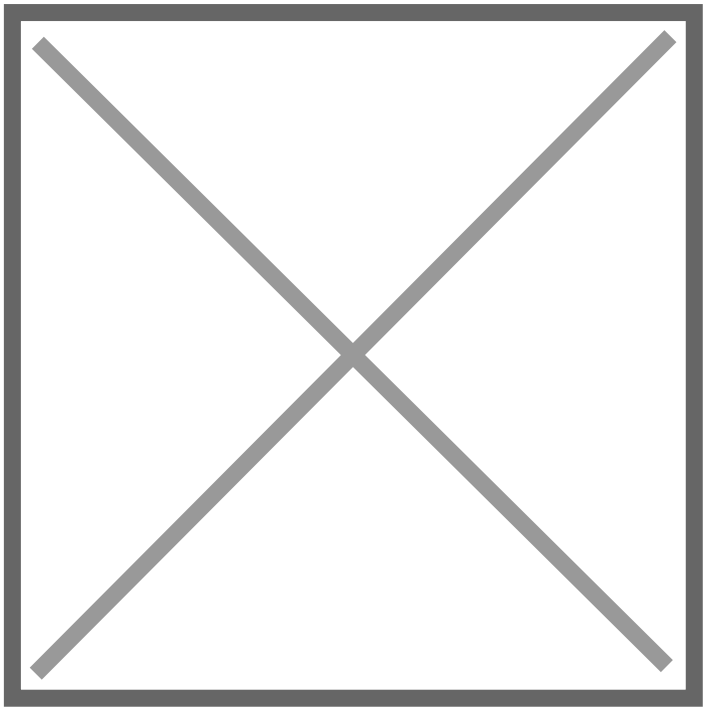
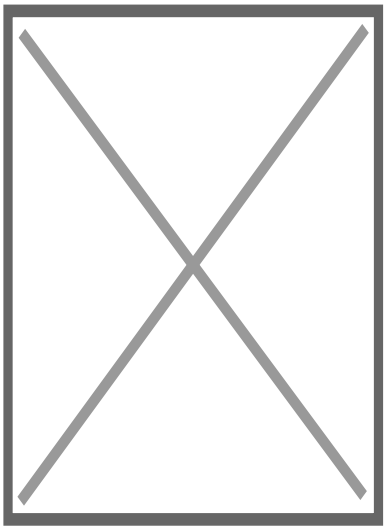
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"Bt cotton experience has indicated that the technology has been beneficial to farmers"

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"Bt cotton experience has indicated that the technology has been beneficial to farmers"



-BS Parsheera, Chairman, GEAC

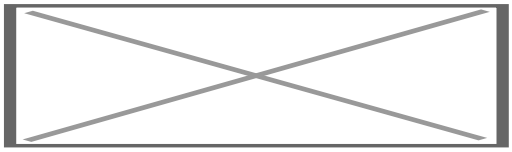
The Genetic Engineering Approval Committee (GEAC) is the country's apex regulatory authority on the approval of genetically modified crops. In an exclusive interview, the first one by the head of GEAC in the last five years, BS Parsheera, Chairman, GEAC and Additional Secretary, Ministry of Environment & Forests, takes us through the trials and tribulations in the journey of India's first biotech crop-the Bt cotton.

There is a lot of controversy regarding the merits of GM cotton even today, five years down the line. What is your view on this?

The Bt cotton experience in India has been very positive and encouraging. Bt cotton containing cry 1 Ac gene (MON 531 event) of Monsanto was the first transgenic crop released in India in April 2002 with the approval of the Genetic Engineering Approval Committee (GEAC), constituted by this Ministry under Rules 1989 of Environment Protection Act (EPA). Subsequently, 62 new Bt cotton varieties have been released. In April 2006, the GEAC has released Bt cotton varieties containing three new gene events namely cry 1Ac gene (event-1) indigenously developed by JK Agrigenetics in collaboration

with IIT Kharagpur, encoding fusion genes (cry 1Ab+Cry Ac) GFM, developed by Nath Seeds in collaboration with China and Bollgard-II developed by Mahyco. In addition, the GEAC has approved 124 Bt hybrids for large-scale trials with cry I Ac gene and new gene event.

