

## 2 indigenous varieties, 8 states, 3 yrs — all about Bt brinjal field trials allowed by govt

Bt brinjal field trials will start in Madhya Pradesh, Karnataka, Bihar, Chhattisgarh, Jharkhand, Tamil Nadu, Odisha and West Bengal from this year and continue until 2023.

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**New Delhi:** Even before it announced a slew of decisions to reform the farm sector amid the economic crisis worsened by the coronavirus pandemic, the Narendra Modi government had in May taken a big decision — allowing field trials of genetically modified brinjal or Bt brinjal.

In 2010, a ten-year moratorium had been imposed by the UPA government led by Prime Minister Manmohan Singh on the Bt brinjal variety developed by Mahyco, an Indian firm in which United States-based Monsanto had a 26 per cent stake.

News that field trials of Bt brinjal is now allowed came to light earlier this week when the RSS affiliate Swadeshi Jagran Manch **wrote to Modi** seeking an immediate halt to the trials.

The manch has labelled the move as “recent disturbing news” making the way for “controversial technology” that is against “national interest”.

The two Bt brinjal varieties for which field trials have been allowed, however, are both developed from an indigenous gene — ‘Bt Cry1Fa1’. The approval is also conditional for the company that will be conducting the trials in eight states, as it will have to seek “no objection certificates (NOCs)” from the agriculture departments of all these states.

Genetically modified (GM) crops have always been a controversial subject in India — Bt cotton is the only such crop approved in India, with the nod to grow it coming in 2002.

No other crop has been given the nod for commercialisation, though Bt brinjal and GM mustard came for approval. In fact, Bt brinjal was put under a moratorium.



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## The 2 indigenous Bt brinjal varieties that got nod for trials

The Modi government has approved the field trials of indigenous Bt brinjal varieties 'Janak' and 'BSS-793'.

Both varieties, which are a proprietary product of the government-run Indian Agricultural Research Institute (IARI), contain the 'Bt Cry1Fa1' gene that works by inducing the digestive problems in the 'fruit and shoot borer' insect that attacks the brinjal crop.

The IARI has partnered with the Maharashtra-based Beej Sheetal Research Private Limited, with which it signed an MoU in 2005, for commercialisation of its Bt brinjal varieties. Bheej Sheetal will be conducting the field trials.

The company received approval in May from the Genetic Engineering Appraisal Committee (GEAC) — the country's apex regulatory body on genetically modified plants — to conduct biosafety research trials (BRL-II).

The trials will kick-start in Madhya Pradesh, Karnataka, Bihar, Chhattisgarh, Jharkhand, Tamil Nadu, Odisha and West Bengal from this year and continue until 2023, according to the minutes of the meeting of GEAC, seen by ThePrint.

The company has already conducted the BRL-I, which is a field trial for one year, at three locations — Jalna, Guntur and Varanasi in 2009 and 2010.

## How the indigenous gene was developed

In 1995, IARI had obtained a gene from Japan. Scientist Dr Anand Kumar was given the responsibility of introducing the gene into chickpea crop to fight against the problem of pod borer insect.

"After I gained the experience, in 2000 I and my colleagues were given the project to develop the genetically modified gene for rice and cotton. I was also given responsibility for developing indigenous Bt genes in the same year. Six different research groups were made and funding was given. I constructed the gene 'CRY1Fa1' in the same year," Kumar told ThePrint.

"The results of the gene in brinjal were miraculous as we found just 1-2 per cent damage to crops against 40-50 per cent damage caused in case no pesticide is used. It gave absolute protection."

He said the real challenge lies with the states' approval for the field trials.

“It’s not easy to get No Objection Certificates from all the states. Moreover, now the plantation season for brinjal is over, which is around June-July. Hence, trials could only start next year. Meanwhile, the groups opposing GM crop have ample time to influence state officials,” said Kumar, who retired three years ago.

He added, “I am not very hopeful that I would be able to see Bt brinjal making way into Indian market at least in my lifetime. We can eat pesticides but can’t accept the science of GM crops which has been proven to be totally safe.”

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## **Approval for field trials conditional**

The approval to the company has come with certain conditions.

It has now begun filing for NOCs from the agriculture departments of the states concerned, a condition set for the approval. The NOCs will then be submitted back to the GEAC, according to the minutes of the meeting.

The firm has also been asked to provide details of trial sites as required under guidelines for “confined field trials of regulated GE Plants” as also the “confirmed availability of isolation distance and information on land area” where trials will take place.

The name of the lead scientists responsible for each trial will also have to be submitted.

The company has been asked to “strictly conduct BRL-II studies in accordance with the guidelines for the monitoring of confined field trials of regulated, GE plants”.

Its findings will also have to be shared with state biodiversity boards and local panchayat biodiversity management committees.

## **Bt brinjal’s travails in India**

**Bt brinjal** is a crop genetically modified to carry a gene from a naturally-occurring, soil-borne bacteria called *Bacillus thuringiensis* (Bt), which produces a crystal protein that protects the plant against insects and pests.

The brinjal, then under trial for nine years, was first sent to the GEAC for approval in 2004. It was cleared by a panel led by leading geneticist Professor Deepak Pental, but a review committee was constituted in 2007 to address the queries of civil society groups related to health and environmental concerns.

In 2009, another Indian firm Mahyco (Maharashtra Hybrid Seeds Co) had manufactured a Bt Brinjal but the United States-based Monsanto had a 26 per cent stake in the firm. The GEAC had given its nod to commercial cultivation of the crop in 2009 after discussions.

In February 2010, however, then environment minister Jairam Ramesh overruled the GEAC, and announced a ten-year moratorium on Mahyco’s Bt brinjal.

Ramesh had expressed concern about approving a Bt crop that was made in association with a foreign player. “It is true that Mahyco, an Indian company, is involved in the development of hybrid brinjal. But 26 per cent of Mahyco is owned by Monsanto itself,” he had said while announcing his decision on commercialisation of BT brinjal in 2010.

Experts now say that since the new Bt brinjal is more home-grown, it may escape the earlier censure. “Now, in this case, the product is made by only the government-run premier agriculture institute. Hence, the government would not have any apprehensions that any foreign player would control our food chain,” said Ram Kaundinya, director general, Federation of Seed Industry of India (FSII).

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## Why Bt brinjal

Brinjal, which is grown majorly in West Bengal, Odisha, Andhra Pradesh, Madhya Pradesh, Tamil Nadu, consumes the largest amount of pesticides, according to the industry experts.

“Brinjal is prone to getting infected by pests called shoot and fruit borers. To protect the crop, it requires 25-30 times more pesticide than the other crops,” said Kaundinya of FSII. “Moreover, theoretically, the farmers must stop spraying pesticides a few days before harvesting the crop. But in reality, this doesn’t happen. The more the brinjal shines, the heavier pesticide it has received.”

R.K. Trivedi, executive director, National Seed Association of India (NSAI), echoed similar views. “The benefit of Bt brinjal crop is that it doesn’t get infected by the pest. Hence, there is no need for using pesticide that ultimately harms human beings and the environment,” he said.

On the contrary, even the government’s backers such as the Swadeshi Jagran Manch (SJM) have been opposing the growth of Bt brinjal.

SJM national co-convenor Ashwani Mahajan has said there is a conflict of interest on the part of regulators, and that GM crops could hurt trade security and allow multinational corporations to monopolise the market.

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