Cotton Production in India

> Mains Syllabus: GS III - Major crops-cropping patterns in various parts of the country.

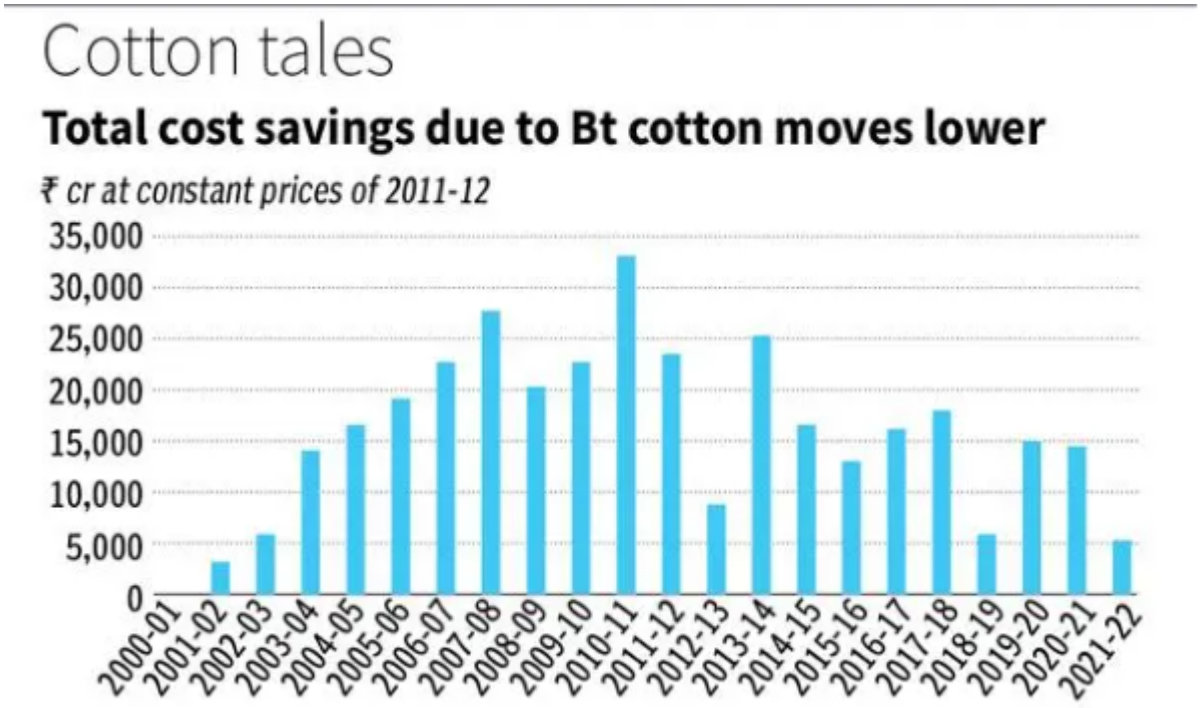
Why in the News?

Cotton production has declined in the last decade.

What are the benefits of introdution of Bt cotton in India?

