Weekly Publication of

Cotton Association of India

COTTON STATISTICS & NEWS

Edited & Published by Amar Singh

2015 • No. 44 • 27th January, 2015 Published every Tuesday

Cotton Exchange Building, 2nd Floor, Cotton Green, Mumbai - 400 033
Phone: 30063400 Fax: 2370 0337 Email: cai@caionline.in
www.caionline.in

Agrarian Crisis – Why farmers commit suicide?

Part 1.

(Dr. K.R. Kranthi, Director of Central Institute for Cotton Research (CICR), Nagpur has completed his Ph.D in Entomology from IARI, New Delhi. He has more than 20 years of experience in the field of cotton research.

The views expressed in this column are his own and not that of Cotton Association of India)

EXPERT's Column

Dr K.R. Kranthi

The issue of farmer suicides is very sensitive, sad and tragic. Over the past two decades, cases of farmer suicides have highlighted the growing agrarian crisis, especially in Maharashtra and Andhra Pradesh. There have been attempts to connect farmer suicides with cotton cultivation in several cotton growing states. Bt-cotton was also critically examined for its possible role in the suicides mainly across Vidarbha. I am making an attempt to understand the farmer-suicide patterns in relation to cotton cultivation, yields, profitability and Bt-cotton. A short note such as this may not be able to deeply examine and surmise the tragic trends of farmer suicides, but can certainly present preliminary insights that could trigger further analysis.

Suicides may not be due to cotton in at least nine cotton growing states

Suicides have been reported from all the eleven major cotton growing states. However, data presented in Table 1, shows that it would be improper to associate cotton with the large number of suicide cases, especially in states which have less than 4.0% of cultivated area under cotton. The suicide trends have been presented in graphs 1, 2 and 3. It must also be mentioned here that the number of suicides in Karnataka and Madhya Pradesh are high with an average of 2100 and 1600 per year over the past 18 years in both the states respectively. But, cotton occupies 2.0 to 4.0% of the cultivated area in both these states as well as other cotton growing states such as Odisha, Tamilnadu and Rajasthan. The area under other crops is more than 96% and it is unlikely that farmers would depend only on cotton for their livelihood in these states. Therefore it may not be appropriate to link cotton with the total number of suicides in these states.

Cotton occupies about 17% of the area in Haryana and 12% of the net cultivated area in Punjab. Therefore cotton cultivation has a larger economic impact in these six states. But the average number of farmer suicide cases over the past 18 years was 79 in Punjab and 204 in Haryana. Cotton economics follow very dynamic and fluctuating trends that generally have a stronger impact, especially when input costs increase, cotton market prices are low and yields start declining. With a consistently lesser average number of suicide cases in the two states, it is also not very likely that cotton crop could have influenced the suicides.

Similarly, farmer suicides have also been reported from Gujarat, albeit at a relatively lesser scale of about 500 to 600 cases each year over the past 20 years at 12 farmers per lakh farmers in the state. Graph 2, shows the patterns of farmer suicides in Gujarat and Central India. Data show that the suicides appear to be unrelated to cotton and also unaffected with any agrarian changes in the state,

Table No 1. Farmer Suicides in 2013

2013	Area in lakh hectares		cotton area %	Total Farmers Number (Lakhs)	Suicide Cases No.	Suicide rate Per lakh farmers
	Total Area	Cotton				
South India						
Andhra Pradesh + Telangana	142.93	24.0	16.8	131.75	3014	22.877
Karnataka	121.61	4.85	4.0	78.32	1403	17.914
Tamilnadu	64.88	1.28	2.0	81.18	105	1.293
Central India						
Gujarat	99.79	24.97	25.0	47.39	582	12.281
Madhya Pradesh	158.36	6.08	3.8	88.72	1090	12.286
Maharashtra	198.42	41.46	20.9	136.99	3146	22.965
Odisha	48.62	1.70	3.5	46.67	150	3.214
North India						
Haryana	36.46	6.14	16.8	16.17	374	23.129
Punjab	39.67	4.80	12.1	10.53	83	7.882
Rajasthan	211.38	4.50	2.1	68.88	292	4.239

least of all with Bt cotton. Gujarat is an important state for cotton with about 25 to 28 lakh hectares which is about 25% of the land under agriculture in the state. Though the cotton area was less than one-fourth, it has been contributing about one third of the total cotton production of the country over the past 12 years. Thus the farmer suicide cases in Punjab, Haryana, Rajasthan, Gujarat, Madhya Pradesh, Karnataka, Odisha and Tamilnadu are less likely to be connected to cotton cultivation.

