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Contamination of Cotton: Sources and Remedies

GUEST COLUMN

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Shri. Sanchit Rajpal is the Joint Managing Director of Manjeet Cotton Pvt. Ltd., a company that has acquired global acclaim for its quality cotton. It has a lion's share in providing a unique identity to cotton from Maharashtra in the country and abroad and has starting an innovative era of modernised ginning industry in the state.

As prevention is better than cure, it is always more desirable not to generate contamination at all than to have to clean it at different stages of processing. To achieve this, all concerned industries have to work together. According to a recent survey by ITMF, Indian cotton is amongst the most contaminated cotton in the world, so producing yarns of world class quality from Indian cottons is a greater challenge. This challenge can be met with a selection of suitable cottons, appropriate work practices and proper use of modern machines and technologies. Contamination represents a significant threat and element of cost to spinning mills and this led them to implement a range of costly methods to remove the contamination. On analysis it was found that amongst all the areas of textile sectors, "Fibre cultivation to yarn spinning stage" remains major source of contamination.

Sources of Contamination:

Contaminations do not grow with cotton balls in the tree. These are mostly "added" to fresh cotton during picking. Contaminations to raw cotton take place at every step i.e. from the farm picking to the ginning stage. Since cotton is picked manually by rural woman, human hair, contamination caused by cloth pieces and fabric sheets are the biggest sources of contamination.

International Textile Manufactures Federation (ITMF), Zurich, which conducts a survey on cotton contamination every two years, has identified five major sources of contamination:

1. Strings made of jute.
2. Strings made of hessian.
3. Fabric made of jute.
4. Fabric made of hessian.
5. Organic matter such as leaves, feather, paper, leather, etc.

Contamination Within Raw Material

There are the two possibilities of contamination. As the natural fibre cultivation, ginning, and packing process are mostly manual, chances of oil/grease/rust stain on fibre after the stoppages, or the maintenance activities of spinning machines exist.

Handling of Packing Material During Raw Material Opening

Due to poor wrapper quality, wrapper stripe is passed with fibre mixing and converts into small fibre/strip during carding and finally, gets spun with fibre and creates contamination in yarn.

control system like Vision shield of Reiter, can be installed in the transportation line between ginning and storing, before putting the cotton fibre into bale press. Average efficiency of this contamination control system is around 40-45% at this stage. The sorting efficiency is 55-70% with a sorting load of 165 kgs/person/8 hr.

Table 2: Various Sources of Contamination, Their Effect and Remedial Stages

Source of contamination	Effect	Remedies
Strings/fabrics of jute/ hessian	Increased end breakage rate at ring/rotor.	Avoid use of hessian for transport at farms and ginning. Use of cotton cloth for bales.
Strings/fabrics of cotton	Poor yarn appearance differential dye pick-up.	Manual picking, automatic transportation, training
Strings/fabrics of woven plastics/plastic film	Poor quality yarn/cloth	Avoid use of plastic material, better housekeeping and practices
Organic matter - Leaves, feather, paper, leather etc	Differential dye pick-up. Very Poor quality yarn/cloth. Damaged to machinery	Use of pre-cleaner at ginning, use of gravity trap, better housekeeping.
Inorganic matter 1. sand dust	Increased waste at spinning Damaged to machinery	Use of pre-cleaner at ginning, use metal detector, better housekeeping.
2. metal/wire	Increased waste at spinning Damaged to machinery	Avoid use of stamp color, better house keeping
Oily matter	Mars yarn/fabric appearance	Use of caps, automatic transportation, education/training
1. Stamp color 2. Grease/oil	Increased end breaks at ring rotor Poor yarn/ fabric appearance	Better housekeeping and practices
Hair- human	Damaged to machinery	Use pre-cleaner and post cleaner at ginning
Stones	Increased waste at spinning Poor yarn/fabric appearance	Better practices, education/ training
Seed coats	Damaged to machinery part	Better housekeeping and practices
Pouches - Gutkha	Increased waste at spinning Poor yarn/fabric appearance	Use pre-cleaner and post cleaner at ginning

