

Pivotal role of cotton seed in enhancing the competitiveness of Indian textile industry



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Contribution of Bt Cotton to Indian Textile Industry

India's share in global cotton production is an impressive 25%, a matter of pride for India and Indian farmer.



With the introduction of Bt Cotton, production received a big boost and went up from **130 lakh bales** in 2002 to **370 lakh bales** in 2017 making India a net exporter of cotton

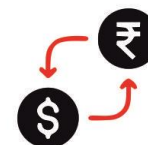


75 % of the spun yarn in India is produced from cotton

Spinning capacity increased from **26.67 million** spindles (1999) to **52.47 million** spindles (2017)

Cotton textile industry grew 6 times to **Rs. 10 lakh** crores

6X



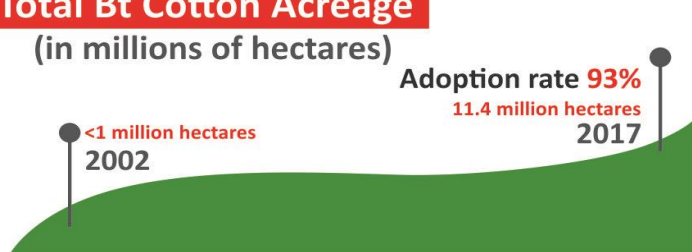
Exports more than tripled to **Rs. 2.5 lakh** crores

**Bt cotton is genetically modified insect resistant cotton tolerant to bollworms.
It was approved for commercial cultivation in India in 2002.**



Total Bt Cotton Acreage

(in millions of hectares)



Farmer Benefits

7.5 million
farmers grew Bt cotton

Cotton seed industry forms
about **20 %** of the total seed
industry in India

Farmer incomes in
rainfed increased upto **Rs.8000 per acre**

Generated **4.4 crore** man days of
employment in seed production

Bt cotton technology developed
1,25,000 acres of seed production
fields in villages

Family & Community Benefits

Top benefits of growing Bt cotton according to farmers:

51%

say less time
in the field

49%

say peace
of mind

48%

say less tension
from cotton cultivation

In - Field Benefits

82.8%
decrease in
insecticides

**Pesticide Expenditure
reduced by 71%**

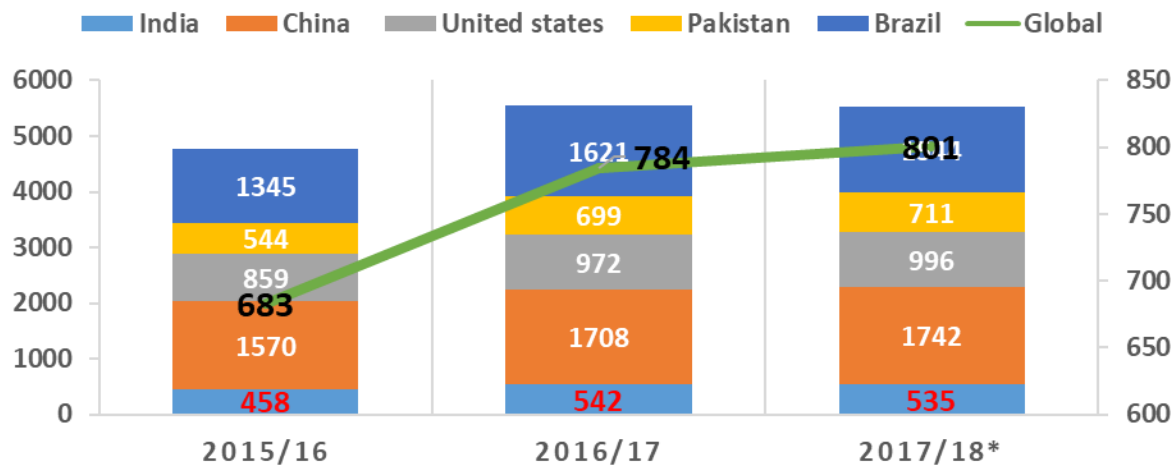
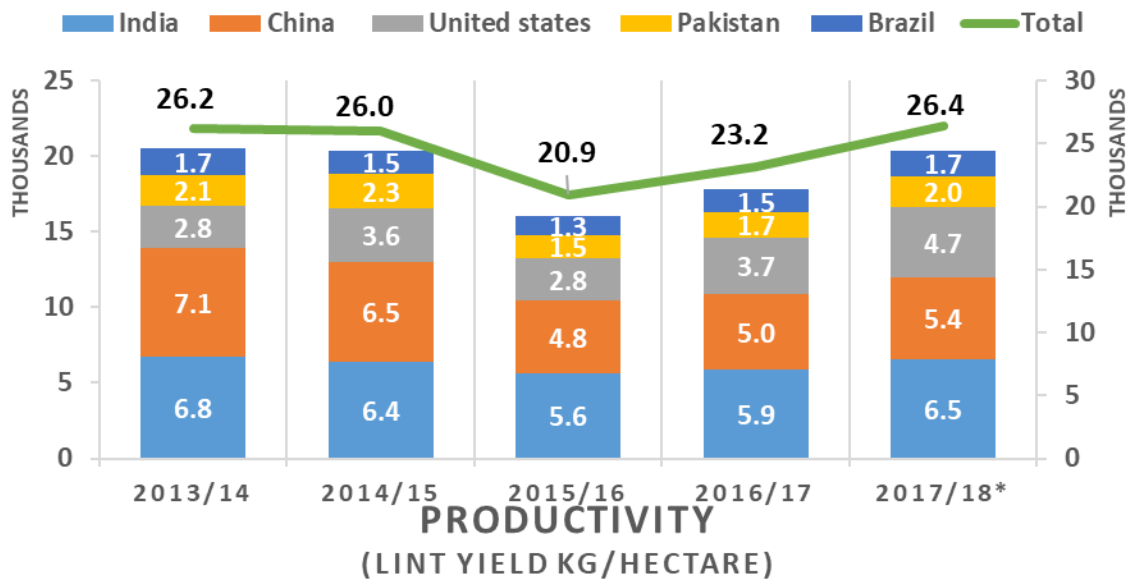
On average, Bt cotton hybrids increased yield

