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# The Road-Blocks to Genetically Modified Crops in India – Part II

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*The views expressed in this column are his own and not that of Cotton Association of India)*

I expressed my views on GM crops in the 11th March issue of the CAI –Cotton Statistics and News. This article expands more on the issue, in view of the recent hot debates on the subject. My feeling is that a lot of confusion is being created all around on the GM crops, as a result of which there is a stalemate. There is a need for clarity on a few aspects related to the technology. I am suggesting the following steps based on all that has been voiced by several expert committees, activists and scientist colleagues.

EXPERT's Column

Dr K.R. Kranthi

1. Prepare a priority list of crops and traits that are imperative for GM technology in India.

2. Strengthen public sector research on GM crops in the prioritised areas.

3. Establish independent institutions and centres of excellence to conduct stringent bio-safety assessment and testing for safety to environment and human health.

4. Constitute scientific expert committees for independent appraisal of reports generated by the independent institutions to facilitate final approval/disapproval by the regulatory authority to inspire confidence in consumers.

5. Conduct stringent post release monitoring to assess impact on ecology, environment human health and socio-economic parameters. Most importantly, ensure that the entire process is crystal transparent.

Through broadly the existing regulatory system under the Ministry of Environment claims to incorporate these aspects in the process of approving GM crops, there have been glaring discrepancies pointed out by important committees, which warrant attention. Questions have been raised by the standing committee of Parliament on GM Crops and the Technical Expert Committee nominated by the honourable Supreme Court of India on the lack of technical rigour in approvals and decisions taken by the regulatory authority.

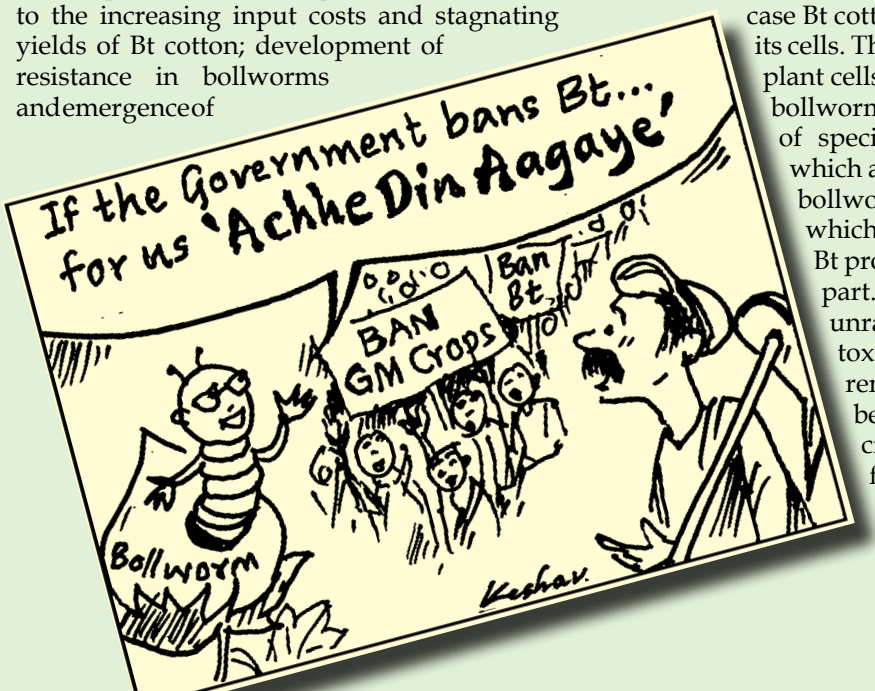
## Comments by the Technical Expert Committee

Amongst the many issues raised on the inadequacy of the regulatory system, the Technical Expert Committee (TEC) pointed out that 'In at least one case (that of Nath Seeds GFM CrylA), the TEC found evidence of a significant reduction in milk yield following feeding with Bt cotton seed, although the dossier said there was none.' The committee also pointed out that, 'Significant differences between the Bt and non-Bt treatments were also detected in the rat and goat toxicology studies for several events with regard to haematological parameters, serum enzymes, and organ size whereas the dossiers ignore these differences. The number of such cases that have come to the notice of the TEC also reflect on the manner in which the toxicology data has been examined and the Regulatory Body for having

accepted the reports.' The TEC thus concluded that, 'The regulator has frequently accepted conclusions on health safety in the dossier regarding absence of a difference between Bt and non-Bt studies based on incompletely reported data or without appropriate statistical analysis, to the point of missing a difference where one does exist. Examples of this were found in the lactation studies and in the blood, biochemistry, and organ parameters and clearly conveys that examination of the data and its analysis by the regulator is deficient'. The TEC concludes that, 'Where significant differences are observed further studies should be carried out to determine if these differences are reproducible and have a basis. Such studies may include repeating of experiments or performing additional tests as determined by the regulator. The regulator may also get such tests performed by one or more independent laboratories'. These observations are important and cannot be ignored if the regulatory agencies are to inspire confidence in the citizens of the country who would be the consumer of GM foods.

