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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.

SABP is working 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.

SAFETY ASSESSMENT AND FIELD TRIALS UNDERTAKEN BY TNAU ON BT BRINJAL

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Brinjal (*Solanum melongena* L.), with the world production of nine million metric tons (FAO, 1995), is one of the most important solanaceous crop in Asia and the Mediterranean basin. In 1999, 1.3 million ha were cultivated in the world for a total production of 21.2 million tonnes, of which 92.4 per cent of the world production was covered by Asia (FAO, 1999). In Tamil Nadu, the area under brinjal has increased steadily in the last decade.

(Photo: R. Potter, AGBIOS)

Damage to growing shoot tips. (Photo: R. Potter, AGBIOS)

The most damaging pest of brinjal is shoot and fruit borer (*Leucinodes orbonalis* Guenee), which causes extensive damage to growing shoot tips and fruits, thereby drastically reducing the marketable fruit yield.

The consumer who buys brinjal from the market picks up the vegetable along with the borer worm, as one or more worms usually live inside each and every harvested fruit. This is because the borer worm is not amenable for pesticidal control once it enters the fruit and the pest gives no time for the farmer to protect his crop produce. It is practically impossible to intervene in the life cycle of the pest either by means of chemical pesticide sprays or any other approved organic method as there are only one or two hours left before the young larvae, freshly hatched from the eggs laid by the adult moth, bore into the developing fruits. As there is no

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Shoot and fruit borer larvae. (Photo: R. Potter, AGBIOS)

ACTIVITIES

CALENDAR OF EVENTS

INDIA			
Event	Organization	Date	Place
Awareness workshops on GM crops with a focus on post release monitoring	Ministry of Agriculture (MoA) and Biotechnology Consortium India Limited (BCIL)	To be announced	Maharashtra Andra Predesh
National Consultation on Safety Assessment of GM Food Crops	Department of Biotechnology and BCIL	March 27, 2007 March 31, 2007	TNAU, Coimbatore UAS, Dharwad
Regional Workshops on Issues related to Cartagena Protocol on Biosafety in association with State Agricultural Universities	Ministry of Environment & Forests (MoEF) and BCIL	March 26-27, 2007 April 7, 2007	ANGRAU, Hyderabad Jungadh Agricultural University, Junagarh
Training programmes on "Detection of LMOs"	Central Food Technological Research Institute (CFTRI)	April 9-13, 2007	CFTRI, Mysore
BANGLADESH			
Event	Organization	Date	Place
Conference on Promoting Biotechnology in Bangladesh: National and International Perspectives For more information please go to http://www.gnobb.org/ or http://www.promotebiotechbd.net/	Ministry of Science, Information and Communication Technology, Dhaka University, BRAC University, Bangladesh Academy of Sciences, ICDDR,B and Incepta Pharmaceuticals.	April 6-8, 2007	BRAC Centre and ICDDR,B, Dhaka

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good control of the pest once it has hidden itself in the fruit, the farmer has to keep a close vigil watching for the borer pest before it tries to feed on the young fruit. The only option now available to the brinjal farmer is to resort to repeated pesticide sprays which oftentimes are very expensive and have to be repeated once every two days.

Research efforts with a view to developing Bt brinjal plants conferring resistance to shoot and fruit borer were initiated at Tamil Nadu Agricultural University and its partnering institutions namely, University of Agricultural Sciences, Dharwad, Indian Institute of Vegetable Research, Varanasi in collaboration with the Mahyco Research Foundation and with the financial support from the Department of Biotechnology, Government of India. Mahyco, in collaboration with Monsanto, has developed the transgenic Bt brinjal technology. Mahyco brinjal genotypes were transformed with *Cry1Ac* using *Agrobacterium*-mediated method. An elite event was identified from the regenerated lines. Using this line as a donor parent, a back-cross breeding programme was initiated to introgress *Cry1Ac* genes in elite Mahyco hybrids into four genetic backgrounds of regional specificity (PLR1 for northern districts, Co2 for western districts, MDU1 for central districts and KKM1 for southern districts) and appropriate bioassays on stabilized lines are now undertaken. Biosafety tests as required by the law have been conducted and reported to the Genetic Engineering Approval Committee (http://www.envfor.nic.in/divisions/csurv/geac/information_brinjal.htm). Under a royalty-free license agreement, the public sector institutes will convert their elite brinjal genotypes into Bt varieties. Since these Bt brinjal lines have the varietal background (as opposed to hybrids), the farmers have the option of saving the seeds for their future use. When these lines are approved for commercial cultivation, they will possibly be the first edible genetically modified crop in India. It will also be the first to be derived out of a public-private partnership in India.

GOVERNMENT EXTENDS SUSPENSION OF RULE ON GM SOYOIL IMPORTS

Reuters India - March 13, 2007

The government [of India] has suspended until the end of December a rule that required imports of genetically modified soyoil to be cleared by an official panel, the government said in a statement on Tuesday.

The moratorium was originally imposed in May and was due to end this month. Trade critics said last year that getting the panel's approval would delay shipments and push up prices.

