Genetically Modified Seeds

Why in news?

The farmers' union Shetkari Sanghatana (Maharashtra) announced fresh plans in its agitation for use of genetically modified seeds.

What are GM seeds?

- Conventional plant breeding involves crossing species of the same genus to provide the offspring with the desired traits of both parents.
- Genetic engineering aims to transcend the genus barrier by introducing an alien gene in the seeds to get the desired effects.
- The alien gene could be from a plant, an animal or even a soil bacterium.

What are the GM crops in India?

- **Bt cotton** - It is the only GM crop that is allowed in India.
- It has two alien genes from the soil bacterium Bacillus thuringiensis (Bt) that allows the crop to develop a protein toxic to the pest pink bollworm.
- **Ht Bt cotton** - It is derived with the insertion of an additional gene, from another soil bacterium.
- This allows the plant to resist the common herbicide glyphosate.
- **Bt brinjal** - In this, a gene allows the plant to resist attacks of fruit and shoot borer.
- **DMH-11 mustard** - It was developed in University of Delhi.
- In this, genetic modification allows cross-pollination in a crop that self-pollinates in nature.
- Globally, GM variants of maize, canola and soya bean are available.

What is the legal position of GM crops in India?

- In India, the Genetic Engineering Appraisal Committee (GEAC) is the apex body that allows for commercial release of GM crops.
- In 2002, the GEAC had allowed the commercial release of Bt cotton.
- More than 95% of the country's cotton area has since then come under Bt cotton.
- Use of the unapproved GM variant can attract a jail term of 5 years and fine of Rs 1 lakh under the Environmental Protection Act, 1989.

Why are farmers rooting for GM crops?

- **Cotton** - In the case of cotton, farmers cite the high cost of weeding.
- This cost goes down considerably if they grow Ht Bt cotton and use glyphosate against weeds.
- **Brinjal** - Brinjal growers in Haryana have rooted for Bt brinjal.
- This is because it reduces the cost of production by cutting down on the use of pesticides.

What is the problem?

- **Unauthorised crops** are widely used.
- Of the 4-4.5 crore packets (each weighing 400 g) of cotton sold in the country, 50 lakh are of the unapproved Ht Bt cotton.
- Haryana has reported farmers growing Bt brinjal in pockets which had caused a major agitation there.
- Environmentalists argue that the **long-lasting effect of GM crops** is yet to be studied and thus they should not be released commercially.
- Genetic modification brings about changes that can be harmful to humans in the long run.

Source: The Indian Express

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