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PERFORMANCE OF BT COTTON IN ANDHRA PRADESH 2004- 2005

Field Data reported by GENE CAMPAIGN

The situation with Bt cotton is getting worse every year. Illegal varieties have spread at a fast rate and there is no response from the regulatory agencies to control the situation or penalise the offenders.

Farmers have suffered heavy losses with Mahyco-Monsanto's MECH-12 and MECH-184 varieties. These were found to be largely ineffective against the bollworm. The maximum yield of these two varieties was 4qt/acre. Average losses amount to over Rs 4000 per acre. The reasons for this are low yield, premature falling of the cotton bolls and wilt leading to drying up of the roots. The cotton fibre is of poor quality and fetches a lower price in the market which is almost half the price paid for cotton from the other Bt cotton varieties.

Net Income from Bt cotton (Rupees/Acre)

Varieties Net	Yield Qnt./Acre	Price Rs./Qnt.	Output/Acre (in Rs)	Input Cost Profit
Non-Bt Cotton	9	1700.00	15300.00	6700
+8,600				
RCH-2	Bt	11	1700.00	18700.00
6850	+11,850			
MECH-12, 184 Bt	3	800.00	2400.00	6800
- 4200				

- Most farmers complained that *spurious seeds were mixed with MECH-12 and 184. It is speculated that the spurious seeds are the old MECH-162 seeds* which had performed particularly badly and was rejected by farmers.
- Local agricultural scientists confirm that Mahyco-Monsanto is mixing their old seeds with new lots. Because of their very poor performance, these varieties are not in demand resulting in large amounts of left over seeds. These apparently are being mixed with other varieties and sold to the farmers of the region
- *Farmers observed that the roots of MECH-12, 184 began to dry after 75 days and the plants died even before one proper picking could be taken.*
- The illegal Bt varieties in Andhra, namely Bunny Bt, Super Bunny, H-8 and Om-3 show good performance with average yields of 9 quintal/acre which is a little lower than RCH-2's 11 quintal /acre but far superior to the Monsanto cotton.
- RCH-2 is a Bt cotton variety belonging to the Rasi Seed Company. It shows the best performance of the Bt. cotton varieties this year. Rasi RCH-2 yields are about four times higher than the Monsanto cottons Mech -12 and Mech 184. The disadvantage is that the entire yield is available only in two pickings and *the variety is particularly vulnerable to sucking pests. During a bad sucking*

pest attack, which is quite a usual feature, the entire crop could be lost. RCH-2 is not a vigorous plant and its branches are weak and break easily. This will create additional problems.

- Cotton traders observe that *all Bt varieties have poorer quality fiber* compared to non-Bt varieties. Apparently, introducing the Bt gene exercises a negative effect on fiber quality.
- The study shows that pesticide use in non- Bt varieties is higher not because of greater vulnerability to bollworm but because the cotton has to be harvested over a larger number (5-6) of pickings so pesticide has to be sprayed till all the cotton is harvested, increasing the cost. *The pesticide saving in RCH- 2 is because all the cotton is collected in 2 pickings, thus reducing pesticide cost.*
- Most farmers *have grown illegal varieties of Bt. cotton, the most popular being Bunny-Bt., Supper Bunny, Om-3 and H-8* which are all procured from Karnool (Karnataka). Karnool seems to have emerged as a prominent center for the supply of illegal Bt. cotton varieties and appears to have overtaken the centers in Gujrat.
- As in the past two years, *almost no farmers have maintained the 20% refuge of non-Bt cotton. Even now, no no farmer education is taking place on the correct use of Bt technology.* Most farmers are not aware about the rationale and necessity of maintaining a refuge nor do they have a clear idea of how this is to be implemented.
- Despite widespread reports and the admission of cotton traders, no action has been taken to monitor the mixing of Bt with non-Bt. cotton.
- The Gene Campaign research team observed that there are agents operating in villages, who encourage farmers to cultivate Bt. cotton. These agents are local people who are offered cash incentives by seed agents to promote the Monsanto cotton but usually do not grow it themselves. For instance, Mr. Hanuman Reddy in Gundrapally village of Nekkonda block, Warangal, motivated the farmers of his village to grow MECH-12 though he himself refrained from doing so.
- These agents spread rumors that the Monsanto seeds are in great demand and will not be available unless they are booked ahead for the next year. The local scientists say this is to boost the flagging sales of the Monsanto varieties.
- Cotton breeders of the region complain that their conventional varieties are not being promoted despite being economical and good performers; *they complain that the State Agricultural Department machinery is pushing Bt cotton.*
- Local scientists and farmers confirm the observation that the State Agriculture department scientists who are collecting data on Bt cotton performance, *are fudging data to show better performance. For example, 4 is made into 14 quintals yield and figures are similarly concocted to show reduced pesticide use.*

Dr. Suman Sahai said that it is completely irresponsible that given the consistent failure of the Mahyco-Monsanto varieties, the GEAC is willing to consider their application for renewal of permission for another three years. The performance of all Bt cotton varieties must be reviewed to determine their suitability to Indian conditions. The observation that the Bt toxin protects against bollworm only up to 90 days and that sucking pests can wipe out the entire crop, must be investigated before any further release of Bt varieties. It is absurd that before there is any review of the reported bad performance of the Monsanto cotton and large scale defiance of the refuge

management requirements, the GEAC has gone and approved new varieties for Punjab, Haryana and Rajasthan. There seems to be neither will nor capability in the GEAC to control the serious problem of illegal Bt varieties; their only interest seems to be in releasing new GM crops. One must seriously question why.

Gene Campaign, which has conducted studies on the field performance of Bt. cotton for the last two years, has now compiled data on the third year harvest of 2004- 2005. The survey was conducted in the three districts of Andhra Pradesh ,Warangal, Guntur, and Prakasam. The survey included a total of 209 farm families selected by random sampling. Of the 209 farming families 134 had cultivated only Bt. Cotton, 73 had cultivated both Bt. and Non Bt. Cotton and 2 had cultivated only Non Bt. Cotton.

Bt. Cotton varieties sown in this area were MECH-12, MECH-184, RCH-2, OM-3, H-8, Bunny and Supper Bunny. MECH-124 and MECH-12 have crop duration of 120 to 130 days and RCH-2, OM-3, H-8, Bunny and Supper Bunny have a crop duration of 155 to 160 days. OM-3, H-8, Bunny and Supper Bunny are illegal varieties of Bt cotton that are supplied from Karnool in Karnataka.

Non Bt. Varieties were Brahma, Bunny, Sudarshan, Satya, Tulsi, Durga and Sigma. Bunny, Tulsi, Duraga, Brahma have a crop duration of 200 to 210 days and Sudarshan, Satya, and Sigma with a crop duration of about 180 days.