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How Global Warming Affects Indian Cotton

GUEST COLUMN

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The environmental changes induced by global warming due to the accumulation of carbon dioxide, methane and nitrous oxide in the atmosphere and also increase in the surface ozone level, are responsible for affecting the gene action, growth and development of all plant species. These also include cotton and other biospecies associated with cotton and other crops. Under these circumstances, using the current cotton varieties/hybrids does not help the system, farmers and user agencies. What is needed is a new approach in cotton research and development.

Though the introduction of the American species of cotton *Gossypium hirsutum* helped to augment the yield earlier, it also limited the research on the native species *G.arboreum* which is tolerant to several abiotic and biotic factors and forced them to remain in the germplasm. Although some research was done on Desi cotton in North, Central and South India, the farmers preferred the American cotton with large sized bolls and began using fertilizers and chemical pesticides. This in turn, led to several ecological, economical and health hazards in the cropped areas.

What is needed now, is concentrated efforts to be exerted on the native species of cotton *G.arboreum*. This native species of cotton needs some changes in the architecture, size of bolls and quality of fibres. *G.arboreum* may survive global warming and support the textile industries provided its chromosome is doubled and used for both the pure line selection and inter - intra species hybridisation, if possible and feasible. The process of mutation breeding with the aid of chemicals or irradiation may yield the expected changes in the native cotton, to get the base material for further research to meet the requirement of the textile industry.

In recent years, scientists from the Central Institute for Cotton Research (CICR), Nagpur, have

successfully identified Desi cotton with bolls having five loculi with the increased length of fibres. Further research may yield appropriate varieties / hybrids for different agro climatic zones, with the view to cause least damage to the environment and reduce the over dependence on chemicals.

It would be encouraging if private research organisations including multinational corporations would come forward to initiate research on *G.arboreum* to help not only India but also other parts of the world to meet the challenges posed by global warming.

The green revolution and subsequent efforts to increase the yield of various crops have resulted in the abolition of the poly crop system from the farms and brought in the monocropping system which has adversely affected the environment and soils. The poly crop system was successfully carried out by our forefathers, which enabled them to maintain the fertility of soils with less pollution and bio stresses in the cropped areas.

A recent study also shows that the diversity of crops reduces the insect damage[1, 2]. By constantly evolving the different secondary phenolic volatile chemicals from different crops, the polycrop system masks and reduces the visitation of bio intruders such as insect pests. The monocrop system on the other hand, attracts a large number of insect species and damages the crop seriously, in turn paving the way for over reliance on pesticides. The frequent application of insecticides, besides eliminating the natural balance in the cotton system, induces several physiological and biochemical changes[6] in the plant system, affecting the ecological succession of other insect species.

Efforts need to be made for developing cotton varieties and hybrids that will suit the poly crop system. CICR, for example, has already developed and released a medium duration short structured inter specific hybrid and also dwarf varieties[3], which will serve the poly crop system. The materials that have been developed at CICR, Nagpur, Coimbatore and certain Agricultural Universities should be explored for their suitability for the poly cropping system. The impact of such varieties on the system at different cotton growing regions of the country should be critically studied.

Among crops, cotton is distinguished by its unique character of growing indeterminately. This character, besides increasing the growing period of the crop, also provides some false hope of making a bumper harvest. Scientists will recognise that this character is a compensatory mechanism to meet the probable loss likely to result due to environmental, physiological causes and insect damage. But now with everything around the plant changing due to the warming process, the indeterminate growth habit of the cotton crop is forcing the farmers to apply more fertilizers and pesticides without knowing their implication and impact on the environment, soils and surrounding ecosystem. Unfortunately, the over dependence on chemicals has not given the expected results in different agro systems. Chemical fertilizers do cause degradation of fertility of the soil. The un-utilised left over fertilizers from the soil, is washed by rain water into rivers and causes eutrophication. It has been recently brought to light that the phosphorus that is present in weedicides is responsible for the bloom of algae in the river and other water ways.

This problem may be mitigated by identifying or developing determinate type and short duration of cotton varieties, as these may not need as much fertilizer and pesticides as the conventional ones. Such cotton varieties will also not contaminate the environment with pesticides while spraying, as much as the tall growing varieties and bushy hybrids. The latter besides causing the changes in biochemical metabolism[5]in plants, forces 60 to 70 percent of the applied pesticides to enter into the environment and causes several ecological and health problems.

