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SABP

The South Asia Biosafety Program (SABP) is an international developmental program initiated with support from the United States Agency for International Development (USAID). The program is implemented in India and Bangladesh and aims to work with the local governments to facilitate implementation of transparent, efficient and responsive regulatory frameworks that ensure the safety of new foods and feeds, and protect the environment.

Over the next three years, SABP will work with its in-country partners to:

- Identify and respond to technical training needs for food, feed and environmental safety assessment.
- Develop a sustainable network of trained, authoritative local experts to communicate both the benefits and the concerns associated with new agricultural biotechnologies to farmers and other stakeholder groups.
- Raise the profile of biotechnology and biosafety on the policy agenda within India and address policy issues within the overall context of economic development, international trade, environmental safety and sustainability.

PRESENT STATUS AND POTENTIAL OF BIOTECHNOLOGICAL ADVANCEMENT FOR THE IMPROVEMENT OF FISH PRODUCTION IN BANGLADESH

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Biotechnology has a lot of potential for the improvement of aquaculture and fisheries production. Fish have some advantages for genetic manipulation practices over other higher animals because their fecundity is high and fertilization is external. Recombinant DNA technique has the potential to make genetic improvements in fish such as increased production efficiency, increased rates of growth, disease resistance and adaptation to extended ecological ranges including cold and salt tolerance.

Major research work in the field of fish molecular biology and biotechnology that is going on in different institutes in Bangladesh includes characterization of different fish populations by molecular markers such as isozyme, randomly amplified polymorphic DNA (RAPD), mitochondrial DNA restriction fragment length polymorphism (mtDNA RFLP) and microsatellite. Due to a lack of laboratory facilities in Bangladesh, no gene transfer research in fish is happening. There is some work that investigates the hormonal sex-reversal in tilapia and silver barb. Some farmers are raising monosex tilapia strains imported from Thailand produced through direct administration of androgen hormones. The demand for all male tilapia fry is increasing.

Experiments on the production of transgenic fish started in 1985 and got momentum in the 1990s. The technology for the production of transgenic salmon and tilapia with enhanced growth performance has been developed and is ready for commercial use. Transgenic tilapia lines have been developed containing an exogenous "all-fish" gene construct containing growth hormone cDNA. The transgenic fish showed triple the growth rate to that of their nontransgenic siblings. Since the Nile tilapia (*Oreochromis niloticus*) is a well-adapted species in Bangladesh, the potential of biotech tilapia could be explored in Bangladesh. Like growth enhancement, gene encoding lysozyme can be cloned and transferred into fish species lacking lysozyme and vulnerable to bacterial diseases to protect them from infectious bacteria.

To exploit the sexual dimorphism in growth rate and body size a monosex population can be cultured. Monosex population can be produced by direct administration of androgen and estrogen hormones during the labile period. The protocols for hormone treatment for tilapia and many other species are available now. The usual practice is to administer hormone through feed. This is a very simple method of sex-reversal. However, concerns exist regarding consumption of the hormone-treated fish. Chromosome manipulation techniques such as gynogenesis and androgenesis can be applied to produce a monosex population. By these techniques homogametic (for example, YY male) populations can be produced. These YY male fish when mated with normal XX female will produce XY, all-male, progeny.

Chromosome manipulation techniques can also be applied to produce polyploidy, sterile fish. Polyploidy has been well-studied in fish and, since triploid fish are sterile, it would be advantageous particularly to those species that become sexually mature at an early stage and which breed frequently (tilapia, for example). There is some evidence that triploid fish become larger than diploid fishes.

Shrimp farming is a major industry in Bangladesh. Shrimp farming is facing serious problems with microbial diseases. There has been some degree of success in enhancing the immune response and disease resistance by exposure to microbial products. Therefore to make shrimp farming sustainable, it is essential to understand the immune system of shrimp and to develop vaccines for shrimp against infectious diseases. Development of PCR technology for the detection of shrimp pathogens is needed. Biotechnology can be applied to develop vaccines for fish and shrimp.

There are a good number of scientists in the Faculty of Fisheries, Bangladesh Agricultural University, Mymensingh, and other institutes/organizations who have higher training (Ph.D.) in different areas of fish genetics and biotechnology. The areas of their expertise include production of transgenic fish, production of clonal lines of fish by chromosome manipulation, and characterization of fish populations by different molecular markers. However, due to the lack of laboratory and research facilities it has not been possible to initiate an extensive program on fish biotechnology involving gene manipulation in this country.

