

27-12-2022

GM Mustard

Why in Newspapers?

Secretary, DARE and DG, ICAR **Dr Himanshu Pathak**, issued a detailed statement on various issues, it said that the recent approval by **GEAC for environmental release of genetically modified (GM) mustard DMH 11** and its parent lines has attracted attention.

Quick Issue?

- GM technology is a **disruptive technology** capable of making any targeted change in a crop variety to address a problem that is difficult or impossible to achieve in a way that is safe for humans, animals and the environment.
- Thus, **GM technology has the imminent potential of the much-awaited revolution in Indian agriculture.**
- It is important to look at the present scenario especially with regard to **domestic production, requirement and import of edible oils** in the country.

MODIFIED MUSTARD ON YOUR PLATE



What is GM mustard?

It is a mustard variety developed by DU's Centre for Genetic Manipulation of Crop Plants. The project was publicly funded.

Why is it in the news?

Regulator GEAC is making a final review of biosafety data to decide whether it can be allowed

What do opponents say?

GM mustard data not made public, so no way of independently assessing it

₹70cr
What the project is worth

Will the govt clear it?

That's an unknown, but Narendra Modi-led central government says it stands in favour of GM research

Historical Background?

- GM crops are derived from plants whose **genes have been artificially modified**, usually to incorporate the genetic properties of another crop, such as **increased yield, tolerance to weeds, resistance to disease or drought, or improved nutritional value.**
- Earlier India allowed **commercial cultivation of only one GM crop BT cotton**, but GEAC has recommended **GM mustard** for commercial use.
- Dhara Mustard Hybrid (DMH-11)** is an **indigenously developed transgenic mustard**. It is a genetically modified form of **herbicide tolerant (HT) mustard**.

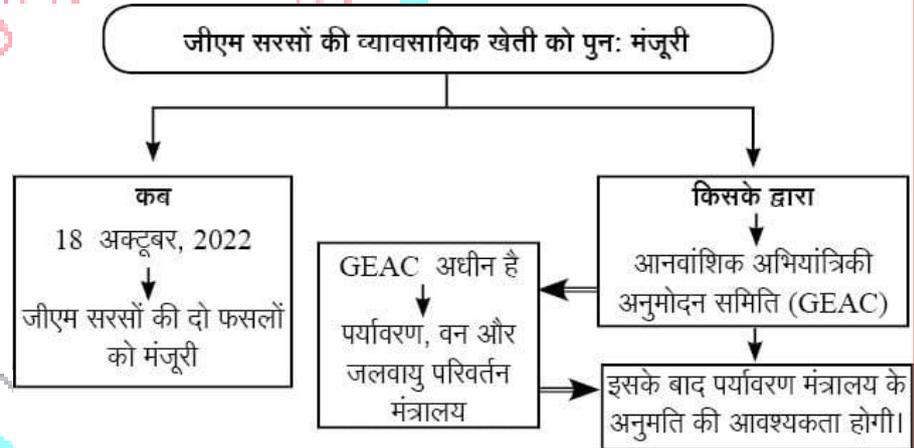
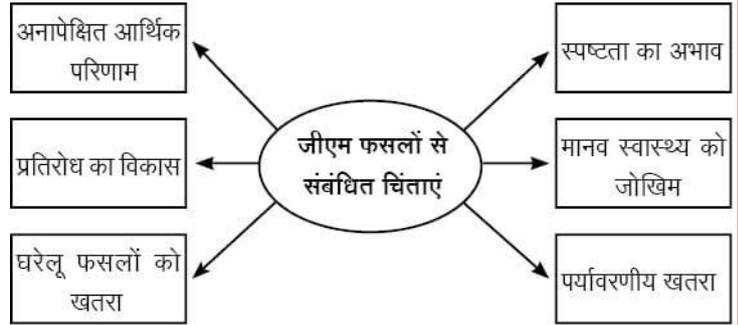
Other Key Facts?

