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Organic Cotton: Hard to Grow

With a Ph.D. in Agricultural and Resource Economics from Oregon State University in the USA, Dr. Terry Townsend is a consultant on commodity issues. He is currently working with the African Cotton and Textile Industries Federation (ACTIF). He served as executive director of the International Cotton Advisory Committee (ICAC) and has also worked at the United States Department of Agriculture for five years, analyzing the U.S. cotton industry and editing a magazine devoted to a cross-section of agricultural issues.



Dr. Terry Townsend

With a M.Sc. and Ph.D. in Agronomy, Dr.M.S.Kairon has 46 years of experience in teaching and research in the cotton sector. He has extensive experience of working for cotton production technology relating to water use, nutrient management, weed control and other cultural practices in India as well as other countries. He is the recipient of several awards. He has published about 304 articles on cotton at the National and International level. At present, he is the President KVSS –Kairon Foundation, Sakarla, Parseoni, Nagpur.



Dr.M.S.Kairon

EXPERT'S Column

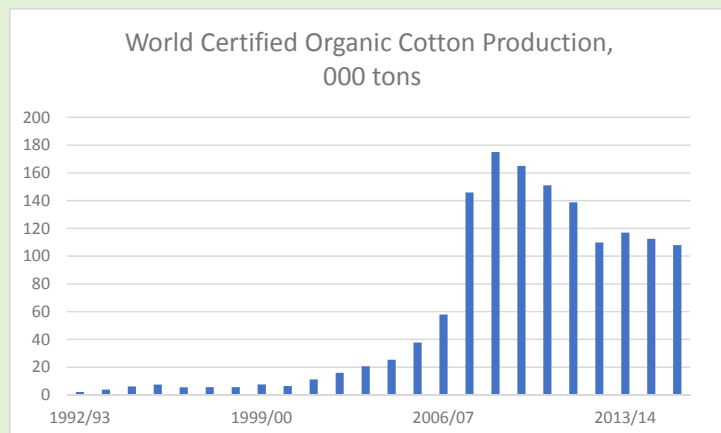
Some consumers profess a preference for organic cotton, and advocates have been successful in cultivating positive connotations for organic cotton as being soft, healthy and sustainable. If there is a market, you would think someone would be willing to supply it, but world production of certified organic cotton (cotton that has been certified to have been produced to USDA or EU organic standards by an accredited certification authority) has been falling.

World production of organic cotton grew from very small amounts in the early 1990s

to a peak of 175,000 tons in 2008/09. The most recent data reported by the Textile Exchange (<http://textileexchange.org/publications/>) is that production fell to 108,000 tons of lint on 302,000 hectares in 2015/16, indicating that the average organic yield was 357 kilograms of lint per hectare, less than half the world average.

There are no published data on organic cotton for 2016/17 and 2017/18, but if production were rising, advocates would be quick to publicise that fact. Therefore, it is probable that production of

organic cotton has not climbed, at least not very much, during the most recent two seasons.



In 2015/16, India accounted for 60,000 tons of organic cotton production, 55% of the world total, followed by China, 15,000 tons, Kyrgyzstan and Turkey, 8,000 tons apiece, and Tajikistan, 6,000 tons. A big part of the reason for the decline in world organic cotton production is because production in India fell from 103,000 tons in 2011/12 to the current level.

Production of organic cotton in Turkey is falling as farmers shift to alternative crops and because of political unrest in the Southeastern portion of the country near Syria. Production is rising in Central Asia under the influence of programs supported by the Government of Switzerland, but much of the organic cotton produced is marketed simply as cotton without an organic premium. Worldwide, only about 70% of the cotton certified as organic is actually purchased as organic cotton; the rest is sold as conventional cotton because of weak demand.

Organic Cotton Techniques

All agriculture was organic for thousands of years until around the end of World War II, and today any farmer, anywhere, could grow organic cotton if he or she chose to. Just as weaving cloth using a traditional hand loom requires great skill and many hours of effort compared with using a modern loom, so does organic cotton require skill and effort compared with producing conventional cotton. Nevertheless, any farmer wanting to grow cotton organically could do so.

Organic cotton is grown and harvested without the use of chemical fertilizers, pesticides or herbicides, growth regulators or defoliants.