RAINFED
4-5 to **8-10**
quintals/hectare

IRRIGATED
10-12 to **22-24**
quintals/hectare

Cotton productivity India Vs Global

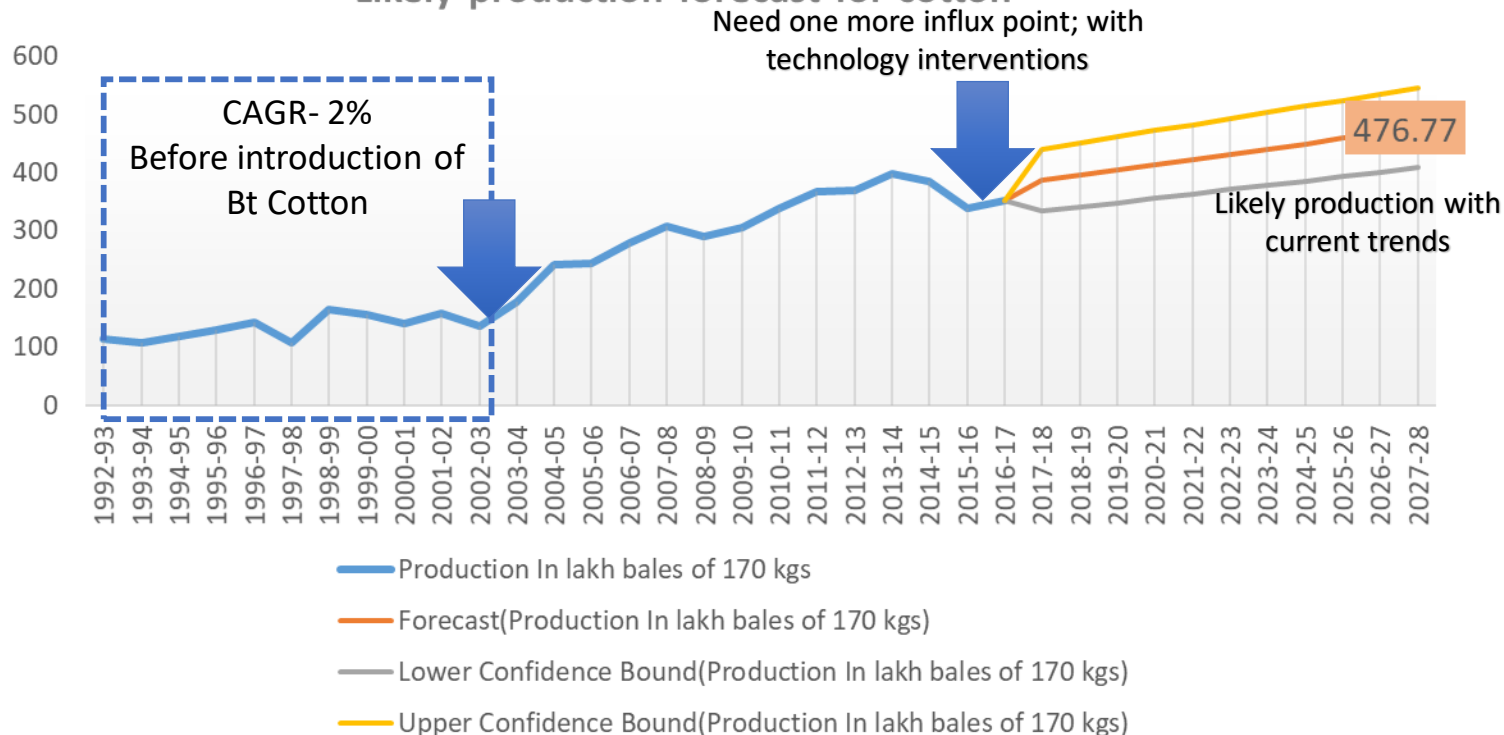
COTTON PRODUCTION IN '000 MT



- India is largest cotton producer country, surpassing China in 2015/16
- Larger acreages under cotton production is key of India's pole position(~11 Mn Hectare)
- Productivity(lint yield) is lowest among the top cotton producing countries and lower than average global productivity
- Major factors responsible for low productivity in India are-
 - Long duration hybrids
 - Low harvest index
 - Less Use of Biotech traits
 - Low ginning out-turn(GOT)

Cotton Requirements vs Possibilities

Likely production forecast for cotton



Count wise cotton requirement 2027-28

Sl. No.	Count Group	Cotton requirement (lakh bales)	
		7.5% Growth	12% Growth
1	1s - 10s	13	21
2	11s - 20s	98	161
3	21s - 30s	160	265
4	31s - 40s	197	326
5	41s - 60s	69	114
7	61s - 80s	24	39
8	81s & Above	9	15
Total		569	941

Source: SIMA

- With conservative growth forecast for textile industry by 2027-28; reqt. Of 569 Lakh bales of different count
- While looking at current production trends likely production by 2027-28 to be 476 lakh bales
- It will increase the dependency on imports to meet domestic requirement
- Central government aim at doubling farmers income by 2022
- Situation requires an immediate attention from all stakeholders to take initiatives to enhance technology adoption in cotton cultivation

Technologies in pipeline that can help in cotton yield enhancement

Trait	Function	Yield benefits
Latest version of Bt traits	Insect control	Superior pest control and resistance management. Better control on Pink boll worm. 15-20% Yield loss due to resistant bollworms can be prevented.
Herbicide Tolerance (GM trait)	Weed Management	Saves labour and time for farmer. Convenience & ease of weed management. Up to 10% yield increase through minimizing yield loss caused by weeds.
Water Use Efficiency (GM trait)	(GM trait) Reduction of water requirement	Yield protection of up to 30% in the years of drought / inconsistent rains
Nitrogen Use Efficiency	Reduction in Nitrogen Fertilizer consumption	10 to 20% higher yields
High Density Planting Systems (HDPS)	Increases yields	Yield increase of 30 to 40% with suitable genetics
Mechanical Picking	Improves efficiency and reduces labour cost	Improvement in quality and quantity of Cotton harvest by up to 10%

**Value
addition**

BG II+
Herbicide
tolerant

BG II+
Water Use
efficiency

BG II+
Herbicide
tolerant +
HDPS

BG II+ Herbicide
tolerant +
HDPS+Mechanic
al picking

BG II

Yield Increase

Breeding Tech.