## Concerns raised by the standing committee of Parliament on GM Crops

Similar important concerns were also raised by the standing committee of Parliament on GM Crops. The committee pointed out that agri-biotech was primarily controlled by the private sector and that there was a threat of intellectual property, privatisation and monopoly of seed. Other policy related concerns that the technology developer company generates data, which is not desirable. The committee emphasised the need for low input and high productive pro-poor eco-friendly biotechnology; lack of post-monitoring surveillance and pointed out that the Indian system was ill-equipped to contain harmful effects of biotech if any. Additionally the parliament committee voiced concerns on the inadequacy of the regulatory mechanism which ignored official bio-safety test results on the increase in toxic alkaloid content by 30% in Bt brinjal and increased liver weight in lambs fed on Bt cotton seed before approving the respective GM crop events. Some important issues were related to the increasing input costs and stagnating yields of Bt cotton; development of resistance in bollworms and emergence of secondary insect pests; reports of goat and cattle death; threat to biodiversity and local varieties and threat to food security due to increase in area under Bt cotton which replaced significant food crop area. In view of the pointed shortcomings in the existing regulatory mechanism, the parliament committee unanimously recommended that, 'till all the concerns voiced in this report are fully addressed and decisive action is taken by the Government with utmost promptitude, to put in place all regulatory, monitoring, oversight, surveillance and other structures, further research and development on transgenics in agricultural crops should only be done in strict containment and field trials under any garb should be discontinued forthwith'. Thus it would be important for the Ministry of Environment to first address these concerns seriously and strive to develop facilities and regulatory systems that confirm to the prescribed norms of independent testing and safety assessment as recommended by the parliament committee.




## Is Bt cotton toxic to goats and cattle?

The concerns raised by the TEC and parliamentary committee point out towards the discrepancies in the regulatory system, but also put the bio-safety of the Bt gene in spot. The two Bt genes cry1Ac and cry2Ab (cry is the abbreviation of crystal protein) from the bacteria Bacillus thuringiensis (Bt) which are widely used in the Bt cotton hybrids Bollgard-II, are thus far not known to be toxic to vertebrates such as goats, cattle or human beings. In my view, if the Bt genes were to have had any harmful effects on goats and cows, by now after twelve years of cultivation all across the country, the effects would have been more than apparent, especially since stray cattle and goat grazing is common in India and seed cake is also used as animal feed very commonly. Tests conducted in my lab showed that oil extracted from Bt cotton seeds does not have any detectable levels of either the Bt genes or proteins. The Bt GM technology is about the transfer of the Bt gene into a single cell of a cotton plant and the generation of a full plant from the transformed cell through tissue culture. The transformed plant is called GM plant or in this case Bt cotton. The GM plants have Bt gene is all its cells. The Bt gene produces a protein in all the plant cells. This protein is a stomach poison for bollworms, especially because of the presence of specific receptors that bind to proteins which are processed in the alkaline gut of the bollworms. Higher animals have acidic gut which does not facilitate processing of the Bt proteins. However, this is the theoretical part. Further studies must be done to unravel if there are any possibilities of toxicity to non-target animals, however remote the theoretical probabilities may be. There are two Bt genes, cry1Ac and cry2Ab in the Indian Bt cotton. Thus far there is no proof or published scientific evidence that these two genes have any kind of harmful

effects on human beings. There was a scientific report from Canada which reported that the Bt genes were detected in human blood. But, no harmful effects were recorded. There were also a few reports of sheep and cattle death, but these were farmer complaints and not from scientific experiments. It is also possible that under field conditions, cattle and goat health can be adversely affected due to feeding on Bt cotton foliage, since all the Bt cotton hybrid seeds are treated with neonicotinoid pesticides and the crop is generally sprayed with pesticides to control sap sucking insects. The seed treatment results in the presence of neonicotinoid pesticides in foliage up to 60-70 days old crop. Seeds of cotton varieties are rarely treated with neo-nicotinoid insecticides. Moreover, the use of insecticides on varieties for control of sap-sucking insects is also much less. Therefore toxic effects are generally associated with Bt hybrid cotton plants.

## Need to streamline GM research in India

As mentioned earlier, first of all there is a need for a clear policy perspective from ICAR (Indian Council of Agricultural Research) on which crops essentially need GM technology traits and what benefits can accrue to the country. As per Indian GMO Research Information System, there are at least 70 crops which are subjected to genetically modification in India. These include: Okra, Onion, Arabidopsis, Groundnut, Brahmi, Bamboo, Casuarina, Beet, Mustard, Cabbage, Cauliflower, Pigeon pea, Tea, Capsicum, Elaichi,, Papaya, Chrysanthemum, Chickpea, Watermelon, Orange, Coffee, Jute, Muskmelon, Cucumber, Carrot, Carnation, Yam, Ragi, Strawberry, Soyabean, Cotton, Sunflower, Safflower, Rubber, Jatropha, Mahua, Apple, Cassava, Alfa-alfa, Mulberry, Banana, Tobacco, Rice, Bajra, Phyllanthus, Black pepper, Pea, Cottonwood, Guava, Babchi, Pomegranate, Castor, Sugarcane, Tomato, Brinjal, Potato, Sorghum, Stevia, Wheat, Vanilla, Field bean, Black gram, Green gram, Cowpea, Ashwagandha, Maize, Ginger, Kirayat and Ada-Kodien.