Cultivation practices vary, but the use of seeds with biotech traits, synthetic pesticides, fertilizers and growth regulators are prohibited. Since organic cotton producers are denied the use of tools that conventional farmers use, it obviously takes more work to grow organic cotton.

Organic cotton production is a farming system that encourages the development of biological diversity to take care of crops needs. The foundations of organic cotton production include the use of locally-adapted varieties tolerant of pests, legume-based crop diversification, crop rotations, and intercropping to maintain soil health, the use of organic sources of fertilizer, and pest management based on prevention through the use of natural enemies and trap crops.

Fertile soil containing organic carbon is a prerequisite for all crop production, including cotton production. In organic systems, soil fertility is enhanced by implementing crop rotations with legumes, using cover crops to protect soil between the harvest of one crop and the planting of a succeeding crop, composting green plant material to produce organic fertilizer, and mulching. Fertilizer mined from natural sources can be used to improve fertility, but synthetic fertilizers must not be used.

On average, a farmer producing one hectare of organic cotton must collect between 15 tons and 50 tons of green material, including cotton stalks and farm yard manure, and compost that material for a year to produce between 3 tons and 8 tons of organic fertilizer. The 3-8 tons of organic fertilizer must then be spread over a field and incorporated into the soil.

In contrast, a conventional farmer will also employ crop rotations, cover crops, and mulches, but a conventional farmer will apply an average of 250 kilograms of fertilizer per hectare per year. The purchased fertilizer will contain labelled proportions of nitrogen (N), phosphorus (P) and potassium (K), while the NPK balance in organic fertilizer will vary with the green material from which it was produced.

Cotton plant nutrient requirements will vary each season depending on temperatures, rainfall and pest pressure, and conventional farmers can respond with additional fertilizer applications as plant needs are assessed. In contrast, organic

Organic Cotton Production

	2012	2013	2014	2015	2016	2015/16	Change
	2011/12 Tons	2012/13 Tons	2013/14 Tons	2014/15 Tons	2015/16 Tons	% of world Total	2014/15 to 2015/16
Argentina					1	0.00%	
Benin	328	228	424	377	407	0.38%	8%
Brazil	38	10	16	22	17	0.02%	-23%
Burkina Faso	370	565	864	1,067	469	0.43%	-56%
China	8,106	10,269	12,232	13,145	14,817	13.72%	13%
Colombia				1		0.00%	-100%
Egypt	420	563	459	2,150	1,023	0.95%	-52%
Ethiopia				145		0.00%	-100%
India	103,004	80,794	86,853	75,251	60,184	55.74%	-20%
Israel	70	30	30	14	14	0.01%	0%
Kyrgyzstan	156	260	335	5,543	7,981	7.39%	44%
Madagascar			5	5		0.00%	-100%
Mali	860	531	132	526	136	0.13%	-74%
Nicaragua	122	68	64			0.00%	
Pakistan					366	0.34%	
Paraguay	100	75	20			0.00%	
Peru	479	368	575	553	312	0.29%	-44%
Senegal	17	21	21	13	1	0.00%	-92%
Tajikistan	16	50	179	1,000	6,620	6.13%	562%
Thailand					3	0.00%	
Tanzania	6,891	6,504	3,752	2,146	3,229	2.99%	50%
Turkey	15,802	7,105	7,958	7,304	7,577	7.02%	4%
Uganda	456	456	700	795	300	0.28%	-62%
USA	1,580	1,930	2,415	2,432	4,524	4.19%	86%
Total	138,813	109,827	117,034	112,489	107,981	100%	
SSA	8,922	8,305	5,898	5,074	4,542	4.21%	

cotton farmers have a much more difficult time applying additional dosages of tons of organic fertilizer across fields once plants are established.

In organic cotton systems, weed management is achieved through the selection of fields free of perennial weeds, use of clean seeds, crop rotations, cover crops, and mulches, and of course weeding using a hoe or mechanical cultivation. Organic cotton farmers can also expose top soil to direct sunlight to sterilise soil. Conventional cotton farmers are free to use each

of these techniques of weed control, but they are also eligible to use herbicides.

