

EDITORIALS - 13TH OCT 2026

1. Unregulated use of GM: A cautionary tale (GS Paper III Science and Technology)

This editorial 'Unregulated use of GM: A cautionary tale' was published in **The Indian Express** on 13th Oct 2026, highlights farmer-driven adoption of **unapproved genetically modified cotton** amid regulatory **restrictions** and its **consequences**.

Farmer Demand and Technological Gaps

- A **seed-industry study** estimates unapproved genetically modified (GM) hybrids cover **25% or more** of cotton acreage; such genes appeared in over half the samples across 16 districts in Maharashtra, Telangana, Andhra Pradesh and Rajasthan.
- **Labour scarcity** and **pink bollworm attacks** drive demand for herbicide-tolerant (HT) and improved pest-resistant hybrids; approved cotton hybrids lack glyphosate tolerance and pink bollworm control.
- **Manual weeding** costs ₹12,000–15,000 per acre, against ₹750–850 for 2–3 **glyphosate applications**, making HT adoption economically attractive.
- The **Vip3A Bt gene**, derived from *Bacillus thuringiensis* like approved Cry1Ac and Cry2Ab genes, has a different **mode of action** effective against pink bollworm.

Regulatory Failure and Economic Consequences

- Neither **glyphosate tolerance** nor **Vip3A** is authorised for commercial cotton cultivation; traders and breeders introduce these traits through illegal seeds, bypassing biosafety approvals.
- **Legal seed sales** fell from 59.6 million packets in 2022–23 to 46.3 million in 2025–26, while the **unauthorised HT-Bt market** reached an estimated 8.2–8.8 million packets.
- **Farmers** lose access to advanced traits in hybrids from **research-backed companies**, becoming dependent on unreliable operators; organised seed producers also lose business.
- Government restrictions on **field trials** and **commercialisation**, driven more by ideology than empirical regulatory science, encourage unregulated adoption; the editorial links them to India's shift from leading cotton producer-exporter to net importer.

BEYOND EDITORIAL

Ecological Risks of GM Crop Adoption

- **Herbicide resistance:** Repeated glyphosate use can select resistant weeds, as documented in Palmer amaranth in Mississippi, reducing effectiveness and complicating weed management.
- **Pest resistance:** Continuous Bt exposure can select resistant insects; US Environmental Protection Agency requirements for resistance-management plans illustrate the need to preserve long-term effectiveness.

- **Escape beyond cultivation:** Surveys in North Dakota during 2010 and 2021 found escaped GM canola populations, demonstrating that modified crops can persist outside farms.
- **Wildlife habitat loss:** Herbicide-intensive farming can remove milkweed needed by monarch caterpillars; US wildlife assessments identify herbicide-related habitat loss as a conservation concern.
- **Secondary pest outbreaks:** A 2010 study linked widespread Bt cotton adoption in northern China with mirid bug outbreaks, highlighting the need to monitor pests beyond the targeted species.
- **Beneficial insect effects:** Ecological outcomes vary: a 2012 study in northern China associated Bt cotton and reduced insecticide spraying with increased ladybirds, lacewings and spiders.
- **Ecological safeguards:** Non-Bt refuges help delay insect resistance; US Bt cotton refuge requirements illustrate how cultivation safeguards can accompany approval rather than end with it.

2. Starlink's promises and risks call for a fine balance (GS Paper III Science and Technology)

This editorial 'Starlink's promises and risks call for a fine balance' was published in **The Indian Express** on 13th Oct 2026, highlights the need to balance satellite internet **access with security, affordability and transparent regulation**.

Regulatory Process and Security

- Musk's allegation of corporate obstruction lacks support: **security assessments** cover Starlink, Jio Satellite Communications and Eutelsat OneWeb, all at broadly the same **regulatory stage**.
- Starlink signed **service agreements** with Reliance Jio and Bharti Airtel in 2025, despite their differences over **spectrum**, further weakening the obstruction claim.
- **Satellite communications** raise concerns over enforcing **local laws** and controlling connectivity, including services being denied when needed or provided when restrictions are warranted.
- Ukraine's wartime dependence on Starlink, alongside reports of **alleged service interference**, illustrates the risks of relying on privately controlled **critical communications**.

