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# COTTON STATISTICS & NEWS

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## Pink Bollworm Strikes Bt-Cotton

*(Dr. K.R. Kranthi, Director of Central Institute for Cotton Research (CICR), Nagpur has completed his Ph.D in Entomology from IARI, New Delhi. He has more than 20 years of experience in the field of cotton research.)*

The pink bollworm is back with a vengeance. This insect was a serious concern for cotton in India about 30 years ago. There were very few reports of any major damage by pink bollworm to cotton since 1982 in the country. But all that has changed now. This year, severe damage to bolls by pink bollworm and yield-losses were observed in Bt-cotton in many regions of Gujarat and some parts of AP, Telangana and Maharashtra. More concerning is the fact that the worm is happily chewing up Bollgard-II-Bt-cotton which contains two genes (cry1Ac+cry2Ab) that were supposed to be highly effective in controlling the pest. Studies conducted by ICAR-CICR (Central Institute for Cotton Research, Nagpur) over the past two years, clearly showed that the pink bollworm developed resistance to two Cry toxins deployed in Bollgard-II. It is important to unravel the mystery as to why the worm has returned after 30 years to trouble cotton again. And that too, with a vengeance to break a technology called Bollgard-II that was supposed to be all powerful.

I was in Gujarat last week with a team of three senior colleagues of ICAR-CICR. Dr. Sandhya Kranthi, Head Crop Improvement; Dr. A. H. Prakash, Project Co-ordinator and Head of our regional station in Coimbatore and Dr. Venugopalan, Head of the PME unit, were part of the team. We toured across Ahmedabad, Surendranagar, Rajkot, Junagarh, Amreli and Bhavnagar. Our visit was a follow-up to the concern expressed by an earlier team of experts

after their visit to Gujarat. My colleague Dr. Chinna Babu Naik and his team had visited Gujarat in the first week of November to assess pink boll worm infestation on Bollgard-II. Dr. Naik was categorical when he declared that 'this season the pink bollworm has spread across Gujarat mostly in green bolls for second picking that are affected seriously in Junagarh, Amreli, Bhavnagar and Bharuch'.

A woman farmer in Bhavnagar plucked a few green bolls randomly from a plant and pulled out a sickle to open them. She said something angrily in Gujarati, not a single word that I knew, but clearly understood what she conveyed. The interpreter confirmed that she said 'Look, every green boll has this red coloured insect inside, fully grown and feeding on developing seeds'. Another farmer remarked 'Bollgard-II is no longer effective on pink bollworm. We are using insecticides to control it'. The farmer echoed the feeling of many farmers in Gujarat who are just beginning to experience the failure of Bollgard-II to control the pink bollworm. The damage was more especially in the green bolls for second and subsequent pickings. Our approximate estimates indicate that Gujarat may have lost 7-8% of its cotton to the pink bollworm this year. More concerning is the fact that the farmer would get a lower price for the second and third picked cotton because of the poor quality. At a time when the market prices are low, this could compound the stress.

I remember my visit to Gujarat in November last year. It was clear that not many farmers were aware of the damage that the pink bollworm was causing to green bolls of Bollgard-II. This year, there was a huge difference. Farmers were not only aware of the impending problem of pink bollworm, but

### EXPERT'S Column



**Dr. K.R. Kranthi**



*Pink bollworm larva in damaged boll*



*Pink bollworm pupa and larva in freshly picked cotton*



*Pink bollworm damaged cotton at market yard*

many also knew precisely how to manage it. Our personal interaction with farmers across Saurashtra this year in mid November, clearly mirrored the enormous efforts that were made by the Government departments and private agencies. These efforts clearly showcase a success story of how combined efforts from a central research institute ICAR-CICR, the Junagarh Agricultural University (JAU), the State Agricultural Department, the Central Ministry, the seed industry, (Krishi Vigyan Kendra) KVKs and NGOs to educate farmers on pest management could help farmers to efficiently manage insect pests to minimise yield losses. It was heartening to note that the weekly advisories issued by CICR on the institute's web site formed the core essence of the management strategies all across the state. It was also clear that wherever the recommendations were followed, the fields had very less infestation at negligible levels in the first picked cotton and as less as 5-10% in the green bolls for second picking. Interestingly, about 60-70% of the farmers whom we met had followed the recommendations.

Surveys conducted by ICAR-CICR showed that pink bollworms were also surviving on Bollgard-II not only in Gujarat but also in parts of AP, Telangana and Maharashtra. Though the following passages describe the situation with focus in Gujarat, the problem seems to be engulfing regions in other states especially where cotton crop is being extended beyond 180 days, sometimes extending it all through the year.

## Pink Bollworm

Pink bollworm, *Pectinophora gossypiella* (Saunders) is presumed to have an Indo-Pak origin.