The Bt cotton experience has indicated that the technology has been beneficial to farmers. The total area under Bt cotton has exponentially increased from 72,682 acres in 2002 to 86,00,000 acres in 2006. The total estimated production during 2005-06 is about 25 million bales (of 170 kg each). Bt cotton has reduced pesticide usage by 2260 MT of pesticides. The state-wise productivity of cotton during pre and post Bt cotton (lint Kg/ha) is as follows:



Except for a few pockets in dry areas like Warangal (Andhra Pradesh) and Vidarbha (Maharashtra), the response to Bt cotton has been positive.

The Supreme Court has directed the GEAC not to give approvals to GM crops until further orders. What is the approach adopted by the GEAC regarding the case and how is the committee taking the case forward?

We have taken a stand before the court that the introduction of GM crops in the country is being done after elaborate procedures for risk assessment and bio-safety issues based on case-to-case protocols. And only after fully satisfying ourselves on the bio-safety aspects, the release of the crop is approved. The entire process of assessment is done by an expert committee, which does not have any clash of interest, along with some of the representatives of the ministries concerned. It is done in an absolutely objective and transparent way. We also provide opportunity for NGOs and other interested formal groups to represent their case, if they have any, regarding any aspect of issue under consideration.

We are expecting that the discussion would now start as we have already given our position in an affidavit to the court and so has the other party. We have also made an offer that if the Court so chooses, we are willing to make a detailed presentation of how exactly the procedure is followed, which is done by people who have expertise in the area and have a very objective view about the issues involved.

Bir Singh Parsheera, Chairman, GEAC

Bir Singh Parsheera hails from the Lahoul-Spiti District of Himachal Pradesh. Born in 1950, he completed his Bachelors degree from the Punjab University and earned a Masters degree (MSc) in National Development and Project Planning from Bradford University, UK. Presently he is the Additional Secretary in the Ministry of Environment & Forests, Govt of India and the Chairman, Genetic Engineering Approval Committee (GEAC).

In 1973, during the initial stage of his career, he had joined the Indian Police Service but then moved to the Indian Administrative Service the next year. He has worked in various capacities in the States of Andhra Pradesh, Himachal Pradesh and in the Government of India. Some of the important posts held by him include Commissioner and Special Officer of Municipal Corporations of Vijayawada, Shimla and Hyderabad.

He has worked in the department of Tourism, Health, among others, before moving to Government of India in the Ministry of Environment and Forests for a period of 5 years. On his repatriation, he worked as Managing Director of Sports Authority, Managing Director of APHC and Secretary (Co-operation & Marketing) in the State Government. Thereafter in January 1997 he went again on deputation to the Government of India and worked there in different capacities until November, 2003. After coming to the State he briefly worked as Direcotr-General of EPTRI & Agriculture Production Commissioner and Principal Secretary, Dept, of Horticulture & Sericulture, Govt. of Andhra Pradesh before moving to the present assignment.

What were the hurdles the GEAC faced during the approval of the first GM cotton hybrids way back in 2002?

Since it was the first GM crop, the regulatory agency was extremely overcautious leading to a period of seven years testing before it was approved. The emphasis at that point of time was to assess the efficacy of the technology and not much importance was given to the genetic background of the hybrids. The GEAC also had to face a lot of opposition from several quarters. However, international experience with Bt cotton and data available on the bio-safety studies did help the committee to take a final view.

During its initial days, the GEAC faced a lot of flak regarding its functioning. How have the processes been streamlined now?

In the beginning there were some problems in terms of transparency, etc. In the sense that the website was not ready. So there was room for some doubt. But recently now we have ensured that all our agenda notes for every meeting of the GEAC are put on the website and the minutes of the meeting are also put there along with our detailed reason as to why we have chosen a particular course of action. We also have been giving opportunity to the NGO representatives, whenever they come up with specific issues to make a presentation before the GEAC to give their reasons as to why something should be done or should not be done.

As India's apex regulatory authority on the approval of GM crops, what is the role that GEAC envisions for itself in the years to come?

As an apex body notified under the EPA, 1986, the GEAC will have to maintain a balance, that is, play a proactive role in the regulation of GM crops to facilitate approvals without compromising on the safety aspects. Measures would have to be taken to ensure continuous post release monitoring to ensure timely remedial measures (delay in insect resistant development etc.). The post release monitoring will also ensure improvement in the pre release bio-safety assessment.