India imports about two million tonnes of soyoil, mostly from Brazil and Argentina, where transgenic Roundup Ready soybeans are widely grown.

INDIAN SOYABEAN OIL TRADERS DEMAND BYPASS FOR GM FOOD IMPORTS

Times Internet Limited - February 28, 2007

The [ ] bid to keep a check on the imports of genetically modified (GM) foods into India is posing problems for soyabean oil importers. The government's rule (dated April 7, 2006) that importers of GM soyabean oil will have to obtain prior clearance from the Genetic Engineering Approval Committee (GEAC) constituted under the Environment Protection Act, 1986, was deferred twice in 2006. It is once again up for expiry on March 31.

Importing from the largest producers of soyabean, Argentina and Brazil, requires that the contracts are entered into at least two to three months ahead inclusive of shipping time. Soyabean refiners in India are seeking a one-time approval certificate allowing imports of GM soyabean oil, or extension of the deadline to comply to prior approval of imports.

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The Solvent Extractors Association (SEA) of India has made a representation to GEAC regarding the same. The lack of any clear regulation in this regard is deterring imports of GM soya oil, and could lead to a shortage in April as no new contracts are being entered into after February due to the uncertainty.

When contacted, executive director, SEA, BV Mehta confirmed that a representation to review the matter has been made to GEAC. Officials of GEAC refused to comment on the issue.

More than two-third of India's soyabean oil requirement is met through imports. It is a matter of concern as most of this degummed soyabean oil is crushed out of GM soyabean and comes from Argentina and Brazil. All the soyabean and soyabean oil produced in India is non-GM.

India's production of soyabean oil is about 1.1 million tonne, while we import between 1.8 million and 20 million tonne.

In order to consider a one-time approval *vis-à-vis* imports of GM soyabean oil, the industry has been asked to obtain test results on a number of parameters from any of three laboratories, Central Food Technological Research Institute (CFTRI), Mysore; National Institute of Nutrition (NIN), Hyderabad; and Shriram Institute of Industrial Research. However, some of these labs were unable to undertake testing of certain parameters, industry sources pointed out.

An official from an prominent multi-national company said, "The GEAC continued to add new specifications like conformity with Prevention of Food Adulteration Act, gyphosate residues in the oil and residues of refining.

But even as all the prescribed requirements had been fulfilled, the GEAC has requested that the testing process be re-started and has prescribed that CFTRI undertake all the tests. This will take considerable amount of time." The samples have been despatched to CFTRI in January.

As per the existing regulation, imports of soyabean oil from April 1, 2007 onwards will require GEAC's prior approval. This would imply a delay as no new contracts are being booked. This could lead to a subsequent price rise. A similar situation occurred prior to July 2006 when the notification of relaxation of imports of soyabean oil was to expire on July 4, 2006.

This led to a serious price rise July onwards, following which an extension on soyabean oil imports was given until March 31, 2007. In the two weeks until the notification for deference came out, the prices jumped by over $30 per tonne. The average price of soyabean oil in June 2006 was $521 per tonne, and moved up to $552 per tonne in July.

GENETICALLY MODIFIED CROPS ADD NEW LAYER TO INDIAN FARMING

Washington University (St. Louis) - February 27, 2007

The arrival of genetically modified crops has added another level of complexity to farming in the developing world. Glenn D. Stone, Ph.D., professor of anthropology and of environmental studies, both in Arts & Sciences, has completed the first detailed anthropological fieldwork on these crops and the way they impact — and are impacted by — local culture.

The study, published in the February issue of Current Anthropology, focuses on cotton production in the Warangal District of Andhra Pradesh, India, one of the nation's key cotton-growing areas. There, Stone found several factors affecting farmers' ability to adjust to new developments by practical methods. Among them are the speed of change, the overwhelming number of choices in the seed market and the desire for novelty — all of which lead to lack of proper seed testing by farmers.

"There is a rapidity of change that the farmers just can't keep up with," Stone said. "They aren't able to digest new technologies as they come along. In Warangal, the pattern of change is dizzying. From 2003 to 2005, more than 125 different brands of cottonseed had been sold. But the seeds come and go. In 2005, there were 78 kinds being sold, but only 24 of those were around in 2003."

Bt cottonseed, genetically modified to produce its own insecticide, was introduced in India in 2002. Between 2003 and 2005, the market share of Bt seed — created through collaboration between Monsanto Co. and several Indian companies — rose to 62 percent from 12 percent.

Stone's research reveals that the increase resulted not from traditional farming methods of testing seed for efficacy, but from a pattern of "social learning" — farmers relying on word of mouth to choose seeds.

"Very few farmers were doing experimental testing, they were just using it because their neighbors were," Stone said. "There has been a breakdown in the process of farmers evaluating new seed technologies."

While Bt seed exacerbates the problem by creating yet another option, the farming troubles predate its introduction. In the late 1990s, there was an epidemic of farmer suicide in the Warangal District. Many farmers are deeply in debt and have been for generations.

Stone's study shows that a problem of recognition contributes to those woes. The farmers' desire for novelty leads to rapid turnover in the seed market. Seed firms frequently take seeds that have become less popular, rename them and sell them with new marketing campaigns, Stone said.

