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Cotton Exchange Building, 2nd Floor, Cotton Green, Mumbai - 400 033 Phone: 3006 3400 Fax: 2370 0337 Email: cai@caionline.in www.caionline.in

Mechanical Picking of Cotton in India

Dr. Brijender Mohan Vithal has a Ph.D. Agric (Plant Breeding-Cotton) from Punjab Agriculture

University (PAU) Ludhiana. He has been associated with cotton R&D activities for more than three decades. He has worked as a Senior Cotton Breeder with PAU, GM Production / Executive Director with National Seeds Corporation and Director, DOCD, Ministry of Agriculture (MOA). He was Officer on Special

Duties (OSD) to look after activities related with Tech Mission on Cotton (TMC) in CCI Ltd during its pre-launch period. He joined CCI Ltd - TMC Cell (MMIII &

IV) during 1999 and continued working there till the end of the TMC Project in December 2010. He is still associated with cotton through agencies like ISCI.

Efforts Made to Make "Mechanical Cotton Picking a Success in India"

Many public and private agencies are engaged in making mechanical picking of cotton in India, a success. At a glance information is as follows:

Mechanical pickers were not considered suitable for our conditions due to the

Dr. Brijender Mohan Vithal Cotton Expert

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staggered blooming characteristics of Indian cotton. Also, before picking, defoliants have

> to be sprayed on cotton crop, for which additional cost is involved. Consequently, this area of research and development was not taken up extensively anywhere in the country. Presently, the scientists are gearing up to develop suitable plant type amenable to mechanical picking and are also engaged in the development / identification

> > suitable chemicals for defoliation plant / height control, etc. that will suit mechanical picking under Indian conditions.

- Another issue is the small holdings of Indian farmers, where the inherent huge size of the spindle type pickers with huge horse power requirement, poses operational difficulties on Indian farms. A way out to overcome this problem is being looked into.
- The cost of operation for mechanical picking is high because of the large initial cost of the imported cotton picker. If a cotton picker could be designed and produced in India through combined efforts of R&D organisations, users and manufacturers, then the cost of the machine might be reduced.

Recently, the John Deere Company is putting in efforts to find cotton picker suitable for Indian conditions.

The higher trash content in cotton picked by spindle type cotton pickers and lack of pre and post cleaning equipment in Indian Ginning & Pressing units prohibits the popularisation of spindle type pickers in India. Many manufacturers are now concentrating on developing suitable pre / post cleaners.

Impact of Mechanisation on Fibre Quality

The higher trash content in mechanical picked cotton is removed by using pre-cleaners. Since the cotton pass through the machines, the fibre quality gets marginally impacted as compared to hand-picked cotton. The cotton length, more or less remains the same, but there is increase of short fibre content and neps. With the improvement in machines and technology, India may come on par with the standards followed in USA and Brazil, in terms of fibre quality too.

A Key Question - Are We Ready for Mechanical Pickers?

Harvest-aid materials (chemicals) elsewhere in the world are more commonly used to increase the rate of leaf loss before harvest. The basic categories of chemicals used as harvest aids include (a) defoliants (b) desiccants (c) boll openers / conditioners / enhancers and (d) regrowth inhibitors. Factors such as crop vigour, nitrogen status and plant water status exert a large influence on success of cotton defoliation and harvest. Thus, determining which harvest aid chemical is to be used and how much to spend, are not simple decisions. This demands robust policy, research and extension support to protect the interests of Indian farmers especially the marginal communities. Equally important is to resource the efforts in finding alternatives to chemical defoliation over a longer term and promoting sustainable cultivars of cotton.

As of now, cotton scientists, traders, exporters and industry don't find mechanisation happening in the immediate future. It could be at least 10 years away as they don't believe that all farms can be mechanised in India. However, mechanisation will depend upon the Government's will and right agronomic practices that have helped countries like US, Turkey and China.

A Success Story - Collaborative Cotton Mechanisation Project

A "collaborative cotton mechanisation project" was a joint effort of the John Deere India Pvt. Ltd, Bayer Crop Science Limited and Bajaj Steel Industries Limited, to develop a cotton mechanisation system in India. This project was operational from 2013 onwards in the three cotton growing states of Punjab, Maharashtra and Telangana. In Punjab, the project was run under public private partnership with the support of the Department of Agriculture, Government of Punjab.

In the project, all the players demonstrated their respective technologies towards cotton mechanisation. John Deere, a leading farm successfully mechanisation company, has developed a single row patented tractor drawn picking machine (Model name CP 20) which is now available for Indian farmer. Machine picking requires the use of harvest aids like growth regulator, defoliants and boll openers to enable machine to pick cotton easily. Bayer is a global leader in providing harvest aid products and is currently testing few of these products for use in India. After machine- picking, the seed cotton has to pass through high impact of pre- cleaners before ginning. Such pre-cleaner was provided by Bajaj Steel Industries.

