Weekly Publication of

Cotton Association of India

COTTON STATISTICS & NEWS

Edited & Published by Amar Singh

2017-18 • No. 32 • 7th November, 2017 Published every Tuesday

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

Decision on What to Produce – A Matter of Farmer's Choice!

Dr. M.V. Venugopalan, Principal Scientist (Agronomy) and Head, PME unit Central Institute for Cotton Research (CICR), Nagpur, did his Ph.D in Agronomy from the Indian Agricultural Research Institute, New Delhi and has almost two decades of experience in land resource management.

GUEST COLUMN

Dr. M.V. Venugopalan
Principal Scientist (Agronomy) and Head, PME unit
Central Institute for Cotton Research, Nagpur

Excerpts from three interviews that appeared in the Nagpur edition of *Times of India* dated Oct 8, 2017 prompted me to write this article. The first one was by Dr. S. K. Singh, Director, ICAR-National Bureau of Soil Survey and Land Use Planning (NBSS&LUP), Nagpur, entitled, "In Vidarbha, cotton can only grow well in Amravati". The second one "Soil here, no longer suitable for cotton, time to change with times" by Shri. Kishore Tiwary, Chief of Vasantrao Naik Sheti Swavlamban Mission (VNSSM) and the last one "Bt technology is very good. It all depends on how to use it" by Dr. V. N. Waghmare, Director, ICAR-Central Institute for Cotton Research (ICAR-CICR), Nagpur. Readers can find the full text on *"(https://epaperlive.timesofindia.com/TOI/NAG/20171008#display_area Page 18)"* but the main issues discussed were-

- Soils and agro-climatic conditions of Vidrabha, except Amravati district, are not conducive for cotton.
- While *desi* cotton grows well in Vidarbha, Bt cotton requires more moisture and is not suitable for Vidarbha.
- Red gram and jowar and not cotton were the traditional crops of Vidarbha.
- Majority of the soils of Vidarbha are shallow. Climate change induced intensity of dry spells is likely to increase, leading to more frequent failure of the cotton crop.
- High dependence on chemicals reduced the fertility of soils making them unfit for cotton.
- Farmers of Vidarbha need to reduce their dependence on cotton and diversify to pulses, millets and oilseeds.
- Soils are heterogeneous and it is incorrect to generalise its suitability for cotton over an extensive region.
- Bt cotton was rapidly adopted by farmers because it provided complete protection against bollworms, particularly the American bollworm.
- Farmers are the best judge on what to grow on their piece of land.

This article intends neither to refute nor agree with the above claims of experts, but provides a reality check on cotton in Vidarbha.

Vidarbha region of Maharashtra grows cotton on around 15 lakh hectares spread over eight districts – Akola, Amravati, Buldhana, Chandrapur, Nagpur, Wardha, Washim and Yavatmal (Table 1). About 90% of the cotton area is rainfed and soybean is the major competing crop. The productivity of cotton in this region is the lowest in the country. The data presented in Table 1 does not indicate any distinct advantage to Amravati district over other districts of Vidarbha, either in terms of yield or coefficient of variation in yield, an indicator of annual variability or stability.

Table 1: Area, yield and Coefficient of variation (CV) in yield of cotton in different districts of Vidarbha (average of 16 years (1998-99 to 2014-15)

District	Area (ha)	Lint yield (kg/ha)	CV in yield (%)
Akola	201881	215	45.3
Amravati	235094	209	71.4
Buldana	227981	231	43.4
Chandrapur	69556	243	37.3
Nagpur	75413	238	20.8
Wardha	136788	221	27.5
Washim	67273	193	46.9
Yavatmal	421688	211	46.4

(Source: eands.dacnet.nic.in, Directorate of Economics and Statistics, Min of Agriculture and Farmers Welfare)

Soil-site Suitability Criteria

The ICAR-NBSS & LUP, Nagpur evolved a Soil-site Suitability Criteria for Crops. The technique of soil-site suitability evaluation involves matching the soil, physiographic and climatic characteristics of a parcel of land with that of the optimum requirements for a particular crop. Cotton crop prefers fertile, deep, well drained, medium to heavy textured soils having high water holding capacity and a pH of 7 to 8. Depending upon the number and degree of limitations encountered, the regions are classified as highly suitable, moderately suitable, marginally suitable or not suitable for a crop.