Measures to Reduce Contamination

Manual Process

We must also change our mind set that cotton being a natural fibre is bound to have some contamination as contaminants are not being grown with cotton in the tree. These are added during picking and storage, etc. and removal / control of the same is certainly possible if the proper cleaning methods are followed. Contaminants like jute, chindies, HDPE, gutkha packs, etc. can be removed by the workers. A team of workers should be appointed at the time of unloading of the trucks and at the time of heaping. It is difficult to detect the contamination due to their unpredictable size, shape, material and position as some of the contaminants get inside the cotton fibre layer and become invisible. This system is costly, time consuming and chances of human error are more.

Scanners

It is more beneficial to remove the contamination in the earlier processing stage for two reasons, first, the early removal prevents the contamination from spreading to a large extent and second, it also helps to avoid more interventions at a later stage.

In ginning factories, electronic contamination

Cotton Buying Process

At the time of purchasing cotton, spinning mills do not make contamination as a parameter for purchase of cotton and only length, micronaire, moisture content and trash content are mainly considered. Even RD value and short fibre contents are not discussed at this stage, therefore the ginner is least bothered about the level of contamination and RD value, etc. A similar thing happens with ginners, who also never check the contamination level before buying seed cotton from a farmer. Farmers who are bringing contaminated cotton should be disdained.

Purchasers of cotton think that the contamination will be removed in the processes of spinning such as blow room, carding, winding, etc. hence they do not give due weightage to this aspect, despite the fact that the cleaning of contaminants is the costliest process in the spinning mills and none of the machines used for removing the contaminants can remove all the contaminants. Since the spinning mills do not consider the contamination as a parameter for purchase of cotton, the accepted levels of trash and moisture are on the higher side, since the ginners do not take up this with the traders or farmers

strongly. Since they also adopt a casual approach to the contamination issue, it finally results in higher contamination.

In the process of cleaning trash, some contaminants get removed hence the machine-picked cotton is found with lower trash and contamination, however if proper cleaning is used for hand- picked cotton in ginning and pressing factories, the same will certainly have lower contamination and lower trash with the advantage of better fibre parameters. But this is only possible when the ginner is encouraged to remove the trash and contaminants, by being paid a premium for the efforts he has taken to remove the contamiantion.

Educating Farmers

In India, traditionally, cotton is picked by rural women manually. Besides many benefits, a big problem of manual cotton picking is that the cotton pickers are the biggest source of cotton contamination. A number of impurities like pieces of leaves, immature and empty balls, stems, flowers, sticks and weeds, trash and dust, mix with cotton due to the carelessness of pickers.

It is common practice among cotton pickers that while picking cotton, they make use of plastic bags and silk scarves, which mixed with cotton, comes up as an impurity at the time of spinning and dyeing of fibre, yarn and fabrics. Also, since cotton is mostly picked by women, human hair gets mixed with cotton during picking. It creates problems at the time of ginning, spinning and weaving and inflicts losses to the industry. In addition, women pickers normally make use of their dupatta or any surplus fabrics sheet or a cloth or polypropylene bags to collect the picked cotton. Contamination from these mixes up with the cotton, resulting in substandard fibre.

Rural women start picking cotton early in the morning, before the dew has dried up. It affects the quality of cotton especially at the time of making bales and storage. The common malpractice among cotton pickers is to add water to cotton at different intervals to increase its weight. Thus they do get more wages, but spoil the quality of cotton. Sometimes picked cotton is stored on wet soil or on watercourses, which spoils it.

Though often hand-picked cotton is perfect in shape,it suffers contamination successively; first at the hands of cotton pickers and farmers and later at market and ginning factories. Generally wages to cotton pickers are paid in the form of cotton, who keep it at home until they have collected a reasonable quantity to sell in the market. During the storage of cotton in their homes, cotton gets contaminated with human hair, toffee wrappers, birds feathers and small pieces of fabrics, polythene bags, etc. Also the colour of the cotton changes if stored for a long time. The contaminated cotton is ultimately sold in the market in jute or propylene bags sewed with jute twine to be transported to the ginning factories.