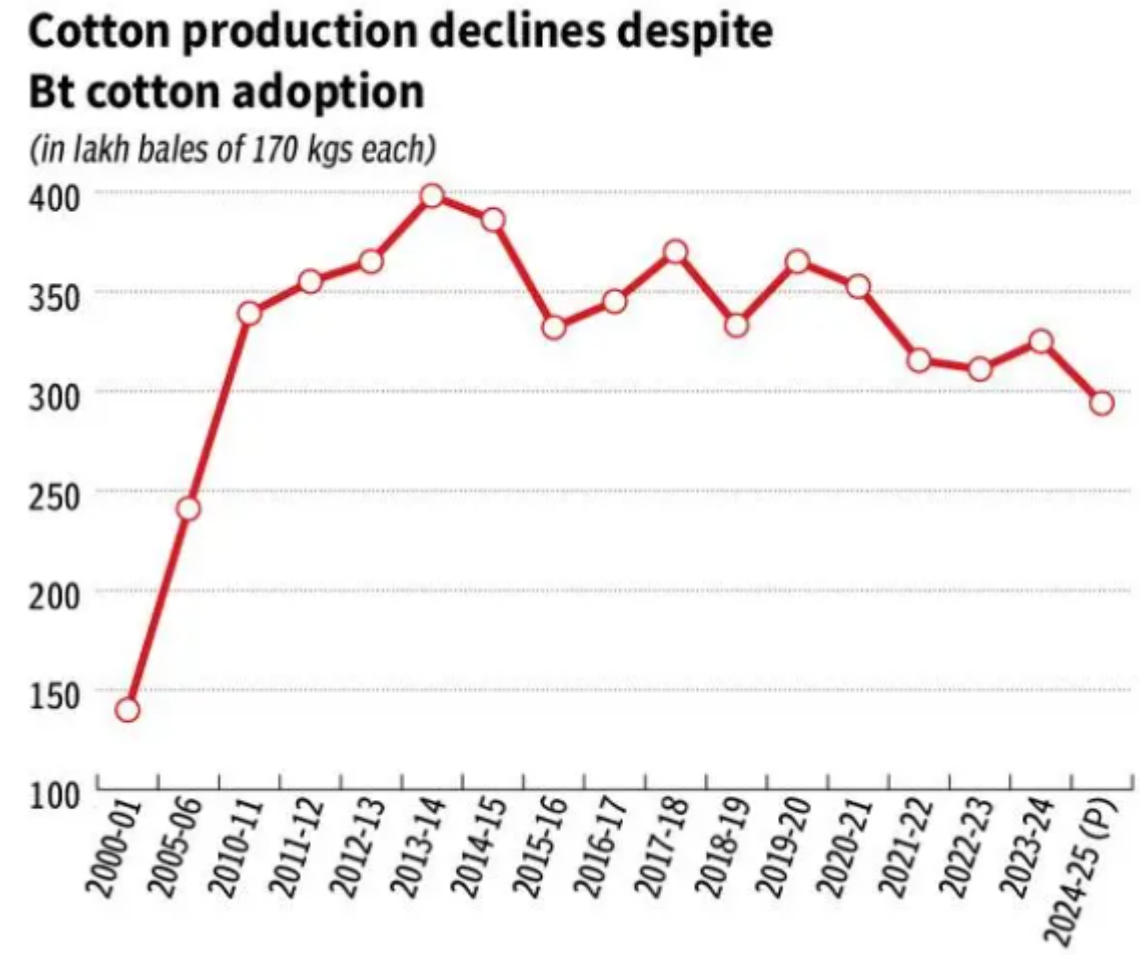
> *Bt Cotton, which is "genetically modified for resistance to bollworms", was introduced in India in 2002, and has commanded over 95 % of India's cotton cultivation area by 2014.*

- **2nd Largest Producer** – Adoption of Bt Cotton made, India the world's second-largest cotton producer and top exporter, while halving insecticide use and doubling yields.
- **Increase in Yield** - Between 2002 and 2016, the Yields soared from an average of 8.4 kg per hectare to 77.9 kg per ha.
- **Livelihood Sector** - The cotton sector, which supports 60 lakh farmers and supplies raw material to the textile industry, provides livelihood opportunities for over 10 crore people directly or indirectly.
- **Production Cost Reduction** - The yield surge, coupled with "reduced pesticide usage", led to lower input costs and enhanced farmer incomes.



What are the reasons for the declining in cotton production?

India’s Cotton production has been on a declining path since the peak of 398 lb (lb; 1 lb=170 kg), in 2013-14 and reaching in the 2024-25 marketing year (October-September) to just over 294 lakh bales.



China overtakes India as top cotton producer

Countries	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
World	27.00	25.98	26.26	23.96	25.24	25.10	24.58
India	6.29	5.66	6.21	5.99	5.29	5.72	5.50
China	5.89	6.04	5.80	5.91	5.73	5.98	5.60
US	4.56	4.00	4.34	3.18	3.82	3.15	2.63
Brazil	2.00	2.78	3.00	2.36	2.55	3.27	3.56
Pakistan	1.80	1.67	1.46	0.96	1.27	0.84	1.35

- **Stagnant Yields** - In recent years, yields have stagnated and even declined, from 566 kg/ha in 2013-14 to about 436 kg/ha by 2023-24.
- At this level, India has the lowest yield levels among the top-5 cotton-producing countries in the world.
- **Increasing Cost of Production** - Though the Bt cotton reduced the use of insecticide, the fertilizer usage has increased over the years from 90 kg/ha to 200 kg/ha.
- **Increasing Pest Resistance** – Development of resistance in bollworms, particularly the pink bollworm is causing stagnation in productivity.
- The estimated loss from pink bollworm alone is equivalent to 13.2 lakh bales, valued at

₹3,900 crores annually.

- **Secondary Pest Pressure** - The rise of secondary pests like jassids and thrips has necessitated increased insecticide use in some areas, counteracting the initial pesticide reduction benefits.

What lies ahead?

- The long-term sustainability of Bt cotton is being questioned citing environmental impacts on biodiversity and soil health, and socio-economic implications like income disparity and reduced human labour usage.
- Research and development can be made for novel GM solutions, particularly those with stacked traits to address pest resistance and adapt to climate change.
- Informed policy discourse on GM cotton and comprehensive support for farmers is needed.
- A focus on High-Density Planting Systems and Integrated Pest Management is suggested to bridge yield gaps and manage emerging challenges effectively.

Reference

Business Line | Why cotton production is declining?