The short duration dwarf or semi dwarf varieties of cotton help both the farming as well as the textile communities, as they require less labour, less water, emit comparatively lesser amount of the secondary substances from the leaves to harbor less number of insect pests and fewer amounts of chemicals; thereby reducing the environmental pollution considerably. However the sad fact is that the dwarf varieties are being grown in other countries in the world but not in India. The development of such dwarf varieties or hybrids without disturbing the genome, which are water and fertilizer efficient, will go a long way in decreasing the ecological and environmental deficiencies including the phenomenon of eutrophication.The scientists from the CICR, Coimbatore had developed a dwarf hybrid Sruthi[3] almost 20 years back, and this variety may be suitable for developing the poly crop system in delta area and other irrigated regions.

But this variety has no takers as it is not bushy and attractive to farmers, who have become psychologically addicted to tall growing varieties and hybrids. A recently developed variety, Indica[4]

Fig A

[Fig A], is different from other varieties, as it has short internodes with the capability of the boll bearing branches to grow further in the event of fruiting parts falling due to physiological changes or insect attack and make the plant canopy an open one, as against the conventional plant wherein the main stem keeps on growing. It is with SIMA's R&D, Coimbatore, waiting for all formalities to be completed before it is introduced to the farmers. Several dwarf and semi dwarf materials are available with CICR, Nagpur, and these will augment good harvest with the less strains provided the farmers change their dependency on tall growing bushy plants.

Most of our crops are season bound and the harvest is badly affected if the monsoon is erratic and does not arrive at the proper time. However, if crops were not season bound, they may be sown at any time in the year and guarantee some harvest. Such crops may change the biocycle of insect pests in the cotton system and support the farmers and textile industries.

The widespread overuse of nitrogen fertilizer enables a few plant species to thrive, while the majority of plant species that live in symbiotic relationships with microbes and other species of animals including highly specialised insects; are dwindling due to changes on the earth sphere.

The processes of global warming, intense competition for land and pressures to reduce chemical fertilizer and pesticide use, have had a negative effect on the productivity of crops in the past few decades. This compelled scientists to come up with the discovery of the microbiome living outside and inside the crop plants to increase the yield. But our fore fathers used to add cattle manure which was rich in microbiome to the field before ploughing. But this ecologically viable activity is on the decline in India due to modernisation. Adding beneficial microbes to crops could be an effective but less controversial alternative to genetic engineering. Modern chemical agriculture is no longer going to help us and the phenomenon of global warming demands reestablishing the mixed farming and mixed cropping system, which not only support the farming communities, but also help to get organic manure from the cattle and other animals for enriching our soil fertility.

Some corporations like Monsanto are in the possession of thousands of individual microorganisms and are experimenting on how to increase the yield of the crop by improving the fertility of soils with less dependence on fertilizers. Interestingly, another company Indigo, has also built a database of tens of thousands of individual microbes isolated from crops that thrive under harsh conditions and this may be of great use in the rain fed system and post sowing drought condition. According to Indigo, the seed treatment with the specific endophytic bacteria isolated from the tissues of cotton plant has helped the plants to thrive under stress conditions. Indian scientists should explore the availability of such native microorganisms in our cotton system at different ecological niches.

ICAR and the Indian Government should initiate the setting up of microbiological research units in different crop research institutes in the country, to identify such organisms that will increase the yield and reduce dependency on chemical fertilizers, so as to prevent further erosion of soil fertility from the current level of 30 percent in India.

A new technology from America has succeeded in harvesting the DNA from the soil habitat bacterium and inserted it into the plant system for protection against the insect pests and eliminated partly the use of insecticides. This technology, besides causing several ecological, economical, social and health problems, goes against a number of useful species of insects including the honey bee and other pollinators and soil microbes. It is a well known fact that the removal of a single gene from living things will cause multiple effects, such as disruption of coordinated molecular and cellular functions that evolved over millions of years and genes that are functioning normally will turn abnormal.

