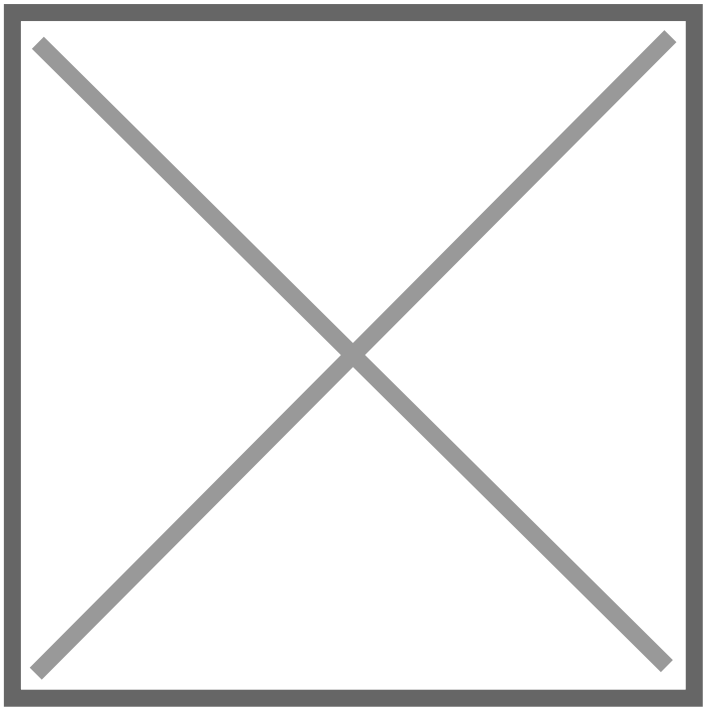
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A lease of life to GM crops

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A lease of life to GM crops

The recent SC order on the lifting of the ban on GM crops has large implications for the farming community, most notably the bioagri companies.

Bt cotton has been a success story in India since the time it was approved for production in 2002. This is in turn reflected in the increase in the country's cotton production which has almost doubled in the last five years, from 158 lakh bales in 2001 to 280 lakh bales in 2006-07. It is further expected to increase by another 10 percent to a projected figure of 310 lakh bales in 2007-08 as per the Cotton advisory Board (CAB).

However, India's GM crops story has been fraught with its own challenges due to inadequate biosafety measures and regulatory aspects with the Supreme Court banning the release of commercial crops in 2006 and halting field trials of GM crops. It was only in February this year (2008) that the apex court bench consisting of Chief Justice KG Balakrishnan, Justice RV Ravindran and Justice JM Panchal vacated the ban order and allowed the GEAC to approve new GM crops and events for field trials after it has put in place proper guidelines and biosafety norms. The biotech regulatory agency, the Genetic Engineering Approval Committee (GEAC) in the Ministry of Environment and Forests (MoEF), has been asked to invite eminent scientists like the founder director of the Hyderabad-based Centre for Cellular and Molecular Biology (CCMB), Pushpa M Bhargava and MS Swaminathan as invitees in the meetings to approve GM crops.

The SC Ban

On September 22, 2006, the Supreme Court slapped a ban on the commercial release of GM food crops thus halting the trials of transgenic maize and rice varieties including Bt brinjal, cauliflower and cabbage crops being lined up in that order for multi-location field trials.

In the course of its hearing of a PIL (Public Interest Litigation) filed by Aruna Rodrigues, PV Satheesh and others, the Court directed the Genetic Engineering Approval Committee (GEAC) not to clear any GM crop for fresh field trials. The biotech industry however did appeal to lift the ban in the light of the benefits of Bt cotton to farmers by raising their levels of income and reducing their costs of farming.

On October 13, 2006 the apex court made an exception to its ban order and allowed field trials of GM mustard crops on the request of the developer, subject to biosafety norms.

On May 8, 2007, the Supreme Court modified the ban order and allowed field trials of GM crops approved by the Genetic Engineering Approval Committee (GEAC) till September 2006. It also imposed certain new biosafety norms.

A welcome sign

The lifting of the ban has been welcomed by the industry. Speaking about it, RK Sinha, executive director of All India Crop Biotechnology Association (AICBA), said, "The AICBA reaffirms the Supreme Court's pragmatic approach in the PIL filed by Aruna Rodrigues giving the Genetic Engineering Approval Committee (GEAC) final authority on all field trial applications and permissions for biotech crops based on guidelines and examination of bio-safety considerations."

