

## SERIOUS CONCERNS OVER BT BRINJAL

Relevant for: Science & Technology | Topic: Biotechnology, Genetics & Health related developments

A month ago, Bt brinjal genetically modified (GM) to resist the brinjal fruit and shoot borer (an insect), was found growing illegally in Haryana. This was a different Bt brinjal from the one developed by the Indian company, Mahyco, in which Monsanto has a 26% stake. Mahyco's Bt brinjal has been under a moratorium since 2010. Even as the government clamped down on the illegal GM crop, some farmer groups have demanded the release of Mahyco's Bt brinjal and other GM crops in the regulatory pipeline. It is true that the moratorium was imposed by the then Environment Minister Jairam Ramesh, despite being cleared by the Genetic Engineering Appraisal Committee (GEAC), the apex regulatory body for GM crops. But is Bt brinjal actually ready for release?

Before imposing the moratorium, Mr. Ramesh had sought comments from a range of experts and concerned groups on environmental impacts and implications for consumers and farmers. Despite demands from activists and social scientists, the Ministry of Agriculture has not offered evidence that Bt brinjal will benefit farmers. Ironically, the National Institute of Agricultural Economics and Policy Research anticipates that if Bt brinjal performs as Mahyco proposes, brinjal output will increase and retail prices will fall, benefiting consumers far more than farmers. The report ignores the scenario that companies might charge premium prices for Bt brinjal seeds, in which case farmers may not benefit at all.

On biosafety issues, scientific opinion is divided down the middle. While some scientists such as Deepak Pental of Delhi University were in favour of releasing Bt brinjal, others such as the late Pushpa Bhargava, entomologist David Andow of the U.S., and the then Vice-Chancellors of the Acharya N.G. Ranga Agricultural University and the Dr. Y.S.R. Horticultural University highlighted crucial deficiencies in the characterisation of Bt brinjal, and in the environmental impacts assessment. The ecologist, Madhav Gadgil, warned of contamination of India's diverse brinjal varieties. Biodiversity is critical for nutrition and sustainability, and the government's own task force on biotechnology (2004) had recommended that no GM crop be allowed in biodiversity-rich areas.

Further, a majority of the technical expert committee appointed by the Supreme Court (in the public interest litigations over GM crops), recommended a ban on genetically modifying those crops for which India is a centre of origin or diversity. Brinjal happens to be such a crop.

In terms of nutrition, there seem to be some significant differences between Bt and ordinary brinjal. Many health researchers and professionals, and scientists such as immunologist David Schubert of the Salk Institute, U.S. and Suman Sahai of Gene Campaign have argued that Bt brinjal poses risks to human health. M.S. Swaminathan and V.M. Katoch, then the Director General of the Indian Council of Medical Research, asked for long-term (chronic) toxicity studies, before taking any decision on Bt brinjal. Further, they asked that these be conducted independently, instead of relying exclusively on Mahyco for data.

Bt brinjal found no support from State governments. Kerala and Uttarakhand asked for a ban on GM crops. States with substantial brinjal cultivation, i.e. West Bengal, Odisha, Bihar opposed the release pending rigorous, extensive testing. As did Chhattisgarh, Tamil Nadu, Karnataka, Madhya Pradesh, and undivided Andhra Pradesh. These States were ruled by parties across the political spectrum. In 2012 and 2017, respectively, the Parliamentary Standing Committee on Agriculture and the Committee on Science & Technology, Environment and Forests assessed the GM controversy. Both committees expressed grave concerns about lapses in the regulatory

system. In fact, the Committee on Agriculture was so alarmed by the irregularities in the assessment of Bt brinjal, that it recommended “a thorough probe by a team of eminent independent scientists and environmentalists”, which never happened. Further, both committees endorsed labelling GM foods to protect a consumer’s right to know. However, since retailing is largely unorganised, enforcing truthful labelling is a logistical nightmare, and the Ministry of Agriculture believes it is impractical. The Food Safety and Standards Authority of India has only recently begun putting labelling rules into place.

In sum, there is a moratorium on Bt brinjal because there is no scientific consensus on its safety and efficacy, and because the States and Parliament have profound misgivings about the regulatory system. In recent years, pests have developed resistance to Bt cotton, forcing farmers to spray lethal pesticides. This led to over 50 deaths by pesticide-poisoning in Vidarbha in 2017. A GM-based strategy of pest control is unsustainable, all the more so since farmers, already pressed for land, ignore the government’s recommendation to plant refuge crops.

We cannot wish all these concerns away simply because some farmers want to try Bt brinjal, or farmers in Bangladesh have been cultivating Bt brinjal since 2013. Farmers do not and cannot assess long-term impacts on ecology and health, which needs more rigorous and sensitive studies than those conducted so far. Yet, in the nine years since the moratorium, there has hardly been any progress toward addressing these issues. If anything, the problem of sustainable, remunerative farming has become more acute, and alternative strategies such as organic and zero budget natural farming, which do not allow GM seeds, are gaining ground.

At the very least, the government must detail the steps it has taken since 2010 to address the scientific lacunae, clarify precisely how Bt brinjal will benefit farmers, put the infrastructure to ensure labelling into place, and demonstrate how Bt brinjal fits in with sustainable farming and biodiversity conservation. As things stand, Bt brinjal runs counter to the framework for agricultural development and farmers’ well-being devised by parliamentary panels and the government’s own task forces and expert committees.

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