Clearly, the need for GM in all these crops is debatable. The number should have been limited to a few crops depending on the economic importance of the crop and the trait, and where conventional science is less efficient than the GM technology in developing the resistant varieties of the identified crops to combat biotic or abiotic stress. Resources and time cannot be diluted especially when the country needs its own Bt cotton at least to prevent the over-exploitation of the technology by the private sector. As mentioned in the previous article, India may prioritise GM crops that can resist viruses and borer pests. Resistance to drought and salinity can be two more important traits.

## Bt GM technology should be available in varieties

In this context, debates are centred on a question - if the existing Bt GM technology has proven itself in providing positive benefits to Indian farmers? I have been asked often –if Bt cotton was good or bad and if GM (genetically modified) crops were needed? My answer has always been that the Bt GM technology is not just good, but brilliant. However, there are issues with Bt cotton in India and I need to explain. The main issue is that the Bt GM technology is available only as hybrid seeds in India. The availability of Bt varieties in addition to hybrids would have helped India to produce high yields with low production costs in rain-fed regions through high density planting of Bt varieties –a system that is practised with compact varieties in major countries across the world to obtain high yields. It is ironical that with less than half the area, China cultivates varieties in high density to produce one and half times more cotton production than India. The productivity at 1500 kg lint per hectare is thrice that of India's 500 kg lint per hectare. Incidentally out of the 80+ cotton growing countries, India is the only country that cultivates cotton hybrids, while the rest cultivate only varieties. The question is – if hybrids were to be such a good technology, then, why is it that our yields are low, to place India at 33rd global rank in yield per hectare, when more than 95% of the country's cotton area is under Bt cotton hybrids? It is widely known that hybrids are not suited for at least half of the area in India, mostly because many hybrids are not developed for the regions where they are grown. Thus the problem is not with Bt technology per-se, it is with the stewardship of the technology and in what form it can be used in the country to maximise benefits. I have no hesitation in stating that we failed to harness the full potential of Bt technology in cotton because we allowed the seed companies to restrict the technology to hybrids only by disregarding the power of varieties developed by the public sector institutions. I feel that Indian yield would easily have been double than what it is today if we also had the option of Bt varieties available with us.

## A simple non-GM mantra for high yields

Our cotton yields are low despite the best of technologies being available in India. I have been often wondering aloud as to why India should rank at 33rd rank globally in cotton yield per hectare despite being saturated with GM technology. Also, with such a strong agri-tech scientific force, why should India rank 27th in wheat yield per hectare, why 29th rank in rice yield per hectare, why 31st rank in sorghum yield per hectare, and why is it that the yields per hectare of red gram and chickpea stagnate for more than 60 years? There are colleagues who argue that the low yields are because of poor management practices, weak technology transfer, unsuitable soil, bad weather, majority rain-fed acreage, poverty, small land holdings etc., and the list goes on and on. Interestingly these are the same excuses given for the low yields for all the major crops such as cotton, rice, wheat, maize, jowar, etc., and many other important crops where India ranks behind at least 25 countries. The question is –are conditions ideal and better for these crops in all these countries which are ahead

of India? Every country has its own problems for every crop. But as far as I know, the problem solving approach is different in many countries. A colleague from China mentioned something very simple, but what seemed to me was a great mantra. He told me that his 'team develops varieties that perform best in the worst conditions and demonstrates the same to farmers in toughest of conditions'. This he said had always been their approach. No wonder that with a mantra as their guiding principle, China is way ahead of India in agriculture. The Indian traditional approach in agricultural institutions is to develop plant varieties under ideal conditions and conduct technology demonstrations in ideal conditions. Unfortunately, these varieties fail in real life situations where such ideal conditions do not exist.

## Shekhar Gupta's golden words

It was gratifying to read what Shekhar Gupta, one of India's illustrious journalists, wrote about Indian agricultural scientists in the context of GM crop research, in his article that appeared recently in India Today. 'That's why our heart should go out to the small, but brave and talented body of Indian Agricultural scientists, all in Government-run labs, who have been working on India's own GM seeds, but only when allowed to'. Thanks Shekharji for being so kind to reach out to the lesser acknowledged brethren. Having been part of the flock of Indian agri-scientists, I must also confess my admiration for the public sector Indian agricultural scientists who give their best despite all the odds that they face. It is interesting that at CICR we have been working on an average budget of Rs. 19 lakhs per year over the past 20 years to develop India's own Bt cotton indigenously. Monsanto is said to have invested one billion US $ in 1981 as seed money on its GM research. There is no information to show how much was spent by them subsequently every year on R&D. Yet, the public sector institutions such as CICR are expected to develop GM cotton varieties that can compete with the products of multinationals. The case is not very different in various other public sector institutions. Yet there have been GM products developed on shoe string budgets.

To conclude, it would only be wise to advise that under any circumstances India should not turn its back on GM research. Assessment and approvals may be case to case basis on the merits of the GM traits vis-à-vis availability of alternative technologies and stringent evaluation of bio-safety risks. We must decide on what we need to do with a blend of conventional and modern science including GM technologies that can take the country towards seed sovereignty, self sufficiency, farmer prosperity and global leadership.