The Indian cotton farming community is mainly dominated by small farmers. Most of these farmers produce cotton on small area of their holdings and hence the volume of cotton collected from their farms during the season would not be enough for them to sell it directly in the markets or to the ginning factories. Therefore, they often sell their produce at a discount to traders who purchase cotton of the whole area. It is common practice among traders that they transport cotton to the market with substandard, immature or contaminated stuff. They too, considering economy of transport, mix up cotton of two varieties or two grades of the same variety, grown in the same locality. This causes contamination of fibre. Traders also have the habit of mixing water or crystal salt to raw cotton to make cotton bags weigh more, which leads to further contamination.

If proper education is given to the farmers about the causes of contamimation through camps and seminars and if farmers are encouraged by being paid for the efforts taken by them to reduce contamination, then it can surely help in reducing the contamination at the farm level.

Conclusion

Contaminations are not being grown with cotton balls in the tree. These are mostly "added" to fresh cotton during picking, storage, ginning and other processes where humans come in contact with the cotton. Contamination is one of the critical issues for spinners to maintain first grade yarn quality. Different methods to reduce contamination are now practiced in cotton ginning to yarn manufacturing processes, which have been reviewed. More involvement will definitely improve the contamination removal efficiency of the industry and as a result, this burning issue of contamination may be solved with ease. However there is urgent need to adopt either commercial or regulatory methods as mentioned in the suggestions above or other similar methods to encourage / implement the best ginning practices to achieve this, which in turn will result in lowest contamination and trash in the cotton and lead to sustainability of the cotton as preferred fibre for spinning in the long run.

Courtesy: Cotton India 2015-16

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

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Production of Fibres

(In Mn. Kg)

As on	Raw Cotton (Oct.-Sept.)	Synthetic			Cellulosic	Sub Total
		PSF	ASF	PPSF	VSF	
2005-06	4097	628.15	107.81	3.08	228.98	968.02
2006-07	4760	791.99	97.13	3.52	246.83	1139.47
2007-08	5219	879.61	81.23	3.43	279.90	1244.17
2008-09	4930	750.12	79.50	3.44	232.75	1065.81
2009-10	5185	872.13	90.45	3.38	302.09	1268.05
2010-11	5765	896.33	79.48	3.74	305.10	1284.65
2011-12	6239	829.74	77.71	4.08	322.64	1234.17
2012-13	6290	848.05	73.59	4.26	337.49	1263.39
2013-14	6766	845.95	96.12	3.71	361.02	1306.80
2014-15	6562	881.56	92.54	4.62	365.17	1343.89
2015-16 (P)	5746	893.95	106.81	4.70	341.91	1347.37
2016-17 (P) (Apr.-Aug.)	--	385.36	44.51	1.96	146.28	578.11
2015-16						
April	--	73.62	9.45	0.35	28.62	112.03
May	--	75.55	9.50	0.30	18.42	103.77
June	--	67.17	7.88	0.31	19.50	94.86
July	--	70.75	9.15	0.40	29.70	110.00
August	--	74.07	9.35	0.47	30.63	114.52
September	--	74.24	7.95	0.46	30.42	113.07
October	--	76.66	9.23	0.38	31.34	117.61
November	--	74.98	8.15	0.30	30.72	114.15
December	--	76.65	9.36	0.45	31.49	117.95
January	--	79.10	9.40	0.46	31.33	120.29
February	--	73.52	8.58	0.42	28.07	110.59
March	--	77.64	8.81	0.41	31.67	118.53
2016-17 (P)						
April	--	73.56	8.86	0.37	30.32	113.11
May	--	77.07	9.39	0.44	31.72	118.62
June	--	77.46	9.28	0.45	21.87	109.06
July	--	79.32	8.07	0.30	30.41	118.10
August	--	77.95	8.91	0.40	31.96	119.22

