

GM mustard

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About GM mustard:

- The approval will make GM mustard **only the second approved transgenic crop in India after Bt cotton**, and the first such food crop that can be commercially cultivated by farmers. The GEAC approval is **valid for the next four years**.
- Though the GEAC had cleared the proposal in 2017, the Ministry had vetoed it and suggested that the GEAC hold more studies on the GM crop. The recommendation will now again go for the approval of the Environment Ministry.

Hybrid mustard

- Hybridisation involves **crossing two genetically dissimilar plant varieties** that can even be from the same species. The first-generation (F1) offspring from such crosses tend to have higher yields than what either parent can individually give.
- Scientists at Delhi University's Centre for Genetic Manipulation of Crop Plants (CGMCP) have developed the hybrid mustard DMH-11 containing two alien genes isolated from a **soil bacterium called Bacillus**

amyloliquefaciens.

- The CGMCP scientists have deployed the **barnase-barstar GM technology** to create a robust and viable hybridisation system in mustard. This system was used to develop DMH-11 by **crossing a popular Indian mustard variety 'Varuna' (the barnase line) with an East European 'Early Heera-2' mutant (barstar).**
- DMH-11 is claimed to have shown an **average 28% yield increase over Varuna.**

Significance

- The move is seen as giving a boost to cultivation of mustard and eventually **reducing the country's edible oils import bills.**
- India had to **import edible oil worth nearly \$19 billion in 2021-22.** Though mustard is cultivated in India in around seven million hectares of land, **the per hectare yield of current variety is very low at 1-1.2 tonnes per hectare compared to the global average of around 2.3-3 tonnes.**

Source : Indian Express

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