*CICR experts interacting with a farmer in Gujarat*

The larvae feed only on a few crops such as cotton, bhendi (okra), Hibiscus, and jute. Eggs are laid on flowers, young bolls, axils of petioles and underside of young leaves. After hatching, the young larvae penetrate ovaries of flowers or young bolls within two days of hatching. Larvae turn pink in colour in 3-4 days after hatching. The degree of pink depends on the food that the larvae eat. Dark pink results from eating maturing seeds. Moths are dirty brown in colour about 5 mm in length. Larvae prefer feeding on developing seeds and generally pupate inside the seeds and bolls. Affected bolls either open prematurely or get badly affected due to rotting. Fibre qualities such as length and strength are lowered. Further the cotton lint in the insect infested bolls gets damaged by secondary fungal infection. The seed-cotton carried to market yards acts as a source for the pest to spread. Pink bollworm generally arrives with the onset of winter and continues to survive on the crop as long as flowers and bolls are available. Long duration cotton allows the pest to thrive for a longer continued period in multiple cycles, thereby affecting the subsequent cotton crop. In the absence of cotton, or as a genetically pre-disposed condition, the pink bollworm undergoes hibernation or diapause that allows it to be dormant for 6-8 months, until the next season.

## Symptoms

**Stained lint in open bolls:** This is a distinct symptom of damage. It occurs in the later stages of crop growth, once the damage is done.

**Pheromone moth trap catches:** Pheromones are scents that are released generally by female insects to attract male insects. These scents are synthesised artificially and used in traps to monitor the onset and levels of infestation. Pheromones at higher dosages or frequency of lures can also be used in mass trapping and to confuse mating. A good correlation has been obtained between the pheromone trap catches and larval incidence in the field.

**Rosette flowers:** Flowers do not open fully. They get twisted.

**Spots on green bolls:** black spots on a green boll



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may often be indicative of pink bollworm damage. Pink bollworm damaged bolls often predispose the occurrence of secondary bacterial infection that results in the blackening of boll rind on the outside.

Exit holes on green bolls: A small hole of 1.5 to 2 mm diameter clearly indicates the exit of the insect from the boll.

### Cotton In Gujarat

The total cotton area in Gujarat is about 26 to 30 lakh hectares. This year, cotton was sown in 27.58 lakh hectares in the state, including 5.5 lakh hectares under Desi cotton, *Gossypium herbaceum*. The major cotton growing districts are concentrated in Saurashtra, followed by central Gujarat and north Gujarat. Saurashtra has about 18.5 lakh hectares in Surendranagar (4.8 lakh ha), Amreli (3.9 lakh ha), Rajkot (3.8 lakh ha), Bhavnagar (3.0 lakh ha), Jamnagar (2.3 lakh ha) and Junagarh (0.7 lakh ha). Cotton in central Gujarat is cultivated in about 7.0 lakh hectares in Ahmedabad (2.2 lakh ha), Vadodara (2.0 lakh ha), Bharuch (1.3 lakh ha), Narmada (0.5), Gandhinagar (0.4 lakh ha) and Kheda (0.4 lakh ha). In north Gujarat, cotton is cultivated in about 3.4 lakh ha in Sabarkantha (1.6 lakh ha), Patan (0.7 lakh ha), Mehsana (0.6 lakh ha) and Banaskantha (0.5 lakh ha).

About 5.5 to 7.0 lakh hectares are under Desi (*Gossypium herbaceum*) commonly called as Wagad cotton, grown mainly in Kutch, Rajkot, Surendranagar, Ahmedabad, Mehsana, Patan and Banaskantha. Except the Wagad cotton, all other cotton is under Bollgard, with 85% of BG-II and rest under BG. Some parts of Gujarat also have illegal versions of Bt cotton, estimated to be less than 0.5 lakh hectares.

### Pink Bollworm Reports In Gujarat

2009-2010: In January 2010, Monsanto reported the survival of pink bollworm larvae in Bollgard (Cry1Ac) and not in Bollgard-II (Cry1Ac + Cry2Ab) in Saurashtra region. Studies conducted by CICR on the performance of first generation Bt cotton against pink bollworm showed that there was a slightly higher level of pink bollworm infestation on Bt cotton specifically only in the Saurashtra region. However, the infestation levels were found to be more only in the late stage of the crop and there have been no reports or complaints from farmers about any possible yield loss. A scientific analysis on the reasons for the higher incidence showed that the unusual survival of the pink bollworm in Saurashtra was due to weather conditions that favoured the pest survival and also due to the fact that many farmers in Saurashtra continue to keep the cotton crop in fields for 2-3 extra months with extra irrigation for 1-2 more pickings until the end of March, which favours the multiplication of pink bollworms for the next



*Rosetted flower due to pink bollworm*

season. The data (www.cicr.org.in AICCIP, All India Coordinated Cotton Improvement Project reports 2009-10) showed that during 2009, there was indeed unusually high level of pink bollworm moth catches in the pheromone traps installed in Junagarh of Saurashtra region. Thus high infestation levels were responsible for the damage and resistance if any, may have also been a contributing factor.

