Their research is documented in the November 2004 issue of The African Journal of Biotechnology.

For instance, South Africa, the report states, presents an important case study. The research its scientists undertake is required to be linked to industry, with the aim of providing relevant products to end users.

Researchers also found that 13 public institutions in the 4 countries have stably transformed 21 crops, with 17% of the events for maize, 13% for potatoes, and 11% each for sugar and tomatoes. Of all traits incorporated, virus resistance comprised 34% of all crops, while insect resistance made up 20%.

The researchers hope that their data will be useful in formulating new policies, including greater South-South collaboration.

Download the article at
http://www.academicjournals.org/AJB/PDF/Pdf2004/Nov/Sithole-Niang%20et%20al.pdf

MALAYSIA TO RELEASE BIOTECH POLICY

Malaysia is set to launch its country's policy on biotechnology before mid-2005. Bernama (Malaysian New Agency) quotes Prime Minister Datuk Seri Abdullah Ahmad Badawi as saying that this policy will outline the directions and measures for its development.

Speaking at the official opening of the Melaka Biotechnology Institute at Ayer Keroh, the Prime Minister said that while the country's use of biotechnology is still in its infancy, he is "very much committed to raising the use of biotechnology as a catalyst in the development of new sources of wealth and income for Malaysians."

For more news summaries about biotechnology in Malaysia, email the Malaysian Biotechnology Information Centre at BICalerts@bic.org.my or info@bic.org.my.

AFRICAN POLITICIANS CHALLENGED OVER THEIR ATTITUDE TOWARDS SCIENCE

The African struggle to overcome hunger and food deficit can only be achieved through concerted efforts and strong political will from its leaders, a leading scientist has observed.

Nobel Prize laureate Dr. Norman Borlaug noted that politicians were shunning the role science can play towards developing the African continent. In a keynote address to over 200 African crop breeders in

the 2nd general meeting of the Biotechnology, Breeding, and Seed systems for African crops in Nairobi, Kenya, Dr Borlaug said that much of the achievements made during the green revolution could be achieved in Africa.

"What we need is for two or more African politicians to be committed to the goal of eradicating hunger. This can only be done through the use of various scientific means at the continent's disposal," he added.

While officially opening the forum, Kenya's Minister of Agriculture, Kipruto arap Kirwa challenged scientists to translate their research work into viable projects that would help the African farmer in combating food insecurity. "We must work closely with the private sector and create an environment that we can increase their participation in agricultural development and in extending the benefits of research to African farmers," noted Kirwa.

For more on the conference contact the Kenya Biotechnology Information Centre or visit their website at http://www.isaaa-africenter.org.

IMPACT OF SELECTED TRANSGENIC CROPS IN HUNGARY ESTIMATED

Dr. Matty Demont and colleagues of the Center for Agricultural and Food Economics, Catholic University of Leuven, Belgium, estimate the "Potential Impact of Biotechnology in Eastern Europe: Transgenic Maize, Sugar Beet, and Oilseed Rape in Hungary." Their approximations are based on hypothetical planting of transgenic maize, sugar beet, and oilseed rape in the agricultural season of 2003, in areas of 1,150,000 ha, 53,000 ha, and 71,000 ha, respectively.

Two common pests of maize, the European corn borer (Ostrinia nubilalis Hübner) and Western corn rootworm (Diabrotica virgifera virgifera LeConte), were both considered in the study. The adoption of Bt maize resistant to the European corn borer, researchers found, could save the Hungarian farmer 19 euros/ha on average, taking into account a seed price premium of 6 euros/ha, or 10% of the actual seed cost. Bt maize resistant to the Western corn rootworm, on the other hand, could also save the Hungarian farmer 46 euros/ha on average, with a seed price premium of 25 euros/ha, or 40% of the actual seed cost.

