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PM Modi Launches Agricultural Transformation Drive to Boost Self-Reliance and Rural Innovation

The initiatives open major opportunities for agribusiness, farm equipment, logistics, and food processing industries, driving infrastructure creation, technology adoption, and investment in rural supply chains.

Prime Minister Narendra Modi launched the 'Pradhan Mantri Dhan-Dhaanya Krishi Yojana' and 'Self-Reliance in Pulses Mission' at Pusa, Delhi, announcing a historic INR 42,000-crore investment across agriculture, animal husbandry, fisheries, food processing, and rural innovation sectors. The initiatives aim to accelerate agricultural modernisation through 36 sub-schemes spanning 11 ministries, with a focus on aspirational districts and reducing import dependence in pulses. The Prime Minister also inaugurated 1,100 projects under the Agriculture Infrastructure Fund (AIF), which will enable the expansion of cold storage, warehouses, and processing units nationwide. Union Agriculture Minister Shivraj Singh Chouhan highlighted major reforms, including MSP hikes, fertiliser subsidies, and reduced GST on farm machinery, alongside INR 3.9 lakh crore in direct transfers under PM-Kisan and INR 10 lakh crore in credit disbursed through KCCs. Over 52 lakh farmers have joined FPOs, with 1,100 achieving crorepati status, showcasing India's shift towards organised, profitable agriculture.

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updates from:**

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Health and Medicine

Environmental Science

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Space Exploration



Nobel Prize 2025 in Physiology or Medicine Honours Discoveries in Immune Tolerance

These discoveries are expected to drive innovation in the biopharmaceutical, immunotherapy, and biotechnology industries, enabling advanced drug design and precision immunomodulation.

The 2025 Nobel Prize in Physiology or Medicine has been awarded to Mary E. Brunkow, Fred Ramsdell, and Shimon Sakaguchi for their discoveries on peripheral immune tolerance, which prevents the body's immune system from attacking its own organs. Their research has transformed the understanding of immune regulation and laid the scientific base for developing new treatments for autoimmune disorders, cancers, and chronic inflammatory diseases. Brunkow is affiliated with the Institute for Systems Biology, USA; Ramsdell with Sonoma Biotherapeutics, USA; and Sakaguchi with Osaka University, Japan. Since its inception, 116 Nobel Prizes have been awarded in Medicine, with laureates receiving a gold medal, diploma, and a monetary prize, in 2023 valued at 11 million Swedish kronor.



India and the Netherlands Join Hands to Power the Future with Green Hydrogen Innovation

It empowers renewable energy, hydrogen production, and engineering industries to co-develop cost-efficient technologies, establish hydrogen hubs, and drive large-scale clean energy transitions through global collaboration.

India and the Netherlands have strengthened their partnership in green hydrogen through a high-level stakeholder workshop and matchmaking session between the Netherlands' Hydrogen Innovation Mission and India's Hydrogen Valley clusters. Organised by the Department of Science and Technology (DST), the event brought together policymakers, researchers, and industry leaders to explore collaboration in clean energy, hydrogen technology, and sustainable growth. Ambassador Marisa Gerards highlighted hydrogen as a pillar of the Netherlands' energy strategy, while DST officials, including Dr. Anita Gupta and Dr. Praveen Kumar S, outlined India's mission to reduce hydrogen costs, build innovation clusters, and enhance energy security by 2047. The dialogue emphasised co-development, knowledge exchange, and public-private partnerships as key to accelerating global hydrogen innovation and commercialisation.



IISc's Siphon-Powered Desalination System Offers Scalable Solution for Clean Water Access

This innovation holds major potential for water treatment, renewable energy, and desalination industries, enabling scalable, energy-efficient clean water production.

Researchers at the Indian Institute of Science (IISc) have developed a siphon-based thermal desalination system capable of converting seawater into potable water faster and more efficiently than conventional solar stills. Published in Desalination and supported by the Department of Science and Technology (DST), the system overcomes salt accumulation and height limitations by using a composite siphon made of a fabric wick and grooved metallic surface that continuously flushes away salt deposits. The thin-film evaporation process and ultra-narrow 2 mm air gap enable over six litres of freshwater generation per square metre per hour under sunlight. Built from low-cost materials like aluminium and fabric, the modular device can be powered by solar or waste heat and can treat highly saline water up to 20% salt, making it ideal for water-stressed, off-grid, and coastal regions.



Indian Scientists Develop Flexible, Safe and Eco-Friendly Aluminium Battery for Next-Gen Devices

The technology holds potential for electronics, electric vehicle, and wearable tech industries, enabling safer, flexible batteries for foldable devices and e-mobility. It also supports sustainable manufacturing and renewable energy storage solutions for greener industrial adoption.

