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# COTTON STATISTICS & NEWS

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## Doubling of Farmers' Income by 2022 - A Kaleidoscope (Part III)

### Tips to Boost Up Cotton Yields & Improve Fibre Quality

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#### **Cotton Production and Export Estimates**

According to International Cotton Advisory Council (ICAC), world cotton production may increase by 8 percent to 24.9 metric tonnes due to increase in the world cotton area by 8 percent to 31.7 million hectares during current year (2017-18). And also that India's exports are forecast to rise by 2 percent to 930,000 metric tonnes.

Cotton Advisory Board (CAB) in its recent meeting held on December 12, 2017, gave a forecast of 377 lakh bales in the current year i.e. an increase of 9.3 percent in the output over production of 2016-17 which was 345 lakh bales. Also that India will remain the world's largest producer this year too.

However, according to other reports, due to the damage caused by pink bollworm attack and floods in some areas this year, total cotton production may come down.

CAB, has also estimated that the country is likely to export 6.7 million bales in the current marketing year; up by 15.1 percent, from 5.82 million bales, a year ago.



**GUEST COLUMN**

**Dr. Brijender Mohan Vithal**  
Cotton Expert

Thus, let us presume and conclude that India will maintain its position as the world's largest producer of cotton and also that it will remain the

second biggest exporter after the United States, this year too.

Yes, we are proud of and feel honoured having such attractive feathers in India's cotton cap. The credit for increase in total cotton production in the country may be attributed to enhancement in area

from 92.30 lakh ha during 2016-17 to 111.55 lakh ha this year. India's productivity was 580 kg/ha lint (2016-17) as compared to the world average of more than 900 kg/hectare and 2619 kg /ha of Australia, 1508 kg/ha of China and 1601 kg/ha of Brazil.

India's productivity in the beginning of this century was around 300 kg lint /ha only. With the advent of Bt cotton in 2002, there was a quantum jump in productivity resulting in large production of cotton in India. To date, more than 2000 Bt hybrids are approved by the Genetic Engineering Approval Committee (GEAC) for its commercial cultivation in different cotton growing states of India. More than 30 private seed companies are producing and marketing Bt hybrids to fulfil the requirements. Bt cotton area, which was hardly 0.29 lakh ha (0.38 %) out of 76.70 lakh in 2002-03, increased to 119.40 lakh ha out of 128.19 lakh hectares in 2014-15 showing more than 93.14 % adoption within a span of 13 years. (DOCD, MOA, Status paper 2017)

But now the yields have been stagnated during past few years. For this stagnation, Shri.A.K.. Basu (2017) has suggested the following reasons:-

- Cultivation of Bt cotton by resource poor farmers who are not able to use recommended fertilisers and pesticides.
- Cultivation of Bt cotton in areas not suitable for BT cotton.
- Whitefly outbreaks in the north zone.
- Farmers using spurious Bt cotton seeds available in the market.
- Susceptibility of Bt cotton to pink bollworm has added to the woes.

Strong back-up support from scientist acts as the backbone for the mission to double farmers' income. Their research efforts not only help farmers to increase per hectare productivity of cotton lint and improvement in its quality, but also give their morale a boost.

### Current Research Priorities

Cotton is prone to dynamic changes with changing weather and socio-economic conditions. Thus, continuous monitoring and subsequent development of appropriate management strategies to overcome the biotic and a biotic stress for sustainable and profitable cotton cultivation is the need of the day. Prakash (2017) emphasised upon continuous evaluation and subsequently

development of more viable and economical area based agro techniques. To meet present the changing cotton scenario across the country and to increase farmers' income, they have suggested following research priorities, under the current situations.

- To maintain biodiversity, developing varieties of cotton and its hybrids suitable to respective agro ecological zones, with more stress on balanced species distribution.
- Thrust for diploid cotton research.
- Thrust on technology adoption through better delivery system.
- High Density Planting System (HDPS): Developing early maturing genotypes with short stature
- Agro-techniques to enhance productivity: The yield gap that exists between potentially higher yields and the yield realised at farmers' field even now, necessitates target research to tackle the issue.
- Integration of agro techniques, intensification of space and time dimensions, integrated weed and pest management and contract farming are the priority areas of current research.
- Cropping system: A strong cropping system of cotton with other nitrogen fixing legumes, dove-tailed with conservation agriculture and organic inputs can provide robust sustainable solution to many associated problems.
- Control strategies/ containment of Cotton Leaf Curl Virus (CLCuV) disease and whitefly menace through innovative programmes in the north zone
- Identification of Multi Adversity Resistant cotton lines for specific eco-regions
- Special programme for identification of Extra Long Staple (ELS) cotton.
- Collaborative programmes with emphasis on Pre-breeding of qualitative and quantitative traits
- Strategies for Pink bollworm control in Bt cotton hybrids among public and private sectors
- Integrated Pest Management (IPM) and Integrated Resistance Management (IRM) to be revised for emerging pests and diseases problems