The introduction of herbicide tolerant maize, sugar beet and oilseed rape could save the Hungarian farmer 22, 81, and 20 euros/ha, respectively. The model predicts seed price premiums of respectively 8, 81, and 12 euros/ha and early adoption rates in 2003 of 40%, 38%, and 35%.

The full study is available at:
http://www.agr.kuleuven.ac.be/aee/clo/wp/demont2005a.pdf

EUROPEAN RESEARCH COUNCIL TO BE SET UP

The Identification Committee convened by the European Commission for Science and Research will meet to recommend the composition of the governing body of a future European Research Council. The establishment of the Research Council will be included in the proposal for a Seventh Framework Programme for Research and Development that the Commission will present in April 2005.

The Council is expected to focus on basic investigator-driven research in support of future innovation and economic growth. The focus will be on scientific excellence identified by fellow scientists, rather than the Commission.

For more information, visit
http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/05/90&format=HTML&aged=0&language=en&guiLanguage=en.

NORTON SHEDS LIGHT ON IMPACT ASSESSMENT

Dr. George W. Norton, Professor and ABSPII Coordinator for Socio-Economic Studies, Department of Agricultural and Applied Economics, Virginia Tech, delivered a talk on "Assessing Impacts of Crop Biotechnology Research" on January 25, 2005, at The Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), Los Banos, Laguna, Philippines.

The purpose of conducting impact assessment, Dr. Norton said, was to establish program priorities, assess product profitability to make recommendations to farmers, and to estimate economic, environmental, health, and nutritional benefits. Impact assessment, he added, should be conducted from the laboratory, to the field, to the market, and even after commercialization.

His recent research has also shown the possible gains developing countries may obtain from GM adoption. The Philippines, for instance, is estimated to earn $270 million over 15 years if it adopts Bt rice, and $303 million if it adopts herbicide tolerant rice. Indonesia, on the other hand, will benefit the most from drought tolerant rice, and the country stands to gain $552 million once the crop is adopted.

His studies on nutritional assessment also deal with biotech crops, including Rosette virus resistant peanuts in Uganda. Current research by his office showed that poverty decreased by 1.3% at 50% adoption of the crop.

The seminar was sponsored by the Agricultural Biotechnology Support Program II (ABSPII), Institute of Plant Breeding (IPB), and SEAMEO-SEARCA. For more information, visit http://www.searca.org.

NEW MARKER FOUND FOR NEMATODE RESISTANT WHEAT

Wheat plants can be destroyed by the soil nematode Heterodera avenae without protection by the Cre genes. Cre-3, in particular, has been incorporated into several wheat varieties lacking nematode resistance; these transgenic plants have already been distributed to breeders.

Identifying wheat carrying the Cre-3 gene is undertaken by marker-assisted selection (MAS), using Cre3spf/2. The process, however, cannot distinguish between plants homozygous for Cre-3 and those heterozygous for it. MAS, moreover, is costly.
E.M. Martin and colleagues of Primary Industries Research in Victoria Australia, however, recently reported the "Identification of microsatellite markers associated with the cereal cyst nematode resistance gene Cre-3 in wheat." Their findings are published in the Australian Journal of Agricultural Research.

By mapping genes closest to Cre-3, Martin's research team found a microsatellite marker, designated as Xgwn301. Tests have shown that the association between marker and gene is maintained through different stages of introgression, and is not influenced by the presence of other Cre genes. This is important when considering the incorporation of more than one resistance gene into adapted wheat varieties, and, since Xgwn301 is specific for Cre-3, the marker may help overcome the challenge of pyramiding Cre genes.

Download the article at http://www.publish.csiro.au/journals/ajar

ANNOUNCEMENTS:

BIOSAFETY SYMPOSIUM PROCEEDINGS RELEASED

The proceedings of the 8th International Symposium on the Biosafety of Genetically Modified Organisms have been released. Conducted from September 26 - 30, 2004 in Montpellier, France, the symposium tackled such topics as the commercialization and biosafety aspects of Bt and other insecticidal crops, the biosafety aspects of virus-resistant transgenic crops, GMO regulations worldwide, and systems approach in biosafety debates and biosafety communication.