2012-2014: Surveys conducted by CICR showed that pink bollworm larval survival on BG-II was recorded significantly higher in 2012, 2013 and 2014 mainly in Amreli and Bhavnagar districts in Saurashtra. However, larval survival on BG-II was also reported from several other districts of Saurashtra and central Gujarat in November-December of 2014. Farmer complaints were received from Amreli in September 2014 and from Vadodara and Bharuch in October 2014.

CICR deputed a team of scientists regularly every year. Samples of healthy and damaged bolls and surviving pink bollworm larvae were collected by CICR regularly for resistance monitoring and to ascertain the trait purity in the boll samples. Studies in 2014 clearly established that pink bollworm larvae were able to survive inside bolls of authentic BG-II hybrids. About 40-80% of the bolls harboured surviving larvae. Resistance monitoring results unequivocally showed that pink bollworms developed resistance to Cry1Ac, Cry2Ab and Cry1Ac+Cry2Ab in Amreli and Bhavnagar districts.

2015: Reports of pink bollworm damage in BG-II were received in July 2015. Farmers complained of pink bollworm in Amreli, Dhari, Jambusar in Bharuch, Karjan, Shinor-Padara and Daboi in Vadodara during July 2015. Pink bollworm damage was reported from Garaidar Taluka of Bhavnagar in August 2015.

CICR deputed a team of scientists to survey the regions and collect samples for analysis. The team reported extensive occurrence of rosette flower symptoms that are caused due to pink bollworm damage. The damage ranged between 0-80% on

Bollgard II at Bharuch, Vadodara, Anand, Bhavnagar, Amreli, Junagadh, Rajkot, Surendranagar and Ahmedabad districts. Damage ranged between 11.0 to 67.0 % in Amreli on BGII. Occurrence of pink bollworm, so early in the cotton crop of Bollgard II was unusual, but not unexpected.

### Reasons For Pink Bollworm Occurrence On Bollgard-II

- a) Cultivation of long duration hybrids that serve as continuous hosts of the pink bollworm.
  - b) Large number of hybrids with varying flowering and fruiting periods that, provide continuous food for the bollworms in an overlapping manner.
  - c) Long term storage of raw cotton in ginning mills and market yards that serve as a source of pink bollworms to the ensuing crop.
  - d) Early (April-May) sown crop started flowering that coincided with the minor seasonal peak pink bollworm that occurs in June-July.
  - e) Pink boll worm populations from Gujarat developed resistance to Cry1Ac and Cry2Ab together. Therefore the larvae are able to survive on BG-II.
  - f) Squares, flowers and developing seeds in young bolls have less Bt-toxin expression.
  - g) The segregating seeds in bolls of F-1 hybrid plants accelerate resistance development. India is the only country in the world that cultivates Bt cotton as hybrids. F1 plants harbouring the F1 bolls carry seeds that segregate in the ratio of 9:3:3:1 (Cry1Ac+Cry2Ab in 9; Cry2Ab alone in 3; Cry1Ac in 3 and none in 1). Thus a spectrum of non Bt seeds, seeds with Cry1Ac alone, seeds with Cry2Ab alone and seeds with Cry1Ac+Cry2Ab are present in a single boll. This situation is ideal for resistance development, due to selection of resistance to independent toxins.
  - h) Extending the crop beyond November. In many fields, extended the crop upto April-May provided continuous availability of cotton all through the year. Over the period 2009-2014, cotton prices were high and farmers extended the crop in about 11.0 lakh hectares of irrigated cotton fields in Rajkot, Surendranagar, Amreli, Bhavnagar and Jamnagar. Pink bollworm is a winter pest. It causes damage mainly in November, which can be prevented. The pupae enter into diapause in December in the absence of cotton crop or crop residues such as stalks. However, if the crop is available beyond November, the pest continues to survive on the fruiting parts. This extended phase intensified Bt-toxin selection pressure and resistance development was accelerated.
- i) The crop was sown early under drip irrigation in many parts of Saurashtra. The early sown crop together with the extended crop of the previous season provided a continuous crop for the pink bollworm all through the year and facilitated multiplication of the pest with overlapping generations, intensive selection pressure, thus accelerating resistance development.
  - j) Non-compliance of refugia non-Bt cotton.
  - k) Lack of timely and appropriate management initiatives, which led to continuous proliferation of the insect pest. Farmers do not initiate ant control measures against any bollworms on Bt-cotton.
  - l) Surveys conducted by CICR in Saurashtra revealed that a combination of monocrotophos + acephate was sprayed 3-4 times on Bt-cotton by majority of farmers in Junagarh, Amreli and Bhavnagar. Monocrotophos + acephate during early stages of the crop induces growth of fresh green leaves, switches back the crop from reproductive to vegetative phase and delays maturity of the crop. Repeated spraying (3-4 times) of this combination results in staggered flowering and fruiting. Since flowers attract bollworms, there was a continuous influx of the pink bollworm in cotton fields due to continuous staggered flowering, especially wherever monocrotophos + acephate was repeatedly sprayed. Infestation of pink bollworm was high in the open bolls and green bolls of second picking in such fields. Wherever farmers had sprayed synthetic pyrethroids in late October or early November, pink bollworm infestation was negligible. In fields that were not repeatedly sprayed with monocrotophos + acephate, boll bursting was synchronous and pink bollworm was less.



