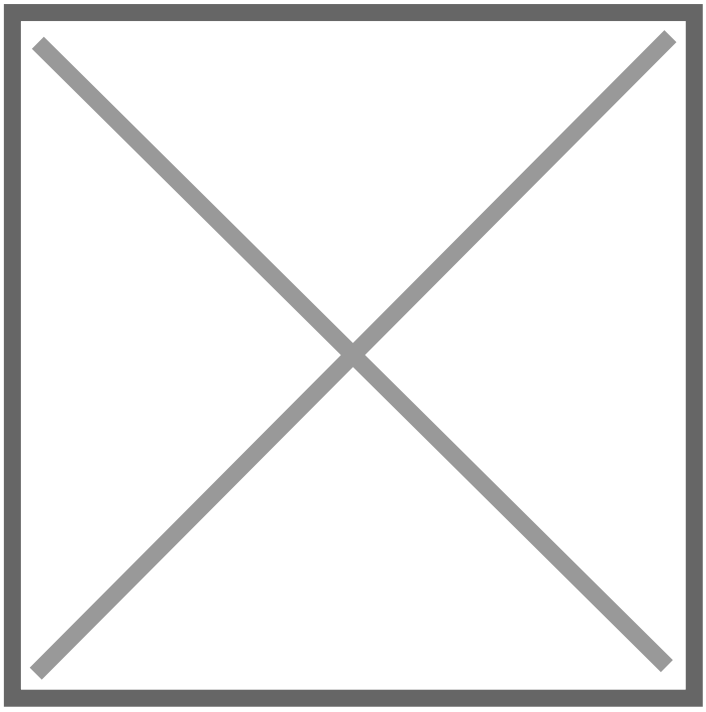
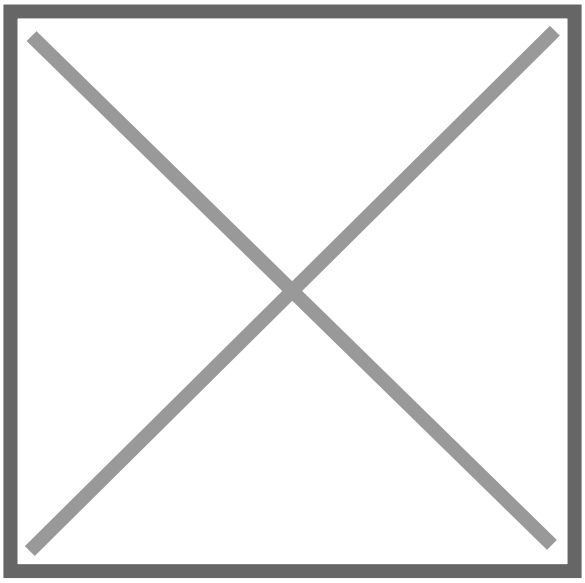
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Uncertainty continues over bt brinjal

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The recent 'no' to the release of bt brinjal by the environment minister may be a breather for opposition groups, the decision has stalled the aspirations of the industry and proponents of GM crops. GM technology has much at stake for the industry and agricultural economy like India. By creating a big debate common public is opposing the technology blindly.

The moratorium is believed to have put the clock back by at least three to five years, as far as GM food crops development in the country is concerned. The industry claims that there is enough scientific evidence available in India and outside to prove that the Cry1Ac bt technology is safe for human beings and animals and is extremely beneficial to the farmers. The benefits derived by the cotton farmers in India are a case in point. It is estimated that about Rs 20,000 crore of economic benefit flowed to the farmers in 2008 alone due to bt cotton technology.

VR Kaundinya, chairman, Association of Biotech Led Enterprises-Special Interest Group on Agri-Biotech (ABLE-SIGAB) and managing director of Advanta India, Andhra Pradesh, says, Ã¢â?¬Å?We believe that as being the highest scientific body, GEAC, can ask the company to generate any additional data that it is necessary and the company is obliged to generate such a data. But the concept of imposing a moratorium is a retrograde step and has left many of the stakeholders in both public and private sector in a state of confusion about the policy of the government. This will eventually harm the interests of the Indian farmers, Indian consumers and the country in general.Ã¢â?¬?