(P)= Provisional

Source : Office of the Textile Commissioner

China Paring Down Its Excess Stocks

World ending stocks increased by 140% from 2009/10 to 2014/15, when they reached a world record of 22.2 million tons. In 2015/16, the drop in world production led to a 14% reduction in stocks to 19.1 million tons. World ending stocks are forecast to decrease further by 7% to 17.8 million tons at the end of 2016/17 as China continues to reduce its stocks. Ending stocks in China, where much of the excess stocks are held, decreased by 13% to 11.3 million tons as the Chinese government sold over two million tons from its official reserves from May through September 2016. The government restricted import quota to the volume required by its WTO commitments in 2015 and 2016 and announced that it will continue to do so in 2017. In addition, the government is planning to begin sales from its reserves in March 2017 when the majority of the new crop will have been sold. Stocks in China are expected to decline by 15% to 9.6 million tons by the end of 2016/17. After falling by 16% to 7.9 million tons, stocks outside of China may rise by 4% to 8.2 million tons. The stock-to-use ratio for the world less China is projected at 34%, which is about four months of consumption, and in line with the 10-year average.

ICAC

In 2016/17, world cotton production is projected to increase by 7% to 22.4 million tons as a 9% increase to 753 kg/ha in the world average yield offsets a 2% contraction in world cotton area to 29.7 million hectares. India will remain the world's largest cotton producer, although its production is forecast to remain unchanged from 2015/16 at 5.8 million tons. Output in China, now the world's second largest producer, is projected to decrease by 4% to 4.6 million tons. This represents the fifth season of declining production in China, as production costs have risen substantially, making cotton less profitable despite higher domestic cotton prices compared to international prices. Cotton production in the United States is expected to grow by 24% to 3.5 million tons as beneficial weather and plentiful rains have increased the average yield by 4% to 893 kg/ha while also reducing the abandonment rate so that harvested area is estimated to rise by 20% to 3.9 million hectares. After a 34% drop in production due to adverse weather, competition with other crops, low prices and an outbreak of pink bollworm, Pakistan's cotton production is expected to recover by 24% to 1.9 million tons in 2016/17. After facing lower inventories in 2016 due to strong export demand, cotton production is forecast to increase by 8% to 1.4 million tons in Brazil.

In 2016/17, world cotton consumption is projected to remain unchanged at 23.8 million tons, despite the widening gap between polyester prices in China, the world's largest producer and consumer of polyester, and international cotton prices. Mill use is expected to rise in three of the top ten consuming countries – Bangladesh, Vietnam, and the United States, where consumption is forecast to increase by 12% to 1.2 million tons, 13% to 1.1 million tons and 1% to 762,000 tons, respectively. This will offset losses in China, Turkey and Brazil, where mill use is projected to decrease by 2% to 7.2 million tons, 3% to 1.45 million tons, and 12% to 645,000 tons, respectively. Mill use in India, Pakistan, Indonesia, and Mexico is expected to remain stable.

World cotton imports are forecast to increase by 4% to 7.5 million tons due to the growth of consumption in countries such as Bangladesh and Vietnam, which depend on cotton imports. Bangladesh is projected to increase its volume of imports by 10% to 1.2 million tons, while imports by Vietnam are expected to rise by 15% to 1.1 million tons. In contrast, imports in Turkey are forecast to fall by 1% to 911,000 tons and in Pakistan by 6% to 462,000 tons due to the growth in domestic cotton production. China's imports could increase by 2% to 977,000 tons as mill use exceeds domestic production by 2.6 million tons and the official reserves are unlikely to hold the quality of cotton that Chinese spinning mills are seeking. Indonesia's imports are projected to increase by 1% to 646,000 tons. Exports from the United States are expected to rise by 26% to 2.5 million tons, as the abundant crop this season will provide a large exportable surplus. India on the other hand is likely to see its exports fall by 34% to 825,000 tons as stocks are replenished after declining by 21% to just under 2 million tons by the end of 2015/16.