*Cotton stalks stacked near fields*

### Management Strategies

The following strategies were developed by ICAR-CICR to ensure that Bt cotton continues to be effective for the longest possible time.

- a) Regular monitoring of bollworm resistance to Bt cotton including Bollgard-II.
- b) Use of the parasitoid *Trichogramma bactriae* in Bt cotton fields for pink bollworm management.
- c) Refugia: Recommend planting of desi cotton/ conventional non-Bt *G. hirsutum* cotton and late planted bhendi as refugia crops.
- d) Timely termination of the crop latest by December and avoiding ratoon and/or extended crop.
- e) Utilisation or destruction of crop residues and cotton stalks immediately after harvest.
- f) Crop rotation is strongly recommended to break the pest cycle.
- g) Short duration single-pick varieties (150 days) provide high yields in high density and escape the pink bollworm.
- h) Installation of light traps and pheromone traps in fields during the season and also near go-downs, ginning mills, market yards etc., to trap post season moths.
- i) Mass trapping and mating disruption using pheromone traps.
- j) Use of 'pheromone traps' and 'green boll dissection' for regular monitoring and initiate control interventions based on economic threshold levels of 8 moths per trap per night and/or 10% damage in green bolls.
- k) Insecticides such as quinalphos or thiodicarb may be used in early stages and synthetic pyrethroids after October at economic threshold levels of damage.
- l) Strictly avoid spraying pyrethroids before November or any insecticide mixtures at any time to prevent whitefly outbreaks.
- m) Select hybrids / varieties that are tolerant to sucking pests. This will help to avoid application of insecticides such as monocrotophos, acephate, thiomethoxam, acetamiprid, imidacloprid or clothianidin. Application of these insecticides, especially at the early stage of the crop results in growth of fresh green leaves, switching back from squaring-flowering to vegetative phase and delays maturity of the crop. Avoidance of these insecticides helps in synchronous early maturity of bolls which helps in the escape of pink bollworm infestation.

### Policy Intervention Needed

- a) Seed companies must ensure that Cry toxins are present in the hybrids in homozygous form,

instead of the segregating heterozygous form as in the current hybrids.

- b) Recommendation for refuge in bag at 95:5 (Bt:Nbt) seeds may partly help to decelerate the rate of development of bollworm resistance to Bt cotton. The non-Bt cotton seeds should be of the corresponding near-isogenic hybrid.

### Steps Taken BY ICAR-CICR

- a) Regular field surveys, pest monitoring and resistance monitoring studies are carried out under IRM programme.
- b) weekly advisories [http://www.cicr.org.in/weekly\\_advisory.htm](http://www.cicr.org.in/weekly_advisory.htm) are issued in English and 8 local languages in the CICR web site. Advisories are issued regularly every Wednesday on the CICR website in English and nine regional languages, with mails and alerts sent to the State Agricultural Departments.
- c) Voice mail weekly advisories (E-Kapas) to 1,80,000 farmers across India and 11,893 farmers in Gujarat
- d) IRM (Insect Resistance Management) campaign through personal visits of CICR project staff and staff of Main Cotton Research Station, Surat under the IRM dissemination programme in 150 field sites across Gujarat.
- e) Front-Line demonstrations were conducted through the All India Coordinated Crop Improvement Project.

### Conclusion

Insect resistance to toxins is a signal that is dangerous to ignore. The problem can only get worse over the ensuing years, if left unattended. The best way to mitigate the problem is to look for answers in the problem itself. Pink bollworm was a major problem in India 30 years ago, primarily because of long duration varieties and the absence of any potent control measures. The simplest and most potent way to overcome the problem is to take up timely sowing and cultivate early maturing short duration varieties of about 150 days duration. All other management strategies such as avoidance of excess urea + OP insecticides, use of light traps, pheromone traps, bio-pesticides, biological control etc., can rally around such varieties to minimise the damage to zero levels. I earnestly hope that the good collaborative efforts made in Gujarat this year by the Government and private agencies are replicated all across the country to ensure that cotton survives the worm and not vice-versa.

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



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## CAI Maintains Cotton Crop For The Season 2015-16 At 370.50 Lakh Bales

The Cotton Association of India (CAI) has released its October estimate of the cotton crop for the 2015-16 season, which began on 1st October 2015. The CAI has retained its October estimate of the cotton crop for the 2015-16 season at the same level as in the previous month i.e. at 370.50 lakh bales of 170 kgs. each. The projected Balance Sheet drawn by the CAI estimated total cotton supply for the season 2015-16 at 463.15 lakh bales while the domestic consumption is estimated at 325.00 lakh bales thus leaving an available surplus of 138.15 lakh bales i.e. same as in the last month. A statement containing the State-wise estimate of the cotton crop and the Balance Sheet for the season 2015-16 with the corresponding data for the previous crop year is given below.

