

1. India Develops First Genome-Edited Rice: What You Need to Know

Historic First for India

India has become the first country in the world to develop rice varieties using genome editing technology, according to Union Agriculture Minister Shivraj Singh Chouhan. The seeds will be available to farmers after necessary approvals, likely within six months.



What Are the New Rice Varieties?

The two new genome-edited rice varieties are:

- **DRR Dhan 100 (Kamala):** Developed from Samba Mahsuri, a high-yielding green rice variety.
 - **Pusa DST Rice 1:** Developed from the Maruteru 1010 (MTU1010) variety.
- Both were created by researchers under the Indian Council of Agricultural Research (ICAR).

Key Benefits of These Varieties

Kamala (DRR Dhan 100):

- Higher yield: 5.37 tonnes/hectare (vs. 4.5 tonnes in Samba Mahsuri)

- Drought-tolerant and early-maturing (saves water and fertilizer)
- More nitrogen-efficient
- Reduces methane emissions

Pusa DST Rice 1:

- Improved yield under stress: 3,508 kg/hectare (vs. 3,199 in MTU 1010)
- Better performance in salty soils:
 - 9.66% more yield under inland salinity
 - 14.66% more under alkaline conditions
 - 30.4% more under coastal salinity

What Technology Was Used?

The varieties were created using genome editing techniques called:

- SDN-1 (Site-Directed Nuclease 1)
- SDN-2 (Site-Directed Nuclease 2)

These techniques edit the plant's native genes without inserting foreign DNA. The process has been used in other countries for crops and even fish, but this is the first time it's been used for rice.

Are These Genetically Modified (GM) Crops?

No, these are not considered GM crops:

- No foreign genes were introduced.
 - The mutations happened within the plant's own DNA, using precision tools.
 - Many countries don't regulate SDN-1 and SDN-2 methods as GM technologies.
- This means they may not face the same restrictions as traditional GM crops.

Why Are Some Groups Objecting?

Farmer Concerns:

Venugopal Badaravada, a former farmers' representative in ICAR, said:

- The claims are premature and lack transparency.
- More field-level data is needed before rollout.

He was later removed from ICAR, which accused him of spreading misinformation.

Activist Groups:

The Coalition for a GM-Free India raised concerns:

- Gene editing is being falsely portrayed as safe and precise.
- These technologies are often patented, which can threaten seed sovereignty.
- They argued the regulatory process was bypassed, making the rollout illegal.
- Demands were made for the government to clarify Intellectual Property Rights (IPR) involved.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: The Hindu

2. Anita Anand Becomes Canada's First Hindu Woman Foreign Minister: What It Means for India

Historic Appointment

Anita Anand has become Canada's first Hindu woman to be appointed as Minister of Foreign Affairs. A Member of Parliament from the Liberal Party, she has previously served as Minister of National Defence and Minister of Transport. Her appointment comes under the newly elected government of Prime Minister Mark Carney, amid ongoing tensions between India and Canada.



Indian Roots

Born in 1967 in Nova Scotia, Anand is the daughter of Indian immigrants—her father from Tamil Nadu and her mother from Punjab. Her parents met in Ireland, married in England, and eventually moved to Canada in 1965. Anand proudly embraces her Indian heritage, frequently attending Hindu and Sikh events, hosting Diwali celebrations, and participating in Indian Independence Day

events.

Political and Academic Background

Anand holds degrees from Queen's University, the University of Oxford, Dalhousie University, and the University of Toronto. Before entering politics in 2019, she had a long academic career.

In 2019, she became the first Hindu woman elected to Canada's Parliament and the first Hindu to become a Cabinet Minister. Her key roles include:

- **Defence Minister (2021–2023):** Oversaw military aid to Ukraine during Russia's invasion.
- **President of the Treasury Board (2023–2024)**
- **Minister of Transport and Internal Trade (2024)**

Implications for India-Canada Relations

India-Canada relations soured under former Prime Minister Justin Trudeau, especially after he alleged India's involvement in the killing of Sikh separatist Hardeep Singh Nijjar in 2023. The diplomatic fallout included the expulsion of envoys.

In response, Anand called for unity and stressed the importance of law and order. She supported the need for security agencies to conduct their investigations independently and emphasized the seriousness of foreign interference.

Stance on Anti-India Sentiment

Anand has consistently spoken out against anti-India activities in Canada:

- Condemned hate imagery at parades targeting Indian leaders.
- Opposed vandalism of Hindu temples and Indian monuments.
- Criticized extremist symbolism, including a controversial float depicting Indira Gandhi's assassination.

Hopes for Improved Ties

Her appointment has been received with cautious optimism in India. Prime Minister Modi expressed his willingness to work with Mark Carney to strengthen bilateral ties. Carney has also shown interest in rebuilding relations with India, focusing on shared commercial values and strategic partnerships in the Indo-Pacific region.

Relevance: GS Prelims & Mains Paper II; Indian Diaspora

Source: The Hindu

3. Indigenous Weapons Prove Highly Effective: Government

India's Strikes Were Precise and Successful



All Indian strikes on Pakistani military targets during Operation Sindoor on May 10 were carried out without any loss of Indian assets, according to an official statement. This highlights the strength of India's surveillance, planning, and precision strike capabilities.

Indian Systems Outperformed Chinese, Turkish Weapons

Indian defence systems, including the indigenous Akash short-range surface-to-air missiles (SAMs), successfully intercepted threats, while Pakistan's Chinese-supplied HQ-9 SAMs failed to stop Indian guided munitions.

The Indian Air Force also jammed and bypassed Pakistan's air defences, completing its mission in just 23 minutes, demonstrating India's technological edge.

Atmanirbhar Bharat Boosts Defence Sector

Defence Minister Rajnath Singh's office highlighted the growth of India's indigenous defence capabilities, stating:

- Defence exports rose from ₹686 crore in 2013–14 to ₹23,622 crore in 2024–25.
- This 34-fold increase reflects the impact of the Atmanirbhar Bharat (self-reliant India) initiative.

Several countries in Southeast Asia, West Asia, and Africa have shown interest in Indian systems like Akash and BrahMos, following their successful performance.

India's Air Defence Network Shows Strength

Over five days since Operation Sindoor began on May 6, Pakistan launched hundreds of drones, missiles, and UAVs. Most were intercepted by Indian forces, with minimal impact on Indian targets.

India also struck multiple Pakistani air defence sites, disabling key systems like the HQ-15 SAM system in Lahore.

Cutting-Edge Systems like Akashteer Deliver Results

The Akashteer air defence automation system, developed by Bharat Electronics Ltd (BEL), was fielded just one year after a ₹2,000-crore contract was signed in March 2023. It played a vital role in defending India during the conflict.

BEL said Akashteer performed "beyond expectations" and made "Pakistan's air adventures hell."

India's defence included:

- Akashteer (Army)
- Integrated Air Command and Control System (IACCS) (Air Force)

Hostile Foreign Tech Neutralised

Operation Sindoor provided proof of hostile foreign weapons neutralised by Indian systems, including:

- Chinese PL-15 air-to-air missiles
- Turkish-origin UAVs
- Long-range rockets
- Quadcopters and commercial drones

These were recovered and identified, confirming India's superiority over foreign-supplied weaponry used by Pakistan.

Current Situation Along the Border

As of May 13–14, the western border remains calm, with no immediate plans for talks between the Directors-General of Military Operations (DGMO) of India and Pakistan.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: Indian Express

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