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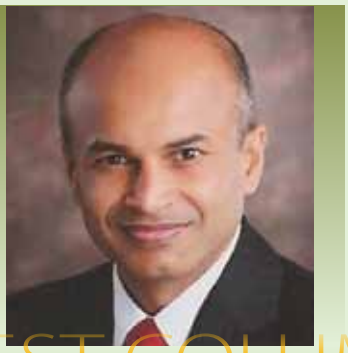
Cotton Futures – Integral to the Market Fabric



GUEST COLUMN

Shri. Samir Shah
Managing Director & CEO, NCDEX

He is a Mechanical Engineer, with an MBA in Finance, and has completed an Advanced Management Program from Wharton. Shri. Samir Shah has two decades of experience in building institutions and market infrastructure. Prior to joining NCDEX, he was the Chief Business Officer of the Dubai Gold and Commodities Exchange (DGCX). He made DGCX into the one of fastest growing exchanges in the world, winning several awards, including Contract of the Year and the Best Commodity Exchange in 2012. He has been CEO of the Mumbai-based Universal Commodities Exchange (UCX) and has also worked with Thomson Reuters for 17 years in various capacities.

It is the competitive advantage that enables a business to thrive. A clear understanding of the entire value chain, clients' expectations and the market are basic pre-requisites to develop a competitive edge. Commodity-based businesses serve a classic case in this regard. Commodity stakeholders, faced with unprecedented challenges triggered by increased globalisation, changes in taste and preferences of consumers and rising awareness about quality standards among masses, usually find it difficult to protect their market share and wafer-thin margins in the absence of an inadequate market structure.

Market risks are huge for consumer-dominated businesses which are capital-intensive in nature and are highly sensitive to prices. Stakeholders in cotton value chain probably can identify with this more easily than those of other commodities.

Despite being one of the extensively traded commodities in the country and the first commodity to have organised futures as well as forward trading for more than a hundred years, the cotton market has suffered on account of the lack of transparency permeated by fragmented market structure and interventionist government policies. Direct interaction between cotton producers or ginners with the consumers i.e. spinning mills or fabric and garment manufacturers, has been rare and direct feedback on quality and buyer requirements has been sporadic; often 'filtered' by intermediaries. With the price structure getting distorted, farmers' compensation has remained poorly linked with the demands of final consumers, while buyers are facing risks of irregular supplies and quality of cotton falling short of their needs.

Cotton Futures: Unlocking The Growth Potential

The resurgence of commodity futures markets in 2003, emerged as a game changer. Revival of cotton futures, as a part of this reformative drive, brought in improvements in the regulatory and institutional environment governing cotton futures and led to more orderly development of the cotton market.

Electronic mode of trading and futures contracts based on standard quality and quantity parameters mirroring market realities have made an organised and centralised pan-India market available beyond

the local boundaries. With multiple buyers and sellers accessing the market on real-time basis, not only was a larger market built up, the competitive environment thus generated has helped integration of market information and ensured a holistic, unbiased and transparent price discovery. Cotton futures thus successfully have reflected the market participants' expectations of the physical market demand-supply conditions that would prevail in the time-span of almost a year.

Near real-time dissemination of the benchmark price references have helped reduced information asymmetries and empowered participants to take well-timed and informed business decisions in light of a more accurate understanding of domestic as well as international market conditions with improved bargaining capacities. Cotton futures have enabled industry participants manage their price risks using different hedging strategies.

Settlement of cotton futures through (compulsory) physical delivery has ensured a sync between futures and spot prices and has added sanctity to the prices discovered on the exchange, making them more realistic. Thrust on deliveries has promoted back-end infrastructure development through proliferation of warehouses. This has built the cotton holding capacities of producers, reducing incidences of distress sales, while helping ginners and spin millers capitalise on arbitrage opportunities in cash and carry trades. Warehoused cotton stocks have provided participants easy access to pledge finance, addressing concerns over short-term liquidity.

Cotton futures, backed by margin money collection, have helped reduce counter-party default risks. Moreover, facilitating better coordination through a centralised market structure, cotton futures have reduced transaction costs associated with identifying market outlets, physically inspecting product quality, and finding buyers or sellers.

NCDEX Contribution

Leading this revolutionary process from the front, NCDEX, India's largest platform for spot and futures trading in agricultural commodities, has taken several pioneering initiatives for enhancing trading efficiency and fostering the growth of the entire commodity market ecosystem.

Offering futures contracts in almost all products comprising the cotton value chain like cotton seed oil cake, V-797 kapas, Shankar kapas and 29 mm cotton, NCDEX has enabled every stakeholder in the cotton value chain mitigate his price risks effectively.

