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News: Centre must present correct info on GM mustard before SC

- A day ahead of the Supreme Court hearing on a petition against the testing of GM mustard, a group of scientists and activists has urged the Centre to present “correct information” before the court.
- Alleging that the Centre’s affidavit on the matter is an attempt to mislead the court, they said the Centre should be transparent in its filings since the issue concerns the life and livelihoods of all citizens of the country.

GM Mustard

- The Genetically Engineered Mustard **DMH-11** has been developed by **University of Delhi**.

DMH – 11

- DMH–11 is a **hybrid variant of mustard** developed by researchers at The Centre for Genetic Manipulation of Crop Plants, at the **University of Delhi**.
- The University of Delhi authorities asserted that **DMH – 11 was developed without transgenic technology**.

- DMH – 11 is a result of a cross between two varieties: Varuna and Early Heera-2.
- Such a cross wouldn't have happened naturally and was done after introducing genes from two soil bacterium called barnase and barstar.
- Barnase in Varuna induces a temporary sterility because of which it can't naturally self pollinate. Barstar in Heera blocks the effect of barnase allowing seeds to be produced.
- The result is DMH 11 (where 11 refer to the number of generations after which desirable traits manifest) that not only has better yield but is also fertile.
- DMH-11 is a transgenic crop because it uses foreign genes from a different species.

Benefits of GM Mustard

- Indigenously developed seeds, the patent remains with government unlike with cotton it remains with corporates.
- India Plans for food fortification to achieve SDG, this will help to achieving its goal.
- Yields are expected to rise by up to 30 per cent.

- India imports 15 million tonnes (Mt) of edible oils worth almost \$11 billion annually, Mustard oil production from this variety of crop will save a lot on Foreign exchange exchequer.
- The GEAC initially cleared DMH - 11 for commercial cultivation, however, they retracted their approval upon deciding that more tests, and additional data concerning the effect of DMH - 11 on insect pollinators, in particular honeybees, and on soil microbial diversity was needed prior to commercialisation.

Reason for the controversy behind GM Mustard

- There are two main reasons why transgenic mustards are a topic of debate.
- The use of genes that are foreign to the species is one and secondly, the preparation of mustard hybrids require the use of another gene, called the bar gene, that makes it tolerant to an herbicide called glufosinate–ammonium.
- Activist groups allege that the GM mustard hasn't been evaluated as an herbicide tolerant crop posing potential risks. Finally, they allege, GM mustard plants may dissuade bees from pollinating the plant and this could have knock-off environmental catastrophes.

Genetically Modified Crops

- Genetic modification 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.
- 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 Environment Protection Act, 1986.
- Advantages of GM Crops include Higher Yields, Enhanced nutritional value, longer shelf life, increased resistance to droughts, increased resistance to insects, pests & locusts and increased resistance to herbicides.
- Disadvantages of GM crops are it may cause allergies, Antimicrobial resistance and may lead to Cancer.