Scientists from the Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru, in collaboration with IISc's Centre for Nano Science and Engineering (CeNSE), have developed a flexible, water-based aluminium-ion battery that is safe, sustainable, and affordable. Published in Journal of Energy Storage (Elsevier), the battery uses aluminium and copper hexacyanoferrate cathodes with molybdenum trioxide anodes, achieving 96.77% power retention after 150 charge cycles. It can bend or fold without losing performance, even powering LCD screens under stress tests. This innovation eliminates fire risks linked with lithium-ion batteries while using abundant and eco-friendly materials, aligning with India's clean energy and sustainability goals.



Indian Scientists Create Nanomaterial That Stimulates Brain Cells Without Surgery

The innovation holds potential for biotech, neurotherapy, and medical device industries, driving non-invasive treatments and neural interface tools. It also benefits the brain-computer interface and bio-computing sectors, advancing research in neural engineering and regenerative medicine.

Researchers at the Institute of Nano Science and Technology (INST), under the Department of Science and Technology (DST), have developed a nanomaterial graphitic carbon nitride ($g-C_3N_4$) that can stimulate brain cells non-invasively, without electrodes or surgery. Published in ACS Applied Materials & Interfaces, the study shows that $g-C_3N_4$ enhances neuron growth, boosts dopamine production, and reduces toxic proteins linked to Parkinson's disease. Acting as a smart semiconductor, it naturally interacts with neurons, promoting healthy brain activity. The discovery could lead to safer, more effective therapies for neurodegenerative disorders like Parkinson's and Alzheimer's.

Scientists Turn Coffee-Stain Effect into Low-Cost Tool for Detecting Toxic Dyes

This technique offers immense potential for food safety, cosmetics, textile, and environmental monitoring industries, enabling affordable, portable detection of banned dyes and contaminants. It could help industries ensure regulatory compliance, prevent product recalls, and maintain global safety standards.

Researchers at the Raman Research Institute (RRI), supported by the Department of Science and Technology (DST), have devised a simple, low-cost method to detect toxic dyes using the same natural process that forms coffee rings. By manipulating the coffee-stain effect with gold nanorods on a silicon surface, they detected Rhodamine B, a hazardous dye used in textiles and cosmetics, at concentrations as low as one part per trillion. The technique uses Surface-Enhanced Raman Spectroscopy (SERS), where the nanorods form dense “hot spots” amplifying optical signals, making detection feasible even with handheld devices. The approach offers a practical, scalable, and highly sensitive solution to identify contaminants that are often missed by conventional methods.



Early Climate Investment Could Save India Billions

This study offers actionable insights for the insurance, infrastructure, and agritech sectors, helping them design climate-resilient systems and products. Early resilience investments will create demand for climate-adaptive infrastructure, risk management tools, and sustainability-linked finance, improving long-term stability and reducing economic disruptions.

A new study by the International Institute for Environment and Development (IIED) reveals that India could reduce its climate-related losses by over 80% through early investment in resilience and social protection systems. The report shows that by investing USD 2.2 billion in proactive measures such as drought-proofing infrastructure, expanding employment schemes, and strengthening digital registries, India could avoid losses of over USD 46 billion, compared to post-disaster spending of USD 11.16 billion. Analysing 62 years of data across eight countries, the study found that every dollar invested in early resilience yields USD 5.17 in avoided losses, outperforming humanitarian aid and traditional social protection systems. Highlighting MGNREGS as a successful climate-adaptive model, and India’s JAM trinity as a strong digital foundation, the study urges integration of early warning systems and contingency financing to strengthen climate preparedness.

WHO Flags Safety Alert on Indian Cough Syrups After Child Deaths

This alert underscores the need for pharmaceutical, healthcare, and quality-control industries to strengthen supply-chain surveillance, testing protocols, and compliance systems.

The World Health Organisation (WHO) has issued a global warning after detecting Diethylene Glycol (DEG) contamination in three Indian cough syrups, ColdRif, Respifresh TR, and ReLife linked to child deaths. The syrups, manufactured by Sresan Pharmaceutical, Rednex Pharmaceuticals, and Shape Pharma, were found to be substandard in the WHO's Medical Product Alert (8 October 2025). Following this, India's Central Drugs Standard Control Organisation (CDSCO) halted production at the sites, suspended product licences, and began recalling affected batches. While no evidence of export has been found, the WHO has urged vigilance across unregulated and informal drug markets. The agency is working with Indian health authorities to trace the contamination source and ensure stricter compliance with global safety norms.