Price discovery, dissemination and prudent risk management are just one part of the story. The exchange through its novel initiatives has accelerated the growth of ancillary services including warehousing and logistics, assaying and grading, etc. besides promoting the development of other market segments.

Developing Quality Awareness

The quality of cotton remains one the core areas of concerns for yarn and textile manufactures as well as exporters. Despite being the world's largest producer and second largest exporter of cotton, India is not in a position to set the price of cotton in the international market. Indian cotton typically trades at a discount in world markets, as it remains among the most contaminated in the world.

The exchange has alleviated quality concerns in two-ways. It has improved the communication of consumers quality needs to the farm level by dissemination in an unbiased, transparent and competitive market environment; so that prices transmit the choices and preferences of buyers and sellers completely and explicitly.

The robust delivery network of the exchange has also paved the way for improvements in the field of assaying and grading, contributing to quality consciousness in agricultural commodities in the country. By standardising specifications of commodities eligible for delivery, in line with industry needs, the exchange has evolved a transparent set of quality standards. Transparent and accepted quality standards, particularly those that offer premiums to higher-quality produce, have put in place a strong incentive for farmers to upgrade production and better meet the requirements of evolving commodity-supply chains, in which quality standards are playing an increasingly important role. The result is an increase in the sensitivity of producers and processors to quality.

Futures trading in commodities like jeera, chilli teja have illustrated that NCDEX set quality standards have increased sensitivity of producers and processors to quality, while exporters are also finding it easy to put in forward quotes that attract premium returns. The cotton value chain is also poised to acquire similar benefits once the trading gathers momentum.

Enhancing Efficiencies of the Forward Market

Forward transactions account for a sizeable chunk of the cotton market and wide spread defaults. In 2011, when arbitration cases worth several hundred crores increased to more than 400, this posed a huge threat to cotton industry which had to invest heavily in updated technology and machinery.

NCDEX Driving the Growth of Commodity Markets

Business Reach

- 33 Commodities – 25 agricultural and 8 non agricultural
- 844 Members
- 21.7 lakh Clients
- 72,160 - Average number of daily trades on exchange in 2013-14
- 3.42 crore – Total number of lots traded in the exchange in 2013-14

Price Dissemination is assured through

- 2160 price ticker boards in APMCs located across 26 states
- Television Channels including Doordarshan
- News Agencies such as Reuters, Bloomberg, etc.
- Print and electronic media
- Free SMS service

NCDEX Price Signals

- Available for 54% of cereals , 51% of pulses, 100% of oilseeds, sugarcane, guar seed and cotton fibres produced in the country
- Spot polling exercise – provides for wholesale prices from 47 cities three times a day on 270 trading days of the year
- NCDEX prices act as global benchmarks for Spices Complex, Guar Complex, Chana, Castor, Cotton Seed Oilcake

Delivery Network

- 380 - Network of accredited warehouses across the country
- 1.9 million tonnes - Holding capacity in warehouses
- 104,979 MT average monthly physical deliveries in 2014
- 40 - Number of basis centers
- 5 - NABL accredited assayers
- 38 - No. of warehouses registered under WDRA
- Approx. 438,923 MT deliverable stocks position, as of Jan 5, 2015

Exchange traded forwards, available on national online platform of NCDEX, serve as an effective avenue to mitigate counterparty defaults. Exchange traded forwards are a refined version of prevailing form of forward trade, which makes the trade more formal and structured, with the contract backed by legal sanctity and guarantee.

The relevance of exchange traded forwards is very significant, especially today, when market fundamentals are signalling a bearish outlook for cotton prices, with the risk of defaults looming large.

Exchange traded forwards establish bilateral trade executed under the regulatory framework of the exchange, which takes care of counter party risk. The provision of compensation guarantee to the extent of margin collected, assures default compensation. Online trading facilitates access to pan-India market, while flexibility to customise the contract terms helps find suitable counter party to trade.

A ginner from Gujarat, willing to sell cotton can negotiate pricing date, quality parameters, delivery location and mode of delivery, as he enters exchange traded forward contracts of cotton. He can enter the contract at flat price or link it to the NCDEX cotton futures contract, quoting a premium or discount. Such a reference price-forward contract, settled at a price based on its futures market equivalent (counter-part), increases the possibility of receiving a fair price by the trading parties.

A ginner can choose to give delivery at rake point or truck point. He can also opt for direct delivery mode or may deliver at exchange-approved warehouses through COMTRACK® to track the movement of goods online. Such multiple modes of delivery provide convenience to give/ take deliveries at those locations which are not covered by existing delivery network under futures market and also reduce the overhead costs.

A cotton buyer can enjoy additional benefit of assaying the quality. The option of assaying reduces quality related concerns and helps fetch fair price for premium quality produce. A garment manufacturer can be rest assured of timely procurement of his raw material, as the delivery of cotton is compulsory under exchange traded forwards and contracts are settled within a specified time period.

