



SOUTH ASIA
BIOSAFETY PROGRAM

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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.

STATUS OF AGRICULTURAL BIOTECHNOLOGY AND BIOSAFETY IN BANGLADESH

Dr. M.K.A Chowdhury, Chief Scientific Officer (Crops)
Bangladesh Agricultural Research Council (BARC)
New Airport Road, Farmgate, Dhaka, Bangladesh
Email : kachowdhury@barcbgd.org

Bangladesh has a population of about 140 million. By 2015, it is estimated to be 165 million. Arable land is decreasing by 1.6% per year due to river erosion, house making in villages, road building, establishment of industries, expansion of town and cities. Therefore, it is a great challenge to feed the ever increasing population with decreasing cultivable lands. In this context, agricultural biotechnology may be one of the options to combat this situation by increasing the productivity of the major agricultural crops.

In Bangladesh, biotechnological research began with conventional plant tissue culture-type work during the early eighties with very minimal facilities. Now, most of the national research institutes and universities like Dhaka University, Rajshahi University, Bangladesh Agricultural University and Khulna University, have established biotech laboratories to conduct tissue culture research and some of them also have the capability to carry out research on genetic transformation.

Recently some biotechnology laboratories have also been established by private and NGO sectors with a view to producing disease-free planting stocks. For the last few years private sector and NGO laboratories have been marketing some biotech products developed through tissue culture. These products include potato, banana, orchid, chrysanthe-

mum, gerbera and carnation. Tissue culture-derived potato and banana are in great demand by the farmers due to their high yielding capability.

Genetic transformation research is being carried out at the various NARS institutes and public universities. The Biotechnology Laboratory at the Department of Botany, University of Dhaka has been able to develop *Agrobacterium*-mediated transformation protocols for peanut, lentil and chickpea using marker genes. They have also been working on some other economically-important crops, namely, brinjal, potato, tomato and jute. The research group at the Department of Biochemistry and Molecular Genetics, University of Dhaka, and Department of Genetics & Plant Breeding, Bangladesh Agricultural University have been working on genetic transformation in rice, jute, brassica and potato.

Bangladesh ratified the Cartagena Protocol in February 2005 and the revised Biosafety Guidelines have been approved by the Executive Committee for final endorsement by the Task Force headed by the Prime Minister. The National Task Force on Biotechnology has set up technical committees to deal with biodiversity, biosafety, crop biotechnology, fish & livestock, and medical biotechnology.

The National Policy on Biotechnology aims to harness the opportunity of biotechnology; create the environment for and develop adequate facilities for research and development; infrastructure and human resource development; address issues on biosafety, IPR, public-awareness, biodiversity and bioethics; and develop bioinformatics and related ICT facilities.

The Technical Committee on Crop Biotechnology has already approved the importation of some biotech products, namely, golden rice, fruit and shoot borer-resistant eggplants, late blight-resistant potato and insect-resistant chickpea for contained trial.

Some foreign-aided projects to develop capacity building and infrastructure for agricultural biotechnology and biosafety are running in Bangladesh and these include the USAID-funded projects: Agricultural Biotechnology Support Project – II, which deals with technology development and transfer and IPR issues; South Asia Biosafety Program, which deals with biosafety capacity building, human resource development and development of biosafety regulatory documents; and International Service for the Acquisition of Agri-Biotech Applications, which acts as Bangladesh Biotechnology Information Center, collecting and disseminating biotech-related information and organizing media workshops. The Department of Environment (DOE) of Ministry of Environment and Forests has received funds from UNEP/GEF to develop a biosafety framework for Bangladesh. DOE has already started the project and hope to be able to complete the project by the end of 2006.

To better implement the activities concerning agricultural biotechnology and biosafety, Bangladesh needs to develop human resources to handle biosafety issues and to conduct molecular/gene transfer research; develop laboratory and greenhouse facilities; develop policies, rules and regulations and their enforcement; and strengthen international cooperation for research capabilities and risk assessment.