Farmer suicides in AP and Maharashtra are more worrisome

Cotton is cultivated in a vast area of about 42 lakh hectares in Maharashtra, which is about 21% of the total cultivated area in the state. In Andhra Pradesh + Telangana, cotton is cultivated in about 24 lakh hectares which is about 17% of the cultivated area in both states put together. The suicide rates are relatively higher at about 23 persons per one lakh farmers in Maharashtra and Andhra Pradesh + Telangana during the recent years of 2012 and 2013. The average number of suicide cases over the past 18 years is also high at 2100 per year in Andhra Pradesh and 3300 per year in Maharashtra. It is possible that farmer suicides or agrarian crisis may be associated with cotton cultivation in these states. Thus it would be logical to surmise that the issue of farmer suicides is a matter of more serious concern in the central Indian region of Maharashtra and Andhra + Telangana.

Is there any connection between yields and suicides?

Cotton yields before and after the introduction of Bt cotton are presented in Table 2. It would be pertinent to mention here that the average yields increased by 41.9% in Punjab, 56.7% in Haryana and 24% in Rajasthan after 2005 subsequent to the introduction of Bt cotton in north India. However the yield increases were significant at 103% in Maharashtra and 79.5% in Gujarat after 2002, when Bt cotton was introduced in central and south India. After 2002, yields increased by 15% in Andhra Pradesh + Telangana, 37% in Karnataka and 65% in Tamilnadu. However, the average yields in Madhya Pradesh declined by 3.8% after the introduction of Bt cotton in the state. Thus as seen in Table 2, suicides do not appear to be influenced with the yields.

Farmer suicides in Vidarbha –are they linked to cotton?

Farmer suicides were mainly reported from Akola, Amaravati, Buldhana, Wardha, Nagpur and Yavatmal. However, the average lint yields during 1999 to 2005 were only about 150 kg/ha prior to the wide-spread adoption of Bt cotton in these districts. Productivity almost doubled to an average of 290 kg lint per hectare over the five year period 2006 to 2010 with increased adoption of Bt cotton.

Data presented in Table 3, clearly reflects the yield increases in all the Vidarbha districts. Bt cotton contributed to effective bollworm control in Vidarbha thus resulting in reduction of pesticide usage and increase in yields. Nevertheless, it must also be noted that the input costs, mainly seeds, fertilizers and labour had also increased significantly during this period. Net profitability is an important consideration. Expectations increased and input costs also increased during the period when yields increased in Vidarbha. CICR conducted surveys in Maharashtra for three years from 2006 to 2009 to understand if cotton cultivation was in any way mainly responsible for 'farmer suicides' in the state with specific focus on Vidarbha. We interviewed 720

Table 2. Changes in yield kg/ha lint before and after Bt cotton

Yield kg/ha lint		State	% change
*Prior to Bt cotton	**With Bt cotton		
409	581	Punjab	41.93
337	528	Haryana	56.74
398	494	Rajasthan	24.10
370	664	Gujarat	79.56
152	308	Maharashtra	103.28
507	487	Madhya Pradesh	-3.86
493	570	Andhra Pradesh	15.58
255	350	Karnataka	37.01
438	722	Tamilnadu	64.90
351	369	Others	5.21

**Average yield over 7 years in north India prior to 2005 **and 7 years from 2006 to 2013 with Bt cotton. * Average yield over 11 years in central and south India prior to 2002 **and 11 years from 2003 to 2013 with Bt cotton.*

farmers from 120 villages in Wardha, Yeotmal and Nagpur districts. The net profit had increased from Rs. 1855/ha in 2007 to 5209/ha in 2008. Interestingly this period coincided with a sudden increase in the area under Bt cotton from 35% in 2007 to 98% within the next two years. The net returns were Rs. 5722/ha in Wardha and Rs. 6733/ha in Nagpur during 2007-08 when Bt cotton had reached a saturation. Bt cotton controlled bollworms effectively and thus resulted in significant reduction in insecticides that were hitherto used excessively to manage the insecticide resistant bollworms. Moreover, insecticides had become ineffective and yield losses could not be prevented efficiently.