At present, exchange traded forwards are available in Shankar kapas, 29 mm cotton and cotton seed oil cake. Members can participate in this new segment for 'Pro' trading with their existing membership codes. Clients can also execute their forward trades with their existing client codes. Alternatively, a special membership category, 'Commodity Participants Members', is also available for participating in the forward segment.

Exchange traded forwards are not a mere novelty. They are in fact, the perfect marketing tools that offer safety, scale and flexibility. By bringing forward trade on the exchange platform, the exchange has attempted to plug in the missing link in the organised commodity value chain existing today. Increased participation in national online trading platform can help the cotton and textile industry make rapid strides to achieve a leadership position in the world market.

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

Agrarian Crisis – Part-2

(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.)

What can drive a farmer to take a step as extreme as suicide? During one of my recent visits to a village near Wardha, an old man remarked 'If poverty was a reason for suicides, crores of Indians would have killed themselves all through these hundreds of years. It is not poverty that can kill any of us. It is the cumulative failure of high expectations that drives farmers to despair'. He pointed out to the long narrow stony road and said, 'For 30 years now, I have been carrying cotton on my bullock cart on this 15 km stretch to reach the main road. The nearest mill is another 20 km from there. I only hear promises year after year, but neither my road nor my journey gets any better'. That summed it all. Indeed, the cotton farmer's journey is getting tougher by the day, at least in Maharashtra.

EXPERT's Column

Dr K.R. Kranthi

This second part of the article examines the factors in cotton farming that may have caused distress. New technologies certainly lead to renewed hope and high expectations. Many farmers associate high income with high investment in farm inputs. High investment and low returns can easily cause indebtedness, disappointment and distress. Successive crop failures due to weather vagaries such as drought, delayed onset of monsoon and hail-storms cause immense distress. A critical analysis of the data available on the official web site http://eands.dacnet.nic.in/ of the Directorate of Economics and Statistics (DES) of the Ministry of Agriculture, GOI showed that compared to all cotton growing states in the country, the average annual profits were the lowest in Maharashtra. The cost of cultivation sky rocketed in recent times and net returns plummeted to abysmal depths. The DES data showed that over the nine year period of 2003 to 2011 the average annual net profits on cotton cultivation in Maharashtra were Rs. 382 for an investment of Rs. 10,000. If a farmer invested one lakh he would get a net profit of Rs. 3,820 at the end of the cropping season. Can this support livelihood?

Several surveys have been conducted in recent times to analyze the economic impact of cotton cultivation in various parts of India. There are at least a dozen research papers on the subject, most of them on the possible positive impact of Bt-cotton in recent years. The data presented in these papers were mainly derived from village visits and sample surveys. This article deals with results analyzed from the Government data 1996-97 up to 2011-12 available on http://eands.dacnet.nic.in/ The data include details on the cost of cotton production to the best possible extent on all the key components.

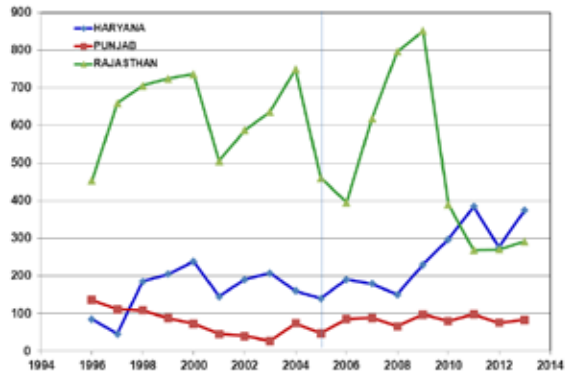
Some important questions have been raised from time to time on the recent rising costs of cotton production after the introduction of Bt cotton, as the possible cause of distress. These questions are primarily related to enhanced cost of seeds, increased labour wages, increased insecticide and fertilizer usage, stagnant yields and declining net profits which are most likely to have a strong influence on farmer livelihood and agrarian crisis. Many authors and researchers attempted to connect farmer suicides with cotton cultivation, at least in two major cotton growing states i.e Maharashtra and Andhra Pradesh. Indeed, as mentioned in the part-1 of my article in the CAI Newsletter (27 Jan 2015) compared to other crops, cotton is likely to have a major impact on farmer livelihood in states where the crop occupies substantially larger proportion of the cultivated area. For example, cotton occupies 25% of Gujarat's agricultural area, 20.9% of Maharashtra's cultivated area; 16.8% of the agriculture area in erstwhile Andhra Pradesh (including Telangana); 16.8% of Haryana's cultivated area and 12.0% of the cultivated area in Punjab. In rest of the cotton growing states, cotton is cultivated in less than 4.0% of the cultivated area and is unlikely to be the sole factor in any major impact that agriculture may have on the farming community. Therefore it is possible that compared to other crops, the economics of cotton cultivation in Maharashtra, AP, Gujarat, Haryana and Punjab may have a stronger impact on farmers' livelihood. However, as mentioned in the part-1 of the article, the annual numbers of farmer suicides over the past 10 years in Maharashtra (3685 suicides) and AP (2440 suicides) are significantly higher compared to the significantly lesser annual average number of suicides during 2004-2013 in Gujarat (530), Haryana (238) and Punjab (79). Thus it is important to examine the factors that may have been responsible for the agrarian distress in Maharashtra and Andhra Pradesh.