Giving quite a similar viewpoint, Dr KK Narayanan, MD, Metahelix Life Sciences, Bangalore, says Ã¢â?¬Å?All this uncertainty and delays erode the value of the technology companies in the agri-biotech sector. This will hamper further investments, generally in innovation, and particularly in the development of new GM technologies. Several small Indian companies that have the capabilities to develop competitive technologies will find it difficult to raise resources to fund development. Their survival itself may be in jeopardy, unless they decide to align with some of the big firms that may have the financial muscle and staying power to see through this uncertain period.Ã¢â?¬?

There was also a view expressed by the government that the public sector should invest more in this space and not the private sector. Illustrating on this point, Kaundinya says, Ã¢â?¬Å?We should know that it needs a committed investment of at least Rs 500 crore over a long period of time to develop one event and the entire regulatory process is also extremely expensive. So, the companies that would have already started investing crores of rupees in developing GM food crops in the country are in a dilemma over the continuation of the investments.Ã¢â?¬?

Although there is an uncertainly over the release of India's first GM food crop, Mahyco's research projects are in full swing. MK Sharma, managing director of Mahyco, Maharashtra, says, Ã¢â?¬Å?We are certainly looking forward to increased use of crop biotechnology in agriculture. With agricultural land and other resources like water shrinking while the population continues to grow, there is an urgent need for increasing farm yields by significantly reducing the use of pesticides and losses caused by pests and other biotic and abiotic stresses. We are, therefore, engaged in developing crops capable of better drought resistance, salinity tolerance, nutrient enhancement and disease resistance.Ã¢â?¬?

The company has invested nearly Rs 44.44 crore ($10 mn) on the R&D infrastructure and spends Rs 11.11 crore ($2.5 mn) annually on research. Adds Sharma, Ã¢â?¬Å?We believe that crop biotechnology is one of the options for food security and India cannot afford to be left behind in using biotech tools for the benefit of Indian farmers and Indian agriculture. While we respect the decision of the environment minister on insect-protected bt brinjal. Mahyco is confident that sound science based on evidence obtained over nine years of rigorous testing will prevail and farmers, consumers and the environment will benefit from agriculture biotechnology.Ã¢â?¬?

Apart from the large corporations, the biotech industry consists of medium-sized research companies that receive a good level of funding from venture capitalists (VCs) and private equities (PEs). These enterprises have to deliver certain returns to these investors in a given time period. If the policy of the government and the regulatory process are uncertain then such units that depend on these funds will face adverse situations in delivering their time-bound projects.

GM foods are no longer new; they have existed in North America for nearly one-and-a-half decades. Even the European Union, which had at one time led the charge against GM foods, recently gave approval to Amflora, a GM variety of potato. As of now, six European nations have approved the cultivation of GM crops and 27 European countries have approved the import and consumption of GM crops in food and feed. Furthermore, India's compulsions are very different from Europe in terms of the population the country has to feed in the next 25 years. China has already approved bt rice a few months back and this will reach the markets in two years time.

Decision making process

The denial to bt brinjal is not an issue. According to the industry, the main concern is over the process by which the decision of putting a moratorium was reached.

Dr Narayanan opines, Ã¢â?¬Å?I think the process by which the decision was reached is faulty. It was indeed disappointing to see the introduction of a safe and useful technology scuttled by emotional and often times specious arguments without any regard for the truth, science, or even common sense.Ã¢â?¬?