### CAI's Estimates of Cotton Crop as on 31st October 2015 for the Seasons 2015-16 and 2014-15

(in lakh bales)

State	Production *		Arrivals As on 31st October 2015 (2015-16)
	2015-16	2014-15	
Punjab	10.00	13.00	0.90
Haryana	19.00	23.50	1.25
Upper Rajasthan	6.50	6.50	0.35
Lower Rajasthan	11.50	10.50	1.05
<b>Total North Zone</b>	<b>47.00</b>	<b>53.50</b>	<b>3.55</b>
Gujarat	103.00	108.00	3.20
Maharashtra	83.00	78.50	4.25
Madhya Pradesh	19.00	18.00	1.55
<b>Total Central Zone</b>	<b>205.00</b>	<b>204.50</b>	<b>9.00</b>
Telangana	58.00	55.25	2.35
Andhra Pradesh	27.00	25.75	0.50
Karnataka	20.00	30.50	1.15
Tamil Nadu	7.50	7.25	0.00
<b>Total South Zone</b>	<b>112.50</b>	<b>118.75</b>	<b>4.00</b>

Orissa	4.00	4.00	0.00
<b>Others</b>	<b>2.00</b>	<b>2.00</b>	<b>0.00</b>
<b>Total</b>	<b>370.50</b>	<b>382.75</b>	<b>16.55</b>

Note: (1) \* Including loose

(2) Loose figures are taken for Telangana and Andhra Pradesh separately as proportionate to the crop for the purpose of accuracy

The Balance Sheet drawn by the Association for 2015-16 and 2014-15 is reproduced below:-

(in lakh bales)

Details	2015-16	2014-15
Opening Stock	78.65	58.90
Production	370.50	382.75
Imports	14.00	12.00
<b>Total Supply</b>	<b>463.15</b>	<b>453.65</b>
Mill Consumption	285.00	278.00
Consumption by SSI Units	29.00	27.00
Non-Mill Use	11.00	10.00
Exports		60.00
<b>Total Demand</b>	<b>325.00</b>	<b>375.00</b>
Available Surplus	138.15	
Closing Stock		78.65



# SAGA OF THE COTTON EXCHANGE

By Madhoo Pavaskar

## Chapter 6

### Hoping Against Hope

(Continued from Issue No.30)

#### The Austere Jubilee

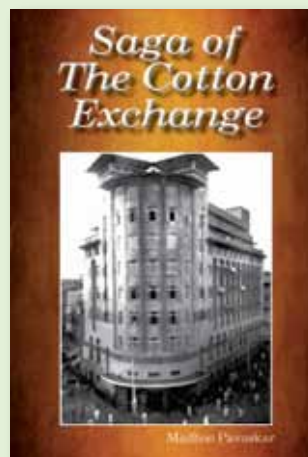
But alas, the partition of the country into India and Pakistan and the cruel carnage that followed in the divided Punjab and Bengal as mayhem was let loose in both these States, leading to a mass exodus of the Hindu and Sikh population from Pakistan, cast a gloomy shadow on the Indian independence. Moreover, the country had still not recovered from the food scarcity conditions created by the imperialistic British policy during the Great War. It was therefore not surprising that the patriotic cotton merchants decided to celebrate the Indian independence day and the Silver Jubilee Year of the rule of King Cotton with utmost sobriety and austerity befitting these solemn occasions.

On Independence Day, both the abodes of King Cotton were illuminated and the new national flag was hoisted at the Cotton Exchange Building in Marwari Bazar by Mr. V.L. Mehta, Minister of Finance in the Government of Bombay, and at the Cotton Green Building in Sewree by Mr. Morarji Desai, Minister for Revenue in the same government. With the declaration of Indian independence, the East India Cotton Association, which had passed through many trials and tribulations during the erstwhile British regime to serve the national cause, now verily became a national institution to serve the cotton economy of free India.

As for the Silver Jubilee of the East India Cotton Association, since gay festivities were ruled out by the cotton trade owing to the prevailing sombre situation marked by serious scarcities, the Association thought that the occasion could usefully be devoted to a scholarly research in the copious literature available in the records of the East India Company and India Office, the Government of India and provincial Governments, and the Legislatures and libraries in India, covering a period of 100 years and more. The fruits of this stupendous research work were condensed in a monumental souvenir volume, *A Hundred Years of Indian Cotton*, written by no less a scholar than the eminent Indian economist Prof. M.L. Dantwala.