CALENDAR OF EVENTS (INDIA)			
Event	Organization	Date	Place
National Seminar on Transgenic Crops in Indian Agriculture: Status, Risks and Acceptance	National Society of Plant Sciences, in collaboration with Department of Plant Breeding, CCS Haryana Agricultural University	January 28 and 29, 2006	Hisar, Haryana, India
Training Awareness programme for senior custom officials	Ministry of Environment and Forests (MoEF). Contact: Dr. M. Hota, e-mail hota@nic.in	January 2006	TBD
Training Awareness programme for school children and teachers	Ministry of Environment and Forests (MoEF). Contact: Dr. M. Hota, e-mail hota@nic.in	January 2006	TBD
Training programme on LMO detection at NBPGR, Delhi	Ministry of Environment and Forests (MoEF). Contact: Dr. M. Hota, e-mail hota@nic.in	January 2006	TBD
Training Awareness programme for senior officials from State Departments of Environment and Agriculture	Ministry of Environment and Forests (MoEF). Contact: Dr. M. Hota, e-mail hota@nic.in	February 2006	TBD
Training Awareness programme for State Agriculture University and Farmers	Ministry of Environment and Forests (MoEF). Contact: Dr. M. Hota, e-mail hota@nic.in	February 2006	TBD
Training workshop for school children	Ministry of Environment and Forests (MoEF). Contact: Dr. M. Hota, e-mail hota@nic.in	February 2006	TBD
Communications Training for Agriculture Extension Personnel		March 2006	Punjab

SUSTAINABLE DEVELOPMENT SUMMIT 2006 TO BE HELD IN NEW DELHI, INDIA

With intent to foster hope and stimulate action towards respectable standards of living for the world's poorest and a responsible pattern of production and consumption among the richest, TERI organizes the DSDS (Delhi Sustainable Development Summit) annually. The only forum convened in a developing country, the Summit brings together the finest minds and the leading thinkers of the world to focus attention on the challenge of sustainable development as it relates to current trends at the global, regional, and local levels.

For more information, go to www.teriin.org/dsds/2006/.

FARM-LEVEL ECONOMIC IMPACT OF GM INSECT RESISTANT (BT) COTTON IN INDIA

The study entitled 'GM Crops: The global socio-economic and environmental impact - the first nine years 1996-2004' has been conducted by Graham Brookes and Peter Barfoot, PG Economics Ltd, UK, October 2005.

This study presents the findings of research into the global impact of GM crops since their introduction in 1995. It examines specific farm-level socio-economic effects, the environmental 'foot print' resulting from changes in the use of insecticides and herbicides, and the contribution towards reducing greenhouse gas (GHG) emissions.

More specifically, the report examines the following impacts:

Socio-economic impacts on:

- Cropping systems: risk of crop losses, use of inputs, crop yields and rotations;
- Farm profitability: costs of production, revenue and gross margin profitability;

- Trade flows: developments of imports and exports and prices;
- Drivers for adoption such as farm type and structure.

Environmental impacts on:

- Insecticide and herbicide use, including conversion to an environmental impact measure;
- Greenhouse gas (GHG) emissions.

In the present findings based on Indian context, the farm-level economic impact of GM crops for insect resistant (Bt) cotton in India are very encouraging. The study identifies the major effect of using GM insect resistant cotton as significant increase in the yield. With respect to cost of production, the average cost of technology (about \$54/ha) has been greater than the average insecticide cost savings of \$38/ha-\$42/ha resulting in a net increase in costs of production. However, the yield gains have resulted in important net gains to levels of profitability of \$139/ha, \$324/ha and \$171/ha respectively in 2002, 2003 and 2004. At the national level, these farm income gains amounted to \$6.1 million in 2002, \$32.4 million in 2003 and \$85.7 million in 2004 (cumulative total of \$124.2 million).

The impact on total cotton production was an increase of 3% in 2004 and in added-value terms, the combined effect of the yield increases and higher costs of production on farm income in 2004 was equivalent to an annual increase in production of 1.8% based on the 2004 production level that is inclusive of the GM insect resistance-related yield gains.

The report concludes that the gains from the GM insect resistance traits have mostly been delivered directly from the technology through yield improvements, reduced production risk and decreased the use of insecticides. Thus farmers have been able to both improve the productivity and economic returns whilst also practicing more environmentally-friendly farming methods.