According to Kaundinya, Ã¢â?¬Å?It is the prerogative of the government to follow a process that brings apt solution to a particular issue. We believe that this is scientific matter and should be decided in a scientific forum. The arguments and the voices of all the scientists who worked on this technology should be adequately heard by the government and by the public.Ã¢â?¬? We all know that there is a set of Institutions, scientists and activists in the world who oppose GM technology. While we should definitely listen to them we should also note that many of their arguments are not scientifically valid. The government should have looked at the enormous scientific evidence that is available to support the technology, he adds.

The industry clearly feels that the voice of the anti-GM activists has made a bigger impact on the process than what is due to them. During the process even the public was fed with a lot of wrong information about the technology and its safety, the commercial side of the seed industry, the regulatory process followed and other aspects.

Dr P Balasubramanian, former director, Centre for Plant Molecular Biology, Tamil Nadu Agricultural University (TNAU), Coimbatore, says, Ã¢â?¬Å?The current moratorium imposed on bt brinjal development and its commercial release would largely affect the smooth process of technology transfer to the needy farmers and consumers. As one who attended most consultations of the minister, I feel the real brinjal farmers were not consulted at all as they did not care to be at the venue. The so-called farmers who made their presence felt at the consultations were but alter egos of the anti-GM activists and the minister also appeared to be aware of this fact.Ã¢â?¬?

Ã¢â?¬Å?Until now, it was not made clear either by the GEAC or by the ministry on whose word was final on this imbroglio and it appears to be a kind of legalese that no one including scientists could understand. I could figure out that the activists aimed only at stalling the whole process by raising slogans like 'conduct long-term biosafety tests', conveniently forgetting the fact whatever the process in question was as per extant laws of the land,Ã¢â?¬? he adds.

While Dr Bhargava, the Supreme Court appointed member of GEAC, agrees that all campaigns-either anti-GM or pro-GM-have an effect on public perception. He strongly believes, Ã¢â?¬Å?In a democracy, the public should possess the power to change government policy if it is irrational, unscientific, not based on facts, and not in interest of the people and the country.Ã¢â?¬?

Industry further claims that the GEAC recommendation was untainted and based on the best scientific evidence and knowledge available. Its members and the members of the technical committees should have been brought to consultation sites to address the concerns aired by other scientists, agriculture experts, farmers and NGOs.

It is not only Bt brinjal, IARI is in fact working on a variety of transgenic crops and other GM traits, and is getting different crops ready. These include rice, chickpea, sorghum, sugarcane, tomato and pigeon-pea. Hyderabad-based bt cotton leader Nuziveedu Seeds has been working on transgenic rice in collaboration with IIT, Kharagpur and a drought-tolerant corn in partnership with International Centre for Genetic Engineering and Biotechnology, New Delhi.

Mahyco's state-of-the-art R&D centre at Dawalwadi near Jalna in Maharashtra too has several ongoing hybrid breeding programs in over 30 crop species and support programs in plant pathology, entomology, cytogenetics, biochemistry, tissue culture, rapid cycling, and various other areas of biotech and transgenic plant research.

Dr Swapan Dutta, deputy director general, crop science, Indian Council of Agricultural Research (ICAR), New Delhi, says, Ã¢â?¬Å?As such, the current decision should not affect the future research or project on bt crops. Of course, some negative assumption is going on with regard to this decision of denying its field release. Science will prevail and people including the Ministry of Environment and Forests will accept the scientific views on bt technology and allow its release in the farmers field.Ã¢â?¬?

If not, he cautions, will have serious negative effects on application of biotechnology in ensuring food and nutrition security. After learning lessons from this unscientific practice of selective public debate, scientists and policy makers may organize their views effectively so that the country does not suffer. India should now be in the frontline of cutting-edge science in the areas of IT, BT and its application for better health, agriculture and improvement of livelihood.

The Genetic Engineering Appraisal Committee is scheduled to meet on May 19, 2010 to discuss the next steps in subjecting bt brinjal to further tests, but the debate is far from over. Ã¢â?¬Å?We are still in the process of compiling the matrix on the issues that arose from various consultations along with the names of the people and organizations that have submitted written complaints to the minister. The decision on most of the things including further testing would be taken in this meeting,Ã¢â?¬? says Dr Ranjini Warrier, member secretary of GEAC.

