



Cotton Cultivation in India

For Prelims: [Hybrid cotton](#), [Bt cotton](#), [National Food Security Mission \(NFSM\)](#), [Cotton Corporation of India \(CCI\)](#), [Kasturi Cotton](#), [Cott-Ally Mobile App](#), [Committee on Cotton Promotion and Consumption \(COCPC\)](#), [Technology Upgradation Fund Scheme \(TUFS\)](#), [Mega Textile Parks \(MITRA\)](#), [Pink bollworm](#), [Genetically-modified crops](#)

For Mains: [Significance of Cotton for India](#), [Issues and Challenges](#)

[Source: TH](#)

Why in News?

The data recently released by the [Ministry of Textiles](#) shows that [cotton](#) consumption by the textile industry from October 2023 to September 2024 is **one of the highest seen in this decade**.

What are the Key Facts About Cotton Cultivation?

- **About:**
 - Cotton is one of the most important [commercial crops](#) cultivated in India and accounts for around 25% of the total global cotton production.
 - Due to its economic importance in India, it is also termed as **“White-Gold”**.
 - In India, around **67%** of India’s cotton is grown in **rain-fed areas** and 33% in irrigated areas.
- **Growing Conditions:**
 - Cotton cultivation necessitates a **hot, and sunny climate** with a **long frost-free period**. It is most productive in **warm and humid climatic conditions**.
 - Cotton can be successfully grown in a range of soil types, including **well-drained deep alluvial soils** in northern regions, variable-depth black clayey soils in the central region, and mixed black and red soils in the southern zone.
 - While cotton exhibits some tolerance to salinity, it is highly **sensitive to waterlogging**, emphasising the importance of well-drained soils in cotton farming.
- **Hybrid and Bt Cotton:**
 - **Hybrid Cotton:** Cotton made by crossing two parent strains that have different genetic characteristics. Hybrids are often **spontaneously and randomly created** in nature when open-pollinated plants naturally cross-pollinate with other related varieties.
 - **Bt Cotton:** It is a **genetically modified pest-resistant** variety of cotton.
- **India’s Scenario:**
 - **Rank in Global Production (November 2023):** Globally, India is the largest producer of cotton, while China is the second-largest producer, and the United States is the third-largest producer.
 - **Largest Producing Zone (2022-23):** Central Zone (Gujarat, Maharashtra, Madhya Pradesh).



Drishti IAS

Cotton Cultivation

India got **1st** place in the world in cotton acreage with **130.61** lakh hectares area under cotton cultivation i.e. around **40%** of the world area of **324.16** lakh hectares.

India is the only country which grows all four species of cotton



G. Arboreum and
G. Herbaceum
(Asian cotton)

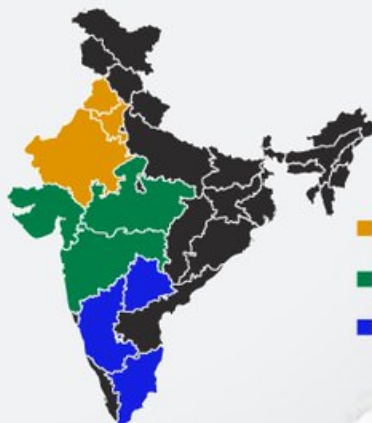


G. Barbadense
(Egyptian cotton)



G. Hirsutum
(American Upland cotton)

Major 9 cotton growing states divided according to Agro-Ecological zones



■ Northern Zone
■ Central Zone
■ Southern Zone



Indian Government Initiatives For Development of the Cotton Sector

- **Cotton Development Programme Under the [National Food Security Mission \(NFSM\)](#):** It aims to enhance cotton production and productivity in major cotton-growing states and is being implemented by the **Department of Agriculture & Farmers Welfare** in 15 major cotton-growing states from 2014-15.
- **Cotton Corporation of India (CCI):** It was **established in 1970** under the administrative control of the **Ministry of Textiles** as a **Public Sector Undertaking** under the [Companies Act 1956](#).
 - Its **role is to stabilise prices by enforcing price support measures** whenever the market prices fall below the government-decided price supports.
- **[MSP Formula for Cotton](#):** Introduced a formula of 1.5 times the cost of production (A2+FL) for **[Minimum Support Price \(MSP\)](#)** calculation ensuring the economic interest of cotton farmers and availability of cotton to the textile industry.