Pest management in organic cotton is achieved through the use of pest-tolerant varieties, conservation of natural enemies and releases of predators, parasites and pathogens to attack pests. Organic cotton farmers are encouraged to intercrop with cowpea to serve as habitat for beneficial insects. Organic farmers use trap crops, such as castor, marigold and okra to attract pests or pest larvae for easier

destruction. Light traps on timers, bird perches, and pheromone traps are additional techniques of pest management in organic cotton. Neem-based sprays are permitted, although the efficacy of such applications is questionable. After all, if neem-based sprays worked, all farmers would use them. Sprays containing *Bacillus thuringiensis* (Bt) are also allowed. Organic cotton farmers are permitted to release parasites into fields. Early sowing, early picking and the cultivation of short-season varieties will also aid in pest management.

Conventional cotton producers are free to use all of these techniques, and they also have access to insecticides. However, the use of insecticides will kill beneficial insects as well as target pest, requiring judicious use.

Declining Organic Cotton Production in India

India is the largest producer of organic cotton because it has a large textile base for processing, and because it is easier to navigate the business environment in India than in China. However, production is declining in India for a multitude of reasons. The primary reason that more cotton is not produced under organic cotton standards in India is because it takes twice as much work. One hectare of organic cotton in India requires around 170 days of labour per year, compared with 90 days per year for conventional cotton.

Another reason for the decline in organic cotton production is that price premiums are falling. Almost all organic production around the world is sponsored by brands and retailers seeking differentiation in the market place or by governments wanting to encourage sustainable production practices and economic development. Prior to the world recession in 2008, most retailers were profitable, and some had budgets to support organic cotton as part of their corporate social responsibility efforts or for positive public relations. However, many of those retailers lost money during the recession, ending such expensive gestures.

As of 2018, there are still not enough brands and retailers willing to enter into contracts of at least three years (the period required to convert designated acreage from conventional to organic production) with growers at prices that would offset the cost of conversion from conventional

cotton, increased labour requirements, greater year-to-year variability in organic yields and lower average fibre quality. Excellent growers with sound agronomic knowledge require premiums of about 20%, but average growers experience greater yield losses compared with conventional production, and they require correspondingly greater premiums. However, premiums paid in India for organic cotton have fallen from 15% to 5% over the last decade.

Organic cotton farmers face other barriers to increased production, including a lack of seed breeding efforts focused on non-biotech varieties with desirable fibre traits, the need for extensive documentation and the vestiges of scandals involving false documentation that undermine the credibility of Indian organic cotton certification, and a lack of markets for cowpea, okra and other crops used as rotation crops or intercrops with organic cotton.

The Future

Organic cotton takes a lot of work and a lot of knowledge, and without price premiums of 20% or more, organic cotton will not be grown in any volume.

World textile and clothing markets are highly competitive, and consumers base purchase decisions on style, colour, fit, feel, price and other metrics. In inflation adjusted terms, prices of apparel at the retail level are declining, not rising, and consumers are spending a smaller share of their disposable incomes on commodity items such as clothing. Consequently, outside of niche brands with low volumes and high prices catering to an urban clientele ignorant of the realities of agriculture, no buyers of organic cotton are likely to emerge who are willing to pay such premiums. The chance that large retailers accounting for hundreds of thousands of tons of cotton per year will start paying premiums for organic cotton are remote.

Consequently, production of organic cotton worldwide is more likely to continue downward than to rise.

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



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

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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
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LABORATORY LOCATIONS

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



**COTTON
ASSOCIATION
OF INDIA**

Established 1921

COTTON ASSOCIATION OF INDIA

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Child Care Clinic Inaugurated at Charitable Dispensary run by Bombay Cotton Merchants' & Muccadams' Association Ltd.

On 8th May 2018, a Child Care Clinic was inaugurated at the Charitable Dispensary run by Bombay Cotton Merchants' & Muccadams' Association Ltd. (BCMMA), opposite Shree Ram Chandraji Temple at Cotton Green.

Open twice a week on Tuesdays and Fridays, the dispensary sees an influx of almost 70 patients on these days. Besides free Dental and Eye clinics, the dispensary also has a homeopathy clinic where Dr. Batra's Homeopathy medicines are given free of cost by Dr. Rekha Dhandhukia.