Source : ICAC Cotton This Month, November 14, 2016

Supply and Distribution of Cotton

November 14, 2016

Seasons begin on August 1 — Million Metric Tons

	2011/12	2012/13	2013/14 Est.	2014/15 Est.	2015/16 Est.	2016/17 Proj.
BEGINNING STOCKS						
WORLD TOTAL	10.333	15.351	18.342	20.476	22.24	19.14
China	2.087	6.181	9.607	12.109	12.92	11.27
USA	0.566	0.729	0.903	0.651	0.98	1.05
PRODUCTION						
WORLD TOTAL	27.848	26.785	26.169	26.199	21.02	22.40
India	6.239	6.290	6.766	6.562	5.75	5.77
China	7.400	7.300	6.950	6.500	4.75	4.55
USA	3.391	3.770	2.811	3.553	2.81	3.49
Pakistan	2.311	2.002	2.076	2.305	1.51	1.88
Brazil	1.877	1.310	1.734	1.563	1.29	1.39
Uzbekistan	0.880	1.000	0.910	0.885	0.83	0.82
Others	5.750	5.113	4.923	4.831	4.08	4.51
CONSUMPTION						
WORLD TOTAL	22.788	23.521	23.737	24.199	23.81	23.75
China	8.635	8.290	7.517	7.479	7.33	7.18
India	4.231	4.731	5.057	5.261	5.24	5.25
Pakistan	2.121	2.216	2.470	2.492	2.27	2.28
Europe & Turkey	1.498	1.560	1.611	1.692	1.69	1.63
Vietnam	0.410	0.492	0.673	0.875	1.01	1.14
Bangladesh	0.700	0.765	0.880	0.937	1.08	1.21
USA	0.718	0.762	0.773	0.778	0.75	0.76
Brazil	0.897	0.910	0.862	0.797	0.73	0.65
Others	3.578	3.795	3.894	3.887	3.72	3.66
EXPORTS						
WORLD TOTAL	9.846	10.061	9.010	7.805	7.52	7.48
USA	2.526	2.836	2.293	2.449	1.99	2.50
India	2.159	1.685	2.014	0.914	1.25	0.82
CFA Zone	0.597	0.828	0.973	0.893	0.97	1.07
Brazil	1.043	0.938	0.485	0.851	0.94	0.79
Uzbekistan	0.550	0.690	0.615	0.550	0.54	0.46
Australia	1.010	1.343	1.057	0.520	0.61	0.64
IMPORTS						
WORLD TOTAL	9.786	9.788	8.712	7.572	7.21	7.48
China	5.342	4.426	3.075	1.804	0.96	0.98
Vietnam	0.379	0.517	0.687	0.934	1.00	1.15
Bangladesh	0.680	0.631	0.967	0.964	1.11	1.22
Indonesia	0.540	0.686	0.651	0.728	0.64	0.65
Turkey	0.519	0.803	0.924	0.800	0.92	0.91
TRADE IMBALANCE 1/	-0.060	-0.274	-0.298	-0.233	-0.31	0.00
STOCKS ADJUSTMENT 2/	0.018	0.001	0.000	-0.002	-0.01	0.00
ENDING STOCKS						
WORLD TOTAL	15.351	18.342	20.476	22.242	19.14	17.78
China	6.181	9.607	12.109	12.917	11.27	9.58
USA	0.729	0.903	0.651	0.980	1.05	1.28
ENDING STOCKS/MILL USE (%)						
WORLD-LESS-CHINA 3/	65	57	52	56	48	48
CHINA 4/	72	116	161	173	154	133
COTLOOK A INDEX 5/	100	88	91	71	70	

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 Cotton This Month, November 14, 2016)