The pattern of suicides in relation to the yields, as seen in Graph 4, is actually difficult to explain in Maharashtra. Productivity in Maharashtra increased over the years from 159 kg/ha lint in 1995 to 274 kg/ha lint in 2006. Strangely, farmer suicides in the state increased steadily during this period with 1083 cases in 1995 to 4453 cases in 2006. Subsequently the suicide numbers came down to 2872 cases in 2009 and fluctuated between 3141 and 3786 until 2013. The yields were relatively better at 330 to 350 kg/ha lint during 2009 to 2013. Though the yields increased in Vidarbha and Maharashtra over the past 7-8 years, after extensive adoption of Bt cotton, an in-depth analysis of the changes in economics during the period 2009 to 2012 needs to be examined critically to understand as to why suicides increased when the yields were increasing during this period.

Are farmer suicides linked to cotton in Andhra Pradesh?

The yield trends in Andhra + Telangana appear to be associated with suicide cases, albeit in a manner that shows short term immediate effects. Perusal of Graph 5, shows that yields were stagnant from 1995 to 2005 and the number of suicides doubled during the period from 1196 suicides in 1995 to 2666 cases in 2004. However a closer look at the patterns show that whenever yields increased in the short term, suicide numbers also decreased. Decline in yield also appears to have lead to increase in suicides over the short term in spurts. For example yields increased from 471 kg/ha in 2004 to 687 kg/ha in 2007 and the suicides decreased from 2666 cases in 2004 to 1797 in 2007. Subsequently the yields declined from 687 kg/ha in 2007 to 505 kg/ha in 2010 and the suicides increased from 1797 in 2007 to 2525 in 2010. The trend after 2010 is a bit difficult to comprehend, with concomitant increase in yields and suicides until 2013.

Conclusion of Part 1:

Agrarian crisis is a sad phenomenon. It must be tackled at all levels. Insightful studies have been conducted on the phenomenon of farmer suicides

Table 3. Productivity (kg/ha lint) in Vidarbha

	Akola	Amravati	Buldhana	Chandrapur	Nagpur	Wardha	Washim	Yavatmal	Average
1999	166	130	174	191	278	222	151	171	170
2000	116	82	69	112	151	193	86	90	102
2001	143	119	153	120	163	154	153	119	135
2002	171	148	197	129	165	161	144	132	154
2003	155	174	237	210	264	229	141	173	188
2004	113	136	128	165	235	219	122	146	146
2005	118	148	196	171	229	186	177	148	160
2006	365	151	214	310	212	227	172	202	224
2007	334	342	379	354	287	327	421	412	371
2008	292	271	290	284	244	208	147	319	284
2009	288	293	266	243	238	233	230	220	251
2010	325	320	320	325	443	348	315	280	319

Compiled by Reddy, A. R (2012) CICR, Nagpur

in India. Some very useful data and analysis have been published by P. Sainath, Dr. Dhandekar, Dr. Srijit Mishra, Dr. Nagaraj, planning commission and many others. Based on analysis, I feel that farmer suicides are certainly related to the growing agrarian crisis. Many suicides in Andhra Pradesh and Maharashtra may be related to the growing input and labour costs, stagnant yields, decreasing market demand and prices of cotton. Suicides in Karnataka and Madhya Pradesh merit special concern and attention. Suicides in all the other cotton growing states are unlikely to be associated with cotton since other crops play an important role in agrarian economics, unlike the predominant role of cotton as in Andhra Pradesh and Maharashtra. As mentioned in almost all publications, the issue of suicides relates to indebtedness, backlog in irrigation projects, mismatch between expectations and actual yields, poor infrastructure and ever increasing production costs that are not commensurate with market prices. I will focus more on these issues in the next part of this article. To surmise, there is no escaping the fact, that, more than anything else, there is need for a strong political will from the establishment to frame appropriate policies to find long term sustainable solutions to the problem.