The first copy of this volume was presented to India's first Prime Minister, Pandit Jawaharlal Nehru on April 26, 1948, by Sir Purshotamdas Thakurdas,

the President of the East India Cotton Association. In the course of his speech on this memorable occasion, Pandit Jawaharlal Nehru, observed appreciatively that there could be no better celebration than the research work which was responsible for bringing out such a useful volume containing the history of the cotton trade during the last 100 years, and it was perhaps more than a mere coincidence that the Silver Jubilee of the East India Cotton Association and the Centenary of the Cotton Trade in India should coincide with the transfer of power in India by the British to the Indians.



#### No Freedom of Trade

Following the exit of the British, the cotton merchants fondly hoped for a change in the cotton policy pursued hitherto by the alien government. They looked upon Indian independence as the turning point for the cotton policy and laboured under an illusion that the freedom of the nation would entail freedom of trade and lead to removal of price controls on cotton. Unfortunately, that was not to be.

With the partition of the country, while more than 25 per cent of the cotton acreage and as much as 40 per cent of the cotton production (of long and medium staple growths mostly) was lost to Pakistan, India was left with over 98 per cent of the cotton textile industry. As a result, not only did the country face yawning quantitative deficiency in the supply of cotton, but an alarming qualitative gap also emerged. Overnight, the century old 'surplus' cotton economy found itself 'deficit' in cotton. Fearing a spurt in prices, the Government of India nervously continued all controls, and even prohibited exports of cotton of staple of 13/16" and over. Little did they then realise that such a policy would eventually harm the cotton growers and hamper the growth of indigenous cotton production, leaving India a net importer of cotton for as many as three decades later.

True, on January 19, 1948, the Government of India had abolished the statutory floors and ceilings on cotton prices. And in February 1948, the Textile Commissioner had even withdrawn the margin deposit payable on the net open position in cotton futures. The basis of the Indian Cotton Contract was also changed from Jarilla 24/32" to Jarilla 25/32"

for the year 1948-49 cotton season, even though the change implied that the Contract would be less bearish than in the past. But with the reports of the failure of the cotton crop in 1948-49 cotton season, controls on the prices of cotton were re-imposed with effect from August 21, 1948. King Cotton lost his freedom again. Surprisingly, while denying the Indian cotton grower fair prices for his produce, the government and the cotton textile mills were eager to secure cotton supplies from abroad at prices well above the ceiling levels prescribed for comparable Indian growths.

Pointing to the fallacy of this absurd government policy, Sir Purshotamdas Thakurdas in his Presidential address at the Twenty-Seventh Annual General Meeting of the East India Cotton Association held on December 30, 1948 remarked, "This discrepancy—a depressed ceiling price in India and much higher price for similar cotton from abroad where there is no ceiling price—can be noticed in the case of several varieties of cotton. It was unambiguously pointed out to Government at the time the control was imposed that ceiling prices of Indian cotton, if any, should bear a fair relation to the price of cotton to be imported from abroad... But Government refused to consider this obvious reasoning and its practical implication and have foisted on the grower of cotton and the trade a ceiling price which has now failed in practice. The ceiling prices are so unworkable in practice that many mills are scrambling for kapas and cotton in the upcountry at prices well over the ceiling; and those mills which are less resourceful or more scrupulous, threaten to close down for want of cotton. A Government policy which is open to this, is certainly a fertile breeding ground for black marketing and corruption. To make frantic efforts to depress the price of Indian cotton and to send Cotton Buying Missions abroad for buying foreign cottons at relatively much higher prices, is an absurdity of which, one thought, at least our Nationalistic Government was not capable."

Depressingly, Sir Purshotamdas Thakurdas's dispassionate plea on behalf of the cotton grower was a cry in the wilderness. The government was then in no mood to listen to his cold logic. It naively believed that by controlling the prices of cotton, it could control the price of cloth needed by the poor. The subsequent history of the cotton and textile controls clearly proved that the government was in the wrong. It was only after two more decades that the government realised its folly and withdrew the mischievous controls on cotton. But then it was rather too late. The damage was already done. The cotton growers were ruined. The cotton shortages persisted for long. And the precious foreign exchange was drained year after year to import long and extralong staple cotton to clothe the rich. The poor, however, continued to remain ill-clad with less than 6 metres of cloth per head per annum.

## The Sword of Damocles

Be that as it may, on May 30, 1949, a Bill was passed by the Constituent Assembly to amend the Indian (Central Government and Legislation) Act, 1946 to vest the control over cotton in the Central Government. In the Statement of Objects and Reasons issued with the Bill, it was stated, "The Cotton Textile Industry is under Central Control. For the success of such control it is necessary that the essential raw-material namely cotton (both ginned and unginned) should also be brought under Central Control". Subsequently, on June 27, 1949, the Government of India promulgated an Ordinance in exercise of its powers under the India Act, 1946 to include raw-cotton (both ginned and unginned) and cottonseed thereunder. And on September 12, 1949, in exercise of the powers conferred on it by Section 3 of the Essential Supplies Act, 1946, the Central Government issued the Cotton Control Order, 1949, to regulate the prices, supply, distribution and transport of raw-cotton. With the promulgation of this Order, while forward trading in cotton in Bombay continued to be regulated under the Bombay Forward Contracts Control Act, 1947, the Central Government assumed supreme control over such trading indirectly.