Observations from Punjab: -

A report was published by Sanjeev Singh Bariana, Tribune News Service Bathinda, Punjab, May 17- "100% Mechanisation of Cotton Cultivation Achieved" - the report was to be submitted to the then Chief Minister of Punjab, Parkash Singh Badal. Main contents of the report stated that a cent per cent mechanisation of cotton cultivation has been achieved with the installation of cleaning and drying machines in Malout, (Punjab). The report also stated that production enhancement was at least 50 per cent.

Shri. Kahan Singh Pannu, Coordinator of the project and MD of the Punjab Agro Industries Corporation, Punjab, said that the "Collaborative Cotton Mechanisation Project started in collaboration with state government, during 2013, was traditionally a manifestation of manual labour. The project began on 50 acres of land at different places. In the second stage, cotton was planted in 1,400 acres of land. The project had Bathinda, Muktsar, Mansa and Fazilka districts (Punjab), in its ambit." He said.

Shri. Pannu, reported that cotton growing process was completely mechanised under the project with installation of cleaning and drying machine. "Farmers hired pickers of John Deere. Three cotton picking machines of John Deere had been imported by the Punjab Agro Industries Corporation for use on custom hiring basis. Growth regulating chemicals with a view to fix the plant height from four to four and a half feet and also the chemicals for defoliation of the crop before picking of cotton were used," he said.

He concluded, "Economically speaking, with intensive farming using the option of mechanisation, a farmer can expect a return of Rs 7.50 lakh per acre against Rs 4.50 lakh per acre the previous year."

Conclusions Drawn from the Project

 Under high density planting system supported by cotton mechanisation, provided 25-40% yield increase compared to farmers' present practice. Yield increase is attributed to higher plant density.

- The additional costs per acre towards increased seed rate and use of agrochemicals may be compensated with additional income. This yield increase provides a strong motivation for adopting cotton mechanisation.
- With the help of all the public and private agencies, the adoption of mechanical harvesting of cotton by Indian cotton farmers can be successfully achieved.

The mechanised harvesting of cotton in India is possible and may lead to increase in yields in our cotton farms and thereby double the income of cotton farmers by 2022, as per our Prime Minister's slogan and increase in the total cotton production in India.

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



Global Cotton Consumption Expected to Grow in 2018/19

uring the past two seasons, consumption had outpaced production. However, while both consumption and production are expanding since the 2015/16 season, global production for this season is increasing at a faster rate. Current projections for the 2017/18 season include production at 25.8 million tons and consumption at 25.4 million tons. Production increases are coming off gains in planted area rather than yields this season. Global average yield for 2017/18 is currently being estimated at 778 kilograms per hectare, a 0.1% increase from the previous season, while area increases are 12% greater from the previous season. Major producers, India and Pakistan, with estimated area increases of 16% and 24% respectively, encountered production losses from pink bollworm this season. While most major cotton producing countries have estimated increased planted area for 2017/18 over the previous

season, Australia has decreased planted area yet still increased cotton production with a yield growth of 16% with an estimated yield of 1936 kg per hectare.

Northern hemisphere production which accounts for 88% of world production is estimated at 22.5 million tons for the 2017/18 season, an increase of 12% from the 2016/17 season. Following two seasons

of negative growth, India's production estimates for the 2017/18 season is just under 6.3 million tons representing a 7.3% growth based on planted area increase. Production in China is estimated at 5.3 million tons for the season representing a 9.1% growth over the previous season. With increases in both planted area and yields, production in the United States is estimated for the 2017/18 season to come to 4.6 million tons, a 23.6% increase from 2016/17. Despite low yields, planted area increases in Pakistan led to a 9.1% growth in production for the 2017/18 season to 1.8 million tons. Cotton production in West Africa is expected to rise 1.8% during 2017/18 reaching 1.1 million tons.

Production increases are expected in all the major exporting countries in the southern hemisphere. Brazil's 2017/18 crop is estimated to produce 1.7 million tons with an 11% increase over the previous season. Australia production is projected to continue to increase for the third consecutive season reaching 968,000 tons in 2017/18, up 4%. Argentina has reversed three seasons of negative growth in production with an estimated 200,000 tons for the 2017/18 season at a 11.6% increase over the previous season.

Global trade is currently projected at 8.4 million tons for the 2017/18 season. Leading importers include Bangladesh and Vietnam with an estimated 17.2% and 17.1% of global share respectively. East Asia's volume of imports continues to increase and could represent approximately 35% of global share or 2.95 million tons. Despite recently reduced export projections, the USA is expected to continue to lead all exporters in 2017/18 with 38% of global share at 3.16 million tons. Exports from West Africa are expected to increase slightly by 0.5% to 980,000 tons and could represent approximately 12% of the global share of exports. Continued growth is expected for Australian exports for 2017/18 reaching 944,000 tons and accounting for 11% of global share. India, despite lower than expected production, is projected to export 935,000 tons representing 11% of global exports. Exports from Brazil for the

season are expected to reach 819,700 tons, representing 10% of global exports. Uzbekistan exports in 2017/18 should remain stable at 330,000 accounting for 4% of world exports.