The modified cotton varieties in India had given fairly good results when they were first introduced, but subsequently failed miserably, because of poor expression of the inserted alien genes due to several reasons including the change of abiotic factors. Moreover, such crops had the changed leaf anatomy with wider stomata[5] which enabled the plants to uptake more water and transpire more, resulting in an imbalance in the soil moisture content as

compared to the conventional one. Such varieties should not be grown in rain fed situations and also where water is a scarce commodity.

The increased temperature and other unknown abiotic factors affect the expression of genes, change the physiology and biochemical metabolisms, particularly the nitrogenous compounds in such plants and these phenomena are responsible for attracting insects that have a different feeding habit. This has been noticed recently in India, when the mealy bugs and white flies out breaks took place in Central and Northern parts of the country[6].

Therefore, we should develop varieties/hybrids that do not undergo any biochemical changes due to the modification of gene in the plant system. The molecular bio technology should be used to transfer certain genes which are responsible for big sized bolls, long staple length, good strength with high degree of polymerisation of fibres from the hirsute varieties to arboreum one. It is a well known fact that honey bees, major pollinators of agricultural crops, are declining due to several reasons including the modified crops. India is blessed with several agricultural and horticultural crops to meet the food demand for 1.25 billion people, but it is still the need of the day to study the effects of such crops and discover the means to prevent the occurrence of hazards to honeybees in the cotton system.

The global warming process makes the earth accumulate more carbon dioxide and this may help crop plants in the photosynthetic process and yield more. Whether all available varieties/hybrids including the modified one are able to utilise more carbon dioxide is not known to science. But some strains/species of cotton may be in the germplasm that will uptake more carbon dioxide and utilise it efficiently in the processes of photosynthesis and yield more. If such varieties are identified it will be a great boon to all of us.

Scientists of CICR, Coimbatore, had done a pioneering work on the effect of CO2 on cotton crops and a leaf feeding insect in India[7,8]. The studies on the CO2 needs to be pursued further for identifying the varieties/hybrids of cotton that are efficient utilisers of CO2.The varieties/hybrids that are efficient utiliser of fertilizer and utilise less water should also be developed for sustenance under the fast changing situation due to global warming.

The surface ozone level is increasing due to increase in the levels of photo-oxidants of its precursors (volatile organic compounds) in the environment and this has the greatest impact on the agriculture. It has been proved that the increased level of surface ozone as CO2 goes against the productivity of the agricultural crops including the cotton crop. Development of varieties/ hybrids that tolerate ozone has been done with the Soya Bean in USA. Such crop varieties/hybrids may invite less number of insect pests due to the masking effects of ozone on the plants. Secondary volatile substances are constantly evolving from the crops to guide the insect visitation.

Uncertainty of rain and its pattern, increase of salinity and flooding due to global warming necessitate the development of varieties/hybrids tolerant to these adversities as has been done with rice in Kerala and in the USA, in recent years. The varieties/hybrids that do not undergo any serious biochemical changes like breaking up of the complex substances into a simpler one due to post sowing drought, may also help in the sustenance of cotton under these changing situations.

We have been concentrating only on trying to get higher yields with the higher quality of fibres in cotton and forgetting several other vital things that go against our living and environment. The fibres from the present day varieties/ hybrids are causing much pollution in the process of dyeing. The excess dyes that flow through the water bodies from the dyeing centers pollute our agricultural fields and make them unfit for cultivation. It would be easy to dismiss this as not being related to agricultural research. However, I firmly believe that scientists are capable of tackling this problem by developing suitable varieties/hybrids with a high degree of polymerisation of fibres that will result in lesser levels of dye getting into the wash-off that runs into the waterways to reach the agricultural fields and thus save our eco niches. In future, any variety coming for approval should have the DP value along with the other quality parameters of the fibre.

Modified varieties are being cultivated in about 98 percent of the total cotton cultivated area in this country. Recent studies show that the seed cotton is well contaminated with the DNA of alien genes and in the USA, it is cleaned from the lint before using. This prevents the horizontal gene transfer (HGT) of such genes and s the other species of the plants. A similar effort needs to be expended in a highly diversified country like India, to protect the biodiversity from easy contamination of alien genes.