The Cotton Control Order, 1949, prohibited any contract or option in cotton, save subject to such restrictions and conditions as the Textile Commissioner would prescribe. A new Sword of Damocles was thus tied over the throne of King Cotton by the nationalist government, which, unfortunately, continues to hang over his head till this date. The Directors' Report of the East India Cotton Association for 1948-49 had summed up the situation quite prophetically. It aptly argued, "The Cotton Trade of Bombay- now represented by your Association has served the cotton cultivators, spinners and exporters for more than a century with skill and efficiency. Bombay was the largest cotton port in the world handling more than three million bales a year and the Bombay Cotton market was also the largest in the world both for ready and forward. However, at present it is passing through very critical times and is on the verge of extinction. Your Directors therefore request the Government of India and the Government of Bombay to consider and find out ways and means to maintain and keep up this great Institution—the cotton trade of Bombay—which has also contributed its quota in the fight for the political freedom of the country."

Astonishingly, even though the government did little during subsequent years to ameliorate this hopeless situation, the cotton trade is still far from extinct. The only reason for its survival can perhaps be traced to its skill and efficiency with which it continues to subserve the cotton economy of the country, despite many odds against it.

*(To be continued...)*

(₹ \ Quintal)

UPCOUNTRY SPOT RATES

November 2015

2014-15 Crop

Growth G. Standard Grade Staple Micronaire Strength/GPT	P/H/R ICS-101 Fine 22 mm 5.0-7.0 15	P/H/R ICS-201 Fine 22 mm 5.0-7.0 15	GUJ ICS-102 Fine 22 mm 4.0-6.0 20	KAR ICS-103 Fine 23 mm 4.0-5.5 21	M/M ICS-104 Fine 24 mm 4.0-5.5 23	P/H/R ICS-202 Fine 26 mm 3.5-4.9 26	M/M/A ICS-105 Fine 26 mm 3.0-3.4 25	M/M/A ICS-105 Fine 26 mm 3.5-4.9 25	P/H/R ICS-105 Fine 27 mm 3.0-3.4 26	P/H/R ICS-105 Fine 27 mm 3.5-4.9 26	M/M/A ICS-105 Fine 28 mm 3.5-4.9 27	M/M/A ICS-105 Fine 28 mm 3.5-4.9 27	GUJ ICS-105 Fine 29 mm 3.5-4.9 28	M/M/A/K ICS-105 Fine 29 mm 3.5-4.9 28	GUJ ICS-105 Fine 29 mm 3.5-4.9 28	M/M/A/K/M/A/K/T/OA/K/T/O ICS-105 Fine 31 mm 3.5-4.9 30	M/M/A/K/M/A/K/T/OA/K/T/O ICS-106 Fine 32 mm 3.5-4.9 31	M(P)/K/T ICS-107 Fine 34 mm 3.0-3.8 33							
																			2	3	4	5	6	7	9
2	8605	8745	6636	7114	8042	8942	7845	8127	9026	8070	8464	9223	8942	8886	9055	9083	9336	12654							
3	8605	8745	6636	7114	8042	8942	7845	8127	9026	8070	8464	9223	8942	8886	9055	9083	9336	12654							
4	8605	8745	6636	7114	8042	8970	7874	8155	9055	8099	8492	9251	8942	8914	9055	9083	9336	12654							
5	8605	8745	6636	7114	8042	8998	7874	8155	9083	8099	8492	9280	8942	8914	9055	9083	9336	12654							
6	8605	8745	6636	7114	8042	8998	7874	8155	9083	8099	8492	9280	8942	8914	9055	9083	9336	12654							
7	8605	8745	6636	7114	8042	8998	7874	8155	9083	8099	8492	9280	8942	8914	9055	9083	9336	12654							
9	8605	8745	6636	7114	8042	8942	7874	8155	9026	8099	8492	9223	8914	8914	9026	9083	9336	12654							
10	8605	8745	6636	7114	8042	8914	7874	8155	8998	8099	8492	9195	8914	8914	9026	9083	9336	12654							
11	...	...	...	...	...	...	...	...	HOLIDAY	...	...	...	...	...	...	...	...	12654							
12	...	...	...	...	...	...	...	...	HOLIDAY	...	...	...	...	...	...	...	...	12654							
13	...	...	...	...	...	...	...	...	HOLIDAY	...	...	...	...	...	...	...	...	12654							
14	8548	8689	6636	7114	8042	8858	7874	8155	8942	8099	8492	9139	8886	8886	8998	9083	9336	12654							
16	8520	8661	6636	7114	8042	8773	7874	8155	8858	8099	8492	9055	8886	8914	8998	9111	9364	12710							
17	8520	8661	6693	7114	8042	8802	7874	8155	8942	8099	8492	9111	8886	8914	8998	9111	9364	12710							
18	8520	8661	6749	7114	8042	8802	7902	8211	8998	8127	8520	9139	8942	8970	9055	9026	9139	9392							
19	8520	8661	6777	7114	8042	8886	7902	8211	9083	8127	8520	9223	8942	8970	9055	9055	9167	9392							
20	8520	8661	6777	7171	8155	8858	7930	8239	9055	8155	8548	9195	8886	8998	9083	9083	9195	9420							
21	8520	8661	6777	7171	8267	8773	7874	8183	8970	8099	8492	9111	8830	8942	9026	9026	9139	9364							
23	8464	8605	6777	7311	8408	8745	7930	8267	8942	8155	8577	9083	8858	8942	9055	9026	9139	9280							
24	8464	8605	6777	7311	8492	8717	7930	8267	8914	8155	8577	9055	8858	8942	9055	9026	9139	9280							
25	8380	8520	6777	7311	8492	8745	7930	8267	8942	8155	8577	9083	8858	8942	9055	9026	9139	9280							
26	8380	8520	6777	7311	8492	8802	7986	8352	8998	8211	8661	9139	8886	9026	9111	9055	9167	9308							
27	8436	8577	6805	7339	8520	8830	8014	8380	9026	8239	8689	9167	8914	8998	9111	9083	9195	9336							
28	8436	8577	6833	7367	8548	8886	8042	8408	9083	8267	8717	9223	8942	9026	9139	9111	9223	9364							
30	8436	8577	6749	7339	8548	8914	8042	8408	9111	8267	8717	9251	8942	9026	9139	9111	9223	9364							
H	8605	8745	6833	7367	8548	8998	8042	8408	9111	8267	8717	9280	8942	9026	9139	9111	9223	9420							
L	8380	8520	6636	7114	8042	8717	7845	8127	8858	8070	8464	9055	8773	8886	8998	8942	9083	9280							
A	8523	8663	6710	7187	8203	8868	7911	8220	9011	8136	8543	9179	8838	8954	9057	9012	9129	9342							