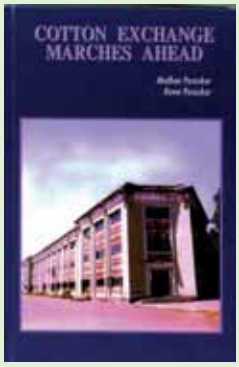
COTTON EXCHANGE MARCHES AHEAD

Madhoo Pavaskar, Rama Pavaskar

Chapter 2
Improving Cotton Quality

MFA Phaseout

The quantum jump in cotton production recorded during the last two decades and a half, notwithstanding some stagnancy witnessed towards the end of the last century, has given rise to the hope that from the current almost self sufficiency, India will soon emerge with surplus cotton for export in the 21st century. Large domestic cotton production will also be needed in the present century for both the growing home consumption and export of textiles. The Agreement on Textiles and Clothing (ATC) arrived at in the Uruguay Round of GATT (General Agreement on Trade and Tariffs) early last decade provided for gradual phaseout of quotas imposed over the last quarter of a century on bilateral basis by developed countries under the Multi-Fibre Agreement (MFA) on the export of yarn, textiles and apparel from developing countries. The phaseout was envisaged over a period of 10 years beginning from 1995 and led to a quota growth rate at 16 per cent in the first three years, to be followed by 25 per cent in the subsequent four years and yet another 27 per cent in the last three years, after which quotas would be abolished altogether.



The MFA phaseout offers great opportunities for countries like India to expand textile and apparel exports and stimulate demand for and production of cotton. At the same time, the abolition of MFA will expose India to more intense competition from other major textile exporters, such as China as well as the Far East and South-East Asian countries, in not only the international markets, but also domestically within the country. That challenge calls for increase in efficiency of India's processing and textile industries. For that purpose, the country needs to improve the quality of its cotton so as to reduce the processing and manufacturing costs and improve the quality of yarn, fabrics and clothings.

Quality Characteristics

Disappointingly, the quality characteristics of Indian cotton have not received as much serious attention from all the concerned as they deserve. Not that all those who handle cotton, and the authorities which regulate the trade and industry in cotton, are not aware of the quality shortcomings of the Indian cotton fibre. But the policy and financial constraints on the one hand, and the necessary investment costs and the final fibre price considerations on the other, appear to have time and again stalled the efforts at implementing the measures proposed for improving the quality of Indian cotton. As a result, in its own country of origin, cotton has remained poor in quality, though it has grown in quantity.

The quality of cotton is determined by a number of physical properties. The most important among these include length, fineness, maturity, uniformity, colour, lustre and strength. To a varying extent, these are all affected adversely by the prevailing harvesting, marketing and processing practices. Hand picking of seed cotton; inadequate and uncovered storage on farms, market yards and at gins and presses; and improper ginning, pressing and transport, result in widespread contamination of cotton. Consequently, Indian cotton suffers from considerable trash content, high level of stained and immature fibre, and large presence of seed-coat fragments, short fibres and foreign materials. Cotton also loses its colour, lustre and strength in the process.

The physical properties of cotton influence the spinning efficiency and the type and quality of yarns and fabrics. The colour of cotton determines the extent of bleaching need and the dye absorption capacity, as also affects the finishing of yarns and fabrics. Maturity and fineness are the sources of strength and length of the fibre, and influence the levels of fibrous wastes and the degree of spinning efficiency. High trash content increases the processing losses and lowers the quality of output. Stains in cotton affect adversely the dyeing process. Stickiness in cotton affects the fibre strength and its processing for spinning. Lustre aids to reflect light. All in all, the poor quality cotton in terms of its physical properties not only raises the processing costs at the initial input and intermediate stages, but also reduces the output and quality of the final textiles, namely, yarns, fabrics and apparels.

Cotton Contamination

In order to shed more light on the problem of cotton contamination and foreign matter, the International Textile Manufacturers Federation (ITMF) has been conducting surveys every alternate year with the spinning mills affiliated to its world-wide membership. So long as spinning was largely a labour intensive processing technology, foreign matter inside cotton could often be eliminated by manual labour attending to spinning. But the trend towards automation in spinning and textile manufacturing has rendered the problem of contamination quite acute. "Automated

equipment is not in a position to detect contamination or foreign matter, let alone eliminate it. In the case of plastic material - one of the most vicious forms of contamination – the damage is becoming visible only by the time the fabric leaves the final finishing process, at which stage it is too late to apply any remedy. It is not only affecting the quality and appearance of the final textile product, but may actually damage the processing machinery itself".