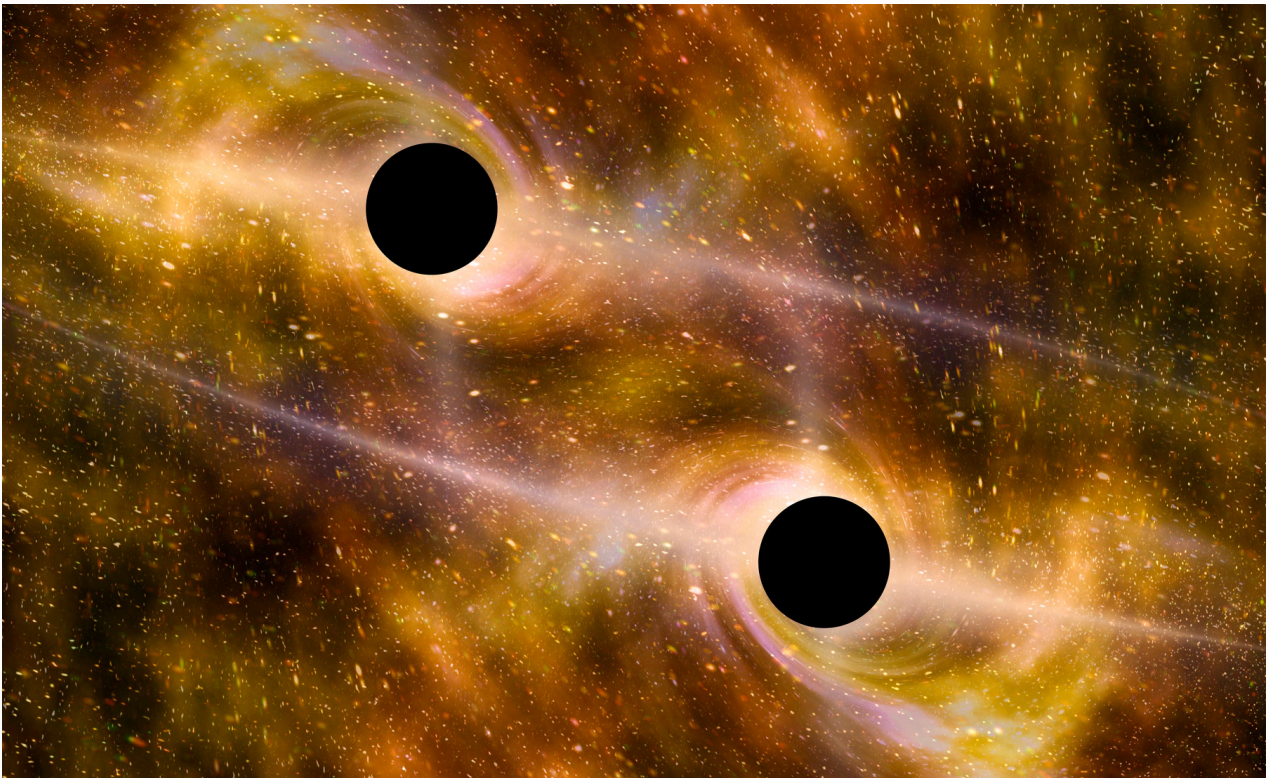


India Unveils Global AgXelerate Platform to Boost Cross-Border Agri-Innovation and Market Access

This platform creates major opportunities for the agri-biotech, seed, farm machinery, precision agriculture, and food processing industries, enhancing global collaboration, technology transfer, and investment, merging global markets, especially in sustainable and regenerative agriculture.



India has launched the Global AgXelerate platform, a global agricultural innovation and investment network, jointly developed by AgVaya and BioSTL, with support from ICRIER and the Federation of Seed Industry of India (FSII). The initiative aims to connect agri-startups, incubators, and investors from the US, Brazil, UK, Netherlands, Israel, Argentina, and Australia, linking them with India's thriving agri-tech ecosystem, which has already attracted USD 2.5 billion in funding since 2020. With over 150 million smallholder farmers, the platform will facilitate a two-way flow of technologies, enabling regenerative agriculture, agri-biotech, and precision-farming innovations to reach new markets and help Indian innovations scale globally. Supported by leaders like Donn Rubin (BioSTL) and Ram Kaundinya (FSII), the initiative positions India as a global hub for agricultural innovation, unlocking pathways to the USD 12-trillion global agri-market by 2033.



Astronomers Capture First-Ever Image of Two Black Holes Orbiting Each Other

The discovery will spur innovation in aerospace imaging, satellite communication, and high-performance computing through advanced data processing and imaging technologies.

In a remarkable scientific development, astronomers have for the first time directly observed two black holes orbiting each other in a distant quasar named OJ287, located billions of light-years away. The discovery, achieved using the RadioAstron space telescope in collaboration with multiple ground-based observatories, revealed two distinct points of radio emission, confirming the existence of this binary black hole system. The study, involving scientists from ARIES (Nainital), TIFR (Mumbai), and international institutions, found that the smaller black hole orbits the larger every 12 years, producing a twisting jet of high-energy particles that behaves like a “wagging tail.” The findings were published in the *Astrophysical Journal*, validating decades of predictions since the system’s periodic flickering was first observed in the 19th century.

Thank you for reading!

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