Farmer suicides over the past decade

An annual average number of 15,369 cases of farmer suicides were reported across the 10 cotton growing states during the nine years period from 1995 to 2003, prior to the introduction of Bt cotton in India. During the subsequent 10 years from 2004 to 2013 the average number of farmer suicides was 15,815. Thus the data show a marginal overall 3.0% increase in the number of suicides over the past 10 year period compared to the decade prior to 2003. The annual average number of suicides declined in seven cotton growing states during the past 10 year period as compared to the previous decade (graphs 1 to 3). The decrease was 31% in MP, 29% in Tamilnadu, 28% in Odisha, 15% in Karnataka, 8% each in Rajasthan and Gujarat and 2% in Punjab. However, it must be noted that despite increase in the yields there was 39% increase in Maharashtra (graph 4) and 51% increase in erstwhile Andhra Pradesh (graph 5) and in the annual average number of suicides during 2004-2013 compared to 1995-2003. It is important to elucidate the possible reasons for the increase in suicides.

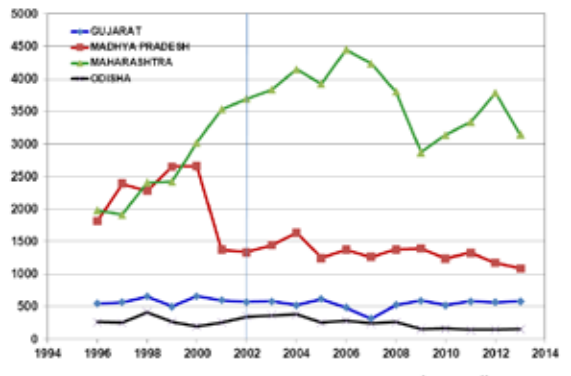
As mentioned in the introductory paragraph, amongst all cotton growing states in India, the net returns from cotton cultivation are the lowest in Maharashtra. The cost of cultivation at Rs. 61,907 in 2011-12 ranks amongst the highest with dismally pathetic net profit of Rs. 3.82 per Rs. 100 invested on cotton cultivation. The following passages examine the factors responsible for the high cost of cotton cultivation and lowest net returns in Maharashtra.

Graph 1. Farmer Suicides (Numbers) in North India 1995-2013



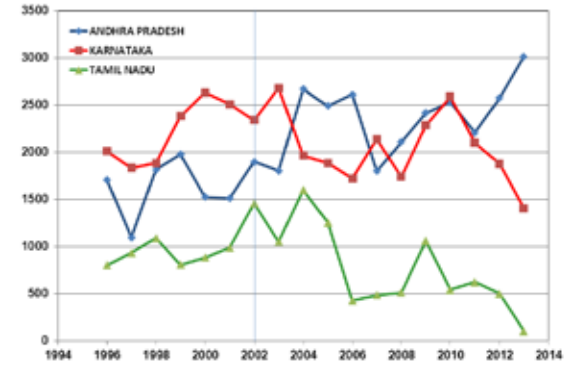
Data Source: NCRB, Ministry of Home Affairs, GOI

Graph 2. Farmer Suicides (Numbers) in Central India 1995-2013



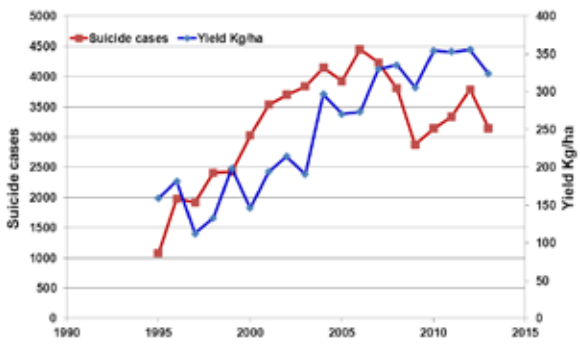
Data Source: NCRB, Ministry of Home Affairs, GOI