# Update on Cotton Acreage (As on 4th September 2014)

| Sl. No | States | Normal of Year | Normal Area as on Date (2009-2013) * | Area sown (during the corresponding week in) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1. | Andhra Pradesh | 4.749 | 4.295 | 6.570 | 5.015 | 5.070 | 4.251 | 4.095 | 3.042 |
| | Telangana | 15.081 | 13.637 | 16.240 | 15.925 | 16.100 | 13.499 | 13.005 | 9.658 |
| | Total Andhra Pradesh | 19.830 | 17.932 | 22.810 | 20.940 | 21.170 | 17.750 | 17.100 | 12.700 |
| 2. | Gujarat | 26.490 | 26.444 | 29.810 | 26.880 | 23.420 | 29.560 | 26.110 | 26.250 |
| 3. | Haryana | 5.640 | 5.420 | 6.390 | 5.570 | 6.030 | 5.981 | 4.450 | 5.070 |
| 4. | Karnataka | 5.270 | 3.974 | 7.470 | 5.170 | 3.620 | 4.450 | 3.810 | 2.820 |
| 5. | Madhya Pradesh | 6.390 | 6.358 | 5.740 | 6.210 | 6.080 | 7.060 | 6.400 | 6.040 |
| 6. | Maharashtra | 39.160 | 39.104 | 41.210 | 38.680 | 41.270 | 40.950 | 39.670 | 34.950 |
| 7. | Orissa | 0.970 | 0.942 | 1.240 | 1.240 | 1.190 | 1.020 | 0.740 | 0.520 |
| 8. | Punjab | 5.170 | 5.324 | 4.500 | 5.050 | 5.160 | 5.750 | 5.300 | 5.360 |
| 9. | Rajasthan | 4.000 | 3.924 | 4.162 | 2.930 | 4.490 | 5.250 | 2.550 | 4.400 |
| 10. | Tamil Nadu | 1.250 | 0.122 | 0.070 | 0.120 | 0.100 | 0.150 | 0.110 | 0.130 |
| 11. | Uttar Pradesh | 0.010 | 0.248 | 0.260 | 0.230 | 0.300 | 0.300 | 0.230 | 0.180 |
| 12. | Others | 0.350 | 0.050 | 0.050 | 0.100 | 0.000 | 0.150 | 0.000 | 0.000 |
| | **Total** | **114.530** | **109.842** | **123.712** | **113.120** | **112.830** | **118.371** | **106.470** | **98.420** |

** It is average of last five years*

*Source: Directorate of Cotton Development, Mumbai*

# Fifth Season of Cotton Production Surplus

In 2014/15, the world cotton industry is expected to enter its fifth consecutive season in which production exceeds consumption. World production is forecast to decline by 400,000 tons to 26.05 million tons while consumption will grow by 4% to 24.4 million tons, resulting in a surplus of 1.7 million tons. Since 2010/11, world production will have exceeded consumption by a cumulative 12.3 million tons and by the end of 2014/15, would reach nearly 14 million tons, which would be nearly 60% of the projected world consumption in 2014/15. Much of the surplus is held by the Chinese government, but this season, more of the surplus will shift to the private sector in China and other producing countries.

World cotton production in 2013/14 is estimated at 26.09 million tons, of which 52% was produced in China and India. In 2014/15, China and India will vie for the title of largest producer of cotton, as the full impact of this year's monsoon on India's yields is unknown. In 2013/14, the extended monsoon season in India increased the national average yield to 570 kilograms per hectare resulting in a record production of 6.6 million tons. Due to the late arrival of the monsoon this season, the planting season was extended and area in India is estimated at 11.8 million hectares, up by 1.3% from 2013/14. Assuming a yield based on the 3-year average of 536 kilograms per hectare, India's production will decline by 4% to 6.3 million tons. In response to the ending of government support outside Xinjiang, China decreased area by 8% to 4.2 million hectares. China's production in 2014/15 will decline to 6.4 million tons, assuming an average yield of 1500 kilograms of lint per hectare. After several years of drought in the United States, much needed rain arrived this summer, which should reduce the abandonment rate and improve yields. Production in the United States is forecast to reach 3.7 million tons with an average yield of 933 kilograms per hectare.

As with production, China and India accounted for more than half of world cotton consumption in 2013/14, estimated at 23.3 million tons. While world consumption in 2013/14 experienced no growth from 2012/13, it is predicted to expand by 4% in 2014/15. Consumption in China could rise to 7.9 million tons in 2014/15, up from 7.5 million tons in 2013/14 given the fall in both international and domestic prices as well as improved demand overseas for downstream goods. India's demand is projected to gain 5% and reach 5.3 million tons in 2014/15, which is the third season of demand growth. Pakistan, the third largest consumer of cotton in 2013/14, is forecast to increase consumption by 1.5% to 2.3 million tons in 2014/15.

World trade is projected to decline by 1 million tons to 8 million tons in 2014/15, which is largely accounted for by a 30% decrease in Chinese imports to 2 million tons. Bangladesh and Vietnam's imports are forecast to increase by 2% to 1 million tons and 730,000 tons, respectively. With bumper crops anticipated in the United States and India, these two countries will remain the largest exporters in 2014/15. Exports from the United States may grow by 9% to 2.5 million tons, while India's exports will fall by 50% to 1 million tons.