- With climate change imminent, many new biotic and abiotic factors are emerging which need close watch to mitigate, has to be meticulously worked out
- Coordination efforts for fructification of newer transgenic events by private and public Institutions by following established regulatory procedure

The first and foremost strategy to double farmers' income is through increase in quality cotton production per unit area. Let us keep a short-term target of achieving productivity level of at least 900 kg lint per ha. (World's average yield of lint per ha) To achieve this target in the near future, cotton farmers may have to follow best package and practices recommended by ICAR Institutions and State Agricultural Universities (SAUs) located in respective states. These practices are guidelines for cultivation, picking etc, for increasing yield of good quality cotton and also its marketing so as to fetch best price in domestic as well as international markets.

Cotton is cultivated in all the three zones viz. Northern zone (Punjab, Haryana and Rajasthan), Central zone (Gujarat, Maharashtra and MP) and Southern zone (Andhra Pradesh, Telangana, Karnataka and Tamil Nadu) After efforts made under TMC Phase 1, Odisha has also become an important state for producing good quality cotton. Cotton is also cultivated in the North Eastern states of India. About 60% area under cotton in India is rain fed.

From the above, it can be observed that in India, cotton is cultivated under different agro climatic conditions. And these conditions vary at intra and inter zone/ state levels. Accordingly, Package and Practices for each zone/ state also vary. Duly recommended Best Management Practices (BMPs) that may be followed by cotton farmers have been collected from different sources and stated below for the benefit of our readers.

### Best Management Practices (BMPs)

Best management practices (BMPs) go a long way to help cotton farmers to secure the best yields and returns on their investments. BMPs, technically speaking, are more environment friendly which also promote the use of local resources, and improve the input use efficiency. The practices, apart from improved agronomic practices, can be broadly categorised into the following areas:

### I. Soil Management

Most of the cotton growing tracts in the country are characterised by low to medium levels of available Nitrogen (N) and Phosphorous (P) and medium to high levels of available Potassium (K). Organic matter is variable from field to field. Needless to say, the fertility index of cotton growing soils is not very encouraging. Furthermore, as cotton is a deep rooted crop, the extraction of nutrients is enormous. Again, the nutrient uptake varies with the soil type. More than 67% of the cotton growing areas fall under shallow and medium deep soils

To establish soil pH and residual nutrient levels, farmers should get the soil fertility levels of their individual fields tested at least every other year. They should fertilize according to the nutrients available and potential needs of cotton crop and consider placement of basal dose of fertilizers. This may benefit germinating plants in improving seedling vigour.

### II. Variety Selection

Three Bt cotton transgenic hybrids were officially approved and released by Mahyco Seed Company for commercial cultivation in 2002 in India, for the first time. This was in addition to hundreds of non Bt varieties of cotton already on the approved list. This number of approved Bt and non Bt (varieties and hybrids) has crossed two thousand to date.. A Bt variety (Bikaneri BT) was released during 2008 which could not perform well. Now another Bt variety is expected to reach to cotton farmers in the near future, which may perform better.

Serious efforts are required to restrict the choice of varieties/ Bt / non-Bt hybrids, based on agro ecological zones so as to improve yields as well as quality of Indian cotton.

For a farmer to select a proper variety/ hybrid by suitable to his specific environment and field conditions that may perform well is a critical task. Once the correct cotton variety / hybrid is selected, half the job is done. To select proper variety/ hybrid cotton, the farmer should take care of the following points.

- Make variety decisions based on its past performance, such as proven yield potential and stability, fibre quality traits, packages, etc.
- Manage risk and yield potential by selecting two to three cotton varieties. Diverse cotton varieties with different traits, maturities and



disease and insect susceptibility will spread risk and enhance the farmers chances for achieving high yields.