Graph 3. Farmer Suicides (Numbers) in South India 1995-2013



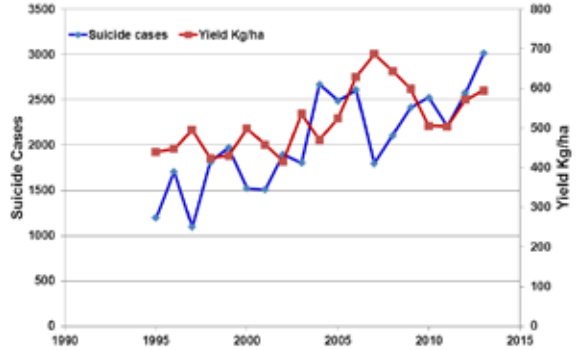
Data Source: NCRB, Ministry of Home Affairs, GOI

Graph 4. Suicide Cases & Yield in Maharashtra 1995-2013



Suicide numbers on left axis. Data sourced from NCRB, GOI. Yield Kg/ha on right axis. Data sourced from CAB, GOI.

Graph 5. Suicide Cases & Yield in AP 1995-2013



Suicide numbers on left axis. Data sourced from NCRB, GOI. Yield Kg/ha on right axis. Data sourced from CAB, GOI.

Has chemical usage increased in cotton?

It is a well known fact that hybrids need higher chemical inputs for high yields. Interestingly, out of the 80 cotton growing nations, India is the only country to cultivate hybrid cotton, and that too in 95% of its total cotton acreage. The area under hybrid cotton in India was 40% in 2003, but increased to 95% in 2011 after the Bt technology was restricted only to hybrids. During this period, insecticide usage increased by a staggering 8.9 fold in Gujarat and to

the extent of 5.2 fold in Maharashtra (table 4). In other major cotton growing states, insecticide usage more than doubled over the 6-8 years prior to 2011. This is actually surprising because the area under Bt cotton increased from a negligible 1.0% in 2003 to about 92% in 2011. Bt-cotton is a 'plant protection' technology meant for effective control of bollworms. Before the introduction of Bt-cotton in 2002, as much as 90% of the total insecticides used on cotton were directed for bollworm control. Extensive use of the technology on a large scale to an extent of 92% area by 2011 was expected to eliminate the need for insecticide use for bollworm control. Why then did the insecticide usage increase several-fold in all the major cotton states despite the rapid increase in area under Bt-cotton from 1% to 90% over the period 2003-2011? Bt-cotton technology is only meant to control bollworms and other caterpillars. It does not control the sap-sucking insects which generally cause higher levels of damage to hybrid cotton. Majority of the Bt cotton hybrids are highly susceptible to sap sucking insects and more than 1000 hybrids were approved for commercial cultivation during the period 2006-2011, which led to the multi-fold increase in the insecticide usage in cotton fields.

Similarly, the fertilizer usage (table 4) increased from 8.4 lakh tonnes in the base year to 25.7 lakh tonnes by 2011-12. As compared to the year 2002, the quantity of fertilizer usage in 2011 increased by 5.8 fold in Gujarat, 4.3 fold in Maharashtra, 4.2 fold in Karnataka and 2.5 fold in Andhra Pradesh. The monetary value of fertilizers also increased exorbitantly to the extent of more than double in six states and more than five-fold in four of the six states.

Clearly, saturation of cotton acreage with hybrid technology resulted in the need for excessive input usage, which in turn led to increased input costs. It is important to note that the 'Bt-cotton' technology was restricted only to hybrids in India and not in varieties, as is the case in the rest of the world. Though hybrid technology was developed in 1971, the hybrid area in India never crossed more than 40% until 2002, when the total number of cotton hybrids released until then was just about 40. 'Bt-cotton' was approved in India for commercial cultivation in 2002. During 2006-2011 more than 1000 hybrids were approved for commercial cultivation in India. The use of chemical fertilizers and insecticides increased multi-fold during this period.

Increased cost of cultivation

Cost of cultivation has increased over the past few years because of four major input components, namely seed, fertilizers, pesticides and labour. The cost of cultivation in 2011 was Rs. 61,659 in AP and Rs. 61,907 in Maharashtra. It is pertinent to note that more than 95% of the cotton area in Maharashtra is primarily dependent on rains and more than 82% area in erstwhile AP is under rain-fed cultivation. The cost of cultivation in these two states with such vast areas under rain-fed cotton is more of a gamble and points out to high risks. Such investment is beset