Need for Barnage/Barstar System

- Hybrid seed production** requires **efficient male sterility and fertility restoration systems.**
- Presently available **conventional cytoplasmic-genetic male sterility system** in mustard has **limitations of breakdown of sterility** under certain environmental conditions thereby **reducing seed purity.**
- The genetically engineered **Barnage/Barstar system** provides an **efficient and robust alternative method for hybrid seed production in mustard.**



- DMH-11 is the result of a cross between Indian mustard variety 'Varun' and East European 'Hira-2' mustard.
- Barnage induces a condition of temporary sterility in Varun due to which it cannot naturally self-pollinate. In Early Heera-2, Barstar inhibits the effect of Barnage, which causes seeds to be produced.
- DMH-11 has shown about **28% higher yield** than the national test and **37% more than the regional test**. Its use has been approved by GEAC.
- "Bar Gene" maintains the **genetic purity of the hybrid seed**.
- India's import of edible oils is increasing continuously to **meet the domestic demand**. This eventually causes a **shortage of foreign exchange**. GM mustard is necessary to **reduce foreign exchange withdrawal on agri-import**.
- The productivity of oilseed crops namely **soybean, rapeseed, mustard, groundnut, sesame, sunflower, safflower** and linseed in India is very low as compared to the global productivity of these crops
- Hybridization of genetically diverse seeds produces hybrids with **enhanced yield and adaptability**.
- The safety of three genes - barnase, barstar and bar - used to make the technology is being questioned.
- Field trials have been **carried out for three years** (two years for BRL-I and one year for BRL-II) to **assess the impact on human health and environment as per the prescribed guidelines** and applicable laws.
- Extensive research on toxicity, allergy, **compositional analysis, field trials and environmental safety** studies of **GM mustard** have shown that they are safe for **food and feed use as well as for production**.
- DMH-11 contains "**bar gene**" which is responsible for **herbicide tolerance**. The effectiveness of the "**bar gene**" with respect to **herbicide tolerance** is in question.



News

Dhokra Art

- **Lalbazar village** of Bengal is becoming the **center of Dhokra metal crafts**. This village is situated on the **border of Bengal and Jharkhand**.
 - Two places in **West Bengal, Bikna (Bankura) and Daryapur (Bardhaman)** are **famous for Dhokra artefacts**.
- Dhokra is a **casting art of metal**. The ancient '**lost-wax casting**' method is used for casting in this.
 - It is **distinguished by the use of copper and its alloys** or a non-ferrous metal such as bronze.
 - It is an ancient tradition and has a documented **history of about 5,000 years**.
 - This is the **traditional art of Jharkhand**.



BF-7

- Four cases of infection with the **BF.7 variant** have been reported in India.
- BF-7 variant is a **subvariant of BA-5**. BA-5 is a **highly infectious sub-variant of Omicron**.
 - Currently, there are **10 different variants of SARS-CoV-2 (SARS-CoV-2)** in India. **BF 7 is the latest of these**.
 - It can cause **more serious diseases in people with weakened immune systems**.

Etalin Hydro Power Project

- Conservationists have unanimously urged the **Forest Advisory Committee** of the **Ministry of Environment, Forest and Climate Change (MoEFCC)** to reject the clearance for **Etalin hydropower project**.
 - Etalin hydroelectric project **poses a threat to local biodiversity**. Also, it may lead to the **displacement of local indigenous communities**.
- Etalin Hydroelectric Project is **located in Arunachal Pradesh**.
 - It was **proposed in the year 2008**. Its power generation capacity is **3097 MW**.
 - It is **built on the Dibang River**, which is a **tributary of the Brahmaputra River**.
 - It envisages the **construction of two dams** on the **Dir River and the Tangan River**.
 - Etalin Hydroelectric Project
 - **Dir and Tangan** are tributaries of Dibang.

TVS-2M Nuclear Fuel

- Russia has supplied the **first batch of TVS-2M nuclear fuel** to India for the **Kudankulam Nuclear Power Plant**.
- The TVS-2M consists of **uranium-gadolinium oxide** mixed with **uranium enrichment**, but does not have **Flammable Absorber Rods (BARs)**.