In 2017/18, world ending stocks are estimated at 19.2 million tons, higher than the 18.7 million tons for the previous season. The international reference price,

the Cotlook A Index has averaged 88 cents per pound during the past month with a 2017/18 season to date average of 83.2 cents per pound, slightly higher than the 2016/17 season average of 82.8 cents per pound. Stocks in China are estimated to decline to 9.2 million tons by the end of 2017/18 based on our current projections. The competing price of polyester has risen over the course of the season and continues to increase relative to cotton.

Global cotton production is projected to decline in 2018/19 based on lower yields and decreases in harvested area. Global cotton consumption is projected to continue to grow in 2018/19 based on global economic expansion, an expected acceleration of consumer demand for textiles, manufacturing growth for cotton, and rising environmental and production costs for synthetics. Current estimates for the 2018/19 season are for production to move to 25.4 million tons and consumption to rise to 26.5 million tons. Based on these projections, global stocks would decline to 18.2 million tons with projections for global trade to go to 9.15 million tons.

Source: ICAC Cotton This Month, March 01, 2018



Since 1921, we are dedicated to the cause of Indian cotton.

Just one of the reasons, you should use our Laboratory Testing Services.

The Cotton Association of India (CAI) is respected as the chief trade body in the hierarchy of the Indian cotton economy. Since its origin in 1921, CAI's contribution has been unparalleled in the development of cotton across India.

The CAI is setting benchmarks across a wide spectrum of services targeting the entire cotton value chain. These range from research and development at the grass root level to education, providing an arbitration mechanism, maintaining Indian cotton grade standards, issuing Certificates of Origin to collecting and disseminating statistics and information. Moreover, CAI is an autonomous organization portraying professionalism and reliability in cotton testing.

The CAI's network of independent cotton testing & research laboratories are strategically spread across major cotton centres in India and are equipped with:

- State-of-the-art technology & world-class Premier and MAG cotton testing machines
- HVI test mode with trash% tested gravimetrically

LABORATORY LOCATIONS

Current locations : • Maharashtra : Mumbai; Akola; Aurangabad • Gujarat : Rajkot; Mundra; Ahmedabad • Andhra Pradesh : Guntur, Warangal • Madhya Pradesh : Indore • Karnataka : Hubli • Punjab : Bathinda Upcoming locations : • Telangana: Adilabad



COTTON ASSOCIATION OF INDIA

Cotton Exchange Building, 2nd Floor, Opposite Cotton Green Station, Cotton Green (East), Mumbai 400 033, Maharashtra, INDIA. Tel.: +91 22-3006 3400 • Fax: +91 22-2370 0337 • E-mail: cai@caionline.in • www.caionline.in

