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Insight on Profitability of Cotton Farming- Post Bt Era

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GUEST COLUMN

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With economic liberalisation and globalisation becoming the order of the modern world, our country can play a predominant role in cotton production and export. It is encouraging to note that over the last few years, cotton production had shown a significant increase. Indian cotton production has undergone a metaphoric change from 2002-03, after Bt cotton was introduced in the country. Since then, significant increase in area, production and yield has been witnessed. However, the farm distress, indebtedness, crop failures and agitations of farmers particularly in cotton growing areas, continue to haunt the country and these occur mainly due to poor returns from crop cultivation and volatile prices. Therefore, a deeper analysis on the issue of profitability across the cotton growing states over the years is necessary to find out whether farmers reap any profit from cotton cultivation.

Further, the Government of India has set a target of doubling of farmers' income by the year 2022. The Hon'ble PM has mentioned four aspects for improving the income of farmers, viz; reducing input cost; ensuring a fair price for the produce; reducing wastage; and creating alternate sources of income. NITI Aayog, a policy think tank of the Government of India has constituted a Task Force for doubling of farmer's income and relieving farmers' distress through new business models. In a historic decision recently, the Government fixed MSP at a level of 150 per cent of the cost of production for kharif crops of 2018-19. It is in this context, that, this article delves into the issues of costs, prices and profitability from cotton cultivation in post Bt cotton era, during the period which the country emerged as the world's largest cotton producing country and second largest exporter of cotton, using available spatio-temporal data on costs, returns and prices from 2005-06 to 2015-16 (Directorate of Economics and Statistics, Ministry of Agriculture and Agmarknet.gov.in). The outcome of this analysis might help in planning to achieve the government target of doubling farmers' income by 2022, assess the implications of the recent hike in MSP and government policy decisions related to cotton farming.

State-wise Scenario of Area, Production and Productivity of Cotton

Area under cotton in India has increased from 94.14 lakh hectare in 2007-08 to 105 lakh hectares in 2016-17 with an average compound annual growth rate (CAGR) of 1.2%. While area under cotton in the undivided Andhra Pradesh (7.8%), Tamil Nadu (4.7%) and Maharashtra (2%) had witnessed a great acceleration, in Punjab state (-9.1%) the area under cotton had decreased drastically. Growth in terms of area under cotton is almost stagnant in states like Haryana (0.3%) and Karnataka (1.6%) while for other states the change is not significant (Table 1).

Table 1: Area, Production and Productivity of Cotton

State	Area (lakh hectare)			Production (lakh bales 170kgs)			Yield (kgs/hectare)		
	2007-08	2016-17	CAGR (%)	2007-08	2016-17	CAGR (%)	2007-08	2016-17	CAGR (%)
Punjab	6.04	2.56	-9.1	20.0	9.0	-8.5	563	598	0.7
Haryana	4.83	4.98	0.3	15.0	20.0	3.2	528	683	2.9
Rajasthan	3.69	4.42	2.0	9.0	18.0	8.0	415	692	5.8
Gujarat	24.22	24.0	-0.1	110.0	95.0	-1.6	772	673	-1.5
Maharashtra	31.95	38.06	2.0	62.0	89.0	4.1	330	398	2.1
Madhya Pradesh	6.3	5.99	-0.6	20.0	21.0	0.5	540	596	1.1
Andhra Pradesh	11.33	22.27	7.8	46.0	78.5	6.1	690	644	-0.8
Karnataka	4.03	4.64	1.6	8.0	21.0	11.3	337	769	9.6
Tamil Nadu	0.99	1.5	4.7	4.0	6.0	4.6	687	680	-0.1
All India	94.1	105.0	1.2	307.0	351.0	1.5	554	568	0.3

Production of cotton had registered a highest growth in Karnataka (11.3%) followed by Rajasthan (8.0%), Andhra Pradesh (6.1%) and Tamil Nadu (4.6%). Punjab (-8.5) recorded high negative growth rate may be due to decrease in area, shift to other crops like paddy, due to severe infestation of leaf curl virus and whitefly in cotton. The rate at which the production grew was best explained by either low productivity compensated by high growth in area under cotton or high growth in productivity per se. Though significant portion of area under cotton is in Maharashtra state, poor productivity failed to translate the gain in area into higher production as mostly cotton grown under rain fed conditions with only 3% area of cotton is under irrigation.