For full study please refer to: www.pgeconomics.co.uk/pdf/globalimpactstudyfinal.pdf

CALENDAR OF EVENTS (BANGLADESH)

Event	Date	Place
Awareness Building on the Recent Advances in Agricultural Biotechnology and Biosafety: Organized by SABP.	February 1-2 2006	Dhaka Division
Regional workshop on Awareness Building on the Recent Advances in Agricultural Biotechnology and Biosafety: Organized by SABP.	February 5-6, 2006	BARD, Comilla, Chittagong Division
IUCN Workshop on the Use of Genetically Modified Organisms (GMO) in Bangladesh Related to the Implementation of the Cartagena Protocol	February 12, 2006	Dhaka

3RD INTERNATIONAL BOTANICAL CONFERENCE

The 3rd International Botanical conference was held at Dhaka from December 9 – 11, 2005. South Asia Biosafety Program (SABP) joined as one of the co-sponsors to organize the conference. As a part of awareness building activities, SABP specifically sponsored a scientific session entitled "Recent Advances on Agricultural Biotechnology and Biosafety". Speakers selected by SABP presented papers on various topics related to agricultural biotechnology and biosafety, namely, opportunities and challenges of biotechnology: Bangladesh perspective; plant genetic engineering: principles and applications; food safety assessment of GM crops; global status of biotech crops; status of biotech research and development in Bangladesh, etc. The main objective of this session was to create awareness among the different groups of participants on the recent developments of agricultural biotechnology and biosafety. The SABP-sponsored session was well received. Many participants suggested that this kind seminar should be arranged more frequently not only at Dhaka but also at the regional levels in order to benefit more people.



Photo taken at the 3rd International Botanical Conference was held at the Department of Botany, University of Dhaka, Bangladesh on December 9-11, 2005. On the dias, from left, Prof. Nargis Jahan, Secretary General, Bangladesh Botanical Society (BBS), Prof. M.R. Khan, President, BBS, Dr. Abdul Moyeen Khan, Hon'ble Minister for Science and Information & Communication Technology, Prof. S.M.A. Faiz, Vice Chancellor, Dhaka University, Hakim Md. Yousuf Haroon Bhuiyan, Managing Director, Hamdard Laboratories (Waqf), Bangladesh

REGIONAL WORKSHOPS ON RECENT ADVANCES IN AGRIBIOTECH TO BE GIVEN FOR DHAKA AND CHITTAGONG

SABP in collaboration with BARC has organized two regional workshops on the Awareness Building on the Recent Advances of Agricultural Biotechnology. The first workshop will be held February 1 and 2, 2006, for the Dhaka Division at the BRAC Centre Inn, Mohakhali, Dhaka. The second workshop will be held for the Chittagong Division at the Bangladesh Academy of Rural Development, Comilla on February 5 and 6, 2006. The majority of the participants will be selected from the agricultural extension department officers working at the district and Upazilla levels. Participants will also be selected from college level teachers, representatives from NGO and private sectors engaged in agricultural biotech related activities.

International and national experts on biotechnology and biosafety will act as resource persons at the workshops. Papers will be presented on biotechnology and biosafety related issues, case studies on biotech crops released in different countries and participants will have the opportunity to be involved in group exercises.

For more information, please contact : Prof. M. Imdadul Hoque, Country Coordinator, SABP. Email : imdadul@agbios.com; Tel : 891-6929/Extn. 121

WORKSHOP ON THE USE OF GMOs IN BANGLADESH RELATED TO THE IMPLEMENTATION OF THE CARTAGENA PROTOCOL

The Royal Danish Embassy in collaboration with IUCN Bangladesh has organized a day-long workshop on the Use of Genetically Modified Organisms (GMO) in Bangladesh Related to the Implementation of the Cartagena Protocol, at Dhaka, on February 12, 2006. The purpose of the workshop is to have a public debate and generate more awareness of the use of biotechnology and genetically modified organisms (GMOs) in the agricultural sector, the security procedures of introducing GMOs and the implementation of the Cartagena Protocol.

Experts on biotechnology from Denmark, Bangladesh, Thailand, Sri Lanka and the USA have been invited to present viewpoints, experiences and case studies on the released GMOs. Participants of the workshop will be selected from various government ministries dealing with agriculture, environment and forests, fisheries and livestock industries, from National Agricultural Research System (NARS) institutes, universities, NGOs, the private sector as well as from donor agencies.

The Proceedings of the conference

Foods Derived from Genetically Modified Crops: Issues for Consumer, Regulators and Scientists

are now available online at

http://www.agbios.com/sabp_main.php?action=ActivitiesPage

ABIC FOUNDATION INC. TRAVEL BURSARY ANNOUNCEMENT FOR ABIC 2006 CONFERENCE – MELBOURNE AUSTRALIA

The Agricultural Biotechnology International Conference (ABIC) Foundation is accepting applications for a travel bursary for the forthcoming ABIC 2006 Conference to be held in Melbourne, Australia, August 6 to 9, 2006. The deadline for submission of applications is February 28, 2006 with award announcements set for April 2006.