Download the complete proceedings at http://www.isbr.info/document/proceedings_montpellier2004.pdf

IN VITRO BIOLOGY MEETING

The 2005 In Vitro Biology Meeting will be held from June 5 - 8, 2005 in Baltimore, Maryland. It will focus on issues relevant to plant, vertebrate, invertebrate, and cellular toxicology research. For more details, visit http://www.sivb.org/meetings.asp.

CBT NEWS FEATURE: SURINDER VASAL AND EVANGELINA VILLEGAS

The World Food Prize in 2000 was awarded to Drs. Surinder Vasal and Evangelina Villegas for their contribution to developing maize containing twice as much usable protein as normal maize. Their breakthrough discovery of Quality Protein Maize, or QPM, has had a positive impact on millions of people since it remedied nutritional deficiencies from diets dependent on maize.

At the time of the award, Vasal and Villegas were working at the International Maize and Wheat Improvement Center (CIMMYT) in Mexico as plant geneticist and cereal chemist, respectively. It took them about 35 years to develop the maize that contained twice the amount of lysine and tryptophan, amino acids essential for human health and nutrition. By integrating cereal chemistry and plant breeding techniques, they developed QPM germplasm by combining

the existing opaque-2 gene maize with genetic modifiers, resulting in maize with hard kernel characteristics, good taste, and higher quality levels of lysine and tryptophan.

Vasal earned his academic degrees from various institutions in India and started his career as a research assistant in the department of agriculture, Himachal Pradesh. He took up his first assignment outside India as a research associate in the Rockefeller Foundation Agricultural Program in Bangkok. In 1970, he became a post-doctoral fellow at CIMMYT, supervising the high lysine maize project. Eventually, he joined the international organization where he led the lowland tropical maize program. Vasal and his team introduced the first set of 58 tropical and 42 subtropical lines in 1991. This was followed in 1994 of an additional 62 tropical white and yellow lines. The increased availability of maize inbreds from CIMMYT has greatly helped accelerate hybrid research activities in developing countries.

Evangelina Villegas, on the other hand, is the first Mexican national and the first woman in 2000 to receive the World Food Prize. Born in Mexico, Villegas has a Ph.D. in Cereal Chemistry and Plant Breeding from North Dakota State University.

She began her career in 1950 as a chemist at the Instituto Nacional de Nutriologia and worked as a librarian in the Office of Special Studies. In 1957, she began work in the Wheat Industrial Quality Chemical Evaluation in the "Special Studies Office," sponsored by the Rockefeller Foundation and Secretaria de Agricultura in Mexico. From 1963 to 1964, she worked at the Wheat Quality Laboratory at INIA, Mexico. In 1967, Dr. Villegas began her career at the International Maize and Wheat Improvement Center in Mexico (CIMMYT), where she conducted her most significant research. She served as a junior staff member in the Protein Quality Laboratory and Industrial Wheat Quality Laboratory and as head of the lab from 1969 to 1972.In 1972, Dr. Villegas was named Head of the General Service Laboratory at CIMMYT, where she was responsible for the evaluation, development, and adaptation of chemical methodology that could be used efficiently in the screening of a large number of small samples for industrial wheat quality and for maize protein quality.

At CIMMYT, Villegas also served as a consultant for protein quality and industrial quality laboratories for national programs, in Brazil, Argentina, and Guatemala. She participated in the establishment of the quality laboratories in India, Thailand, Egypt, Tunis, Ghana, the Philippines, Peru, Ecuador, Colombia, Bolivia, and Mexico.

For more information on the two scientists visit http://www.punjabilok.com/science/indian_scientist.htm and http://www.worldfoodprize.org/Laureates/Past/millenium.htm.

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