Table 4. Impact of cotton hybrids on chemical usage

	Insecticide usage Rs Crores			Fertilizer usage Rs Crores			Fertilizer Lakh tonnes		
	Base year"	2011**	x-fold change	Base year*	2011**	x-fold change	Base year*	2011**	x-fold change
Punjab	117	317	2.7	111	181	1.6	0.93	1.29	1.4
Haryana	100	121	1.2	77	129	1.7	0.60	0.81	1.3
Rajasthan	49	130	2.7	64	162	2.5	0.33	0.63	1.9
Gujarat	83	743	8.9	256	1837	7.2	1.11	6.50	5.8
Maharashtra	174	900	5.2	487	2788	5.7	2.59	11.19	4.3
MP	69	137	2.0	82	177	2.2	0.59	0.65	1.1
AP	279	508	1.8	236	1184	5.0	1.76	4.40	2.5
Kar	24	50	2.1	37	252	6.8	0.22	0.90	4.2
TN	25	20	0.8	49	85	1.7	0.31	0.33	1.1
	920	2926	3.18	1399	6795	4.86	8.44	26.7	3.16

**Base year = Year of Bt cotton approval. 2002 for Central and South India; 2005 for North India.*
***2011-12: Area under Bt cotton was >90%*

Table 5. Cost of cultivation, net profits and rate of suicides

	Cost of cultivation Rs per hectare			Net Profit Annual Average Rs per hectare			Annual Average of Suicide numbers per year		
	Base year"	2011**	x-fold change	1996-2002	2003-2011	Difference	1995-2003	2004-2013	Difference
Punjab	33983	66698	1.96	-1448	13515	14964	81	79	-2
Haryana	26738	62330	2.33	498	12997	12499	164	238	74
Rajasthan	17594	56097	3.19	5850	26242	20391	556	509	-47
Gujarat	23396	58388	2.50	2277	17274	14997	578	530	-48
Maharashtra	20990	61907	2.95	-1104	1867	2971	2656	3685	1029
MP	18664	42289	2.27	-1642	8433	10075	1910	1312	-598
AP	36202	61659	1.70	1815	6421	4606	1613	2440	827
Kar	11126	45077	4.05	299	6081	5782	2305	1968	-337
TN	34386	61319	1.78	-3305	1880	5186	1000	710	-290

**Base year = Year of Bt cotton approval. 2002 for Central and South India; 2005 for North India.*
***2011-12: Area under Bt cotton was >90%*

with lesser risk in the 100% irrigated cotton of North India. Similarly, high investment of Rs. 58,388 in Gujarat and Rs. 61,319 in Tamilnadu are not prone to higher risks because of the 40-50% area under irrigation in the two states.

Bt cotton was approved in 2002 for commercial cultivation in Central and South India, and 2005 for cultivation in North India. In the first year of approval, the area under Bt cotton was almost negligible and thus 2002 was considered as the base year for Central and South India and 2005 for North India. By 2011-12, Bt cotton occupied more than 92% of the cotton area in India. Thus, it would be an appropriate assumption to consider the difference in input usage between 2011 and the base year is a result of the impact of Bt cotton.

The cost of cultivation (table 5) increased by 1.96 to 3.2 fold in North India in six years after the introduction of Bt cotton in 2005. The cost of cultivation in Central and South India increased significantly by 2011 after nine years of Bt cotton introduction. The increase was 1.7 to 1.78 fold in erstwhile AP and Tamilnadu and 2.27 to 2.95 fold increase in Maharashtra, MP and Gujarat. However, the four- fold increase in the cost of cultivation in Karnataka is a major concern.

Conclusion of Part-2

It is clear that the ever increasing 'cost of cultivation' coupled with yield uncertainties and declining net profits from rain-fed cotton farming are causing distress over the past few years. The introduction of 'Bt-cotton' certainly increased the profit levels, especially in the irrigated regions, where the stress levels have always been low. But did the technology prompt increased use of inputs? This needs to be examined more critically in Maharashtra, Telangana and Karnataka where cotton farming is predominantly rain-fed and high cost of cultivation can easily drive farmers towards distress. In the next part, I will deal with the specific factors that contributed to high cost of cultivation; what causes the distress and the possible solutions to the vexed problem of farmer suicides in rain-fed cotton farming regions of India.

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

Conventional Breeding of Cotton Needs to Change

(Contd. From Issue No.1)

Genetic Diversity

Prior to the introduction of biotech cotton, there was a balanced proportion of varietal and hybrid cultivation in India. Commercialization of biotech genes prompted undesirably excessive focus on hybrids over varieties in India, which led to exploitation of loci showing a high degree of dominance and a commensurate reduction in emphasis on using loci capable of additive gene action to complete dominance. The deviation in focus led to a clear disadvantage caused by underutilization of the loci influencing yield and fiber quality. Thus, a large part of the genetic potential of the plant went to no avail. The extraordinary focus on hybrid research in the private sector also led to loss of diversity with respect to this group of loci. On becoming aware of this lopsided exploitation of non-additive gene action, it became obvious that it would be necessary to devote attention to variety as a product, so that the real benefits of the intensive research being done by the public sector on the development of new lines might reach the actual farmers in the form of varieties. In this way, the variability generated in entire sets of yield-influencing loci capable of additive gene action, partial dominance and complete dominance might be more fully utilized. The imbalance in genetic diversity can also be overcome by allowing the private sector to release varieties carrying biotech cotton genes.