"Many different brands are actually the same seed," he said. "Farmers can't recognize what they are getting. As a result, the farmers can't properly evaluate seeds. Instead, they ask their neighbors. Copying your neighbor isn't necessarily a bad thing; but in this case, everyone is copying everyone else, which results in fads, not testing."

Stone argues that the previously undocumented pattern of fads, in which each village moves from seed to seed, reflects a breakdown in "environmental learning," leaving farmers to rely on "social learning." Stone refers to this situation as "de-skilling."

"The bottom line is that the spread of Bt cotton doesn't so much reflect that it works for the farmers or that the farmers have tested it and found it to be a good technology," Stone said. "The spread more reflects the complete breakdown in the cotton cultivation system."

PAKISTAN CABINET OKAYS DRAFT BILL FOR GM CROPS

Jang Group of Newspapers - February 20, 2007

The federal cabinet has approved in principle the draft bill of Plant Breeders Rights to meet the World Trade Organisation (WTO) obligation and protect genetically modified crops.

The draft bill is an obligation for Pakistan being a member of WTO under article 27.3b of the WTO TRIPs Agreement.

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Pakistan - *continued from page 3*

The draft bill, which was approved by the cabinet in its meeting on February 14, 2007, with Prime Minister in the chair, will now be submitted to the parliament after vetting by the Law, Justice and Human Rights division.

The introduction of the bill will bring substantial changes and improvement in the quality of seed and productivity in agriculture and also bring discipline to the seed industry. With the promulgation of the bill, it is envisaged that investment in plant breeding both in private and public sector will be enhanced along with the activation of domestic breeding and continuous introduction of new-bred varieties.

The bill also helps in collaboration in research with national and foreign institutions and commercialisation of foreign varieties. The farmers will have better access to the superior and high-yielding local and foreign varieties.

Under this bill, genetically modified varieties would be protected and would also be subject to the clearance from the National Biosafety Committee that GM crops would not have adverse effect on the environment, human, animal or plant life and health.

The plant varieties already registered or commercialised by research institute, which do not conform to criteria of novelty, transitional provision has been provided in the draft bill. Public sector research institutes will have ownership rights for their varieties and the royalty so collected on the sale of seed of such varieties will be given 20 per cent share to the scientist involved in the variety's development programme.

The farmers will be entitled to save, use, sow, re-sow, exchange, share or sell his farm produce, but they shall not be entitled to sell seed of a variety protected under this bill on commercial basis.

Similarly, the scientists/breeders will be entitled to use the protected variety for plant breeding or other scientific research. The Act will provide an effective intellectual property right system, for granting intellectual property rights to plant breeders for the development of new plant varieties.

It would further lead to the establishment of a viable seed industry, which is critical to the development of agriculture in Pakistan ensuring availability of high quality seeds and planting material to the farmers.

SEEKING BETTER BIOTECH 'YIELDS'

Financial Express - March 12, 2007

Genetic modification is going through the same fear process which many technologies have seen in the past. "Any new technology would reach perfection over time and the same holds true for genetically modified (GM) or transgenic crops," says B Sesikeran, director, National Institute of Nutrition.

Despite remaining a sensitive issue here as well as around the world, India is emerging as a test-bed for biotech crops. Several government-funded R&D projects are being carried out in research institutions to achieve this. Indian Agricultural Research Institute (IARI), New Delhi, Central Rice Research Institute, Cuttack, Centre for DNA Fingerprinting and Diagnostics, Hyderabad, among others, are engaged in advanced research to develop transgenic rice.

Reduction of post-harvest losses, particularly in fruits and vegetables, through delayed ripening genes, is also a major thrust. Besides IARI, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad, Mahyco, Sungro Seeds and Monsanto are conducting multi-location field trials of transgenic crops like cabbage, cauliflower, corn, brinjal, groundnut, mustard, rice and tomato. Others like Indo-American Hybrid Seeds, Syngenta and Metahelix are working on this front to create their own indigenous technology.

The march to explore new transgenic crops comes from the newfound confidence gained from growing acceptance of Bt cotton, the only transgenic crop approved for commercial cultivation [in India]. The country tallied the most substantial percentage increase at 192% or 2.5 million hectares to total 3.8 million hectares, jumping two spots in the world ranking to become the fifth largest producer of biotech crops in the world, surpassing China for the first time.

The United States continues to drive growth in North America and globally, accounting for the greatest absolute acreage increase in 2006 with the addition of 4.8 million hectares. Brazil leads growth in South America with an increase of 22% to total 11.5 million hectares of soybeans and biotech cotton. Growth also continues in the countries of the European Union (EU) where Slovakia became the sixth EU country out of 25 to plant biotech crops.

All in all, farmers around the world continue rapid adoption of biotech crops. Biotech crop area is now 102 million hectares. The number of farmers planting biotech crops too has gone up to 10.3 million. Agriculturalists expect these adoption levels to continue accelerating in the times to come. By 2015, more than 20 million farmers are expected to plant 200 million hectares of biotech crops in about 40 countries.

See the full article at http://www.financialexpress.com/fe_full_story.php?content_id=157490

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