- Select newer, tried-and-true varieties / hybrids of cotton.
- Consult experts from respective State Departments of Agriculture (SDAs), ICAR (KVKs) and State Agricultural Universities (SAUs) and review performance ratings of various approved varieties/ hybrids developed by public and private sectors. Match that information with individual farming goals and field conditions of each farmer.
- The farmer should know what he has purchased and document each seed lot number, the seed treatment and all products included in the treatment. The lot number and seed treatment code can be traced in case the farmer has questions later or encounters emergence problems.

### III. Seed Rate

The farmer should manage quantities of seed to be sown per ha as per planting date, environmental conditions, soil types, etc. Use higher seed rates in less-than-ideal conditions, as is often observed in the early and late sowings. In the Central zone, cotton is mostly cultivated in rain fed conditions and in clayey soils, where fields often develop a surface crust, or a less-than-ideal planting conditions. Under such conditions, higher seed rates should be used. Also seed should be professionally applied using various seed treatments. The ultimate objective is to ensure a good stand to obtain higher yields. If stands are poor, optimal yields cannot be achieved.

The farmer should start with a weed-free seedbed. Sufficient soil moisture and soil temperatures of about 16 degree centigrade are ideal environmental conditions for planting. Sow cotton seed 1 to 1.5 inches deep. It generally struggles to sprout, emerge and grow until it reaches the four-to five-leaf stage. Planting too deep will result in poor emergence / weaker seedlings that may lower the chances of achieving an optimal stand due to increase in the probability of encountering injury. Under rain-fed conditions, (Central zone) cotton sowings may be delayed according to rainfall. Adequate moisture should be ensured at sowing time.

### IV. Water Management

It is important for a cotton farmer to know the critical stages of water requirements of this crop.

The same are as follows:-

#### Critical stages of moisture requirement for cotton

There are many stages during crop cultivation when moisture is important for its growth. Moisture is critical at the entry level of each stage. If the plant undergoes water stress during these stages, yields may be significantly reduced. With respect to irrigation, cotton farmers should keep the following points in mind:

- If water is available for one irrigation, it should be provided at the flowering stage
- If water is available for two irrigations, it should be provided at the flowering and boll formation stages
- If water is available for three irrigations, it should be provided at the seedling, flowering and boll formation stages
- If water is not limited, irrigation should be provided every 15 days and water stagnation should be avoided.
- Under irrigated conditions, irrigate before plant stress occurs, making sure that moisture is near field capacity during first bloom. Plants need adequate moisture beginning at the first square to meet yield goals, which will vary by individual fields in different cotton-growing regions. Avoid excess irrigation that can cause rank growth and delay in maturity.
- BMPs on water management are developed to improve the water use efficiency in irrigated cotton. The water related BMPs include adoption of water conservation techniques like drip irrigation and sprinkler system Other methods include skip row irrigation and furrow application technique by farmers who otherwise adopt flood irrigation, irrespective of row length

### V. Resistance Management

To avoid the development of resistance in Bt cotton to bollworms, 20 percent area should be sown under non-Bt cotton hybrids around BT cotton (refuge area). The non-Bt hybrids should be protected against damage by insect pests. Alternatively, 5 percent area of non-Bt hybrids can be sown around Bt cotton and this should be kept unsprayed.

*To be continued...*

*(The views expressed in this column are of the author and not that of Cotton Association of India)*

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## Talk by Dr. C.D. Mayee at CAI

Cotton Association of India organised a talk on 'Management of Pink Bollworm' on Wednesday, January 10, 2018, at the premises of the Association, in Cotton Green, Mumbai.

The talk was delivered by Dr. C.D. Mayee, President of Indian Society for Cotton Improvement (ISCI). CAI President Shri. Atul S. Ganatra and past President, Shri. Suresh A. Kotak also released a booklet – Cotton Bollworm Management Strategy -co-authored by Dr. C.D. Mayee and Shri. Bhagirath Choudhary, on the occasion.

The talk by Dr. Mayee, who is a noted scholar in agriculture, particularly cotton, was well attended and much appreciated by our Association members. The event was covered by TV channels and other media.





## Kites Fly High Over The CAI

To celebrate Makar Sankranti, many members of the cotton fraternity including CAI President Shri. Atul Ganatra, gathered at the Association on January 13, 2018. Young and old had fun flying kites, with the seniors easily beating the youngsters with their kite flying prowess! This was followed by high tea. Here are a few glimpses of the colourful event.