Connectivity Potential and Affordability

- **Satellite internet** can improve access in remote areas with **poor connectivity**, offering substantial gains in broadband coverage.
- Widespread adoption requires affordable **equipment costs** and **monthly fees**, aligned with India's average broadband revenue per user.

BEYOND EDITORIAL

Environmental Footprint of Satellite Mega-Constellations

- **Orbital congestion:** Growing satellite fleets increase collision-avoidance demands; in September 2019, the European Space Agency manoeuvred Aeolus to avoid a potential collision with Starlink-44.
- **Debris multiplication:** Satellite collisions create persistent hazards; the 2009 Iridium-33–Kosmos-2251 collision generated over 2,300 trackable fragments, illustrating the potential for further collisions.
- **Optical interference:** Bright satellites disrupt astronomical observations; a 2023 study of BlueWalker 3 documented high brightness, strengthening concerns about constellation-related light pollution.
- **Radio interference:** Unintended satellite emissions can contaminate astronomical signals; a 2023 study using the Low Frequency Array telescope detected such radiation from Starlink satellites.
- **Atmospheric contamination:** Satellite re-entry releases metallic particles; US atmospheric research in 2023 identified spacecraft-derived metals in stratospheric aerosols, although their long-term effects remain uncertain.
- **Re-entry hazards:** Surviving spacecraft fragments pose small risks on Earth; the European Space Agency's assisted Aeolus re-entry in 2023 directed debris towards the ocean to reduce exposure.
- **Disposal responsibility:** Reliable end-of-life disposal limits debris accumulation; the European Space Agency reduced the disposal period for its low-Earth-orbit missions from 25 years to 5 years.

3. How to keep economy on even keel (GS Paper III Economics)

This editorial 'How to keep economy on even keel' was published in **The Indian Express** on 13th Oct 2026, highlights how microeconomic foundations improve policies for stabilising growth and inflation.

Macroeconomic Stabilisation and Its Limits

- Robert E Hall and Michael Woodford received the **2026 Economics Nobel** for explaining the **microeconomic foundations** of macroeconomic stabilisation.
- **Stabilisation policy** uses government tax measures and central-bank **interest rates** to reduce economic fluctuations, prolonged stagnation and persistent inflation.
- **Keynesian intervention**, informed by the **Great Depression**, supported tax and interest-rate cuts during slowdowns to stimulate growth.

- **Oil shocks** during the 1970s produced simultaneous high unemployment and inflation, especially in the US; this **stagflation** exposed Keynesian limitations and strengthened criticism of government intervention.

Microeconomic Foundations of Policy

- Hall studied individual **consumption decisions**, while Woodford examined business **price-setting**, strengthening the understanding of demand and supply underlying economic fluctuations.
- Their reconstructed **economic models** revitalised **stabilisation policy**, improving decisions on how and when to intervene and helping governments avoid past mistakes.

BEYOND EDITORIAL

Distributional Effects of Macroeconomic Stabilisation

- **Inflation burden:** Food inflation disproportionately hurts poorer households; International Monetary Fund analysis of the 2021–22 price surge found this effect especially pronounced in low-income countries.
- **Wealth redistribution:** Unexpected inflation erodes nominal debt and savings; the same analysis found wealth-channel gains for younger borrowing households and losses for older households.
- **Borrower pressure:** Higher rates squeeze indebted households; Bank of England analysis linked rising repayments on variable-rate and refinanced mortgages to weaker UK consumption during 2023.
- **Saver advantage:** Higher rates improve saving incentives unevenly; a September 2024 UK survey found interest-driven additional saving more common among the highest-income households than households overall.
- **Employment costs:** Disinflation can impose substantial short-term job losses; US unemployment reached 10.8% in late 1982 during the recession accompanying Volcker's anti-inflation policy.
- **Asset-owner gains:** Monetary easing can benefit asset owners through higher prices, but overall inequality effects vary; Bank of England assessments found its net distributional effects relatively small.
- **Targeted protection:** Transfers can cushion vulnerable households during adjustment; the International Monetary Fund's 2024 Brazil assessment identified Bolsa Família expansion as supporting poverty reduction.