In order to harness the benefits of modern biotechnological advancement it is strongly recommended that a center of excellence be established in Bangladesh where all necessary facilities will be available for biotechnological research.

CALENDAR OF EVENTS (INDIA)			
Event	Organization	Date	Place
National consultation on issues related to Plant Quarantine Order	Department of Biotechnology (DBT) and Biotech Consortium India Limited (BCIL)	May 17, 2006	TBA
International Conference on Agriculture for Food, Nutritional Security and Rural Growth to commemorate the birth centenary of late Dr. B.P. Pal	The Energy and Resources Institute (TERI)	May 25-27, 2006	Stein Auditorium, IHC Complex, Lodhi Road, New Delhi
Series of eight regional workshops on issues related to Cartagena Protocol on Biosafety in association with state agricultural universities to be given from June to September, 2006	Ministry of Environment and Forests (MOEF) and BCIL	Workshop #1- June 2 - 3, 2006 Workshop #2- Second week of June (TBA)	Punjab Agricultural University Acharya N G Ranga Agricultural University
Short-term orientation course on biosafety and biotech regulations	MOEF and TERI	June 5-9, 2006	New Delhi
Bangalore Bio 2006	Vision Group on Biotechnology	June 7-9, 2006	Palace Grounds, Bangalore
Communications training for agriculture extension personnel	South Asia Biosafety Program (SABP)	July 2006 (tentative)	Karnataka and Tamil Nadu
Awareness workshops on GM crops regulations with special reference to Bt cotton	BCIL and All India Crop Biotechnology Association	June – August 2006	Bhatinda, Hyderabad and Navsari
Media workshops on biosafety	MoEF and ISAAA	June 2006	TBA
Training workshop for school children	MoEF and Department of Environment, Government of Delhi	July 2006	New Delhi

INTERNATIONAL CONFERENCE ON AGRICULTURE FOR FOOD, NUTRITIONAL SECURITY AND RURAL GROWTH TO COMMEMORATE THE BIRTH CENTENARY OF LATE DR. B.P. PAL

India's economic growth and the demographic changes that are taking place in its society provide a major challenge for the growth of agriculture in the country. India's dependence on agriculture for maintaining healthy economic growth remains paramount. So also does the plight of the majority of its population whose livelihoods are totally linked with agricultural activity. If India has to maintain a growth rate of 8% - 10% per annum, an appreciable increase in agricultural activity would be an essential prerequisite. Agricultural development and the attainment of higher levels of output with minimal environmental and ecological impact would, therefore, be essential for ensuring equitable growth and development.

To define the challenge ahead for Indian agriculture and to deliberate on solutions by which agricultural activity could be raised to a higher level of performance in pursuit of the objectives of sustainable development, TERI is organizing an International Conference on Agriculture for Food, Nutritional Security, and Rural Growth from May 25 to 27, 2006, at Stein Auditorium, IHC Complex, Lodhi Road, New Delhi. The conference is being organized on the occasion of the birth centenary of Dr. B.P. Pal who was the first Director General of the Indian Council of Agricultural Research. He was a great visionary who initiated the Green Revolution during the 1960s. The conference is envisaged as a forum in which a road map for food and nutritional security based on sustainable agricultural practices would be evolved on the basis of enlightened deliberations among a distinguished set of speakers and participants. The conference, it is hoped, will be of considerable value in providing policy-makers, the scientific community, and the farmers of India a perspective on desirable paths to pursue for agricultural growth and development in the 21st century.

For registration details visit http://new.teriin.org/events_inside.php_id_17348

BANGALORE BIO JUNE 7 - 9, 2006

Bangalore Bio 2006 will take place June 7 to 9, 2006, in Bangalore, India. The International Conference of Bangalore Bio will address key issues on Biotech Landscape, Current Trends in Innovation, Scientific Discoveries in Biotechnology, Sustenance, Governance Issues and the Future of the Indian Biotechnology Industry in the Global Arena. Keeping in view the potential of biotechnology application in Indian agriculture, Bangalore Bio 2006 will give special thrust to agri-biotechnology, highlighting current challenges and future opportunities. Topics for discussion include: transgenic crops and agri-biotechnology; functional foods and plant pharmaceuticals; biofuels; biofertilizers and biopesticides; and IPR, safety and regulatory issues.

For details visit http://www.bangalorebio.in

INDIA SUSPENDS RULE ON GM SOYOIL IMPORTS FOR THREE MONTHS

Reuters News Service - May 5, 2006

MUMBAI -- India has suspended for three months a new rule that required imports of genetically modified food products, including soyoil, to be cleared by a government panel.