Using the same criteria, the Land Resource Atlas of Vidarbha Region of Maharashtra, NBSS Pub No. 147, published in 2011, depicts that out of a total geographical area of 97 lakh hectares in Vidarbha, 40.3% and 10.5 % of the land are highly suitable and moderately suitable for cotton respectively. The suitable and moderately suitable areas are distributed across the 8 cotton growing districts. Further, majority of the area depicted as not suitable for cotton occur in the districts of Bhandara, Gondia and Gadchiroli where cotton is not cultivated. Thus it would be incorrect to blame the low productivity to soil alone.

Questioning the relevance of soil-site suitability criteria

Extending the above criteria of soil-site suitability, neither the light textured soils nor the arid climate of Punjab and Haryana are ideal for paddy. Similarly, the agro-climatic conditions of Western Maharashtra are also not suitable for sugarcane. Yet, for decades these regions are producing high yields of paddy and sugarcane. The best cotton growing regions of the world – Southern Australia, Mato Grosso in Brazil, Xinjiang region of China, areas of Southern and Central Israel also do not possess ideal soils or agro-climatic conditions for growing cotton.

The Mato Grosso, in Cerrado region, that achieved the world's highest yield gain (67 kg lint/ha per year), is characterised by high rainfall, Oxisols (Laterite) and Ultisoils (acidic) soils certainly not suitable for cotton. In the Xinjiang region, China, cotton is grown on desert oasis and the region receives scarce precipitation not ideal for cotton. Farmers of Xinjiang are able to easily obtain yields of 2,250 kg lint per hectare and record yields of 4,900 kg lint per hectare were also obtained. Sub-optimal temperatures and water scarcity, limit the growing period available for cotton in Southern Australia. Similarly, light loamy soils, desert conditions, water scarcity and poor water quality are major limitations to cotton cultivation in Israel. Despite severe soil and agro-climatic limitations, how do these regions continue to produce consistent, high yields of good quality cotton? The answer is simple, correct diagnosis of the limitations and evolving appropriate varieties and agro-techniques to overcome them.

Short growing season varieties, IPM, drip irrigation with conjunctive use of treated effluent water/brackish water enables Israel to produce high yields of the finest quality Pima and upland cotton. Liming of soil, soybean-cotton double cropping *(safrina)*, high-density planting with early, compact varieties worked wonders in the Cerrados of Brazil. Appropriate cultivars, dwarf early dense cropping, drip irrigation, plastic mulching, wind/shelter belts helped Xinjiang region consistently realise more than 2.0 tonnes lint/ha despite harsh ecological conditions. Crop rotation, adoption of transgenic varieties and customised BMPs tailored to avoid risks, scientific management of soil, water, vegetation and pests enabled Australia top the cotton productivity list.

Diagnosis and solutions for the Vidarbha paradox

The climate of Vidarbha is semi-arid in the west and sub-humid in the east. Cotton growing regions receive an annual rainfall of 720-1200 mm, 85% of which occurs during the monsoon months, June to September. This rainfall, if harnessed and utilised effectively is sufficient to grow a successful cotton crop. Shallow (<50cm) and medium (50-75 cm) deep soils occur in 43 and 11% of area of Vidarbha respectively and deep soils occupy the remaining 46% of the area.

Despite low productivity (Table 1), cotton remains the most popular choice among farmers of Vidarbha. The crop withstands harsh weather, extended monsoon provides additional yield with little extra cost, produce is non-perishable and prices remain stable unlike its competing crops-soybean and red gram. Traditionally, for centuries, Oomras (short staple *G. arboreum, desi* cotton) was grown in Vidarbha in rotation with jowar. Even during the 1950s, 1 to 4 rows of red gram was strip intercropped after 12-20 rows of desi cotton. This practice continued even after the introduction of American cotton varieties in 1960s and intra-hirsutum hybrids in the 1970s, although the proportion of rows changed. With the introduction of Bt hybrids, the cotton-red gram strip cropping system gave way to continuous mono-cropping of cotton without rotation.

While deep soils in assured rainfall areas (or areas with supplemental irrigation) can still support hybrids, in the drier areas, hybrids due to their longer duration and bushy growth habit fail whenever there is a terminal drought, more so on shallow soils. Planting short duration, compact varieties of American cotton or *desi* cotton, immediately after the first monsoon showers under high density planting can help avoid terminal water stress, escape pink bollworm and enable the farmer realise economic yields. Plant breeding efforts should be directed to develop specific varieties suited for the marginal soils and monsoon of Vidarbha. The ideal variety should have short duration (140-160 days), compact architecture, high harvest index, resistance to sap-sucking pests and high ginning out- turn (>40%).

Beyond doubt, Bt cotton is a powerful technology and Bt gene in American cotton varieties would still provide protection against the American bollworm. But what happens when the American bollworm also develops resistance to BG-II? American bollworm was an induced problem after 1981, due to a combination of factors such as repeated application of pyrethroids and long duration American cotton hybrids and varieties. We need to look for solutions that aid in removing the causal factors.