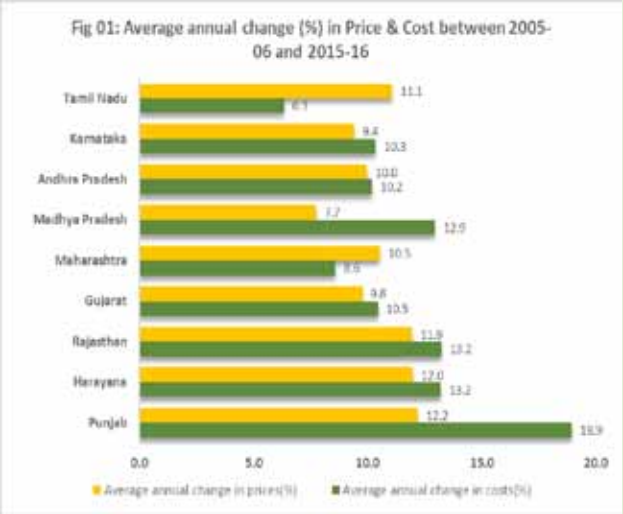
Improvement in productivity of cotton was witnessed in all major cotton producing states except Gujarat (-1.5%), Andhra Pradesh (-0.8%) and Tamil Nadu (-0.1%). The yield of cotton grew at a highest rate per annum in Karnataka (9.6%), followed by Rajasthan (5.8%), Haryana (2.9%) and Maharashtra (2.1%) respectively. Productivity at the national level was stagnant during this period.

Trend in Cost and Prices

Data on C2 cost (which is the sum of paid out costs, imputed value of family labour, interest on the value of owned capital assets, rent paid for leased-in land and the rental value of owned land) was collected from Directorate of Economics and Statistics, Ministry of Agriculture and Farmers' Welfare and average market prices during the peak marketing season was taken from Agmarknet.gov.in.

Average Change in Costs and Prices

Barring Maharashtra and Tamil Nadu states, the average of year on year % growth in cost and price clearly indicates that the rate at which the cost of cotton production increased is higher than that of the growth of cotton price (Fig 01). It clearly suggests that the rising input costs and less rewarding price of cotton has actually been squeezing the profit margin. As Bt cotton



cultivation requires higher inputs, there are state-wide variations in costs and productivity of cotton (Ashok Gulati, 2011).

Average of annual change in cost and price of cotton (%) between 2005-06 and 2015-16 was higher in case of Punjab followed by Rajasthan and Haryana.

State-wise Net Returns (%)

Net return indicates the profitability of cotton production and is the single most determinant of survivability of farming. An analysis on net return percentage (percent of net return over its price) for major cotton producing states (Table 2) indicates that almost all the states had witnessed positive growth in the net return percentage for almost 7-8 years during the period (2005-06 to 2015-16). No definite pattern though witnessed, net return as percent of its price was negative in states like Andhra Pradesh, Karnataka, Maharashtra, Madhya Pradesh, Haryana and Punjab during two consecutive years of 2014-15 and 2015-16 due to attack of sucking pests and pink bollworm, which is a cause of great concern. These states contribute 55.7% and 47.19% of total area and production of cotton of our country respectively.

Among the major cotton producing states, Rajasthan followed by Gujarat were the only two states that registered positive net return percentage in all the years between 2005-06 and 2015-16. Barring two years, net return percentage of Rajasthan and Gujarat was over 25% and 15% respectively in all years. Net returns in these two states were relatively stable and higher as compared to other states.

From 2010-11 onwards, net return percentage was either negative or inadequately low in states like Andhra Pradesh, Tamil Nadu, Maharashtra and Punjab. Huge fluctuations in net return percentage were persistently being observed in Tamil Nadu and Maharashtra states.

A great cause of concern grappling the cotton farming is that all major cotton producing states, barring a year, have witnessed a deceleration in terms of net return percentage since 2010-11. Their net return as percent of price had squeezed post 2010-11, with many states hitting at negative growth during 2014-15 and 2015-16. Cotton production is becoming less attractive, but area is increasing since it is grown mostly in rain fed conditions where there is no alternative crop better than cotton.