With the ongoing research on many biotech crops, how is the authority equipping/strengthening/innovating itself for the future? Can other government agencies play a role in facilitating the approval process?

In India there has been a spurt of interest in GMOs with the granting of Bt cotton approval in March 2002. Further in view of the biotechnological advances, worldover there has been an increase in production, export and import of GM food and food products. With the Cartagena Biosafety Protocol (CBP) coming into force on July 11, 2003, globally there has also been a growing demand for the governments to make stringent laws for food safety assessment before market authorization is permitted. The CBP also stipulates certain procedures for decision-making and risk assessment. Various stakeholder ministries have initiated or are in the process of evolving a GM policy pertinent to their sector. Some initiatives which are under active consideration are listed below:

- Food Safety and Standard Act, 2006 by Ministry of Health
- National Biotech Regulatory Authority by DBT
- GMO Policy on Labeling by Ministry of Health
- Incorporation of the GMO policy in the foreign trade policy by DGFT/Ministry of Commerce.

With the new initiatives coming into force, the administrative ministries would play a major role in facilitating ongoing research, monitoring and approval process for GM products.

Has the government ensured adequate public awareness in the Bt crops arena?

The need for public awareness and training has been adequately addressed by this ministry and the Department of Biotechnology (DBT) since 2002. While the emphasis for training was initially restricted to nine cotton-growing states, the training and awareness programs have been extended to other states only during 2006. Further, the Ministry of Environment and Forest (MoEF) is implementing a GEF-World Bank aided project on Capacity Building for bio-safety to address issues related to transboundary movements of Living Modified Organisms (LMOs). The Capacity Building Program also addresses the issue of improving and enhancing the Genetically Modified Organism (GMO) detection facilities at four national institutions. Recently, the Ministry of Agriculture has initiated a major program to increase awareness among the state and district level agencies to ensure effective pre and post release monitoring.

Does India have a structured risk assessment system in place for valuating the Bt crops?

Yes. India has a structured risk assessment system, which is well defined in the Biosafety guidelines of 1998. Further, on a case-to-case basis specific protocols are prescribed by the Review Committee on Genetic Modification (RCGM). Any company involved in the development of GM food crop has to undertake extensive bio-safety assessment, which includes environmental safety assessment as well as food and feed safety. The environmental safety assessment includes studies on pollen escape out-crossing, aggressiveness and weediness, effect of the gene on non-target organisms, presence of the protein in soil and its effect on soil micro-flora, confirmation of the absence of Terminator Gene, baseline susceptibility studies. The food and feed safety assessment studies include composition analysis, allergenicity and toxicological studies and feeding studies on fish, chicken, cows and buffaloes. In case the transgenic crop is found to be not suitable for human consumption, the product is rejected during the trial stage itself. The agronomic testing includes evaluation of the stability of the introduced trait, efficacy of the technology and the agronomic performance vis a vis its non-GM counterpart.

What is your message to the companies working in the area of GM crops?

The development of transgenic crops should be need-based and address the country's specific issues related to food and livelihood security. There should be no compromise on the bio-safety studies and the companies should be ready to face full accountability in case of any mishaps. Companies should play proactive role in enhancing the awareness of their products as well as be vigilant during the post release period.

Would you like to say something to the NGOs running an aggressive anti-GM campaign in the field of agribiotech?

The NGOs should be open to others' point of view and not impose their mandate of anti-GM policy on the country. They should play a proactive role to ensure that the government is vigilant and takes timely action where required. The arguments

for a moratorium on GM products should be based on scientific facts and not on fictitious propaganda such as sheep death due to consumption of Bt cotton leaf, etc. The introduction of any new technology may have both beneficial and adverse impacts and requires careful evaluation of the long-term sustainable benefits. In the case of modern agricultural biotechnology, the benefits as well as risks would vary from crop to crop, region to region and technology to technology. Therefore, the moot point is to ensure that a cautious step-by-step approach is adopted and a comprehensive evaluation of risk versus societal benefits is ensured before taking a final view. Therefore, scientific assessment and not moratorium is the answer to address bio-safety concerns. In accordance with the precautionary approach, the government is following a policy of case by case approval for transgenic crops.

After Bt cotton, which is the next crop likely to get the GEAC nod of approval?

While there are several GM crops under various stages of testing, the next crop that is under consideration of the GEAC is Bt brinjal developed by Mahyco.

Rolly Dureha

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