



Status of transgenic crops in India

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Why in News: Three States, Gujarat, Maharashtra and Telangana, have deferred a proposal, approved by the Centre's Genetic Engineering Appraisal Committee (GEAC), to test a new kind of transgenic cotton seed that contains a gene, Cry2Ai, that purportedly makes cotton resistant to pink bollworm, a major pest. The conflict shows that a broad acceptance of genetically modified crops continues to be elusive.

The status of transgenic crops in India

There is an array of crops — brinjal, tomato, maize, chickpea — in various stages of trials that employ transgenic technology.

However, cotton remains the only transgenic crop that is being commercially cultivated in India.

After a long hiatus, the GEAC, the apex technical body charged with evaluating proposals for testing genetically modified (GM) seeds, approved the environmental release of Mustard hybrid DMH-11 and its parental lines, during its 147th meeting on 18 October 2022 for seed production and testing.

This is one step away from full commercial cultivation.

However, the GEAC, which is under the Union Environment Ministry, isn't the final arbiter in the case of GM crops.

There is long-standing litigation in the Supreme Court on the permissibility of allowing transgenic food crops in farmer fields based on petitions filed by activist Aruna Rodrigues and Gene Campaign, an NGO.

Following the GEAC approval for DMH-11, the petitioners approached the Supreme Court asking for a stay on the release of the crop because it would encourage farmers to spray herbicides, which are banned in India.

Hearings on this case are still ongoing. In 2017, the GEAC had accorded clearance for GM mustard but went back on its decision and imposed additional tests. In 2010, the GEAC had approved GM Brinjal, but this was put on an "indefinite moratorium" by the United Progressive Alliance government.

Process of regulating transgenic crops in India

The process of developing transgenic crops is an elaborate one as inserting transgenic genes into plants to elicit a sustained, protective response is a mix of both science and chance.

There are multiple safety assessments done by committees before they are cleared for further tests in open plots of land which are located at either agricultural universities or plots controlled by the Indian Council for Agricultural Research (ICAR).

A transgenic plant can apply for commercial clearance, only after it has proven to be demonstrably better than comparable non-GM variants on claimed parameters (for instance, drought tolerance or insect resistance) without posing ecological harm to other species that may be being cultivated in the vicinity.

Open field trials often take place over multiple crop seasons and types of geographical conditions, to assess its suitability across different States.

Recent Concerns of the States

The cotton seed has been developed by the Hyderabad-based Bioseed Research India with Cry2Ai which makes it resistant to pink bollworm.

The first generations of transgenic cotton had been developed to inure cotton against a more widespread pest called the American bollworm.

The Cry2Ai seed has passed preliminary, confined trials and was recommended by the GEAC to be tested in farmer's fields at Telangana, Maharashtra, Gujarat and Haryana.

Agriculture being a State subject means that, in most cases, companies interested in testing their seeds need approvals from the States for conducting such tests. Only Haryana gave permission for such tests.

This was after the GEAC in October 2022 sent letters to all States to "communicate their views/comments" within two months on the proposal. Telangana requested GEAC for a 45-day extension to consider the proposal.

On May 16, Telangana responded that it would not allow trials to be conducted in the current cropping season. Gujarat later responded that the proposal was "unacceptable" to them, but did not furnish reasons.

Following these responses, the GEAC has asked the Department of Biotechnology (DBT) and the ICAR to "jointly organise capacity-building activities with regard to GM crops for apprising the State/UT Government(s) about the technology involved and the regulatory framework in place for evaluation of these GM crops."

Activist groups objected to the GEAC asking States to furnish reasons for disapproval and said that it was tantamount to a "biased lobbying approach" according to Kavitha Kuruganti, a member of the Coalition for a GM-free India.

The GEAC consists of a panel of plant biotechnologists and is headed by a senior official of the Environment Ministry and co-chaired by the scientist of the DBT.

To resolve the issue of States not according to approvals on testing, because of differing attitudes to GM crops, the GEAC is considering a proposal by the DBT to declare some regions across India as 'notified testing sites.

There are 42 such proposed sites and, if it goes through, companies and institutions wanting to conduct trials of GM crops at these locations won't need the permission of States for trials.