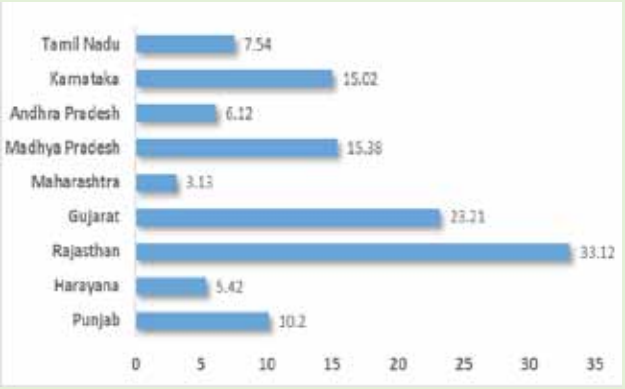
Table 2. Net returns percentage for major cotton growing districts during 2005-06 to 2015-16

Year	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
A P	-21.9	24.3	29.3	8.5	21.1	28.4	7.3	-1.8	5.4	-16.2	-17.1
Karnataka	-2.2	13.6	32.3	14.5	18.7	37.7	23.5	16.4	26.3	-0.7	-14.9
TN	-33.2	13.6	10.7	27.1	15.9	43.6	-8.7	-0.2	-7.6	4.6	17.1
Gujarat	20.7	24.9	35.4	20.5	27.0	49.4	19.8	1.5	29.3	11.3	15.6
Maharashtra	-14.9	-2.6	18.3	3.7	11.0	19.9	-4.2	1.3	14.8	-11.4	-1.7
Madhya Pradesh	-3.7	-7.6	19.0	34.2	35.1	48.1	37.9	37.0	33.7	-39.5	-25.0
Haryana	-18.0	6.2	23.4	20.0	15.9	45.0	22.0	13.3	20.4	-32.9	-55.8
Punjab	16.1	23.9	25.8	16.0	16.3	43.4	10.5	7.6	18.8	-1.1	-65.1
Rajasthan	25.1	40.0	39.5	33.5	39.0	59.2	42.5	38.2	25.1	10.8	11.5

Average of Annual Change in Net Return (%) from Cotton Cultivation

Average of annual change in return (%) provides an understanding of average annual change in net return between 2005-06 and 2015-16. States like Rajasthan (33.12%), Gujarat (23.21%), Madhya Pradesh (15.38%) and Karnataka (15.02%) could manage an average annual return over 15% during 2005-06 and 2015-16. These states together contribute a mere 37% and 44% of area and production under cotton (Fig 2).

Fig 2. Average annual change in return (%)



On the contrary, in the states of Punjab, Tamil Nadu, Andhra Pradesh, Haryana, and Maharashtra, the average annual net returns was below 10% . In Maharashtra, the average of annual change in net return (%) is as low as 3.3% between 2005-06 and 2015-16.

Maharashtra alone contributes 36.2% and 25.4% of the country's area and production, but the state is last in terms of net return percentage. This is explained by higher input cost and low price for their cotton, pushing farmers to greater distress.

The Way Forward

With adoption of Bt cotton and resultant leap in its productivity, India has emerged as the world's largest producer and second largest exporter of cotton. Although the cotton production and productivity has shown an increasing trend, it is associated with many problems. Cotton productivity in India has been changing, widely, over time and space. There are huge variations in the level of productivity both at national and state level and this should be narrowed down by investigating underlying causes and addressing them properly. As Bt cotton cultivation requires assured rainfall or supplement irrigation and higher nutrients as a pre-requisite for its successful production there are state-wide variations in costs and productivity of cotton. Escalating cost of production due to the rise in the prices of inputs viz high wages of labour, high nutrient requirement, supply bottlenecks in availability of fertilizers and high cost of Bt cotton seed coupled with spatio-temporal fluctuation in the prices of cotton, makes cotton production risky. Cost of cultivation of cotton has been increasing over the years due to the rise in wage rate of labour, input prices and other managerial costs (CACP, various reports).