Climate change is a reality now and it affects all crops without discrimination. But among them, cotton and jowar are best adapted to withstand periods of dry spells. While it is not possible to link soil fertility with the incidence or severity of pests/disease, a healthy soil would necessitate lower fertilizer application. Fertilizer applications often spike the nutrient level in leaves, make them succulent and invite pests. Class I-A insecticides and insecticides that have growth promoting effects such as monocrotophos need to be avoided. A system of improving native soil fertility and allowing nutrients to be supplied in relation to crop demand should be devised. Cotton + legume intercropping or rotations with pulses and leguminous oilseeds are good options.

A farmer has no choice on the land he/she owns and tills, nor can he exercise any control on the climate. Some soil properties like depth and texture can't be changed while others like fertility and pH can be altered through management interventions to suit the crop. Likewise, climate cannot be altered but cropping windows can be readjusted to make the best use of the climatic conditions. Cotton varieties and production systems that favour few (8-10) bolls per plant in short growing season is the answer, especially for rainfed tracts of Vidarbha.

At the end of the day, the farmer is the best judge on what to grow. As agvocate Michele Payn Knoper, once remarked *"What you put in your mouth is a personal choice. What a farmer produces is also a personal choice. One should not overpower the other"*. Let us strive to provide farmers of Vidarbha science based, low budget interventions to adapt to the climatic uncertainties, enrich the soil and obtain sustainable cotton yields and empower him/her with resources to adopt these interventions.

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

CAI Team meets Maharashtra's CM

On Thursday, November 2, 2017, CAI President Shri. Atul Ganatra along with other office bearers of the CAI viz. Vice President Shri. Bhupendra Singh Rajpal, Addl Vice President Shri. Vinay Kotak, Hon. Treasurer Shri. Shyamsunder Makharia and Director Shri. Arun Sekhsaria and also the members of M/s. Maharashtra Cotton Ginners Association met the Honourable Chief Minister of Maharashtra, Shri. Devendra Fadnavis.

The delegation discussed important issues facing Maharashtra's ginning industry and requested the Chief Minister to withdraw the 'mandi fees' (cess) and reduction in power tariff for ginning factories like already given to power looms, both of which incur major costs for the ginners. The CM assured them that he would look into these issues and do the needful shortly.

Production Of Man-Made Filament Yarn

(In Mn. kg.)

Year/Month	Viscose Filament yarn	Polyester Filament yarn	Nylon Filament yarn	Poly propylene Filament yarn	Total
2010-11	40.92	1462.28	33.46	13.14	1549.79
2011-12	42.35	1379.52	27.95	13.19	1463.01
2012-13	42.63	1288.15	22.91	17.18	1370.87
2013-14	43.99	1212.43	24.09	12.91	1293.42
2014-15	44.24	1158.20	32.55	12.77	1247.76
2015-16	45.41	1068.80	37.26	12.66	1164.13
2016-17 (P)	46.07	1060.41	41.00	11.45	1158.93
2017-18 (P) (Apr.-Aug.)	19.34	477.45	16.03	4.40	517.22
2015-16					
April	3.80	95.97	3.22	1.09	104.08
May	3.70	96.03	3.01	0.99	103.73
June	3.69	82.80	2.69	0.95	90.13
July	3.78	82.67	3.11	1.12	90.68
August	3.81	86.94	2.96	1.13	94.84
September	3.82	89.67	2.81	1.00	97.30
October	3.83	89.49	3.17	1.00	97.49
November	3.75	87.58	2.86	1.32	95.51
December	3.82	90.60	3.29	0.91	98.62
January	3.83	93.31	3.36	1.02	101.52
February	3.78	86.91	3.32	1.10	95.11
March	3.80	86.83	3.46	1.03	95.12
2016-17 (P)					
April	3.78	84.08	3.30	0.96	92.12
May	3.88	85.31	3.38	0.96	93.53
June	3.90	84.93	3.27	0.95	93.05
July	3.98	89.83	3.46	0.99	98.26
August	3.97	90.88	3.38	0.97	99.20
September	3.75	89.11	3.67	0.96	97.49
October	3.89	93.00	3.69	1.05	101.63
November	3.78	86.49	3.06	0.77	94.10
December	3.84	84.59	2.76	0.80	91.99
January	3.87	93.21	3.77	1.10	101.95
February	3.56	85.78	3.49	0.89	93.72
March	3.87	93.20	3.77	1.05	101.89
2017-18 (P)					
April	3.81	89.41	3.24	0.85	97.31
May	3.83	92.68	3.49	0.79	100.79
June	3.69	90.84	3.27	0.90	98.70
July	4.03	96.53	2.96	0.95	104.47
August	3.98	107.99	3.07	0.91	115.95

