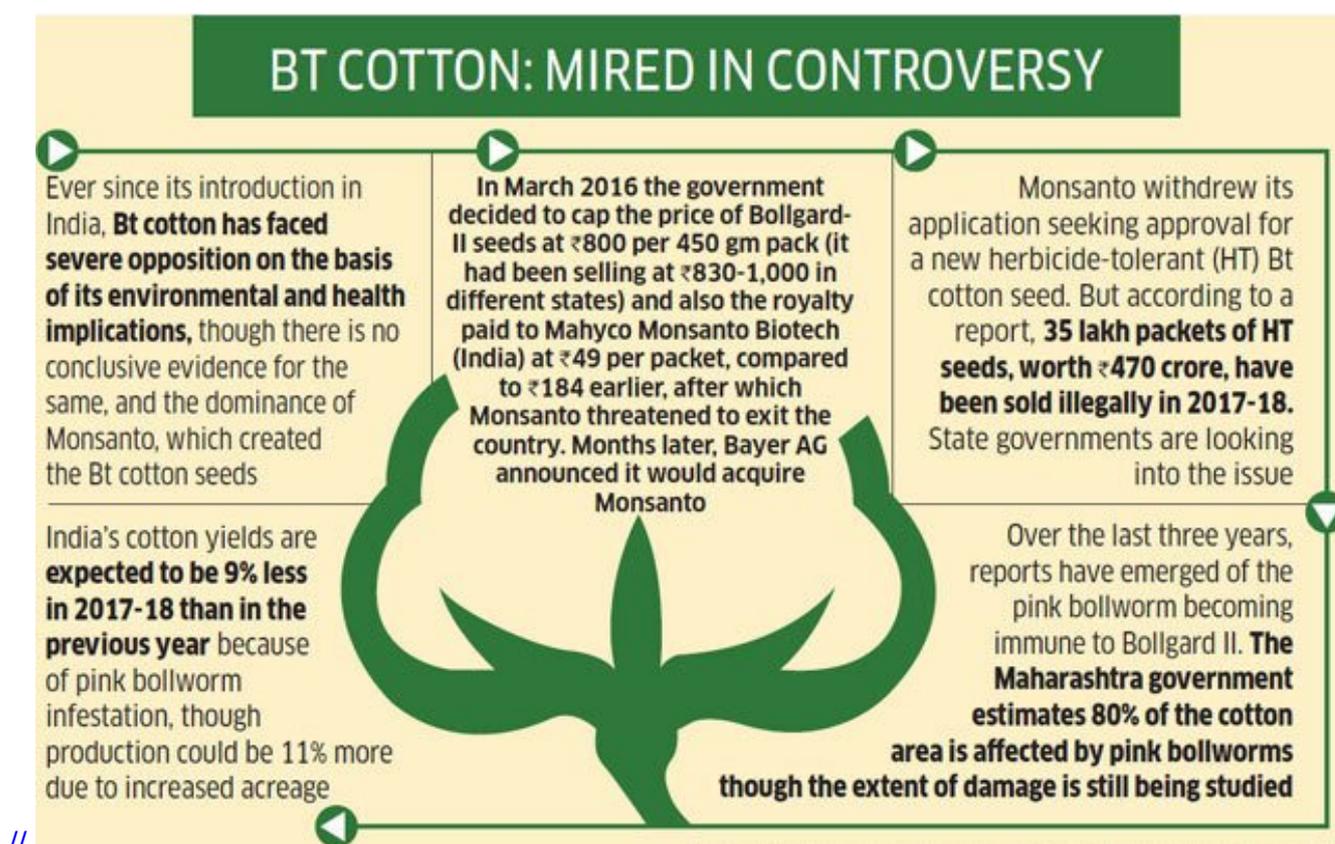




## Unapproved Sowing of Genetically Modified Crops

The Ministry of Environment, Forest and Climate Change (MoEFCC) has sought a detailed report on the sowing of unapproved Genetically Modified (GM) Cotton and Brinjal in Maharashtra.

- Organised by the farmer's union Shetkari Sanghata, more than 1,000 farmers had publicly sown unapproved transgenic cotton and brinjal in Akola district of Maharashtra demanding introduction of Herbicide Tolerant (Ht) Bt cotton and Bt brinjal.
  - The farmers termed it as the 'civil disobedience' movement to protest central government's indecisiveness in approving the next generation of Genetically Modified (GM) cotton.



### Background

- In India, the introduction of GM seeds requires approval of the Genetic Engineering Approval Committee (GEAC), a body under the MoEFCC.
  - Till date (2019), commercial release is granted for Bt cotton, but similar approvals for Bt mustard and Bt brinjal are awaited.
- In case of cotton, the first two generations of Bt have seen the introduction of 'Cry1Ab' and 'Cry2Bc' genes from the soil bacterium, *Bacillus thuringiensis* (Bt), into the cotton seed.
  - This makes the crop resistant to the attack of pink bollworm.

- The third generation, i.e. herbicide tolerant Bt (HtBt) cotton variety saw the addition of 'Cp4-Epsps' gene from another soil bacterium, *Agrobacterium tumefaciens*, which produces a modified protein that allows the plant to withstand herbicide glyphosate.

**GM CROPS IN INDIA  
A PRIMER**

**What is a GM crop?**  
A crop which has a gene artificially inserted into it from another species, even unrelated, to give it some desired properties. GM crops are mostly either pest-resistant or herbicide-tolerant

**When did India get its first GM crop?**  
The first GM crop variety approved for commercialisation was Bt cotton. Bollgard-I, which provided immunity against the pink bollworm and developed by Monsanto, was given the go ahead in 2002. Monsanto released Bollgard-II in 2006. India has become the world's largest producer of cotton partly due to Bt cotton, which accounts for over 90% of the total cotton acreage in the country

**Are there other GM crops in India?**  
No, the government has not approved commercial cultivation of other GM crops, though efforts have been made for brinjal and mustard

- Farmers are not able to spray glyphosate on normal cotton because the chemical does not distinguish between the crop and weed, but the herbicide tolerant Bt (HtBt) cotton remains unaffected by glyphosate.
- Like the first two hybrids, Ht Bt has also been developed by the US giant Bayer Monsanto.
  - The company had submitted a proposal to GEAC for approval in 2013. However, the proposal was later withdrawn by the company because of various regulatory issues with the government.
- While Ht Bt is not approved for commercial release, farmers in Gujarat, Andhra Pradesh and Maharashtra have been surreptitiously planting the crop using smuggled seeds.
  - According to estimates by the Commissioner of Agriculture, Maharashtra, as much as 15% of the 40 lakh hectares of the state had come under this unapproved hybrid.
- Earlier, [there have been complaints from Coalition for GM Free India](https://www.drishtias.com/printpdf/unapproved-sowing-of-genetically-modified-crops) regarding suspected open cultivation of Ht Bt cotton and Bt brinjal in Maharashtra, Haryana, Andhra Pradesh and Punjab.