The last available cotton contamination survey was conducted by the ITMF in 2001, based on a new and improved methodology adopted in 1989. This world-wide survey covered 1220 samples of 78 cotton descriptions from all the major cotton producing countries. The samples were evaluated by as many as 243 spinning mills located in 24 different countries, both developed and developing. Fifty spinning mills from India participated in the survey. For India, as many as 296 samples of several different cotton varieties, namely J-34, H-4, Shankar-4/6, LRA, MCU-5, DCH and 'others' grouped together, were analysed. These varieties account for the bulk of the staple cotton production in the country. The results of the survey could therefore be regarded as fairly representative for Indian staple cotton.

The survey focused on cleanliness, stickiness and presence of seed-coat fragments in raw cotton. Cleanliness was measured by the seriousness of contamination (presence of foreign matter) from 16 different sources separately, all of which were weighted equally for determining the overall average level of contamination. The respondents were required to classify the levels of contamination in cotton lint samples as affecting their spinning process into three categories, "serious", "moderate" and "non-existent/ insignificant". As regards stickiness and seed-coat fragments, the survey sought merely affirmative and negative replies from the respondents for their presence in cotton lint.

The results of the survey were most damaging for India. Of the 10 most contaminated cotton descriptions in the world, as many as six were from India. All the selected cotton samples from India were found to be highly contaminated. In terms of decreasing contamination, India ranked third (H-4), fourth (LRA), fifth (Shankar4/6), sixth (group of other types), seventh (J-34), ninth (DCH) and fifteenth (MCU-5). In other words, most of the staple cotton varieties from India were by far the most contaminated types of cotton in the world. Besides India, two descriptions from Turkey and one each from Pakistan, Nigeria, Turkmenistan, Uganda, Tanzania and Tajikistan ranked among the 15 most contaminated types of cotton.

There appears to be little improvement in the cleanliness of Indian cotton over the years. If at all, the condition of Indian cotton may have even deteriorated, with the overall emphasis on raising the aggregate output rather than improving the quality. The 1993 ITMF survey had also found that the then five selected Indian cotton varieties (H-4, Shankar 4/6, DCH, 'others' and MCU) were among the 15 most contaminated descriptions, with ranking of 2, 7, 8, 11 and 13 respectively. The 1991 survey too had ranked the same Indian varieties at 1, 2, 3, 5 and 8. The contamination in Indian cotton evidently continues unabated.

The major sources of contamination in Indian cotton were found to be fabrics and strings made of jute, hessian and cotton; grease/oil and stamp colour; organic matters like leaves, feather, paper, leather, etc.; and to some extent even inorganic matters like sand and dust. Most of the Indian cotton varieties, notably, DCH, J-34, LRA, MCU-5 and Shankar 4/6 also reported the presence of seed-coat fragments. Improper storage and ginning and pressing seem to be at the root of unclean Indian cotton.

Fortunately, most Indian cotton descriptions do not seem to be affected seriously by 'stickiness'. Except DCH, for all other sample varieties, the affirmative replies on the question of stickiness were less than 25 per cent in 2001. DCH variety recorded as many as 25 per cent affirmative replies for 24 samples. In 1993 even Shankar 4/6 and H-4 had reported existence of stickiness in 40 and 38 per cent of the samples. Since then, the proportion of stickiness in their samples has fallen to 7 and 17 per cent respectively. Hence, there appears noteworthy improvement in regard to stickiness of Indian cotton descriptions over the last decade.

Summing up, even assuming possible sampling errors and a little exaggeration by the selected spinning mills, the survey being subjective and opinion oriented rather than based on objective scientific laboratory testing, there can be no two opinions that Indian cotton lacks quality, as the results were by and large uniformly similar, if not almost the same, for the participating mills. Moreover, the results have been almost similar over successive years too, even though the participating mills in the successive surveys have not always been the same.