World ending stocks are projected to increase for the fifth season, amounting to 22.2 million tons at the end of 2014/15. Ending stocks outside China are forecast to achieve a record 9.7 million tons, increasing by 14% from 8.5 million tons in 2013/14. This expansion in world ending stocks outside China will put negative pressure on prices this season as China continues to liquidate its significant stocks. Sales from the Chinese reserve reached 2.3 million tons in 2013/14. During August, the Chinese government sold an additional 300,000 tons, decreasing the estimated quantity of cotton stocks held by the Chinese government to around 11 million tons. The Secretariat expects that over the next few years, the Chinese government will maintain sales from the reserve at a pace of 2-3 million tons a year. Reserve auction sales are not likely to start again until late this year or early next year so as not to compete directly with the new crop. Additionally, as reported by cncotton.com, the government announced this summer that it would be collecting seed cotton price information from September through November 2014.

*Source: ICAC COTTON THIS MONTH – September 2, 2014.*

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# COTTON ACREAGE AT HISTORIC HIGH

The Cotton Association of India (CAI) released its August estimate of the cotton crop for the season 2014-15. The CAI has placed the cotton crop for the season 2014-15 beginning on 1st October 2014 at 403.75 lakh bales of 170 kgs. each. The projected Balance Sheet drawn by the CAI for the year 2014-15 estimated total cotton supply at 468.50 lakh while domestic consumption is estimated at 300 lakh bales thus leaving an available surplus of 168.50 lakh bales. A statement containing the state-wise estimates of the crop and Balance Sheet for the season 2014-15 with the corresponding data for the previous year are given below:-

CAI's Estimates of Cotton Crop
as on 31st August 2014 (in lakh bales)

| State | Production * | |
|---|---|---|
| | 2014-15 | 2013-14 |
| Punjab | 15.00 | 15.00 |
| Haryana | 26.00 | 23.50 |
| Upper Rajasthan | 6.50 | 5.50 |
| Lower Rajasthan | 10.25 | 8.25 |
| Total North Zone | 57.75 | 52.25 |
| Gujarat | 126.00 | 129.25 |
| Maharashtra | 84.00 | 87.00 |
| Madhya Pradesh | 19.00 | 19.50 |
| **Total Central Zone** | **229.00** | **235.75** |
| Telangana | 49.75 | 75.00 |
| Seemandhra | 23.00 | |
| Karnataka | 31.00 | 28.25 |
| Tamil Nadu | 7.25 | 7.25 |
| **Total South Zone** | **111.00** | **110.50** |
| Orissa | 4.00 | 3.00 |
| Others | 2.00 | 2.00 |
| **All-India** | **403.75** | **403.50** |

*Note:- (1) * including loose*

*(2) Loose figures are taken for Telangana and Seemandhra separately as proportionate to the crop for the purpose of accuracy.*

Cotton Balance Sheet for the season 2014-15
*(in lakh bales)*

| Details | 2014-15 | 2013-14 |
|---|---|---|
| Opening Stock | 51.75 | 43.25 |
| Production | 403.75 | 403.50 |
| Imports | 13.00 | 13.00 |
| **Total Supply** | **468.50** | **459.75** |
| Mill Consumption | 258.00 | 255.00 |
| Consumption by SSI Units | 26.00 | 24.00 |
| Non-Mill Use | 16.00 | 16.00 |
| Exports | | |
| **Total Demand** | **300.00** | **295.00** |
| Available Surplus | 168.50 | 164.75 |
| Closing Stock | | |

In its August estimates, the CAI has also placed the cotton crop for the season 2013-14 at 403.50 lakh bales while the arrivals upto 31st August 2014 are placed at 402 lakh bales. The State-wise estimates of the crop and Balance Sheet for the season 2013-14 with the corresponding data for the previous year are given in the following tables.

CAI's Estimates of Cotton Crop
as on 31st August 2014 (in lakh bales)

| State | Production * | | Arrivals as on 31.08.14 |
|---|---|---|---|
| | 2013-14 | 2012-13 | |
| Punjab | 15.00 | 18.00 | 15.00 |
| Haryana | 23.50 | 27.00 | 23.50 |
| Upper Rajasthan | 5.50 | 8.00 | 5.50 |
| Lower Rajasthan | 8.25 | 9.00 | 8.25 |
| **Total North Zone** | **52.25** | **62.00** | **52.25** |
| Gujarat | 129.25 | 86.50 | 128.50 |
| Maharashtra | 87.00 | 78.25 | 87.00 |
| Madhya Pradesh | 19.50 | 18.75 | 19.50 |
| **Total Central Zone** | **235.75** | **183.50** | **235.00** |
| Andhra Pradesh | 75.00 | 84.50 | 75.00 |
| Karnataka | 28.25 | 14.50 | 28.00 |
| Tamil Nadu | 7.25 | 7.25 | 6.75 |
| Total South Zone | 110.50 | 106.25 | 109.75 |
| **Orissa** | **3.00** | **3.00** | **3.00** |
| Others | 2.00 | 2.00 | 2.00 |
| **All-India** | **403.50** | **356.75** | **402.00** |