ICAC

Marker Assisted Selection

Conventional breeding approaches are used to recombine traits from two or more parents, or to transfer traits from one parent to another. When working with complex traits involving detailed methods of estimating the expression of traits such as fiber traits, biochemical expression, or of traits resulting from heavy interaction with the environment (resistance to biotic and a biotic stresses), it becomes increasingly difficult to arrive at a correct judgment about the genotypic value of any given plant. In such situations, the use of Marker Assisted Selection (MAS) as a tool in the breeding process becomes important in helping to improve the efficiency of conventional breeding. Associating expression for desired traits with molecular markers for quantitative traits is helpful in achieving the effective transfer of complex traits through back-cross breeding from donor parents. In this process, even identifying plants with the genetic background of a recurrent parent becomes helpful in the quick recovery of the genetic constitution of the recurrent parent. It is also helpful in identifying plants in segregating generations that possess the desired trait.

The use of markers for foreground selection of the biotech genes being transferred is a common example of the routine use of this technique to identify plants possessing the gene to be transferred. In conventional back-cross breeding, more generations are required to eliminate the genetic background of the donor parent. Strongly linked markers help in picking up limited genetic segments from the donor's background to avoid the transfer of linked undesirable alleles from the donor parent. The rate of recovery of recurrent parents' genetic background or the elimination of donor parent background is given by 1-(1-c) m+1, where c is the recombination fraction and m is the number of backcrosses. The rate of elimination of undesirable alleles from donor parents proceeds more slowly when the undesirable alleles have a stronger bond with the gene being transferred. It is necessary to identify tightly associated markers for the genes being transferred, as well as markers for genetic background of the recurrent parent so that even the unlinked undesirable alleles or the genetic background of donor parents can be avoided. The rate of recovery of the recurrent parents' constitution is much higher than would be expected from the above-mentioned recovery formula.

The determination of markers to identify the genetic background of the recurrent parent (constitution) requires elaborate molecular laboratory facilities and breeders in remote regions have difficulties in gaining access to this kind of support. Markers are used to assess genetic diversity and to form heterotic groups in different crops, including cotton, but, unfortunately, the diversity levels raveled on the basis of the markers do not correctly reflect the magnitude of heterosis obtained in the hybrids. A great deal of additional development may be necessary before this approach becomes a realistic tool that can be used by breeders to create hybrids (Bertrand et al. 2008). Markers need to be identified for traits like fiber quality, drought tolerance, etc., that may be found spread across the cotton genome map so that these markers can be effectively used to help breeders in selecting and transferring the genes that determine fiber quality

from G. barbadense to G. hirsutum, as well as in transferring drought tolerance genes across species.

Development of Genetically Modified Biotech Cotton

Reliance on the conventional mechanisms and methods used to improve tolerance to insect pests in the 20th century yielded successful, albeit limited, outcomes. Consequently, efforts to control the bollworm complex alone compromised the remunerative value of cotton. At that crucial juncture, the development of biotechnology arrived as a boon to cotton cultivation. The creation of insect resistant biotech cotton and its subsequent adoption speaks volumes about the potential of biotechnology and its role in the genetic improvement of cotton. Use of genetic modification techniques has given rise to additional events against different bollworms, including Spodoptera (Kranthi, 2012). Both single-gene and two-gene coded biotech resistance mechanisms have been commercialized in different countries. A gene for herbicide resistance has already been stacked with insect resistance genes and cottons with those genes have also been commercialized in different parts of the world. The scope for adding genes for tolerance to sucking pests, drought tolerance and many other useful features is being explored. But workers already know that there must be diversity in the commercialized biotech genes in order to minimize the chances of development of resistance.

In India, the private sector is not permitted to release biotech genes in varieties. The important required step now in order to herald in the beginning of a new era in cotton cultivation would be to quickly identify effective public sector events and transfer them into varieties to promote cultivation of those biotech events or varieties, especially compact cotton varieties intended for high density planting. New constructs of useful genes, including genes for tolerance to sucking pest, have been used to develop stable events that are already in field trials at the University of Agricultural Sciences, Dharwad, and at the Central Institute for Cotton Research, Nagpur and other centers in India and in other countries in Asia. This step can definitely reduce the bias against varietal cultivation existing particularly in India. In fact, these inferences are applicable to other self-pollinated crops where there is an excess of concentration on hybrids by the private sector for obvious reasons. There is ample margin for blending currently commercialized genes to create innovative gene combinations that can be exploited for commercialization. A greater number of joint research ventures involving institutions across countries must be developed. Establishment of an Asian research center or international institute for cotton research would be very important for the promotion of cotton research.

