



India's Tulip Revolution

Why in News?

Scientists in Kashmir have launched an **ambitious project to indigenize tulip bulb production**, aiming to make **India self-reliant and compete with the Netherlands**—a leading global exporter.

Key Points

- **Economic and Agricultural Impact:**
 - India **imports 20-25 lakh tulip bulbs and cut flowers annually**, mainly from the Netherlands.
 - Establishing **sustainable tulip production** will help meet domestic demand and create opportunities for international exports.
 - Pulwama's Bonera station, spread over 60 hectares at 5,400 feet, is emerging as a **key hub for this initiative**.
 - Over one lakh tulips are in full bloom at the [CSIR-Indian Institute of Integrative Medicine's research centre](#) in Pulwama's Bonera area.
- **Vision for Expansion:**
 - The Ministry plans to develop **theme-based tulip gardens and production centers** in regions with suitable **agro-climatic conditions**.
 - J&K is expected to become a major hub for tulip bulb production, potentially rivaling the Netherlands in research and development.
- **Indira Gandhi Memorial Tulip Garden:**
 - **Srinagar's Indira Gandhi Memorial Tulip Garden**, Asia's largest, attracts thousands of tourists every spring.
 - The region **imports 15 lakh bulbs annually** from the Netherlands to maintain its floral display.
 - Over five lakh tulip bulbs have also been planted in other parts of India, mainly in New Delhi.
- **Need for Indigenous Production:**
 - India's floriculture sector faces **economic and logistical challenges** due to reliance on expensive imported tulip bulbs.
 - Imported bulbs are vulnerable to global market fluctuations, trade restrictions, and supply chain disruptions.
- **Scientific Trials and Adaptability:**
 - Since 2022, CSIR-IIIM has been conducting **trials to optimize [agro-technological protocols](#)** for large-scale cultivation.
 - Researchers are evaluating resilience against pests, diseases, and climatic stresses to develop robust tulip varieties for Indian conditions.

Agriculture 4.0

- Agriculture 4.0, also known as smart farming or digital farming, represents the **fourth major revolution in agricultural practices**, leveraging cutting-edge technologies to optimize food production and resource management.

- This innovative approach integrates advanced digital technologies such as the **Internet of Things (IoT), artificial intelligence (AI), machine learning, big data analytics, robotics, and precision farming techniques** into traditional agricultural practices.

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