- BARs contain **neutron-absorbing material**. It is inserted into the guide tube of a pressurized water reactor.

Importance of TVS-2M

- It is **more efficient** and **more vibration resistant** due to the **stiffness of the fuel-bundle**.
- **Improved Uranium Capacity** - A TVS-2M assembly has **7.6% more fuel content** than the predecessor fuel.
- Uses fuel efficiently over an **18-month cycle**.

Government e-Marketplace (GeM)

- Ministry of Commerce and Industry has launched **GeM services through Common Service Centers and India Post in New Delhi**.
- GeM is one stop national public procurement portal.
 - It was **launched in the year 2016**. It aims to **establish an open and transparent procurement platform for buyers**.
 - It facilitates **online procurement of common use goods and services** required by **different Government Departments/Organizations/PSUs**.
 - It is **paperless, cashless and contactless platform**, which provides **end to end solutions**.
 - GeM is managed by the **GeM Special Purpose Vehicle**. It has been **established under section 8 of the Companies Act under the Department of Commerce**. It is **100 percent owned by the government**.

Pradhan Mantri Fasal Bima Yojana (PMFBY)

- PMFBY ranks **first globally in farmer enrolment**.
- This scheme was **launched in the year 2016**. Under PMFBY, **comprehensive risk insurance** is provided to **compensate crop loss due to natural calamities** from pre-sowing to post-harvest for the crops/areas notified by the concerned State Government.
 - Farmer has to pay a maximum premium of **1.5% for all Rabi crops, 2% for all Kharif crops and 5% for commercial/horticultural crops**.
 - It is administered by the **Ministry of Agriculture and Farmers Welfare**.

International Financial Services Centres Authority (IFSCA)

- **IFSCA and Council of Energy, Environment and Water (CEEW)** have signed an MoU for cooperation in the field of sustainable finance.
- IFSCA is a **statutory authority** established under the **International Financial Services Centres Authority Act, 2019**.
- Its main function is to develop and regulate **financial products, financial services and financial institutions in the IFSC**.
 - **GIFT-IFSC** is the **first IFSC in India**.



- CEEW is one of Asia's leading non-profit policy research institutes.
- It has long been among the world's top climate change think tanks.

Uncontrolled re-entries

- Experts have called for both national and multilateral efforts to restrict uncontrolled re-entry.
- Uncontrolled re-entries are a phenomenon of unguided fall of rocket parts back to Earth from space. This phenomenon is observed when a space mission is completed.
 - In this process, some parts burn completely, while some do not. However, the speed of falling of the fragments is very high, which can be fatal.
 - Currently, there is no international binding agreement to ensure controlled re-entries of rocket stages. Additionally, nor is there agreement on the technologies to do so.
 - In addition, the Liability Convention, 1972 provides for countries to pay for damages. This Convention does not provide for the prevention of harm.

ASEAN- India Grassroots Innovation Forum (GIF)

- Shalini Kumari, an innovator from India, has received the first prize in the Grassroots Innovation Competition.
- ASEAN India GIF is organized annually. It was organized for the first time in the year 2018. It provides a platform to promote and strengthen the development of grassroots innovation ecosystem by bringing together government officials, grassroots innovators, student innovators, academicians etc.
- It is organized by the ASEAN Committee on Science, Technology and Innovation (COSTI) and the National Innovation Foundation - India (NIF) under the Department of Science and Technology.

Sahitya Akademi Award (SAA)

- Sahitya Akademi has announced the Sahitya Akademi Awards for the year 2022.
- It is a literary honour. It is awarded annually to authors of outstanding works of literary merit published in any of the major Indian languages.
- Apart from the 22 languages mentioned in the constitution, this honour also recognizes the creations of English and Rajasthani languages.
 - The award consists of a manjusha (a small box or box like box) with a copper plaque, a shawl and an amount of one lakh rupees.
 - Sahitya Akademi functions as an autonomous organization. It is registered as a Society under the Societies Registration Act, 1860.

