

India's Falling Cotton Production

Why in news?

The pink bollworm has taken a toll on the fibre crop, even as new “mating disruption” technologies to control the pest are showing promise.

What is Cotton?

- Cotton is one of the most important *fiber and cash crop* of India and plays a dominant role in the industrial and agricultural economy of the country.
- **Origin** - India is believed to be the home of cotton because the art of making cloth from cotton was first developed in India.
- **Cultivated Species** - There are four cultivated species of cotton viz.
 - **Old World Cottons (or) Asiatic cottons** - *Gossypium arboreum*, *G. herbaceum*,
 - **New World Cottons** - *G. hirsutum* (American Upland cotton), *G. barbadense* (Egyptian cotton)
- *G. hirsutum* represents 94% of the hybrid cotton production in India and all the current Bt cotton hybrids are *G. hirsutum*.

India is the only country in the world where all the four cultivated species are grown on commercial scale.

- **Climate & Soil**- Cotton is a semi-xerophyte that is grown in tropical & sub tropical conditions.
- It is grown on a variety of soils ranging from well drained deep alluvial soils to black clayey soils.
- Cotton is a Kharif crop in the major parts of the country and also monsoon based in southern zone.

Status of Cotton Production & Consumption

- India is having 1st place in the world in cotton production.
- Gujarat is the largest producer of cotton in India followed by Punjab and Maharashtra.
- India is also the 2nd largest consumer of cotton in the world.
- India stands 1st in the world in cotton acreage.
- India is the 3rd largest exporter of Cotton.
- Around 67% of India's cotton is grown on rain-fed areas and 33% on irrigated area.
- In terms of productivity, India is on 38th rank with yield of 510 kg/ha.

What is the significance of cotton?

Ginning is the process of separating the fibres from the seed. The raw un-ginned

cotton harvested by farmers is called *kapas* which has the white fluffy fibre or lint (36%) and seed (62%).

- Cotton has a roughly two-thirds share in India's total textile fibre consumption.
- It plays a major role in sustaining the livelihood of an estimated 6 million cotton farmers and 40-50 million people engaged in related activity such as cotton processing & trade.
- Cottonseed is the country's 3rd largest domestically-produced vegetable oil (after mustard and soyabean)
- Cotton seedcake, a protein-rich feed ingredient for livestock and poultry, is the 2nd biggest feed cake/meal (after soyabean).
- Due to its economic importance in India, cotton is also termed as "White-Gold".

What is the present issue with Cotton production?

- Between 2000-01 and 2013-14, India's cotton production, in terms of lint, almost tripled from 140 lakh to 398 lakh bales of 170 kg each due to Bt technology.
- However, the *Pectinophora gossypiella* or pink bollworm (PBW) have developed resistance Bt toxins over time and to fall in yields.



- This is because PBW is a **monophagous pest** that feeds mainly on cotton unlike *American bollworm* that is polyphagous, with alternative hosts.
- The PBW population that became resistant from **continuously feeding** on Bt hybrids, therefore, gradually overtook and replaced the ones that were susceptible.
- The **pest's short life cycle** (25-35 days) was conducive for it to complete at least 3-4 generations in a single crop season of 180-270 days, further accelerating the resistance breakdown process.

Bt cotton is the only GM crop that is allowed in India. Bt cotton has been genetically modified by the insertion of one or more genes from a common soil bacterium, *Bacillus thuringiensis*.

Reasons for India's Falling Cotton Production

- Large infestation of Pink Bollworm (PBW) feed on the cotton bolls affecting lint quality and yields.
- Uneven rainfall and agricultural shrinkage in some of the key growing states.
- Rising cost of cultivation.
- Climate induced change in pest dynamics.
- Rampant sale of unauthorised seeds and unchecked pesticides sprays.
- Reduced local prices and declining demand from China.
- US embargo on cotton products from China's Xinjiang province.

- Impact of Russia-Ukraine conflict.

How to control the bollworm infestation?

- **Spraying insecticides** - Such as profenofos, chlorpyrifos, indoxacarb, and cypermethrin.
- **Mating disruption** - It involves deploying *Gossyplure*, a pheromone signalling chemical which attracts the male adult moths into lures and prevent from mating with females.
- The Central Insecticides Board & Registration Committee under the Agriculture Ministry has approved two mating disruption products.
 - **PBKnot** - It is a dispenser having a 20-cm hollow polyethylene pipe, into which *Gossyplure* is impregnated and gets released from over 90 days and reducing the scope for infestation.
 - **SPLAT-PBW** - A flowable emulsion formulation technology for delivering *Gossyplure*.

Steps taken to promote Cotton Production

- **Technology Mission on Cotton (TMC)** - It is a Centrally Sponsored Scheme launched during 2000 to increase the production & productivity of cotton.
- **National Food Security Mission- Commercial Crops (Cotton) Programme** - Cotton Development Programme is being implemented under National Food Security Mission - Commercial Crops (NFSM-CC) from 2014-15 for enhancing production and productivity.
- **Rashtriya Krishi VikasYojana (RKVY)**- There is no earmarked allocation of funds for cotton under RKVY. However, the States can undertake cotton programme under RKVY.
- **Minimum Support Price (MSP)**- MSP, a guarantee price for the produce is provided for cotton by the Government.
- **Cotton Corporation of India Ltd. (CCI)** - CCI, a central public sector undertaking was established in 1970 under the Ministry of Textiles to engage in diverse activities related to trade, procurement, and export of cotton.
- **CICR** - ICAR has established the ICAR-Central Institute for Cotton Research at Nagpur in 1976.

References

1. [Indian Express| India's falling Cotton production](#)
2. [NFSM | Cotton](#)
3. [Ministry of Textiles | Cotton](#)