

## “One step forward, three steps back: The curious case of agri-biotech regulation in India”

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Recently, it was reported that Indian scientists have completed final field trials of a genetic modified mustard and will soon submit their final report to the government. This would be the second food crop after Bt Brinjal for which all studies have been completed and waiting for the government approval to be the other crops besides cotton going the GM way. One can't help but review the regulatory situation in the 5 years that has passed by between the time of Bt Brinjal in 2010 and GM mustard in 2015.

It's fair to say that regulatory situation in India has become very challenging in the last five years. It is very commendable that the field trials of GM mustard have been completed. The year 2010 was the beginning of the uncertain times for agricultural biotechnology in India when a moratorium on the commercialization of Bt Brinjal was announced despite satisfying all the criteria set up the regulatory authorities. The apex regulatory body to review and approve all biotechnology products in India went through a name change from being Genetic Engineering Approval Committee (GEAC) to Genetic Engineering Appraisal Committee (GEAC), a change that did not alter the acronym but significantly devalued its authority. Since then, it has become extremely difficult to even conduct field-research to evaluate the usefulness and safety of GM crops. In 2011, the GEAC introduced another condition for obtaining a No Objection Certificate (NOC) from individual states before planting the research trials. This new condition, took everyone by surprise and resulted in the loss of a complete year. And if that wasn't bad enough, the ecosystem for field research worsened even further 2013 onwards when the GEAC, that was earlier convening every month, stopped meeting on a regular basis adding to the uncertainty of the industry.

Meanwhile, our neighbours in the region continued to advance their research and development to review and approve GM crops. Philippines has been the leader and continued to approve GM crops. Last year Vietnam approved GM maize for

cultivation and Indonesia continued to develop its drought resistant sugarcane, issued food and environmental safety certificates in 2013 and allowed uninterrupted field trials of other crops such as maize. Pakistan also continued to conduct and completed large scale field trials of several crops. It is worthy to note that Vietnam started the trials of maize much later and approved these ahead of India mainly because the predictability in the regulatory system that they developed. The most interesting of all is Bangladesh. While India imposed a moratorium on Bt Brinjal, Bangladesh continued its multi- location field trials of its own varieties of Bt Brinjal (the same event developed in India) and commercially began planting Bt Brinjal in 2014. Interestingly, Bangladesh cited the safety results for this event conducted in India. Similarly, crop biotechnology has progressed well in Africa.

### **Unfounded criticism**

The critics of crop biotechnology cite several reasons in support of delays in India. First there's the MNC bogey - the so called over-reliance of imported technology and dependence on foreign technology. However, it is Indian institutions that have suffered the most because of these delays in the last 5 years. GM mustard, like Bt Brinjal was developed in India for Indian conditions so it will be interesting to see the response there is to GM mustard as field trials come to an end. Another argument against biotech crop is that only 28 countries grow biotech crops and more than 80% percent of the planted area is in only four countries. But these critics perhaps do not know that India is in the list of these four countries with just one crop Bt cotton and the 28 countries that grow these crops constitute around 60% of the world's population! And many more countries import GM foods from the GM producing countries.

Health and safety concerns are also cited as the reasons why we should not progress with biotechnology. It should be noted and has been reported several times that of the GM crops have been planted and consumed across the world for so many years, there has not been even a single case of adverse affect on human health. The opinion of the scientific community linked to a petition submitted by 250 scientists to the Prime Minister to stop GM research in the country, is yet another reason cited by critics against the introduction of this technology. However several noted science bodies such as the National Academy of Agricultural Sciences (NAAS) under the chairmanship of Professor M S Swaminathan passed a resolution endorsing the usefulness of biotechnology in agriculture. Scientists at this year's Indian Science Congress also submitted a similar petition to the Prime Minister. Interestingly the Honourable Prime Minister also recently spoke in favour of GM crops. So it is hoped that the normalcy would resume in field testing of biotech crops.

We must realize that India is one of very few select countries in the developing world that has the scientific knowledge and capability to develop biotech crops on its own which is exemplified in the number of applications by the public sector has put up for field trials. India's regulatory system is one of the most stringent in the world and if allowed to evaluate the applications purely on its merit, India can continue to establish its leadership in this domain. Our universities and institutes have developed a large human resource in biotechnology, which will decline if agricultural biotechnology is not allowed to develop further and take us back by several years. This capability needs to grow and continuing field research will be a very significant step in this direction. The last 5 years have been very uncertain. It is hoped that the next coming years will be progressive and not retrogressive for crop biotechnology research in India.