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Issues surrounding GEAC approval

Giving in to intense opposition from the non-governmental organizations (NGOs) and several state governments, the union government puts commercial cultivation of genetically bt brinjal on hold citing the need for consensus within the scientific community. Environment Minister Jairam Ramesh announced the decision to put a moratorium on the release of India's first genetically modified (GM) food crop till such time independent scientific studies establish, to the satisfaction of both the public and professionals, the long-term safety of the product on human health.

The Genetic Engineering Approval Committee (GEAC), the apex regulatory body under the Minister for Environment and Forests charged with the approval of GM foods, gave bt brinjal its approval on October 14, 2009. The GEAC reached this decision on the basis of scientific data generated during 2002-09, considering international experience with GM crops and scientific reviews by as many as three high-level technical committees. The committees included the Review Committee on

Genetic Manipulations and two expert committees that the GEAC itself appointed in 2006 and 2009.

Overriding the statutory body's decision, the Minister for Environment and Forests, went into a process of public consultation in seven cities across the country that turned acrimonious. Following which a number of states-Uttar Pradesh, Andhra Pradesh, Karnataka, Kerala, Orissa and West Bengal- publicly opposed the introduction of bt brinjal.

While leading scientist Dr PM Bhargava, founder director of the Center for Cellular and Molecular Biology (CCMB), Hyderabad, believes that it was fortunate to have a minister who recognized the scientists' opinion by putting a moratorium on commercial release of bt brinjal. The industry is disappointed with the fact that a collection of assertions and claims of various groups present at the consultations put together in a 'free-for-all' format in a report rather than scientific analysis and that became the basis for the final decision by the ministry.

Dr KK Narayanan, managing director, Metahelix Life Sciences, Bangalore, says, Ã¢â?¬Å?It is definitely a setback for the agri-biotech industry in the country. The process of 'public consultation' that led to this announcement is not a method for the rational and scientific evaluation of the technology, particularly its risks and the benefits. This has set a bad precedence and has needlessly added to the uncertainty and confusion surrounding the technology and its commercialization in India.Ã¢â?¬? Questions were also raised on the integrity of the members of the GEAC as one-third of the members of the Expert Committee-II (EC-II) were also part of previous such panel that chose to discard the need for any further studies.

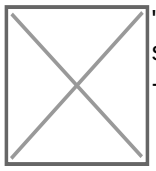
Dr Bhargava says, Ã¢â?¬Å?GEAC's approval for commercial cultivation of bt brinjal was unscientific, profusely biased, and without any rational basis; it totally ignored the immense amount of available and reliable scientific information that argued strongly against the release of bt brinjal.Ã¢â?¬?

He further criticizes that GEAC gave no time to the members to read and assimilate the report of EC-II (Expert Committee-II) which was set up to take care of the objections to Monsanto's biosafety data by scientists around the world.

He explains, Ã¢â?¬Å?The independent international scientific community has a list of nearly 30 tests that used to be done on GM crops, as appropriate, before their release should be considered. These tests are well documented. However, I have no idea as to what will be done with this list and what additional trials may be recommended.Ã¢â?¬?

The current standards of GEAC in the formulation of the decision on bt brinjal did not match with the global regulatory norms, Ramesh said in his report that Ã¢â?¬Å?GEAC processes need to be changed and made more transparent.Ã¢â?¬?

Meanwhile, the GEAC will be renamed as Genetic Engineering Appraisal Committee. However, the chairman of the committee has clarified that the change would not affect the mandate of the committee that would continue to be the apex body to accord approval of use of genetically modified organisms (GMOs) in research as well as its environmental and commercial impact. Now, it remains to be seen that whether the change from approval to appraisal really means nothing or would eventually lead to the dilution of its earlier role.



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Jahanara Parveen in Bangalore