** including loose*

Cotton Balance Sheet for the season 2013-14
*(in lakh bales)*

| Details | 2013-14 | 2012-13 |
|---|---|---|
| Opening Stock | 43.25 | 54.75 |
| Production | 403.50 | 356.75 |
| Imports | 13.00 | 14.75 |
| Total Supply | 459.75 | 426.25 |
| Mill Consumption | 255.00 | 251.00 |
| Consumption by SSI Units | 24.00 | 24.00 |
| Non-Mill Use | 16.00 | 10.00 |
| Exports | | 98.00 |
| Total Demand | 295.00 | 383.00 |
| Available Surplus | 164.75 | |
| Closing Stock | | 43.25 |

The acreage under cotton as reported by the Directorate of Cotton Development, Government of India as of now is 123.71 lakh hectare and it is likely to be finally in the range of about 126-127 lakh hectare against the acreage of 117.27 lakh hectare under cotton during the crop year 2013-14. The free and stable cotton policy maintained by the Government during the last few years has encouraged the market forces to play a role to the advantage of the entire cotton value chain more particularly the cotton farmers providing them the opportunity of realising remunerative prices for their produce. This has encouraged the farmers to bring in the largest ever acreage under cotton during the 2014-15 crop year.

Keeping in mind the increased acreage and the recent round of rains which has improved the situation to a great extent and alleviated the fear of a poor yield, the cotton production for the season 2014-15 is set to reach the level of last year which is already a record and it can even surpass last year's production level if the weather remains favourable.

## World Cotton Prices Monthly average Cotlook A Index (FE) from 2011-12 onwards

(Cotlook Index in US Cents per lb.)

| | 2011-12 | 2012-13 | 2013-14 | 2014-15 |
|---|---|---|---|---|
| August | 114.10 | 84.40 | 92.71 | 74.00 |
| September | 116.86 | 84.15 | 90.09 | 74.98 |
| October | 110.61 | 81.95 | 89.35 | |
| November | 104.68 | 80.87 | 84.65 | |
| December | 95.45 | 83.37 | 87.49 | |
| January | 101.11 | 85.51 | 90.96 | |
| February | 100.75 | 89.71 | 94.05 | |
| March | 99.50 | 94.45 | 96.95 | |
| April | 99.94 | 92.68 | 94.20 | |
| May | 88.53 | 92.70 | 92.71 | |
| June | 82.18 | 93.08 | 90.90 | |
| July | 83.97 | 92.62 | 84.01 | |

## Weekly Percent Departures of Rainfall - Monsoon 2014

LEG: EXCESS | NORMAL | DEFICIENT | SCANTY | NO RAIN

| S. No. | WEEKS ENDING ON ---> / MET. SUBDIVISIONS | 06 AUGUST 2014 | 13 AUGUST 2014 | 20 AUGUST 2014 | 27 AUGUST 2014 | 03 SEPTEMBER 2014 |
|---|---|---|---|---|---|---|
| 1. | ORISSA | 181% | -39% | -46% | -36% | 46% |
| 2. | HAR. CHD & DELHI | -59% | -74% | -98% | -100% | -38% |
| 3. | PUNJAB | -72% | -64% | -74% | -98% | -63% |
| 4. | WEST RAJASTHAN | 32% | 79% | -95% | -85% | 33% |
| | EAST RAJASTHAN | 50% | 176% | -96% | -80% | 34% |
| 5. | WEST MADHYA PRADESH | 15% | -14% | -95% | -66% | 38% |
| | EAST MADHYA PRADESH | 83% | -53% | -91% | -84% | -23% |
| 6. | GUJARAT REGION | 18% | -62% | -74% | -41% | 31% |
| 7. | MADHYA MAHARASHTRA | 55% | -48% | -51% | 126% | 112% |
| | MARATHWADA | -51% | -83% | -78% | 60% | 97% |
| | VIDARBHA | -29% | -79% | -84% | -23% | 100% |
| 8. | COASTAL ANDHRA PRADESH | -61% | -38% | -27% | -5% | 57% |
| | TELANGANA | -61% | -79% | -86% | 10% | 124% |
| | RAYALASEEMA | -87% | -44% | -19% | 117% | -27% |
| 9. | TAMILNADU & PONDICHERRY | -16% | 78% | 144% | -7% | -51% |
| 10. | COASTAL KARNATAKA | 130% | 41% | -62% | 16% | 164% |
| | N. I. KARNATAKA | 5% | -47% | -3% | 227% | 178% |
| | S. I. KARNATAKA | 134% | -2% | 3% | 112% | 82% |

*Note: Rainfall Statistics given above is based on real time data receipt and is subject to be updated*
*(Source: India Meteorological Department)*