The director general of foreign trade said in a notification the condition imposed under a new export-import policy last month stands suspended until July 7.

(continued on page 4 - see India Suspends Rule)

CALENDAR OF EVENTS (BANGLADESH)			
Event	Organization	Date	Place
Regional Workshop on the Awareness Building on the Recent Advances of Agricultural Biotechnology & Biosafety	South Asia Biosafety Program (SABP)	June 12-13, 2006	Khulna Division

INCEPTION WORKSHOP OF NATIONAL BIOSAFETY FRAMEWORK PROJECT OF BANGLADESH

The Department of Environment (DoE) organized a day-long Inception Workshop of UNEP/GEF-funded National Biosafety Framework project at the IDB Bhaban, Agargaon, Dhaka on April 23, 2006.

Mr. Tariqul Islam, Minister of Environment and Forests for Bangladesh, inaugurated the workshop as the chief guest. Mr. Jafrul Islam Chowdhury, Bangladesh State Minister of Environment and Forests, was present as the special guest. The inaugural function was chaired by Mr. Jafar Ahmed Chowdhury, Secretary, Bangladesh Ministry of Environment and Forests. Dr. Khandaker Rashedul Haque, Director General, Department of Environment gave the address of welcome while Mr. Mahmood Hasan Khan, Project Director, NBF Project offered the vote of thanks. Dr. Nilufer Hye Karim, National Project Coordinator, NBF Project presented the keynote paper highlighting the objectives of the National Biosafety Framework project.

In his speech, Mr. Tariqul Islam referred to various benefits of biotechnology and said the technology could solve the twin problems of drought and salinity through developing drought and saline-resistant GM crops. However, he urged scientists to determine the impact of genetically modified (GM) food on the country's environment and people's lives before its introduction in Bangladesh. He also expressed his concern on the risks of the technology on biodiversity and health and stressed the need for framing National Biosafety Framework (NBF) before the introduction of GM crops. He also said that BR29, a rice variety fortified with vitamin A, could not be brought to the field level in future without framing the NBF.

Mr. Jafrul Islam Chowdhury, State Minister for Environment and Forests offering his speech. Seated on the dias (from left) : Dr. Khandaker Rashedul Haque, Director General, DoE, Mr. Jafar Ahmed Chowdhury, Secretary, Ministry of Environment and Forests, Mr. Tariqul Islam, Minister for Environment and Forests.

Mr. Jafrul Islam Chowdhury opined that, due to global warming, there will be a dramatic change in the environment, hence it is expected that there will be excessive rain, flooding, drought and increased salinity in the soil. As a result the crop productivity will reduce drastically. To combat this and feed its ever increasing population Bangladesh needs to look at modern technology, namely, genetic modification technology to produce disease and stress tolerant varieties. He also urged concerned scientists to follow standard biosafety guidelines during handling of genetically modified crops so that the newly developed crop varieties do not pose any threats to Bangladesh's bio-diversity, human and animal health.

After the inaugural ceremony there were two scientific sessions. The first session, chaired by Dr. Khandaker Rashedul Haque, had four presentations. Prof. Dr. Rakha Hari Sarker, living modified organism expert of NBF Project presented his paper on the Principles of Genetic Engineering and their Applications. Mr. Farhad Mazhar, Chief of UBINIG presented a paper on "Viewpoints of GMOs and their Products". Dr. Emdadul Haque Chowdhury, Toxicology Specialists of NBF Project presented a paper on "Concerns and Principles of Safety Assessment of GM Foods" and Prof. Dr. Haseena Khan, Biodiversity Specialists of NBF Project, presented a paper highlighting the biosafety issues and their application in Bangladesh.

The second scientific session was held under the chairmanship of Mr. Syed Naquib Muslim, Additional Secretary, Bangladesh Ministry of Agriculture,. The first paper was on "Understanding Cartagena Protocol for Research and Development and presented by Dr. Md. Abdur Razzaque, Member Director (Crops), Bangladesh Agricultural Research Council (BARC). The second paper was on the "Elements of National Biosafety Framework: Legal and Policy Issues", presented jointly by Dr. Md. Abdur Razzaque and Prof. M. Imdadul Hoque, Country Coordinator, South Asia Biosafety Program (SABP).

Participants at the workshop were selected from scientists and researchers from NARS institutes, universities, private and NGO sectors, government officials and donor agencies. Members of the National Coordination Committee were also present during the workshop. The participants took part in active discussions after each session. They also urged that the National Biosafety Framework be finalized by December 2006, the date previously agreed upon by the National Coordination Committee on Biosafety to implement genetic modification in crops and livestock in the country without any harm to the natural environment.