It is a known fact that the abundance of invertebrates including insects are on the decline from the global index of 1.0 in the seventies

to less than 0.5 in 2010. This is perhaps due to global warming coupled with mono culture and chemical based agriculture. The insect pests that are associated with crop plants in that era may change in the cotton system. The robust bodied insects with a comparatively long life cycle may vanish and tiny insects with little biomass with a short life cycle may emerge and associate with cotton to cause serious damage in the coming decades. The modern genetic modification may not go well with this group of insects under the global warming situation and needs to be tackled in the natural way by adopting the IPM/IRM technologies[9, 10, 11]. The requisite labour force for carrying out the IPM/IRM may be drawn from MNREGA during the crop season.

It is a well known fact that insects are guided to the cropped areas by the secondary volatile substances that emit from the cotton crop. In future, these compounds could be used to develop suitable means either to distract or trap insects from visiting the cotton cropped areas.

Many croplands will soon be subjected to less or heavy rainfall and higher temperatures due to the phenomenon of the global warming and the varieties/hybrids including the modified one will suffer. However, some species may survive such situation both in the desert as well as in cultivated areas. A closer look at the occurrence of such plants in the cultivated areas including the germplasm and surrounding niches around the Thar Desert, may serve as a source for getting some plants which are tolerant to global warming processes. Such plants may be used in the breeding program for getting new varieties to meet the situation. Our own scientists at the CICR, Coimbatore, have already studied the impact of flooding on the physiological and biochemical changes in certain genotype of cotton. This may serve as a base for developing varieties/hybrids that are tolerant to inundation of water due to heavy downpour and also salinity[12].

Nature has given us the environment friendly white cotton for protecting our skin and also health. Interestingly, it has also provided cotton with different hues[13] and these never came out from the germplasam. The time has come for naturally coloured cotton to rule the globe. It is a well known fact that global warming enables the UV rays to strike directly on the earth sphere. This warrants the use of a fabric that resists the penetration of UV rays into our body surface. The recently published study of our scientists from CTRL Unit, Coimbatore has shown that naturally coloured cotton is capable of resisting the penetration of UV rays[14]. Since the available varieties are coarse, they need to be improved further by following appropriate breeding and selection technique.

These technologies will enable us to boost the production of cotton, which plays a vital role in shaping the national economy. Swami Vivekananda once said, "The 21st century is India's century" and maybe it's time for that wish to come true.

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

Cotton Consumption - Cotton Year-wise

(In Lakh bales)

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16 (P)	2016-17 (P)
October	16.54	18.13	22.09	17.77	21.84	24.03	24.17	24.70	21.59
November	16.94	18.47	21.09	18.34	21.09	22.96	25.05	23.35	23.08
December	17.98	19.49	22.57	20.13	22.63	25.16	25.89	25.49	24.36
January	16.93	19.54	22.1	20.33	23.3	25.19	25.77	25.26	24.87
February	16.23	18.81	20.23	20.31	22.24	23.22	24.58	24.64	24.67
March	17.51	20.01	21.77	20.38	23.61	25.07	26.18	25.61	
April	17.12	20.53	20.17	20.31	23.22	24.32	25.57	24.95	
May	17.83	20.93	18.64	21.27	22.85	24.38	25.62	25.38	
June	18.01	20.71	18.23	21.17	22.51	24.11	25.61	25.38	
July	18.98	22.11	19	22.14	24.11	24.54	25.56	25.01	
August	18.59	21.73	18.64	22.08	24.23	24.46	25.86	24.37	
September	18.29	21.42	21.71	21.46	23.7	25.81	24.58	23.16	
Total	**210.96**	**241.88**	**246.23**	**245.47**	**275.34**	**293.24**	**304.43**	**297.28**	**118.57**

(P) = Provisional *Source: Office of the Textile Commissioner*

Cotton Yarn Production

(In Mn. kg)