The level of contamination in Indian cotton is much more than in other major cotton producing and exporting countries, particularly USA, Australia and even most South American and African countries. If India were to benefit from the MFA phaseout in the present century and also promote exports of its expected surplus cotton, the quality issue can no longer be swept under the carpet. It requires utmost attention in the next few years and the Cotton Exchange as the premier and representative trade body must put the necessary pressures on the government, the cotton growers, the ginning and pressing factories and the upcountry cotton merchants to take right steps, quite earnestly, without much loss of time.

(To be continued ……)

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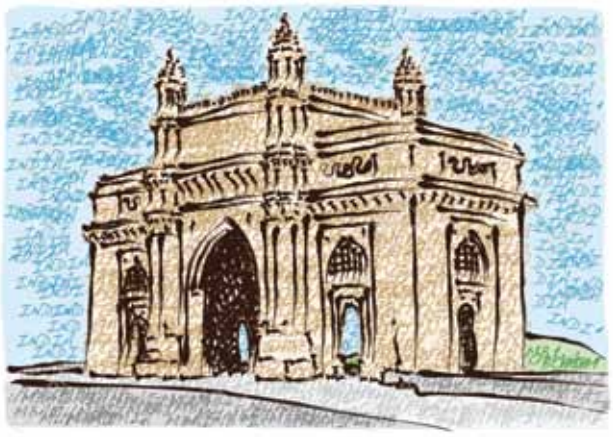

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UPCOUNTRY SPOT RATES (Rs./Qtl)

Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	Spot Rate (Upcountry) 2016-17 Crop NOVEMBER 2016 14th	15th	16th	17th	18th	19th
	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	7845 (27900)	7845 (27900)	7845 (27900)	7902 (28100)	7902 (28100)	7902 (28100)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	8127 (28900)	8127 (28900)	8127 (28900)	8183 (29100)	8183 (29100)	8183 (29100)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	7339 (26100)	7339 (26100)	7424 (26400)	7564 (26900)	7620 (27100)	7620 (27100)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	8970 (31900)	8970 (31900)	9055 (32200)	9195 (32700)	9251 (32900)	9251 (32900)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	10151 (36100)	10151 (36100)	10236 (36400)	10376 (36900)	10432 (37100)	10432 (37100)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	10461 (37200)	10545 (37500)	10629 (37800)	10770 (38300)	10826 (38500)	10826 (38500)
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	10067 (35800)	10067 (35800)	10151 (36100)	10292 (36600)	10348 (36800)	10404 (37000)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	10264 (36500)	10264 (36500)	10348 (36800)	10489 (37300)	10545 (37500)	10601 (37700)
9	P/H/R	ICS-105	Fine	27mm	3.5.4.9	26	10629 (37800)	10714 (38100)	10798 (38400)	10939 (38900)	10995 (39100)	10995 (39100)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	10179 (36200)	10179 (36200)	10264 (36500)	10404 (37000)	10461 (37200)	10517 (37400)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	10376 (36900)	10461 (37200)	10545 (37500)	10686 (38000)	10742 (38200)	10798 (38400)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	10742 (38200)	10826 (38500)	10911 (38800)	11051 (39300)	11107 (39500)	11107 (39500)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	10714 (38100)	10798 (38400)	10882 (38700)	11023 (39200)	11079 (39400)	11135 (39600)
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	10714 (38100)	10798 (38400)	10882 (38700)	11023 (39200)	11079 (39400)	11107 (39500)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	10854 (38600)	10939 (38900)	11023 (39200)	11051 (39300)	11107 (39500)	11164 (39700)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	10854 (38600)	10939 (38900)	11023 (39200)	11164 (39700)	11220 (39900)	11248 (40000)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	10967 (39000)	11051 (39300)	11135 (39600)	11164 (39700)	11220 (39900)	11276 (40100)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	11107 (39500)	11192 (39800)	11276 (40100)	11360 (40400)	11417 (40600)	11473 (40800)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	11304 (40200)	11389 (40500)	11473 (40800)	11557 (41100)	11614 (41300)	11642 (41400)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	14763 (52500)	14819 (52700)	14904 (53000)	14988 (53300)	14988 (53300)	15044 (53500)

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