Shri. Shyam Makharia, President of Bombay Cotton Merchants' & Muccadams' Association Ltd (BCMMA) and Trustee of Charitable Dispensary Maintenance Fund Trust gives the inaugural speech.

The dispensary also offers N.M. Medical Blood Testing at a subsidised price.

In his address, Shri. Shyam Makharia, President of Bombay Cotton Merchants' & Muccadams' Association Ltd. and Trustee of Charitable Dispensary Maintenance Fund Trust, requested people to take advantage of these medical facilities.



Shri. Shyam Makharia, President of BCMMA and Shri. Prafull Sharma, District Governor of Rotary 3141 inaugurate the Child Care Clinic.



Shri. Shyam Makharia with Shri. Pradip Shah, Secretary of Bombay Cotton Merchants' & Muccadams' Association Ltd.



Shri. Atul Ganatra, President of Cotton Association of India, Shri. Suresh Kotak, Trustee of Charitable Dispensary Maintenance Fund Trust and Shri. Alok Makharia, Director of BCMMA.



From left to right: Shri. Ramesh Narayan, President of Rotary Club of Bombay, Smt. Bhavna Daftary, Shri. Prafull Sharma, District Governor of Rotary 3141, Shri. Shyam Makharia, President of BCMMA, Shri. Suresh Kotak, Trustee of Charitable Dispensary Maintenance Fund Trust, Shri. Atul Ganatra, President of Cotton Association of India and Shri. P.D.Patodia.

Production & Stock of Spun Yarn (SSI & Non-SSI)

(In Mn. Kgs.)

MONTH / YEAR	PRODUCTION OF YARN				STOCK POSITION OF YARN			
	COTTON	BLENDED	MAN-MADE FIBRE	G. TOTAL	COTTON	BLENDED	MAN-MADE FIBRE	G. TOTAL
2014-15	4054.51	920.20	512.92	5487.64	140.60	48.30	22.48	211.38
2015-16	4137.83	972.50	554.79	5664.93	140.68	49.46	22.99	213.13
2016-17 (P)	4060.99	1033.50	572.02	5666.51	147.61	57.99	25.47	231.08
2017-18 (P) (Apr.-Feb.)	3741.96	980.49	506.74	5229.19	133.85	58.66	24.74	217.26
2015-16								
April-15	349.38	77.11	44.07	472.51	141.19	51.45	21.33	213.98
May-15	348.14	80.02	44.74	472.90	153.07	52.34	23.79	229.21
June-15	346.72	79.68	45.27	471.66	158.57	55.72	23.93	238.22
July-15	356.36	82.15	47.48	485.98	160.33	61.25	26.62	248.20
Aug.-15	354.67	82.24	49.97	486.88	166.34	63.73	27.88	257.95
Sept.-15	338.53	79.51	45.41	463.45	165.96	62.33	26.16	254.46
Oct.-15	342.12	83.61	47.35	473.08	170.07	64.46	25.69	260.23
Nov.-15	320.06	77.67	43.27	441.01	173.96	61.59	24.17	259.72
Dec.-15	353.31	81.30	49.86	484.31	158.66	58.22	25.34	242.22
Jan.-16	343.98	83.34	46.84	474.26	158.52	57.55	25.10	241.18
Feb.-16	336.55	80.94	43.12	460.60	155.36	52.18	22.81	230.35
Mar.-16	348.01	83.87	46.35	477.03	140.68	49.46	22.99	213.13
2016-17								
April-16	334.30	80.55	46.49	461.35	127.63	48.99	24.26	200.88
May-16	360.75	85.95	53.50	500.20	132.43	54.79	26.25	213.47
June-16	352.00	89.10	50.87	491.97	130.99	50.84	21.46	203.30
July-16	343.34	88.21	48.26	479.81	135.93	56.50	23.91	216.34
Aug.-16	334.43	91.29	49.75	475.47	155.65	54.65	22.55	232.85
Sept.-16	326.58	88.40	51.75	466.73	153.30	59.84	24.04	237.19
Oct.-16	310.67	83.67	49.21	443.55	167.46	63.94	28.84	260.23
Nov.-16	326.48	85.28	44.98	456.74	166.74	70.98	32.91	270.63
Dec.-16	342.33	84.16	43.75	470.25	165.62	69.09	28.62	263.32
Jan.-17	345.69	86.11	44.49	476.29	147.10	61.40	26.95	235.44
Feb.-17	330.98	83.40	42.34	456.73	154.12	61.57	26.75	242.44
Mar.-17	353.44	87.37	46.61	487.42	147.61	57.99	25.47	231.08
2017-18 (P)								
April-17	339.75	86.83	46.12	472.71	136.53	58.50	25.40	220.43
May-17	344.97	85.48	46.24	476.69	146.95	58.55	24.76	230.26
June-17	337.96	84.47	48.16	470.59	155.54	50.83	22.25	228.61
July-17	341.83	87.85	44.91	474.59	181.75	61.53	26.72	270.00
Aug.-17	330.68	97.92	46.80	475.40	191.44	61.60	31.95	284.98
Sept.-17	326.03	91.75	47.49	465.27	185.84	66.58	34.46	286.88
Oct.-17	326.91	90.59	46.21	463.70	166.68	65.76	30.54	262.98
Nov.-17	352.41	89.87	44.29	486.57	144.08	63.22	27.39	234.69
Dec.-17	357.11	93.86	47.01	497.99	133.61	65.63	27.84	227.08
Jan.-18	348.37	89.29	45.50	483.16	133.26	63.09	25.91	222.26
Feb.-18	335.94	82.58	43.99	462.52	133.85	58.66	24.74	217.26