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17 (P)
April	242.26	244.50	273.77	268.06	268.2	316.61	328.68	349.38	334.30
May	257.51	247.76	283.69	255.56	286.19	314.97	332.92	348.14	360.75
June	253.65	248.76	284.79	248.29	288.40	317.69	330.69	346.72	352.00
July	250.28	257.65	302.16	256.73	301.34	332.12	340.00	356.36	343.34
August	242.32	256.19	300.34	262.74	302.85	336.30	338.09	354.67	334.92
September	233.56	252.78	297.68	258.97	296.74	326.09	334.03	338.53	327.23
October	225.51	250.82	301.55	241.83	302.65	328.79	323.53	342.12	312.03
November	235.07	257.44	283.52	243.85	282.88	312.13	335.66	320.06	327.16
December	251.88	267.44	308.78	269.82	314.21	341.67	353.96	353.31	342.51
January	236.70	266.69	296.87	279.19	315.07	340.38	349.82	343.98	344.91
February	224.98	256.58	272.99	269.01	302.59	321.31	330.35	336.55	334.09
March	242.44	272.37	283.63	272.29	321.57	340.20	356.78	347.84	
TOTAL	**2896.16**	**3078.98**	**3489.78**	**3126.34**	**3582.68**	**3928.27**	**4054.51**	**4137.64**	**3713.25**

(P) = Provisional *(Source: Office of the Textile Commissioner)*

CAI Releases its March Estimate of 2016-17 Cotton Season

Cotton Association of India (CAI) has released its March estimate of the cotton crop for the 2016-17 crop year beginning from 1st October 2016. The CAI has placed its cotton crop estimate for the ongoing cotton season at 340.50 lakh bales of 170 kgs. each. The projected Balance Sheet drawn by the CAI estimated total cotton supply for the season at 410.50 lakh bales while the domestic consumption is estimated at 300.00 lakh bales thus leaving an available surplus of 110.50 lakh bales. A statement containing the State-wise estimate of the cotton crop and the Balance Sheet for the season 2016-17 with the corresponding data for the previous crop year is given below.

The arrivals of cotton have accelerated their pace during the month of March 2017. The arrivals during March 2017 are higher than that of the corresponding month during last year and the gap of arrivals as compared to last year has narrowed down further.

CAI's Estimates of Cotton Crop as on 31st March 2017 for the Seasons 2016-17 and 2015-16

(in lakh bales)

State	Production *		Arrivals As on 31st March 2017 (2016-17)
	2016-17	2015-16	
Punjab	9.50	7.50	8.75
Haryana	20.50	17.00	18.50
Upper Rajasthan	7.25	5.50	6.75
Lower Rajasthan	10.25	10.50	9.00
Total North Zone	**47.50**	**40.50**	**43.00**
Gujarat	91.00	88.00	64.00
Maharashtra	86.00	78.00	74.00
Madhya Pradesh	21.00	18.75	18.50
Total Central Zone	**198.00**	**184.75**	**156.50**
Telangana	48.00	58.00	42.00
Andhra Pradesh	18.00	24.00	14.00
Karnataka	17.50	18.50	13.00
Tamil Nadu	5.50	7.00	3.00
Total South Zone	**89.00**	**107.50**	**72.00**
Orissa	4.00	3.00	2.75
Others	2.00	2.00	1.25
Total	**340.50**	**337.75**	**275.50**

*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 2016-17 and 2015-16 is reproduced below:-

(in lakh bales)

Details	2016-17	2015-16
Opening Stock	45.00	67.25
Production	340.50	337.75
Imports	25.00	22.00
Total Supply	**410.50**	**427.00**
Mill Consumption	265.00	275.00
Consumption by SSI Units	25.00	25.00
Non-Mill Use	10.00	10.00
Exports		72.00
Total Demand	**300.00**	**382.00**
Available Surplus	**110.50**	
Closing Stock		**45.00**

COTTON EXCHANGE MARCHES AHEAD

Madhoo Pavaskar, Rama Pavaskar

Chapter 5
March To Freedom - I

(Contd. from Issue No.2)

Export Promotion

In the 1985-86 cotton year the government released 10 lakh bales of staple cotton for exports, including two lakh bales in favour of the private trade for the first time. Although the private trade received its quota as late as in February 1986 when the foreign buyers had already covered most of their requirements world over, it could still export a little over one lakh bales before the end of the season on August 31, 1986. In the following cotton year, the private trade gave an even more impressive account of itself by not only exporting the entire quantity of 40,000 bales of staple cotton allotted in its favour, but also shipping another 1,40,000 bales from the unfulfilled quota of the previous year, which was allowed to be spilled over. The private trade was allotted in October 1986 an additional quota of 44,500 bales from the 1985-86 season's crop, since that season ended with an unprecedented carry over stock of 50 lakh bales, which was threatening the livelihood of cotton farmers by depressing the cotton prices.