The ABIC Foundation has set aside funds to provide for one travel bursary for each ABIC conference. The bursary will cover the cost of return travel, accommodation and registration fees for an individual to attend an ABIC conference.

The bursaries were created to encourage ABIC attendance from among young scientists in emerging nations. With this gesture, the ABIC Foundation assists promising new researchers by making the ABIC network of agbiotech contacts more accessible.

The bursaries are open to young scientists in developing countries whose potential has come to the attention of the ABIC Foundation. Applications will be accepted from graduate students or post-doctoral fellows at accredited post-secondary institutions whose studies are closely focused on agricultural biotechnology. Candidates will be evaluated by the Foundation's Board based on the following criteria:

- Age requirement – applicants must be under the age of 35 at the time of application.
- Financial need – applicants must supply a financial statement indicating all sources of income including bursaries, scholarships and research funding.
- Applicability of research - candidates are expected to submit a poster presentation on their research at ABIC. A committee will review nominations for applicants and will submit suitable applications for external review of the quality of the research.
- Academic qualifications - applicants must be full-time graduate students or post-doctoral fellows at a post-secondary institution accredited by the International Association of Universities' "World List of Universities".
- Country of origin - must be designated by the United Nations as a developing or emerging nation.

Candidates are asked to submit a letter of application which includes information relevant to the above evaluation criteria and which briefly outlines their research. Candidates should also enclose the appropriate supporting documentation. A confidential letter of recommendation from the candidate's supervisor should be submitted directly to the ABIC Foundation.

Submissions should be emailed to the Foundation at abicfoundation@abic.ca, and mailed to:

ABIC Foundation Inc., 101 – 111 Research Drive, Saskatoon, SK, S7N 3R2 CANADA.

SCIENTISTS DEVELOP MECHANISM TO "SWITCH ON" GENES

newindpress.com - January 05, 2006

Scientists have worked out a mechanism to "switch on" genes introduced in a plant or an animal that has the potential for treatment of diseases like diabetes and Parkinsons as also for genetic crop modification.

In the normal procedure, a gene, which has been introduced in plants or animals during gene therapy remains switched on. Thus, an insulin gene introduced in diabetics would keep producing insulin all the time, Subba Reddy Palli from the Department of Entomology, College of Agriculture, University of Kentucky told PTI at a sectional symposium at the 93rd science Congress here.

With the gene switch technology, these genes can be made to express when needed, he said. In the technology, besides the desired gene, an element called "response element" and another called "receptor" are also introduced in the plant or animal.

All three as a unit are called a "gene switch". It has been found that a chemical called "ecdysone agonist", which is an insecticide, attaches to the receptor of the gene switch (in case of plants) turning on the gene concerned, leading to the production of the compound for which gene is meant for, he said.

The technology has potential for use in gene therapy for diseases such as diabetes and parkinsons, he said adding it can also be used during genetic modification of crops and other plants, diminishing the risks involved in GM technology (as gene would function only when the chemical is introduced).

See the full article at: http://agbios.com/sabp_main.php?action=ShowNewsItem&id=7149

BOOK ON BIOTECHNOLOGY IN INDIA RELEASED

WebIndia123.com - December 21, 2005

A book empirically based on examination of Agricultural Biotechnology in India was released here today by the Centre for Public Policy of the Indian Institute of Management, Bangalore (IIMB).

The book entitled 'Science, Agriculture and the Politics of Policy' examined the intersections of globalisation, technology and politics with a focus on Bangalore and Karnataka, a part of India which has seen a massive growth in biotech enterprises. It also dealt with experimentation with GM cotton and a contested policy debate about the role Biotechnology should play in economic development.

See the full article at: http://agbios.com/sabp_main.php?action=ShowNewsItem&id=7120

SABP CONTACTS

India

Purvi Mehta-Bhatt
SABP Coordination Cell
The Science Ashram
2/7, BIDD, Gorwa, Vadodara
390016 India
Tel: 0265-3957368
Email: P_mehta_Bhatt@rediffmail.com

Bangladesh

Prof. Imdadul Hoque
SABP Country Coordinator
House 18, Road 4
Sector 4, Uttara
Dhaka 1230 Bangladesh
Tel: +880-2-8916929 Ext. 121
Email: imdadul@agbios.com

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