India Suspends Rule - *continued from page 2*

It did not elaborate on the reason for the suspension, but the announcement came after the edible oil trade had protested the rule saying it would delay shipments of genetically modified soyoil into the country.

Trade officials said the country imports about two million tonnes of soyoil, mostly from Brazil and Argentina, where transgenic Roundup Ready soybeans are widely grown.

India had also made it mandatory under the new policy for producers to mention genetically modified products. This rule is also kept in abeyance till July.

India imports 40 percent of its annual needs of 11 million tonnes of edible oil.

Under WTO regulations, soy oil carries an import duty of 45 percent in India, the lowest among imported oils.

FIELD TRIAL OF GM CROPS ONLY AFTER GEAC APPROVAL, RULES APEX COURT

The Financial Express - May 2, 2006

NEW DELHI -- The Supreme Court has ruled that any field trial of genetically modified (GM) crops should be conducted only with the approval of the Genetic Engineering Approval Committee (GEAC).

The Bench consisting of Chief Justice YK Sabarwal and Justice CK Thakkar on Monday passed this interim verdict on a petition filed by Aruna Rodigues and others calling for a moratorium on field trials of GM crops and import of GM products.

Speaking to FE, the advocate for the petitioner, Prashant Bhushan said : "The Supreme Court realised the gravity of the issue and said that the GEAC alone should give approval for any field trials of GM crops in the country."

Usually the GEAC, being the apex regulator under the environment ministry, gives approval to multi-locational, large-scale field trials of GM crops. But the Review Committee on Genetic Manipulation (RCGM), a body under the promoter agency, Department of Biotechnology (DBT) approves multi-locational contained field trials of GM crops. The monitoring and evaluation (MEC) is also constituted under DBT. The GEAC gives its approval for large-scale field trials on basis of the reports of RCGM and MEC. Even when the GEAC gives its final approval for commercial cultivation of GM crops after largescale field trials, the data presented by RCGM and MEC are considered.

See the full article at: http://agbios.com/sabp_main.php?action=ShowNewsItem&id=7490

REGULATOR TELLS MONSANTO TO CUT GM SEEDS PRICES

AFP - May 12, 2006

US biotech giant Monsanto has been told on Friday to cut the cost of its genetically-modified seeds to farmers after monopoly investigators ruled it was manipulating prices, according to a report.

The Monopolies and Restrictive Trade Practices Commission said the Indian joint venture, Mahyco Monsanto, imposed "unjustified" costs on farmers and demanded prices come down in a month, the media said.

Activists and farmers' groups claim failed crops, falling prices and surging production costs have contributed to an Indian farming crisis that saw 4,100 farmers commit suicide in the western state of Maharashtra alone in 2004.

"We find that *prima facie* it has been established that the respondent is indulged in trade practices, which... have the effect of preventing, distorting and restricting competition," said Justice B K Rathi, of the commission in the ruling on Thursday.

Mahyco Monsanto immediately announced it would appeal against the decision in the Supreme Court, the country's highest court, saying the ruling was "beyond the commission's jurisdiction and inconsistent with the laws of India." The company cut its royalty fee by 30 per cent to 900 rupees ($20) per 450 grams bag of GM cotton seeds in March amid growing controversy over its tight grip on the Indian cotton GM seed market. It said the cut was in order "to best meet current market conditions."

See the full article at: http://agbios.com/sabp_main.php?action=ShowNewsItem&id=7517

HOW INDIA PLANS TO BOOST INNOVATION

Rediff.com - April 26, 2006

Indian government plans to bring a law that will permit scientists to keep a share of profits that come from commercialisation of their research in a bid to boost innovation in the country.

"We are working on a leglislation to give some ownership rights to those who create Intellectual Property," Union Science and Technology Minister Kapil Sibal told reporters during the Hanover Technology Fair.

This was important to attract a greater number of domestic as well as foreign investors to set up research and development centres in India, he said, adding that the government also planned to set up an Indian Institute of Intellectual Property Management in the country.

Sibal, who is part of the high-level Indian delegation accompanying Prime Minister Manmohan Singh on his visit to Germany, said the two countries have decided to set up a science research and technology centre with a view to giving an impetus to bilateral collaboration.

The German minister of education and research Annette Schavan would visit India in October-November when the accord on the proposed centre was expected to be signed.

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