The export promotion drive of the Cotton Exchange was obviously bearing some fruit. In his Presidential address at the Annual General Meeting of the Exchange held on June 8, 1987, with all his humility, Mr.C.H. Mirani could not hide his pride at the outstanding export performance by the members of the Exchange. He then urged the government to supplement the export promotion efforts of the Exchange by deputing trade delegations abroad so as to "make the consumers of the world know the worth of our cotton".

Erratic Controls

The government, however, was still in no mood to listen. It continued with its step-motherly treatment of the private trade and denied the trade any export quota for staple cotton in 1987-88. Even after the announcement of the so-called long-term export policy in 1988-89, the private trade remained a pariah. The government had probably no intention of promoting cotton exports from India. The export quotas, when released, were too small and rarely exceeded five per cent of the cotton production. The unabashed hostility towards the private trade betrayed nothing but the government's lack of commitment towards exports.

Moreover, quotas were not released at the beginning of everycotton year in September, but were announced in ad-hocinstalments at intervals, depending on the government's assessment of the cotton supply situation. This resulted in considerable uncertainty year after year. Not only were the exporters unable to make long-term commitments in advance of the crop movement, but export contracts could not be entered into even after the onset of the arrivals. Far from promoting exports, the government policy was primarily aimed at bailing out the CCI and the State agencies whenever they were saddled with surplus stocks.

Quotas, when announced, were also required to be exhausted within stipulated shipment periods. This often led to mad rush for exports to meet the shipping deadlines. The resulting competition among the exporters inter se depressed the export prices for Indian cotton, affecting adversely the foreign exchange earnings as well as the domestic market.

In 1993-94, the government actually dropped a bomb-shell on both the exporters and the foreign buyers. Quotas were suddenly suspended, and even shipments of contracts already entered into with the overseas buyers were stopped. It was only when the various international trade organizations and the East India Cotton Association represented to the government that the exporters were legally

bound by the contracts to make the necessary shipments that the government relented after some time and allowed the shipments. Meanwhile, much damage was done, since such ad-hoc export policies with arbitratary implementation, and discretionary and abrupt suspension of shipments against quotas already allotted, undermined the credibility of Indian exporters and the sanctity of their contracts with respect to delivery and shipment schedules. As a consequence, the unit value realisations on India's cotton exports had, by and large, been less than the comparable international cotton prices.

For many years, exports of cotton were also subject to the minimum export prices as fixed by the Textile Commissioner who administered all export controls. These prices varied for each variety from year to year. So long as such minimum prices were lower than the international prices of comparable cotton varieties, exports took place. But whenever the minimum prices were pegged at unduly high levels, the public sector and State agencies were unable to fulfill their quotas. Realising the futility of minimum export prices, these were at long last discontinued from the 1995-96 cotton year.

The principal purpose of these erratic export controls was to depress the domestic cotton market so as to assure cotton supplies to the textile industry at low prices. In the process; during the last two decades and a half, the real (i.e. inflation adjusted) cotton prices remained mostly below their corresponding levels in the late 1970s. This was evidently not conducive to the growth in cotton productivity and production, which is essential to raise the mill consumption of cotton so as to improve the country's textile output and the domestic per caput cloth availability, besides promoting exports of cotton yarns, fabrics and garments. Attempts to subdue cotton prices through undue restrictions on cotton exports are counter-productive in the long run to both the cotton and textile economies.

This point was ingeniously brought out by Mr.Mirani in a letter dated October 7, 1995 addressed to Mr. Kamal Nath, the then Union Minister of State for Textiles. While stating that the long term export policy was not being implemented in practice, Mr.Mirani wrote, "On the one hand, exports of cotton of the announced quantity of 5 lakh bales are not allowed by the Government; on the other hand, the Government has placed cotton imports on OGL, with no import duty. The crucial point is that while the spinning and weaving industry should be in a position to procure cotton at prices prevailing in international markets, so that Indian textiles remain competitive in world markets, cotton farmers must also secure internationally competitive prices for their produce in order to increase both productivity and total cotton production". Mr. Mirani therefore urged that exports must be allowed on a continuous basis "for maintaining India's presence in the world markets on a permanent basis". In his poignant words, "switch on and switch off policy is not in the long term interest of our cotton economy".

