GMO Rice from India Withdrawn in EU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 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	2020-2021			
		Qty in 000'MT	Value in Rs.Crore	%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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