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Source: The ICAC Recorder, September 2014

Cotton Yarn Production

(In Mn. kg)

Month	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15 (P)
April	238.93	242.26	244.50	273.77	268.06	268.20	316.61	328.68
May	246.71	257.51	247.76	283.69	255.56	286.19	314.97	332.92
June	242.32	253.65	248.76	284.79	248.29	288.40	317.69	330.69
July	250.36	250.28	257.65	302.16	256.73	301.34	332.12	340.00
August	249.81	242.32	256.19	300.34	262.74	302.85	336.30	338.09
September	248.19	233.56	252.78	297.68	258.97	296.74	326.09	334.03
October	247.18	225.51	250.82	301.55	241.83	302.65	328.79	323.53
November	230.24	235.07	257.44	283.52	243.85	282.88	312.13	336.05
December	252.97	251.88	267.44	308.78	269.82	314.21	341.67	353.32
January	251.10	236.70	266.69	296.87	279.19	315.07	340.38	351.80
February	243.41	224.98	256.58	272.99	269.01	302.59	321.31	338.04
March	247.13	242.44	272.37	283.63	272.29	321.57	340.20	
TOTAL	**2948.36**	**2896.16**	**3078.98**	**3489.78**	**3126.34**	**3582.68**	**3928.27**	**3707.14**

P - Provisional

Source : Office of the Textile Commissioner

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	73.38
October	110.61	81.95	89.35	70.34
November	104.68	80.87	84.65	67.53
December	95.45	83.37	87.49	68.30
January	101.11	85.51	90.96	67.35
February	100.75	89.71	94.05	69.84
March	99.50	94.45	96.95	69.35
April	99.94	92.68	94.20	71.60
May	88.53	92.70	92.71	
June	82.18	93.08	90.90	
July	83.97	92.62	84.01	

Source: Cotton Outlook

UPCOUNTRY SPOT RATES

(Rs./Qtl)

Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	Spot Rate (Upcountry) 2014-15 Crop APRIL 2015 6th	7th	8th	9th	10th	11th
	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	9448 (33600)	9589 (34100)	9589 (34100)	9589 (34100)	9533 (33900)	9392 (33400)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	9589 (34100)	9729 (34600)	9729 (34600)	9729 (34600)	9673 (34400)	9533 (33900)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	6552 (23300)	6664 (23700)	6664 (23700)	6664 (23700)	6608 (23500)	6608 (23500)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	7733 (27500)	7817 (27800)	7817 (27800)	7817 (27800)	7761 (27600)	7761 (27600)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	8155 (29000)	8239 (29300)	8239 (29300)	8239 (29300)	8183 (29100)	8183 (29100)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	9476 (33700)	9589 (34100)	9589 (34100)	9561 (34000)	9476 (33700)	9476 (33700)
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	8295 (29500)	8352 (29700)	8352 (29700)	8352 (29700)	8323 (29600)	8323 (29600)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	8548 (30400)	8605 (30600)	8605 (30600)	8605 (30600)	8577 (30500)	8577 (30500)
9	P/H/R	ICS-105	Fine	27mm	3.5.4.9	26	9561 (34000)	9673 (34400)	9673 (34400)	9645 (34300)	9561 (34000)	9561 (34000)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	8577 (30500)	8633 (30700)	8633 (30700)	8633 (30700)	8605 (30600)	8605 (30600)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	8858 (31500)	8914 (31700)	8914 (31700)	8914 (31700)	8886 (31600)	8886 (31600)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	9758 (34700)	9842 (35000)	9842 (35000)	9814 (34900)	9729 (34600)	9729 (34600)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	9139 (32500)	9251 (32900)	9308 (33100)	9308 (33100)	9280 (33000)	9280 (33000)
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	9167 (32600)	9280 (33000)	9280 (33000)	9280 (33000)	9251 (32900)	9251 (32900)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	9336 (33200)	9448 (33600)	9505 (33800)	9505 (33800)	9476 (33700)	9476 (33700)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	9308 (33100)	9420 (33500)	9420 (33500)	9420 (33500)	9392 (33400)	9392 (33400)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	9617 (34200)	9729 (34600)	9729 (34600)	9729 (34600)	9701 (34500)	9701 (34500)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	10011 (35600)	10123 (36000)	10123 (36000)	10123 (36000)	10095 (35900)	10095 (35900)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	10236 (36400)	10320 (36700)	10320 (36700)	10320 (36700)	10292 (36600)	10292 (36600)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	12148 (43200)	12232 (43500)	12373 (44000)	12373 (44000)	12373 (44000)	12373 (44000)

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