## Since 1921, we are dedicated to the cause of Indian cotton.

Just one of the reasons, you should use our Laboratory Testing Services.

The Cotton Association of India (CAI) is respected as the chief trade body in the hierarchy of the Indian cotton economy. Since its origin in 1921, CAI's contribution has been unparalleled in the development of cotton across India.

The CAI is setting benchmarks across a wide spectrum of services targeting the entire cotton value chain. These range from research and development at the grass root level to education, providing an arbitration mechanism, maintaining Indian cotton grade standards, issuing Certificates of Origin to collecting and disseminating statistics and information. Moreover, CAI is an autonomous organization portraying professionalism and reliability in cotton testing.

The CAI's network of independent cotton testing & research laboratories are strategically spread across major cotton centres in India and are equipped with:

- State-of-the-art technology & world-class Premier and MAG cotton testing machines
- HVI test mode with trash% tested gravimetrically

### LABORATORY LOCATIONS

**Current locations :** • **Maharashtra :** Mumbai; Akola; Aurangabad • **Gujarat :** Rajkot; Mundra; Ahmedabad • **Andhra Pradesh :** Guntur, Warangal  
• **Madhya Pradesh :** Indore • **Karnataka :** Hubli • **Punjab :** Bathinda  
**Upcoming locations :** • **Telangana:** Adilabad



### COTTON ASSOCIATION OF INDIA

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UPCOUNTRY SPOT RATES												(Rs./Qtl)
Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [ By law 66 (A) (a) (4) ]							Spot Rate (Upland) 2017-18 Crop JANUARY 2018					
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	8th	9th	10th	11th	12th	13th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	11810 (42000)	11754 (41800)	11754 (41800)	11867 (42200)	12063 (42900)	11951 (42500)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	12035 (42800)	11951 (42500)	11951 (42500)	12063 (42900)	12260 (43600)	12120 (43100)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	8661 (30800)	8661 (30800)	8661 (30800)	8745 (31100)	8886 (31600)	8773 (31200)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	9505 (33800)	9505 (33800)	9505 (33800)	9589 (34100)	9729 (34600)	9589 (34100)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	10320 (36700)	10320 (36700)	10320 (36700)	10404 (37000)	10545 (37500)	10404 (37000)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	11220 (39900)	11164 (39700)	11164 (39700)	11276 (40100)	11501 (40900)	11389 (40500)
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	9898 (35200)	9898 (35200)	9898 (35200)	10011 (35600)	10236 (36400)	10151 (36100)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	10376 (36900)	10376 (36900)	10376 (36900)	10461 (37200)	10686 (38000)	10601 (37700)
9	P/H/R	ICS-105	Fine	27mm	3.5-4.9	26	11389 (40500)	11332 (40300)	11332 (40300)	11389 (40500)	11614 (41300)	11529 (41000)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	10151 (36100)	10151 (36100)	10151 (36100)	10208 (36300)	10432 (37100)	10404 (37000)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	10629 (37800)	10629 (37800)	10629 (37800)	10686 (38000)	10911 (38800)	10826 (38500)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	11585 (41200)	11529 (41000)	11529 (41000)	11642 (41400)	11867 (42200)	11754 (41800)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	10967 (39000)	10967 (39000)	10967 (39000)	11079 (39400)	11304 (40200)	11248 (40000)
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	11192 (39800)	11192 (39800)	11192 (39800)	11276 (40100)	11529 (41000)	11417 (40600)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	11248 (40000)	11192 (39800)	11192 (39800)	11276 (40100)	11529 (41000)	11445 (40700)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	11473 (40800)	11445 (40700)	11473 (40800)	11557 (41100)	11810 (42000)	11726 (41700)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	11501 (40900)	11473 (40800)	11501 (40900)	11585 (41200)	11838 (42100)	11810 (42000)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	11838 (42100)	11838 (42100)	11838 (42100)	11923 (42400)	12148 (43200)	12063 (42900)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	12401 (44100)	12345 (43900)	12345 (43900)	12401 (44100)	12513 (44500)	12457 (44300)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	15860 (56400)	15719 (55900)	15607 (55500)	15635 (55600)	15691 (55800)	15691 (55800)

(Note: Figures in bracket indicate prices in Rs./Candy)