## SUPPLY AND DISTRIBUTION OF COTTON

September 2, 2014

Seasons begin on August 1 — Million Metric Tons

| | 2009/10 | 2010/11 | 2011/12 | 2012/13 Est. | 2013/14 Est. | 2014/15 Proj. |
|---|---|---|---|---|---|---|
| **BEGINNING STOCKS** | | | | | | |
| **WORLD TOTAL** | 11.756 | 8.568 | 9.482 | 14.698 | 17.78 | 20.56 |
| China (Mainland) | 3.585 | 2.688 | 2.087 | 6.181 | 9.61 | 12.07 |
| USA | 1.380 | 0.642 | 0.566 | 0.729 | 0.85 | 0.57 |
| **PRODUCTION** | | | | | | |
| **WORLD TOTAL** | 22.334 | 25.408 | 28.054 | 26.679 | 26.09 | 26.05 |
| China (Mainland) | 6.925 | 6.400 | 7.400 | 7.300 | 6.93 | 6.40 |
| India | 5.185 | 5.865 | 6.354 | 6.095 | 6.63 | 6.35 |
| USA | 2.654 | 3.942 | 3.391 | 3.770 | 2.81 | 3.69 |
| Pakistan | 2.158 | 1.948 | 2.311 | 2.002 | 2.08 | 2.11 |
| Brazil | 1.194 | 1.960 | 1.877 | 1.310 | 1.70 | 1.67 |
| Uzbekistan | 0.850 | 0.910 | 0.880 | 1.000 | 0.92 | 0.93 |
| Others | 3.368 | 4.384 | 5.841 | 5.202 | 5.02 | 4.90 |
| **CONSUMPTION** | | | | | | |
| **WORLD TOTAL** | 25.529 | 24.478 | 22.735 | 23.386 | 23.33 | 24.37 |
| China (Mainland) | 10.192 | 9.580 | 8.635 | 8.290 | 7.53 | 7.93 |
| India | 4.300 | 4.470 | 4.231 | 4.817 | 5.04 | 5.29 |
| Pakistan | 2.402 | 2.100 | 2.217 | 2.416 | 2.27 | 2.31 |
| East Asia & Australia | 1.892 | 1.801 | 1.685 | 1.981 | 2.24 | 2.34 |
| Europe & Turkey | 1.600 | 1.549 | 1.495 | 1.531 | 1.58 | 1.68 |
| Brazil | 1.024 | 0.958 | 0.897 | 0.890 | 0.89 | 0.89 |
| USA | 0.773 | 0.849 | 0.718 | 0.751 | 0.80 | 0.83 |
| CIS | 0.604 | 0.577 | 0.550 | 0.561 | 0.59 | 0.60 |
| Others | 2.743 | 2.592 | 2.307 | 2.149 | 2.38 | 2.49 |
| **EXPORTS** | | | | | | |
| **WORLD TOTAL** | 7.798 | 7.722 | 9.867 | 10.087 | 9.01 | 7.97 |
| USA | 2.621 | 3.130 | 2.526 | 2.902 | 2.29 | 2.50 |
| India | 1.420 | 1.085 | 2.159 | 1.685 | 2.02 | 1.00 |
| Australia | 0.460 | 0.545 | 1.010 | 1.345 | 0.99 | 0.66 |
| Brazil | 0.433 | 0.435 | 1.043 | 0.938 | 0.49 | 0.73 |
| CFA Zone | 0.000 | 0.476 | 0.597 | 0.796 | 0.92 | 0.95 |
| Uzbekistan | 0.820 | 0.600 | 0.550 | 0.653 | 0.72 | 0.51 |
| **IMPORTS** | | | | | | |
| **WORLD TOTAL** | 7.928 | 7.756 | 9.752 | 9.874 | 9.02 | 7.97 |
| China | 2.374 | 2.609 | 5.342 | 4.426 | 3.07 | 2.02 |
| East Asia & Australia | 1.989 | 1.825 | 1.998 | 2.383 | 2.49 | 2.49 |
| Europe & Turkey | 1.170 | 1.003 | 0.724 | 1.014 | 1.11 | 0.95 |
| Bangladesh | 0.887 | 0.843 | 0.680 | 0.631 | 0.99 | 1.00 |
| CIS | 0.209 | 0.132 | 0.098 | 0.062 | 0.07 | 0.07 |
| **TRADE IMBALANCE 1/** | 0.130 | 0.034 | -0.116 | -0.213 | 0.02 | 0.00 |
| **STOCKS ADJUSTMENT 2/** | -0.122 | -0.051 | 0.013 | 0.000 | 0.00 | 0.00 |
| **ENDING STOCKS** | | | | | | |
| **WORLD TOTAL** | 8.568 | 9.482 | 14.698 | 17.779 | 20.56 | 22.25 |
| China (Mainland) | 2.688 | 2.087 | 6.181 | 9.607 | 12.07 | 12.55 |
| USA | 0.642 | 0.566 | 0.729 | 0.848 | 0.57 | 0.93 |
| **ENDING STOCKS/MILL USE (%)** | | | | | | |
| **WORLD-LESS-CHINA (M) 3/** | 38 | 50 | 60 | 54 | 54 | 59 |
| **CHINA (MAINLAND) 4/** | 26 | 22 | 72 | 116 | 160 | 158 |
| **COTLOOK A INDEX 5/** | 78 | 164 | 100 | 88 | 91 | |

1/ The inclusion of linters and waste, changes in weight during transit, differences in reporting periods and measurement error account for differences between world imports and exports.
2/ Difference between calculated stocks and actual; amounts for forward seasons are anticipated.
3/ World-less-China's ending stocks divided by World-less-China's mill use, multiplied by 100.
4/ China's ending stocks divided by China's mill use, multiplied by 100.
5/ U.S. Cents per pound
*(Source : ICAC Monthly September 2014)*

COTTON
ASSOCIATION
OF INDIA
Established 1921

# Cotton India 2014

**Weaving the world of cotton together**

Cotton India 2014

Dates : Monday 24th to Wednesday 26th November 2014
Venue : The Renaissance Mumbai Convention Center Hotel,
Mumbai, India