From 2006-07, the farmers have realised profit margins because of increased value of output through increased productivity and better prices. In order to sustain and increase the profitability of cotton production, consolidated measures to increase the yield of cotton and to reduce the cost of cultivation through technology interventions is urgently required, perhaps on mission mode. The recent, steep hike of 28% and 26% in the minimum support price (MSP) on medium-staple and long-staple fibre cotton respectively by the government, will surely benefit the farmers, but the same MSP operational for all states is questionable, as the cost of production varies across the cotton growing states. The government should at least think of separate MSP or additional support for marginal farmers to make them committed to cotton farming. Further, the hike in MSP by government is a welcome step, but at the same time the implication of it on Indian textile value chain should be taken care of, as cotton price issue is equally important from the domestic as well as trade point of view to engage farmers to cotton farming and also related stakeholders into the business in the long run. Market Intervention Scheme (MIS) should be made more effective during glut periods and to protect farmers from distress sale. Government should also focus on non-price incentives such as irrigation facilities, institutional credits with low interest, strengthening of extension, and regulation of input and output markets. The policies on these lines will help in achieving the goal of doubling the farmer's income by 2022.

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

Sneh Sammelan at CAI

In keeping with tradition, the Cotton Association of India in association with The Bombay Cotton Merchants' and Muccadums' Association organised a Sneh Sammelan, a get together to celebrate Diwali. It was held on Labh Panchami, i.e. Monday, November 12, 2018. This highly auspicious day formerly ends the Diwali festivities, and is a day when the shops and businesses which were closed for Diwali are reopened. The Sneh Sammelan was attended by a large number of members, who came together to wish each other on this happy occasion. After the puja of Lord Ramchandraji, Shri. Atul Ganatra, President, CAI and Shri. Bhupendra Rajpal, Vice President CAI, addressed the gathering and expressed hope that the current season would bring all round prosperity for the cotton trade and benefit all the members. Thereafter, members received Shree Ramchandraji's prasad.

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 November 2018					
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	5th	6th	7th	8th	9th	10th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	- -	- -				- -
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	- -	- -	H	H	H	- -
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	10348 (36800)	10545 (37500)				10545 (37500)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	10489 (37300)	10686 (38000)	O	O	O	10686 (38000)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	- -	- -				- -
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	- -	- -	L	L	L	- -
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	10826 (38500)	10967 (39000)				10967 (39000)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	- -	- -				- -
9	P/H/R	ICS-105	Fine	27mm	3.5.4.9	26	- -	- -	I	I	I	- -
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	11248 (40000)	11389 (40500)				11389 (40500)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	11726 (41700)	11726 (41700)	D	D	D	11726 (41700)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	- -	- -				- -
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	12260 (43600)	- -				- -
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	12373 (44000)	12513 (44500)	A	A	A	12513 (44500)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	12654 (45000)	12513 (44500)				12570 (44700)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	12710 (45200)	12654 (45000)	Y	Y	Y	12710 (45200)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	12795 (45500)	12654 (45000)				12710 (45200)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	13104 (46600)	13076 (46500)				13076 (46500)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	- -	- -				- -
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	- -	- -				- -

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

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) 2018-19 Crop November 2018					
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPT	5th	6th	7th	8th	9th	10th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	12176 (43300)	12035 (42800)				12035 (42800)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	12317 (43800)	12176 (43300)	H	H	H	12176 (43300)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	- -	- -				- -
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	- -	- -				- -
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	11810 (42000)	11810 (42000)	O	O	O	11810 (42000)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	- -	- -				- -
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	- -	- -				- -
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	- -	- -	L	L	L	- -
9	P/H/R	ICS-105	Fine	27mm	3.5.4.9	26	12317 (43800)	12232 (43500)				12288 (43700)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	- -	- -				- -
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	- -	- -	I	I	I	- -
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	12457 (44300)	12317 (43800)				12373 (44000)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	- -	- -				- -
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	- -	- -	D	D	D	- -
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	12851 (45700)	12795 (45500)				12851 (45700)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	12991 (46200)	12935 (46000)				12935 (46000)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	13020 (46300)	12935 (46000)	A	A	A	12935 (46000)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	13132 (46700)	13132 (46700)				13132 (46700)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	13273 (47200)	13273 (47200)				13273 (47200)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	16253 (57800)	16253 (57800)	Y	Y	Y	16253 (57800)

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