H = Highest L = Lowest A = Average

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 (Upcountry) 2015-16 Crop NOVEMBER 2015					
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	23rd	24th	25th	26th	27th	28th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	8464 (30100)	8464 (30100)	8380 (29800)	8380 (29800)	8436 (30000)	8436 (30000)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	8605 (30600)	8605 (30600)	8520 (30300)	8520 (30300)	8577 (30500)	8577 (30500)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	6777 (24100)	6777 (24100)	6777 (24100)	6777 (24100)	6805 (24200)	6833 (24300)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	7311 (26000)	7311 (26000)	7311 (26000)	7311 (26000)	7339 (26100)	7367 (26200)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	8408 (29900)	8492 (30200)	8492 (30200)	8492 (30200)	8520 (30300)	8548 (30400)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	8745 (31100)	8717 (31000)	8745 (31100)	8802 (31300)	8830 (31400)	8886 (31600)
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	7930 (28200)	7930 (28200)	7930 (28200)	7986 (28400)	8014 (28500)	8042 (28600)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	8267 (29400)	8267 (29400)	8267 (29400)	8352 (29700)	8380 (29800)	8408 (29900)
9	P/H/R	ICS-105	Fine	27mm	3.5-4.9	26	8942 (31800)	8914 (31700)	8942 (31800)	8998 (32000)	9026 (32100)	9083 (32300)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	8155 (29000)	8155 (29000)	8155 (29000)	8211 (29200)	8239 (29300)	8267 (29400)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	8577 (30500)	8577 (30500)	8577 (30500)	8661 (30800)	8689 (30900)	8717 (31000)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	9083 (32300)	9055 (32200)	9083 (32300)	9139 (32500)	9167 (32600)	9223 (32800)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	8858 (31500)	8858 (31500)	8858 (31500)	8886 (31600)	8914 (31700)	8942 (31800)
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	8970 (31900)	8970 (31900)	8970 (31900)	9026 (32100)	9026 (32100)	9055 (32200)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	8942 (31800)	8942 (31800)	8942 (31800)	8970 (31900)	8998 (32000)	9026 (32100)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	9055 (32200)	9055 (32200)	9055 (32200)	9111 (32400)	9111 (32400)	9139 (32500)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	9026 (32100)	9026 (32100)	9026 (32100)	9055 (32200)	9083 (32300)	9111 (32400)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	9139 (32500)	9139 (32500)	9139 (32500)	9167 (32600)	9195 (32700)	9223 (32800)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	9280 (33000)	9280 (33000)	9280 (33000)	9308 (33100)	9336 (33200)	9364 (33300)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	12513 (44500)	12513 (44500)	12513 (44500)	12513 (44500)	12598 (44800)	12598 (44800)

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