**Registration Opening Soon**

## UPCOUNTRY SPOT RATES

(Rs./Qtl)

| Sr. No. | Growth | Grade Standard | Grade | Staple | Micronaire | Strength /GPT | Spot Rate (Upcountry) 2013-14 Crop SEPTEMBER 2014 1st | 2nd | 3rd | 4th | 5th | 6th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [ By law 66 (A) (a) (4) ] | | | | | | | | | | | |
| 1 | P/H/R | ICS-101 | Fine | Below 22mm | 5.0-7.0 | 15 | 10826 (38500) | 10826 (38500) | 10686 (38000) | 10686 (38000) | 10770 (38300) | 10770 (38300) |
| 2 | P/H/R | ICS-201 | Fine | Below 22mm | 5.0-7.0 | 15 | 10967 (39000) | 10967 (39000) | 10826 (38500) | 10826 (38500) | 10911 (38800) | 10911 (38800) |
| 3 | GUJ | ICS-102 | Fine | 22mm | 4.0-6.0 | 20 | 7508 (26700) | 7592 (27000) | 7649 (27200) | 7705 (27400) | 7761 (27600) | 7761 (27600) |
| 4 | KAR | ICS-103 | Fine | 23mm | 4.0-5.5 | 21 | 8239 (29300) | 8239 (29300) | 8239 (29300) | 8239 (29300) | 8239 (29300) | 8239 (29300) |
| 5 | M/M | ICS-104 | Fine | 24mm | 4.0-5.0 | 23 | 9701 (34500) | 9701 (34500) | 9701 (34500) | 9701 (34500) | 9701 (34500) | 9701 (34500) |
| 6 | P/H/R | ICS-202 | Fine | 26mm | 3.5-4.9 | 26 | 11164 (39700) | 11135 (39600) | 11079 (39400) | 11079 (39400) | 11051 (39300) | 11079 (39400) |
| 7 | M/M/A | ICS-105 | Fine | 26mm | 3.0-3.4 | 25 | 9420 (33500) | 9420 (33500) | 9420 (33500) | 9420 (33500) | 9420 (33500) | 9420 (33500) |
| 8 | M/M/A | ICS-105 | Fine | 26mm | 3.5-4.9 | 25 | 9926 (35300) | 9926 (35300) | 9926 (35300) | 9926 (35300) | 9926 (35300) | 9926 (35300) |
| 9 | P/H/R | ICS-105 | Fine | 27mm | 3.5.4.9 | 26 | 11304 (40200) | 11276 (40100) | 11220 (39900) | 11220 (39900) | 11192 (39800) | 11220 (39900) |
| 10 | M/M/A | ICS-105 | Fine | 27mm | 3.0-3.4 | 26 | 9701 (34500) | 9701 (34500) | 9701 (34500) | 9701 (34500) | 9701 (34500) | 9701 (34500) |
| 11 | M/M/A | ICS-105 | Fine | 27mm | 3.5-4.9 | 26 | 10236 (36400) | 10236 (36400) | 10236 (36400) | 10236 (36400) | 10236 (36400) | 10236 (36400) |
| 12 | P/H/R | ICS-105 | Fine | 28mm | 3.5-4.9 | 27 | 11585 (41200) | 11557 (41100) | 11501 (40900) | 11501 (40900) | 11473 (40800) | 11501 (40900) |
| 13 | M/M/A | ICS-105 | Fine | 28mm | 3.5-4.9 | 27 | 10939 (38900) | 10939 (38900) | 10939 (38900) | 10939 (38900) | 10939 (38900) | 10939 (38900) |
| 14 | GUJ | ICS-105 | Fine | 28mm | 3.5-4.9 | 27 | 10995 (39100) | 10995 (39100) | 10995 (39100) | 10995 (39100) | 10995 (39100) | 10995 (39100) |
| 15 | M/M/A/K | ICS-105 | Fine | 29mm | 3.5-4.9 | 28 | 11332 (40300) | 11332 (40300) | 11332 (40300) | 11332 (40300) | 11332 (40300) | 11332 (40300) |
| 16 | GUJ | ICS-105 | Fine | 29mm | 3.5-4.9 | 28 | 11220 (39900) | 11220 (39900) | 11220 (39900) | 11220 (39900) | 11220 (39900) | 11220 (39900) |
| 17 | M/M/A/K | ICS-105 | Fine | 30mm | 3.5-4.9 | 29 | 11670 (41500) | 11670 (41500) | 11670 (41500) | 11670 (41500) | 11670 (41500) | 11670 (41500) |
| 18 | M/M/A/K/T/O | ICS-105 | Fine | 31mm | 3.5-4.9 | 30 | 11951 (42500) | 11951 (42500) | 11951 (42500) | 11951 (42500) | 11951 (42500) | 11951 (42500) |
| 19 | A/K/T/O | ICS-106 | Fine | 32mm | 3.5-4.9 | 31 | 12232 (43500) | 12232 (43500) | 12232 (43500) | 12232 (43500) | 12232 (43500) | 12232 (43500) |
| 20 | M(P)/K/T | ICS-107 | Fine | 34mm | 3.0-3.8 | 33 | 15747 (56000) | 15747 (56000) | 15747 (56000) | 15747 (56000) | 15747 (56000) | 15747 (56000) |

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