Unfounded Fears

The main argument against liberalized cotton exports was that the country benefitted more from exporting the value added cotton products like yarns, fabrics, made-ups and garments than exporting the relatively low value raw cotton. It was feared that the large and disproportionate export of cotton would result in rise in yarn prices, jeopardizing thereby not only the interests of handloom and powerloom weavers, but also the cost effectiveness and competitiveness of Indian textiles in the world markets, affecting exports of all types of textiles and garments. With the bright prospects for the textile exports, following the proposed MFA phaseout under the Agreement on Textiles and Clothing (ATC) in the GATT round, unrestricted cotton exports were perceived as undesirable. Fears were expressed that liberalized cotton exports might also deprive the country's teeming millions adequate cloth at affordable prices.

All such fears were unfounded. The Cotton Exchange which had been pressing for the liberalized export policy never denied the necessity to promote textile exports, as also to safeguard the interests of the weavers and those of the consumers of cloth by imports whenever necessary. However, the liberalized export policy must go hand in hand with the liberalized import policy. With imports already freed from both the tariff and non-tariff barriers, the need for liberalized exports was all the more imperative. Such a two-way liberalization ensures the globalization of India's cotton and textile economies.

For, in that situation, export and import of cotton will be regulated solely by international price mechanism. Whenever the domestic cotton prices exceed the international prices, not only will exports come to a halt, but imports may flow in. In turn, cotton exports will raise the domestic prices, if depressed, to the international levels. The domestic prices will thus always remain in parity

with the prices in the world markets. While the textile industry will then procure cotton at prices not higher than those in the international markets, cotton farmers will also secure internationally competitive prices for their cotton. That was the burden of Mr.Mirani's argument in his letter to the Textile Minister.

In contrast, the "switch on" and "switch off" export policy, as aptly described by Mr. Mirani, merely subserved the immediate interests of cotton spinners and weavers at the cost of those of cotton growers. In other words, cotton farmers subsidized the spinners and weavers, and indirectly the exports of textiles and garments. The value addition to textiles and their products must reflect the productive and competitive efficiency of the textile industry rather than the cross-subsidisation by the poor cotton growers. It was for this reason that the Parliamentary Committee on Agriculture in its Tenth LokSabha Report on "Analysis of Price Situation of Agricultural Commodities " had observed that the cotton export policy was far from 'farmer friendly'. As found by the Committee, "the decisions to import and export cotton have been taken at such points of time as have affected the farmers' interests adversely. Imports are decided before the new harvest commences. Similarly, export quotas are announced much after the harvest, by when the farmer has already parted with major portion of his produce. Both these act in the direction of depressing prices received by the farmers".

The Committee had therefore suggested that the "practice of ad-hoc decisions for releasing quotas, designating agencies and fixing Minimum Export Prices, etc. should be done away, if we wish to benefit from the emerging international situation. It is desirable for India to compete freely in the international cotton market. This can be possible only if export of cotton is allowed freely without the restrictions enlisted above. The cotton export, therefore, must be fully liberalized so as to take advantage of international market and also to benefit Indian farmers".

Liberalize Exports

The need for liberalization of cotton exports can hardly be over-emphasised. Under such liberalized policy, exports should be allowed freely under Open General Licence (OGL) for all cotton varieties without any restrictions on the shipment period. That would prevent the reckless rush for cotton exports and the consequent lower unit value realisation.

Incidentally, the fear that free and unrestricted cotton exports per se would depress world cotton market was quite misplaced. For one thing, such exports would raise the domestic prices even during the peak marketing season. Exporters would then be unable to lower prices, for that would reduce their export margins and render exports uneconomical. On the other hand, it seemed far-fetched to believe that unfettered exports would affect adversely the international prices. World trade in cotton is currently around 6 million tonnes (equivalent to a little over 35 million bales of 170 kg each) a year. Therefore, even if India exports, most optimistically, two million bales, its share in the world cotton exports will scarcely exceed six per cent. With such a meagre share, it is naïve to believe that the liberalized export policy for cotton will depress international prices, especially since the world trade in cotton is growing at five per cent annually.