Prof. C Kameswara Rao, executive secretary, Foundation for Biotechnology and Awareness and Education, Bangalore also agrees with him. "Certainly it is welcome as field trials can go on without further delays. One should be happy that the loss is only one crop season and if the restriction were not removed it would have entailed loss of some more crop seasons resulting in hike in investment that would have passed on to the farmer/consumer."

Nandkishore Kagliwal, MD, Nath Biogene, a company into the production of Bt seeds added, "I think it is a very encouraging sign. Otherwise, we had this fear and apprehension of this genetic revolution bypassing this country. Lifting of ban would pave the way for more research work and it will intensify research efforts in this field. He further added, "For a company like us who are deeply involved in research we are certainly excited about it because now we can work with newer traits in the same crop like cotton where the gene is already released and we can now try out with other genes in the same crop looking for other trait values like drought resistant so newer genes can come." Sinha feels that the latest order allows GEAC to proceed with approvals for field trials for all crops and all traits thus harmonizing the existing Indian regulatory mechanism concerning biotech and raising it to the regulatory mechanism existing in other countries.

Losses incurred

Prof. Rao said that the losses incurred by companies in the wake of the ban will vary from company to company depending upon the crop, the number of crops, the number of varieties of each crop and the stage of advancement in their development and there can be no generalizations. However KV Somani, executive director, Sungro Seeds is of the view that all the projects have been delayed by one year. "By this way we have deprived Indian farming community for getting Bt Brinjal, Bt Cabbage and Bt Cauliflower by one more year. They could have saved some money on account of controlling Brinjal shoot and fruit

borer and earn extra income. Due to the optimum yield received from such Bt crops, the area required for these crops will come down and that land can be used for other important crops like wheat and rice, which solves the food shortage up to an extent."

Kagliwal of Nath Biogene, however, feels that the ban hit the research sector of the bioagri companies really hard. "If for instance you were working on paddy for insect resistance with genetic research being a long term thing which takes almost 8-10 years and is highly capital intensive. Added to that was the ban which caused the uncertain delay for which crops were never approved through the regulatory process so it becomes a dampener. This led to a slow down when it came to research and the investment and efforts put in were in jeopardy. As a company this has affected us as we lost a precious 18 months and the research cost that went up is difficult to quantify." Talking about the losses further Prof. Rao added, "The loss on account of the apex court order was one crop season, but the consequence was hike in investment and the disincentive to develop new transgenics. Otherwise, the SC order does not make much difference on the growth and development of transgenic crops, because there was no restriction on their development till the open field trial stages."

Limitations in the current order

RK Sinha, executive director of All India Crop Biotechnology Association (AICBA), said certain limitations in terms of the LOD requirement (Level of Detection) and isolation distance remain that are not consistent with global practices and are hence restricting the approval pipeline which includes key crops such as rice, wheat, tomato, public sector Bt cotton and corn. This issue is before the Supreme Court for adjudication. If amended, field trials can progress based on scientific principles, until which time it is difficult for both public and private institutions to conduct trials with existing LOD and isolation requirements.

The road ahead

The current SC order certainly has paved a way for better times ahead. Kagliwal said, "I always believe that there is aversion to any new technology that comes so some of the apprehensions if not justified are at least valid. However GM crops are being increasingly adopted all over the world. Even in India around 70 percent of the cotton area is now under Bt Cotton. If that is the level of acceptance by the farming community, it could not be without a reason. RK Sinha added, "One needs to refer to the Bt cotton story to estimate the nation's and farmers' opportunity cost of each year's delay in approval. Prior to approval, activists had insisted upon GEAC to conduct one more year of testing. Remarkably, and in contrast to most other key crops, India's cotton production grew 10 percent from 280 lakh bales in 2006-07 to 310 lakh bales in 2007-08, almost double of the 158 lakh bales in 2001. During these years, India has also emerged as the world's second largest producer and third largest exporter of cotton, all within six years of introduction of the GM cotton technology. This decision will accelerate the development of biotechnology in India and is in line with the Prime Minister and Finance Minister's recommendation to utilize biotechnology to boost agricultural productivity and improve the status of our farmers."

Shalini Gupta with inputs from Nayantara Som and Jahanara Parveen