Anonymous political donations

- Recently, the Election Commission (EC) submitted a proposal to reduce the limit of undisclosed political donations from existing Rs 20,000 to Rs 2,000. Answering a question related to this in the Rajya Sabha, the government said that it is considering this proposal.



- Earlier, the Election Commission had also proposed to **limit cash donations to 20 per cent or a maximum of Rs 20 crore to end the use of black money** as election funding.
- The objectives of these proposals were **to bring transparency and reform in the donations received by political parties** and election expenses incurred by the candidates.

Green Washing

- The Deputy Governor of the Reserve Bank of India has called for classification of green finance to guard against the risk of 'greenwashing'.
- Greenwashing is a way of making the general public believe that **companies, autonomous or civic administrators are doing too much for the environment**. In fact they are making very little effort.
 - Greenwashing involves the **practice of projecting a product or policy as less environmentally friendly or harmful than it actually is**.

GRIHA (Green Rating for Integrated Habitat Assessment)

- The **Unique Identification Authority of India (UIDAI)** headquarters in New Delhi has received the **GRIHA Exemplary Performance Award 2022**.
- **GRIHA was developed by a private institute TERI (The Energy and Resources Institute)**. It was **adopted by the Government of India in the year 2007** as the **national rating system for green buildings**.
- It **evaluates the environmental performance of a building** as a whole during its entire life cycle. Thus it provides a definite standard for **'green building' construction**.
- India has included HOME in its **Intended Nationally Determined Contributions (NDCs)** submitted to the UNFCCC. As such **it is also recognized as India's own green building rating system**.

One Rank One Pension (OROP)

- Government has approved **revision of pension** to be paid to retired **defence personnel and their families under OROP**.
- **This amendment will be applicable to all defence personnel retired till June 30, 2019**. However, **this does not include defence personnel who are due for premature retirement till July 1, 2014**.
- **About OROP:**
 - **Armed forces personnel retiring in the same rank with the same length of service** (irrespective of the date of their retirement) are **granted the same pension**.
 - Before OROP, **ex-servicemen got pension** as per the **recommendations of the Pay Commission at the time of retirement**.

Mission Olympics

- Indian Army has recruited **4 talented women sportspersons** under its 'Mission Olympics' programme.
- Mission Olympics was launched in the year **2001**. It aims to identify and train talented sportspersons in **11 sports**.
- The successes of this mission include the following:
 - **Major Rajyavardhan Singh Rathore** (2004: Athens),
 - **Subedar Vijay Kumar** (2012: London) and
 - **Neeraj Chopra** (2020: Tokyo)
- As a part of Mission Olympics **Indian Army has set up five training centers** and established a **state-of-the-art Army Sports Institute**

Khelo India Dashboard launched

- This dashboard contains all the **statistical data** related to Khelo India scheme and Khelo India events.
- It will be **updated in real-time**. It aims to **serve as a unique one-stop platform**.
- **Khelo India:**
 - Khelo India program has been launched to **revive the sports culture in the country** at the grass root level. For this, a **strong framework will be established for all the sports played in the country**. The objective of this event is to **establish India as a great sporting nation**.
 - Under this, annual talent **development amount of Rs 5 lakh** is provided to the talented sportspersons for 8 years.

Jaynagarer Moya

- Geographical Indication (GI) tag has been **extended for 10 years** for **Moya of Jaynagar**.
 - GI is a mark used for products with specific geographical origin/identity. Such products are endowed with special properties or fame because of their **original origin**.
 - Moya of Jaynagar got **GI tag in the year 2014**.
- Jaynagar's Moya is a delicious **sweet from West Bengal**. It is prepared from **Kanakchur Khoi** (fried aromatic paddy), **Nolen Gur** (new jaggery), **ghee, khoya kheer, cardamom, raisins and cashews**.
 - This sweet was first made by **Ashutosh Das of Jaynagar in 1904 AD**.