P - Provisional *Source : Office of the Textile Commissioner*

UPCOUNTRY SPOT RATES

(₹\Quintal)

October 2017

2017-18 Crop

Growth G. Standard Grade Staple Micronaire Strength/GPT	P/H/R ICS-101 Fine 22 mm 5.0-7.0 15	P/H/R ICS-201 Fine 22 mm 5.0-7.0 15	GUJ ICS-102 Fine 22 mm 4.0-6.0 20	KAR ICS-103 Fine 23 mm 4.0-5.5 21	M/M ICS-104 Fine 24 mm 4.0-5.5 23	P/H/R ICS-202 Fine 26 mm 3.5-4.9 26	M/M/A ICS-105 Fine 26 mm 3.0-3.4 25	M/M/A ICS-105 Fine 26 mm 3.5-4.9 25	P/H/R ICS-105 Fine 27 mm 3.5-4.9 26	M/M/A ICS-105 Fine 27 mm 3.0-3.4 26	M/M/A ICS-105 Fine 27 mm 3.5-4.9 26	P/H/R ICS-105 Fine 28 mm 3.5-4.9 27	M/M/A ICS-105 Fine 28 mm 3.5-4.9 27	GUJ ICS-105 Fine 28 mm 3.5-4.9 27	M/M/A/K ICS-105 Fine 29 mm 3.5-4.9 28	GUJ ICS-105 Fine 29 mm 3.5-4.9 28	M/M/A/K ICS-105 Fine 30 mm 3.5-4.9 29	M/M/A/K/T/O ICS-105 Fine 31 mm 3.5-4.9 30	A/K/T/O ICS-106 Fine 32 mm 3.5-4.9 31	M(P)/K/T ICS-107 Fine 34 mm 3.0-3.8 33
2	...			...		...			HOLIDAY				...		...			...		
3	9673	9870	7677	8942	9701	10179	9364	9617	10320	9701	9926	10376	10545	10545	10714	10686	10967	11332	11923	14482
4	9673	9870	7677	8942	9701	10179	9364	9617	10320	9701	9926	10376	10545	10545	10714	10686	10967	11332	11923	14482
5	9673	9870	7677	8942	9701	10179	9364	9617	10320	9701	9926	10432	10601	10601	10770	10742	11023	11389	11979	14482
6	10545	10691	7677	8942	9701	10067	9505	9758	10208	9842	10067	10320	10573	10573	10742	10714	10995	11360	11951	14482
7	10686	10826	7677	8942	9701	10123	9505	9758	10264	9842	10067	10348	10629	10629	10798	10770	11051	11417	12007	14482
9	10686	10911	7677	8942	9701	10236	9505	9758	10376	9842	10067	10461	10714	10714	10882	10854	11135	11501	12092	14482
10	10826	11107	7677	8942	9701	10095	9561	9814	10236	9898	10123	10376	10770	10770	10939	10911	11192	11557	12092	14482
11	10967	11248	7677	8942	9701	10208	9617	9870	10348	9954	10179	10489	10826	10826	10995	10967	11248	11614	12092	14482
12	11248	11529	7677	8942	9701	10151	9617	9870	10292	9954	10179	10432	10826	10826	10995	10967	11248	11614	12092	14201
13	11248	11529	7677	8942	9701	10095	9617	9870	10236	9954	10179	10376	10826	10826	10995	10967	11248	11614	12092	14201
14	11248	11529	7677	8942	9701	10095	9617	9870	10236	9954	10179	10376	10826	10826	10995	10967	11248	11614	12092	14201
16	11220	11501	7733	8942	9701	10011	9617	9870	10151	9954	10179	10348	10826	10826	10967	10939	11164	11529	12007	14060
17	11220	11501	7733	8942	9701	9898	9589	9870	10039	9926	10179	10320	10798	10798	10939	10911	11135	11501	11979	14060
18	11220	11501	7733	8942	9701	9898	9448	9814	10039	9729	10123	10320	10714	10714	10854	10826	10995	11332	11810	13919
19	...		...			...			HOLIDAY			...			...			...		
20	...		...			...			HOLIDAY			...			...			...		
21	...		...			...			HOLIDAY			...			...			...		
23	11220	11501	7733	8942	9701	9898	9476	9842	10179	9729	10123	10348	10714	10714	10854	10826	10967	11304	11810	13919
24	11220	11501	7733	8942	9701	9898	9476	9842	10179	9729	10123	10404	10714	10714	10854	10826	10967	11304	11810	13919
25	11220	11501	7733	8942	9701	9983	9476	9926	10264	9729	10264	10404	10686	10686	10826	10798	10911	11248	11754	13919
26	11220	11501	7733	8942	9701	9983	9476	9926	10292	9729	10264	10376	10686	10686	10770	10798	10826	11248	11754	13919
27	11220	11501	7733	8942	9701	10011	9476	9926	10292	9729	10264	10376	10657	10657	10742	10770	10826	11248	11754	13919
28	11220	11501	7733	8942	9701	10011	9476	9926	10292	9729	10264	10376	10629	10629	10714	10742	10798	11220	11754	13919
30	11220	11501	7733	8942	9701	9954	9476	9870	10236	9701	10264	10320	10573	10573	10657	10686	10686	11051	11670	13919
31	11220	11501	7733	8942	9701	9954	9476	9870	10236	9701	10264	10320	10573	10517	10601	10629	10629	10995	11614	13919
H	**11248**	**11529**	**7733**	**8942**	**9701**	**10236**	**9617**	**9926**	**10376**	**9954**	**10264**	**10489**	**10826**	**10826**	**10995**	**10967**	**11248**	**11614**	**12092**	**14482**
L	**9673**	**9870**	**7677**	**8942**	**9701**	**9898**	**9364**	**9617**	**10039**	**9701**	**9926**	**10320**	**10545**	**10517**	**10601**	**10629**	**10629**	**10995**	**11614**	**13919**
A	**10904**	**11159**	**7705**	**8942**	**9701**	**10050**	**9504**	**9823**	**10243**	**9806**	**10142**	**10376**	**10693**	**10691**	**10833**	**10817**	**11010**	**11378**	**11911**	**14175**