On the other hand, the fears of the cotton trade that the restrictions on cotton exports would in the long run depress cotton prices and harm adversely both the cotton productivity and production to the detriment of the cotton growers as well as textile mills have proved right as the experience of the recent years aptly discloses. After having reached the peak production level of 178 lakh bales of cotton in 1996-97 with an average productivity of 332 kg. per hectare, the cotton production has been hovering around just 160 lakh bales since 1997-98 with yield sliding below 300 kg. per hectare through the last three years. Sadly enough, the cotton production has actually slumped to just about 140 lakh bales during 2000-01.

Had cotton exports been put on OGL long back, the country would have avoided this sorry state of affairs, in which it finds itself at the onset of the New Millennium, which has led to the reported unfortunate suicides among some cotton farmers owing to the crop failure on the one hand, and the dampened cotton prices, as a result of imports, on the other. Not that the Cotton Exchange is averse to import liberalization as enjoined in the WTO charter. But import liberalization must go hand in hand with export liberalization, if India were to retain its pride of place in the world cotton economy.

(To be continued .....)

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UPCOUNTRY SPOT RATES

(Rs./Qtl)

Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	Spot Rate (Upcountry) 2016-17 Crop APRIL 2017					
							10th	11th	12th	13th	14th	15th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	9589 (34100)	9589 (34100)	9589 (34100)	9589 (34100)	9645 (34300)	9645 (34300)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	9870 (35100)	9870 (35100)	9870 (35100)	9870 (35100)	9926 (35300)	9926 (35300)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	8211 (29200)	8267 (29400)	8239 (29300)	8239 (29300)	8239 (29300)	8211 (29200)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	9420 (33500)	9476 (33700)	9476 (33700)	9476 (33700)	9476 (33700)	9448 (33600)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	10629 (37800)	10686 (38000)	10686 (38000)	10686 (38000)	10686 (38000)	10657 (37900)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	12232 (43500)	12373 (44000)	12345 (43900)	12260 (43600)	12317 (43800)	12317 (43800)
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	10461 (37200)	10461 (37200)	10461 (37200)	10461 (37200)	10461 (37200)	10320 (36700)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	10686 (38000)	10686 (38000)	10686 (38000)	10686 (38000)	10686 (38000)	10545 (37500)
9	P/H/R	ICS-105	Fine	27mm	3.5.4.9	26	12401 (44100)	12541 (44600)	12513 (44500)	12429 (44200)	12485 (44400)	12485 (44400)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	10657 (37900)	10657 (37900)	10657 (37900)	10657 (37900)	10657 (37900)	10517 (37400)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	11023 (39200)	11023 (39200)	11023 (39200)	11023 (39200)	11023 (39200)	10882 (38700)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	12457 (44300)	12598 (44800)	12570 (44700)	12485 (44400)	12541 (44600)	12541 (44600)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	11670 (41500)	11698 (41600)	11698 (41600)	11698 (41600)	11698 (41600)	11642 (41400)
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	11782 (41900)	11782 (41900)	11782 (41900)	11782 (41900)	11782 (41900)	11726 (41700)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	11951 (42500)	11979 (42600)	11979 (42600)	11979 (42600)	11979 (42600)	11923 (42400)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	12092 (43000)	12120 (43100)	12120 (43100)	12120 (43100)	12120 (43100)	12063 (42900)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	12204 (43400)	12260 (43600)	12260 (43600)	12260 (43600)	12260 (43600)	12204 (43400)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	12710 (45200)	12710 (45200)	12654 (45000)	12570 (44700)	12570 (44700)	12513 (44500)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	12991 (46200)	12991 (46200)	12991 (46200)	12935 (46000)	12935 (46000)	12935 (46000)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	16310 (58000)	16310 (58000)	16310 (58000)	16310 (58000)	16310 (58000)	16310 (58000)

Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [By law 66 (A) (a) (4)]

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