- **Cotton Corporation of India (CCI):** Appointed as a **Central Nodal agency** for MSP operations when Fair Average Quality grade seed cotton (kapas) fell below the MSP rates.
- **Textile Advisory Group (TAG):** Constituted by the **Ministry of Textiles** to facilitate coordination among stakeholders in the cotton value chain to address issues related to productivity, prices, branding, and more.
- **Cott-Ally Mobile App:** Developed to provide farmers with knowledge about MSP Rate, procurement centers through a **user-friendly interface**.
- **Committee on Cotton Promotion and Consumption (COCPC):** To ensure the availability of cotton to the textile industry.

What are the Issues Associated with the Cotton Sector in India?

- **Pest Attack: In past instances,** the primary factor responsible for the decline of cotton production was the emergence of the **pink bollworm** (*Pectinophora gossypiella*).
 - When pink bollworm (PBW) larvae invade cotton bolls, it causes cotton plants to produce less cotton and the cotton produced is of lower quality.
 - PBW is **monophagous (that primarily feeds on a single specific type of food)**, feeding mainly on cotton, which contributes to the **development of resistance against Bt proteins**.
 - Continuous cultivation of **Bt hybrids** led to PBW populations developing **resistance**, replacing susceptible ones.
 - Several states like Gujarat, Punjab, Haryana, Rajasthan have over the years experienced heavy infestation of the pest.
- **Yield Fluctuations:** Cotton production in India can be quite unpredictable due to **several factors**.
 - Limited access to **irrigation systems**, declining soil fertility, and **erratic weather patterns**, including **unexpected droughts** or excessive rainfall, contribute to the uncertainty surrounding cotton yields.
- **Smallholder Dominance:** The majority of cotton farming in India is carried out by small-scale farmers.
 - These farmers often rely on **traditional agricultural practices** and have limited access to modern farming technologies, which in turn affects overall cotton production.
- **Limited Market Access:** A significant number of cotton growers in India face constraints in reaching markets and are compelled to sell their **harvest** at reduced rates to intermediaries.

Way Forward

- **Integrated Pest Management:** There is a need to advocate for **integrated pest management (IPM)** strategies that combine natural controls, trap crops, and beneficial insects to reduce pesticide dependency while effectively managing pests.
- **Address the Yield Gap:** India leads in cotton acreage but lags in yield compared to major producers. Initiatives like the **Large-Scale Demonstrations Project** under NFSM can promote best practices like **High-Density Planting Systems (HDPS)** and a value chain approach to bridge this gap.
- **Modernisation and Infrastructure Development:** Leverage schemes like the **Technology Upgradation Fund Scheme (TUFS)** and **Mega Textile Parks (MITRA)** to modernise ginning, spinning, and weaving facilities, enhancing efficiency and global competitiveness.
- **Improve MSP Calculation:** The recently revised MSP formula (1.5 times the cost of production) ensures a fair return for farmers. Continued refinement based on **NITI Aayog** recommendations can further strengthen farmer income security.
- **Strengthen Market Linkages:** Initiatives like a robust procurement system, price stabilisation funds, and robust cotton grading and standardisation mechanisms can help farmers get better prices and reduce exploitation by middlemen.
- **Branding and Traceability:** Initiatives like **"Kasturi Cotton"** can create a distinct identity for Indian cotton in the global market, emphasizing quality assurance and traceability. This can attract premium prices and foster trust with international buyers.

Drishti Mains Question:

Q. Discuss the key challenges faced by the cotton sector in India. Suggest measures to improve the productivity of the cotton sector in India.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q1. The black cotton soil of India has been formed due to the weathering of (2021)

- (a) brown forest soil
- (b) fissure volcanic rock
- (c) granite and schist
- (d) shale and limestone

Ans: (b)

Q2. A state in India has the following characteristics: (2011)

1. Its northern part is arid and semi-arid.
2. Its central part produces cotton.
3. Cultivation of cash crops is predominant over food crops.

Which one of the following states has all of the above characteristics?

- (a) Andhra Pradesh
- (b) Gujarat
- (c) Karnataka
- (d) Tamil Nadu

Ans: (b)

Mains

Q. Analyse the factors for highly decentralized cotton textile industry in India. (2013)