

## **GMO Rice from India Withdrawn in EU**

### **What is the issue?**

- 500 tonnes of genetically modified rice were discovered by European Commission Rapid Alert System for Food and Feed (RASFF) in a consignment that India exported to the EU countries.
- In June, France had issued a notification for unauthorised GM rice flour identifying India as the point of origin.

### **What are GM crops?**

- Genetically modified crops are plants of which the **DNA has been modified** using genetic engineering techniques.
- The aim is to introduce a new trait to the plant which does not occur naturally in the species.
- In food crops, it include resistance to certain pests, diseases, or environmental conditions, and improving the nutrient profile of the crop.
- In non-food crops, it include production of pharmaceutical agents, biofuels, and other industrially useful goods, as well as for bioremediation.
- More than 10% of world's crop lands have been planted with GM crops.

### **What are the benefits of GM crops?**

- Better pest and disease resistance.
- Greater tolerance of stress, such as drought, low temperature or salinity.
- High yield and faster growth.
- More nutritious and tastier.
- May be possible to produce medicines or even vaccines.
- Can be made resistant to specific herbicides.

### **What are the drawbacks of GM crops?**

- Can cause unpredictable side effects.
- Can raise health related concerns.
- Can cause ecological damage.
- Not accessible to every farmers.
- Problem with Intellectual property rights.

## What is the status of GM varieties in India?

*GEAC is the apex body for approval of activities involving large scale use of hazardous microorganisms and recombinants. It is established under **Ministry of Environment, Forests and Climate Change***

- Genetic engineering appraisal committee (GEAC) is responsible for approval of proposals relating to release of genetically engineered organisms and products including experimental field trials.
- **Bt cotton** - Bt cotton was first used in India in 2002.
- It is an insect-resistant transgenic crop designed to combat the **bollworm** and it accounts for 90% of the cotton acreage now.
- It was created by genetically altering the cotton genome to express a microbial protein from the bacterium **Bacillus thuringiensis**.
- Three genes are inserted via genetic engineering techniques:
  1. Cry1Ac gene
  2. NPTII gene
  3. AAD gene
- **Bt-Brinjal** - The GEAC in 2007, recommended the commercial release of Bt Brinjal that is resistant to **brinjal shoot fly**.
- It was developed by Mahyco in collaboration with University of Agricultural Sciences (Dharwad), Tamil Nadu Agricultural University and ICAR-Indian Institute of Vegetable Research.
- But it was overturned in 2010 by the then Environment Minister who assumed the role of regulator and ordered a suspension on the transgenic vegetable's cultivation.
- **GM hybrid mustard (DMH-11)** - DMH -11 crop has been made resistant to broad spectrum herbicide - **Glufosinate**.
- It was developed by Delhi University.
- It is pending for commercial release as GEAC has advised to generate complete safety assessment data on environmental bio-safety, especially effects on beneficial insect species.
- Others - In India, there has been previous incidents of illegal cultivation of HTBt cotton, Bt brinjal and GM soybean in commercial scale.

*The **only** genetically modified crop under commercial cultivation in India is Bt cotton.*

## What is India's status regarding rice export?

- **India is the second largest producer of rice next to China, producing one fifth of the world's rice.**
- India is the **largest exporter** of rice.
- GM-free rice that is tagged as 'organic rice' is among India's high-value exports worth Rs. 63,000 crore annually.

Rank	APEDA Product	Qty in 000'MT	Value in Rs.Crore	2020-2021	
				%age Share in value	Major Importing Countries
1	Non Basmati Rice	13095.1	35476.6	23.2	Benin , Nepal, Bangladesh
2	Basmati Rice	4630.5	29849.9	19.4	Saudi Arabia, Iran, Iraq

## What is India's statement on this issue?

- **There are apprehensions that the testing varieties of GM rice in trial plots may have leaked into the exported product.**
- The Indian government has denied this possibility alleging that the contamination may have happened in Europe to cut costs.
- India has indicated that it will commission an investigation involving its scientific bodies to enquire into this matter.
- Because of the close connections between farmers and State agriculture universities which are testing new varieties of crops, there is a possibility that seeds may transfer within plots.
- Because many Indian farmers are dependent on European imports, the Centre must ensure importers that India's produce is compliant with trade demands.

*India's first herbicide-tolerant & non-GM rice varieties - Pusa Basmati 1979 and Pusa Basmati 1985 was developed by Indian Agricultural Research Institute (IARI).*

*It contains a mutated acetolactate synthase (ALS) gene that makes the plant resistant to Imazethapyr, a broad-spectrum herbicide.*

**Source: The Hindu, Down to Earth, PIB**



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