Supply and Distribution of Cotton

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Seasons begin on August 1	begin on August 1 Million Metric Tons							
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19		
		Est.	Est.	Est.	Proj.	Proj.		
BEGINNING STOCKS								
WORLD TOTAL	19.428	21.317	22.973	20.308	18.82	19.25		
China	10.811	13.280	14.118	12.650	10.63	9.24		
USA	0.827	0.512	0.795	0.827	0.60	1.34		
PRODUCTION								
WORLD TOTAL	26.225	26.269	21.485	23.094	25.79	25.37		
India	6.766	6.562	5.746	5.865	6.30	6.10		
China	7.000	6.600	5.200	4.900	5.34	5.34		
USA	2.811	3.553	2.806	3.738	4.62	4.27		
Pakistan	2.076	2.305	1.537	1.663	1.80	2.09		
Brazil	1.734	1.563	1.289	1.530	1.70	1.62		
Uzbekistan	0.910	0.885	0.832	0.789	0.80	0.80		
Others	4.928	4.801	4.075	4.609	5.23	5.15		
CONSUMPTION								
WORLD TOTAL	24.101	24.587	24.139	24.513	25.35	26.47		
China	7.600	7.550	7.600	8.000	8.12	8.36		
India	5.087	5.377	5.296	5.148	5.30	5.57		
Pakistan	2.470	2.467	2.147	2.147	2.35	2.46		
Europe & Turkey	1.611	1.692	1.687	1.612	1.63	1.85		
Bangladesh	1.129	1.197	1.316	1.409	1.44	1.58		
Vietnam	0.673	0.875	1.007	1.168	1.31	1.39		
USA	0.773	0.778	0.751	0.708	0.73	0.74		
Brazil	0.862	0.797	0.660	0.690	0.72	0.73		
Others	3.896	3.854	3.675	3.632	3.75	3.79		
EXPORTS								
WORLD TOTAL	9.029	7.779	7.548	8.190	8.38	9.16		
USA	2.293	2.449	1.993	3.248	3.16	3.53		
India	2.015	0.914	1.258	0.991	0.94	0.87		
CFA Zone	0.973	0.966	0.963	0.972	0.98	1.16		
Brazil	0.485	0.851	0.939	0.607	0.82	0.90		
Uzbekistan	0.615	0.550	0.500	0.403	0.34	0.44		
Australia	1.058	0.527	0.616	0.812	0.94	0.88		
IMPORTS								
WORLD TOTAL	8.858	7.800	7.572	8.128	8.38	9.16		
Bangladesh	1.112	1.183	1.378	1.412	1.57	1.55		
Vietnam	0.687	0.934	1.001	1.198	1.43	1.45		
China	3.075	1.804	0.959	1.096	1.39	1.85		
Turkey	0.924	0.800	0.918	0.801	0.80	0.83		
Indonesia	0.651	0.728	0.640	0.746	0.79	0.78		
TRADE IMBALANCE 1/	-0.171	0.020	0.023	-0.062	0.00	0.00		
STOCKS ADJUSTMENT 2/	-0.063	-0.047	-0.034	-0.013	0.00	0.00		
ENDING STOCKS								
WORLD TOTAL	21.317	22.973	20.308	18.815	19.25	18.15		
China	13.280	14.118	12.650	10.632	9.24	8.06		
USA	0.512	0.795	0.827	0.599	1.34	1.34		
ENDING STOCKS/MILL USE (%)								
WORLD-LESS-CHINA 3/	49	52	46	50	58	56		
CHINA 4/	175	187	166	133	114	96		
COTLOOK A INDEX 5/	91	71	70	83	83			

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, March 01, 2018



Weaving the world of cotton together

UPCOUNTRY SPOT RATES (Rs./Qtl)												
	Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [By law 66 (A) (a) (4)]					Spot Rate (Upcountry) 2017-18 Crop MARCH 2018						
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	12th	13th	14th	15th	16th	17th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	11951 (42500)	11895 (42300)	11951 (42500)	11951 (42500)	11979 (42600)	11979 (42600)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	12092 (43000)	12035 (42800)	12092 (43000)	12092 (43000)	12120 (43100)	12120 (43100)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	8127 (28900)	7986 (28400)	7930 (28200)	7930 (28200)	7930 (28200)	7930 (28200)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	9505 (33800)	9448 (33600)	9420 (33500)	9420 (33500)	9420 (33500)	9420 (33500)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	10404 (37000)	10320 (36700)	10320 (36700)	10320 (36700)	10348 (36800)	10348 (36800)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	11192 (39800)	11135 (39600)	11192 (39800)	11192 (39800)	11220 (39900)	11220 (39900)
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	9420 (33500)	9280 (33000)	9280 (33000)	9280 (33000)	9308 (33100)	9308 (33100)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	9870 (35100)	9786 (34800)	9786 (34800)	9786 (34800)	9814 (34900)	9814 (34900)
9	P/H/R	ICS-105	Fine	27mm	3.5.4.9	26	11417 (40600)	11360 (40400)	11417 (40600)	11417 (40600)	11445 (40700)	11445 (40700)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	9645 (34300)	9561 (34000)	9561 (34000)	9561 (34000)	9589 (34100)	9589 (34100)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	10208 (36300)	10151 (36100)	10151 (36100)	10151 (36100)	10179 (36200)	10179 (36200)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	11529 (41000)	11473 (40800)	11529 (41000)	11529 (41000)	11557 (41100)	11557 (41100)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	10714 (38100)	10657 (37900)	10657 (37900)	10657 (37900)	10686 (38000)	10686 (38000)
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	11360 (40400)	11332 (40300)	11332 (40300)	11332 (40300)	11360 (40400)	11304 (40200)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	11164 (39700)	11079 (39400)	11079 (39400)	11079 (39400)	11107 (39500)	11107 (39500)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	11557 (41100)	11529 (41000)	11529 (41000)	11557 (41100)	11585 (41200)	11529 (41000)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	11473 (40800)	11389 (40500)	11389 (40500)	11417 (40600)	11445 (40700)	11389 (40500)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	11782 (41900)	11754 (41800)	11754 (41800)	11782 (41900)	11810 (42000)	11754 (41800)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	12204 (43400)	12176 (43300)	12176 (43300)	12176 (43300)	12204 (43400)	12204 (43400)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	15213 (54100)	15157 (53900)	15157 (53900)	15157 (53900)	15185 (54000)	15185 (54000)

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