Digital/ICT

Current policy challenges preventing introduction of new traits in cotton

- Regulatory process at standstill. No new traits approved for last 12 years. Lack of progress with approval process for new traits
- Price control of GM Cotton seeds by the Government – restricts returns on investments – huge disincentive for research based companies
- Lack of clarity on IP protection of biotech traits
- Many companies have scaled back, stopped, withdrawn or deferred development of new biotech traits on cotton and other crops

Impact of current impasse on future of Cotton

- Cost of Cotton Production  Making it un-competitive
- Cotton Yields might stagnate/Decline
 - Impact on Cotton Export (Currently to the tune of 8Bn \$)
 - Cost Increases/Labour Scarcity will impact Cotton agronomy Yields/Economics
 - Cotton Picking cost is currently @ 10% of Farmers revenue might go up further
- Textile Industry will be a big Loser
 - Stagnating Cotton Production will Impact 330Bn \$ opportunity in Global Markets by 2028
 - Commercial Prospects/Employment Generation/Export Potential gets impacted
 - Increase in Imports @ increased cost impacting economics
- Loss of Economic opportunity in key textile manufacturing/Cotton producing states
 - Rural Prosperity
 - Farmers Welfare

Need for textile industry and cotton seed industry to work together

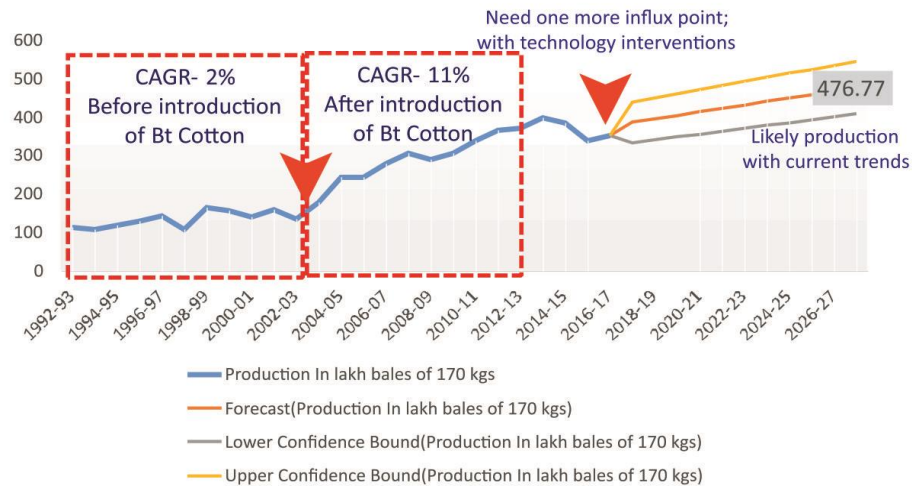
- Doubling of cotton production to at least 750 lakhs bales in next 10 years critical for growth of textile industry
- Without introduction of next generation biotech traits production will grow only to 470 lakh bales by 2028
- Equipping Indian cotton farmer with latest technologies will benefit him by doubling his income, will benefit Indian textile industry and the Indian cotton seed industry

Need to impress upon the end user ministry of textiles and ministry of agriculture to work together for strengthening the Indian farmer and the textile industry through the introduction of next gen traits in cotton at the earliest opportunity

Thank You!

Need for New Technologies

Likely production forecast for cotton



Upcoming New Technologies



**Insect Resistant
Bt Cotton**



**Herbicide Tolerant Cotton
Newly added weed
control technology**

Insect Resistant Herbicide Tolerant Cotton

Potential Gains

➤ Monetary benefits accrued from this technology is to the tune of **Rs. 2870/ha to Rs. 5146/ha**

➤ The estimated gain from this technology to the country would be around **Rs. 3128.6 crores**

STRONG DEMAND FROM FARMERS