H = Highest L = Lowest A = Average

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 OCTOBER – NOVEMBER 2017					
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	30th	31st	1st	2nd	3rd	4th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	11220 (39900)	11220 (39900)	11220 (39900)	11220 (39900)	11220 (39900)	11220 (39900)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	11501 (40900)	11501 (40900)	11501 (40900)	11501 (40900)	11501 (40900)	11501 (40900)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	7733 (27500)	7733 (27500)	7789 (27700)	7789 (27700)	7845 (27900)	7845 (27900)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	8942 (31800)	8942 (31800)	8942 (31800)	8942 (31800)	8942 (31800)	8942 (31800)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	9701 (34500)	9701 (34500)	9701 (34500)	9701 (34500)	9701 (34500)	9701 (34500)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	9954 (35400)	9954 (35400)	10011 (35600)	10011 (35600)	10039 (35700)	10039 (35700)
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	9476 (33700)	9476 (33700)	9476 (33700)	9476 (33700)	9476 (33700)	9476 (33700)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	9870 (35100)	9870 (35100)	9870 (35100)	9870 (35100)	9870 (35100)	9870 (35100)
9	P/H/R	ICS-105	Fine	27mm	3.5.4.9	26	10236 (36400)	10236 (36400)	10292 (36600)	10292 (36600)	10320 (36700)	10320 (36700)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	9701 (34500)	9701 (34500)	9701 (34500)	9701 (34500)	9701 (34500)	9701 (34500)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	10264 (36500)	10264 (36500)	10264 (36500)	10264 (36500)	10264 (36500)	10264 (36500)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	10320 (36700)	10320 (36700)	10404 (37000)	10404 (37000)	10432 (37100)	10432 (37100)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	10573 (37600)	10573 (37600)	10629 (37800)	10629 (37800)	10657 (37900)	10657 (37900)
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	10573 (37600)	10517 (37400)	10573 (37600)	10573 (37600)	10601 (37700)	10601 (37700)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	10657 (37900)	10601 (37700)	10657 (37900)	10657 (37900)	10686 (38000)	10686 (38000)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	10686 (38000)	10629 (37800)	10686 (38000)	10686 (38000)	10714 (38100)	10714 (38100)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	10686 (38000)	10629 (37800)	10686 (38000)	10686 (38000)	10714 (38100)	10714 (38100)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	11051 (39300)	10995 (39100)	11051 (39300)	11051 (39300)	11079 (39400)	11079 (39400)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	11670 (41500)	11614 (41300)	11670 (41500)	11670 (41500)	11698 (41600)	11698 (41600)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	13919 (49500)	13919 (49500)	13919 (49500)	13919 (49500)	13919 (49500)	13919 (49500)

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