P - Provisional

Source : Office of the Textile Commissioner

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 MAY 2018					
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	21st	22nd	23rd	24th	25th	26th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	11782 (41900)	11923 (42400)	11923 (42400)	11923 (42400)	11923 (42400)	11923 (42400)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	11923 (42400)	12063 (42900)	12063 (42900)	12063 (42900)	12063 (42900)	12063 (42900)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	7452 (26500)	7480 (26600)	7452 (26500)	7452 (26500)	7536 (26800)	7592 (27000)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	9111 (32400)	9139 (32500)	9111 (32400)	9139 (32500)	9223 (32800)	9280 (33000)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	9954 (35400)	9983 (35500)	9954 (35400)	9983 (35500)	10067 (35800)	10151 (36100)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	11810 (42000)	11838 (42100)	11782 (41900)	11838 (42100)	11895 (42300)	11979 (42600)
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	8633 (30700)	8773 (31200)	8717 (31000)	8745 (31100)	8830 (31400)	8914 (31700)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	9533 (33900)	9589 (34100)	9561 (34000)	9589 (34100)	9673 (34400)	9758 (34700)
9	P/H/R	ICS-105	Fine	27mm	3.5-4.9	26	11951 (42500)	11979 (42600)	11923 (42400)	11979 (42600)	12035 (42800)	12120 (43100)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	9139 (32500)	9195 (32700)	9167 (32600)	9195 (32700)	9280 (33000)	9364 (33300)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	9954 (35400)	9954 (35400)	9926 (35300)	9954 (35400)	10039 (35700)	10151 (36100)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	12007 (42700)	12035 (42800)	11979 (42600)	12035 (42800)	12092 (43000)	12176 (43300)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	11051 (39300)	11107 (39500)	11079 (39400)	11107 (39500)	11192 (39800)	11248 (40000)
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	11670 (41500)	11670 (41500)	11585 (41200)	11585 (41200)	11670 (41500)	11754 (41800)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	11557 (41100)	11642 (41400)	11614 (41300)	11642 (41400)	11726 (41700)	11838 (42100)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	11951 (42500)	11951 (42500)	11895 (42300)	11923 (42400)	12007 (42700)	12092 (43000)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	12063 (42900)	12120 (43100)	12092 (43000)	12120 (43100)	12204 (43400)	12260 (43600)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	12317 (43800)	12373 (44000)	12345 (43900)	12373 (44000)	12457 (44300)	12541 (44600)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	12626 (44900)	12682 (45100)	12654 (45000)	12682 (45100)	12766 (45400)	12851 (45700)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	15635 (55600)	15663 (55700)	15635 (55600)	15663 (55700)	15747 (56000)	15888 (56500)

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