

Monitoring of Bt Cotton in Madhya Pradesh

As per letter no. 10/1/2002-CS dated October 7, 2002 from Ministry of Environment & Forests, the following members visiting the Bt cotton commercial plots planted by farmers in MP on November 17 and 18, 2002. 2002 to review the compliance of terms and conditions imposed by GEAC while according the approval for commercial cultivation of Bt-cotton developed by MAHYCO in the State of Madhya Pradesh.

1. Dr. C. D. Mayee, Director, CICR Nagpur
2. Dr. T. V. Ramaniah, Director, DBT, New Delhi
3. Dr. Sushil Kumar, Co-chairman, GEAC
4. Dr. Harpanhalli, Additional Director, Bhopal, regional Office, MoEF
5. Dr. R. K. Trivedi, Director (Seed) Ministry of Agriculture, New Delhi
6. Mr. Rawat, Secretary, Agriculture MP Government of Bhopal

Dr. Gadwal from MAHYCO office Mumbai and Dean, College of Agriculture, Entomologist, from College of Agriculture, Indore and Officials from Department of Agriculture, MP Government accompanied the Team.

On the last day Cotton scientists of JNKVV Khandwa, Dr. Satpute, Dr. Shastri and Dr. Aheri also joined for inspection of plots which suffered due to Para wilt.

The Bt cotton planted in following villages were visited

Table 1: details of Bt plots visiting in Madhya Pradesh

Village	Farmer	Bt Hybrid (one acre)	Date planting	Sprays given SP + BW	Remarks
Sanawat	Tarachand	184	25.6	3+1	3 irrigation, 3 picking over, 3.2 q/acre already got.
Dodwa (Khargone)	Sheikh Habib Shah	184	17.6	3+0	2 irrigation, 5 q/acre got
Harasosada (Khandwa)	Badri Patidar	184	27.6	3+1	Irrigated, 5 q/acre got
	Arvind Patidar	184	28.6	3+1	4 a/acre got
Surgaon	Nankram	184	27.6	2+0	4 q/acre got

(Khandwa)	Patel	12	28.6	4+1	Bad crop, heavy sucking pest. Only 1.5 q/acre got
Mardania (Khargone)	Mansingh Bhatia	184	19.6	3+0	3 irrigation, 4 q/acre got
Mandleshwar	Pannalal	184	22.6	3+0	2 irrigation, 4 q/acre got
Mahatwada	Mahadev Ganesh	184	25.6	Sprayed	No irrigation, 80% crop dried. 1.5 q/acre obtained.
Karhi (Khargaon)	The crop has been dried as reported by Team members. Dr. Harpanhalli, Mr. Rawat and Dr. Trivedi who visited it.				

The visits were made on 17.11.2002 and 18.11.2002 in villages of Khandwa and Khargone district. In all fields, there has been no rain after September, 2 to 5, 2002. The following observations have been made.

1. In general farmers adopted the recommend refuge 5 rows around the Bt plots but at some places, only two rows or three rows were observed. Only three sides were seen because of field geometry.
2. Wherever irrigation was provided the Bt plots performed well and yields between 3 to 5 q/acre were already obtained and based on the remaining bolls, the farmers were expecting about 10-12 q per acre.
3. Out of 10 fields one at Mahatwada and the other at Karhi were nearby dried and farmers were very vocal in rejecting the Bt cotton. The plots were nearby 80% dried in comparison to non-Bt and also regular hybrids. The farmers of those plots harvested only 1 to 1.5 q/acre and were now expect nothing. The village Karhi was visited by Dr. R. K. Trivedi, Dr. Harpanhalli, Mr. Rawat and scientists of JNKVV (Cotton Group). They confirmed the large scale damage due to wilt and clearly pointed out that this phenomena need to be invested.
4. Overall incidence of bollworms was low and the same damage was apparent in Non Bt (seen as square drop). Farmers have resorted to 3 to 4 sprays including for sucking pest.

5. MECH-12 one plot was observed to be highly damaged by jassid and inspite of repeated sprays the damage could not be contained.
6. Early maturity of Bt was clearly seen and as a result 50 % cotton yield was already harvested by almost all farmers who had better crop. It was clearly evident that due to early retention of boll, the crop aged much early in Bt than non Bt. As a consequence Bt crop looked brown while non Bt was green with flowers. Farmers need to be educated on account of this as, it is not greenness or prolonged harvest till Feb-March is desirable in quality of cotton. They are unaware of 'Per day yield concept' which will ultimately realize them that double cropping with Bt cotton is possible.
7. In drought situation, drying of Bt cotton is a matter of serious concern. Parawilt, disease of unknown biotic etiology has been investigated in India in earlier years of 1984-85, 1987-1990 when the malady was observed on many elite ruling hybrids like, JKHy 1, NHH 44, MECH-1, AHH 468, DCH-32. It was proved that it is a physiological disorder related to water uptake and embolism. The other concept was that it may be due to flagellate protozoa. However, dry spell followed by heavy rain or dry spell followed by heavy irrigation predisposes the crop to such malady. Recommendations of even sprays have been available for such transitory wilt syndrome.
8. Level of awareness to grow Bt cotton is inadequate and there appears a coordination gap between supplier, Government Department of Agriculture and Agriculture Research Institute (Khandwa).
9. Farmers have not followed instructions contained in seed packet in toto.

SUMMARY

Nearby 80 % cotton field of Bt visited by the team performed good and as per expectation. In 20% field early drying in large scale hampered the yield and has given a tremendous setback to farmers about the use of technology. However, this drying phenomena, referred as "Para wilt" or "New wilt" in literature needs to be studied in more detail. Level of awareness in growing Bt requires attention as all instruction are not adopted in toto.

A report accompanied with this was given by cotton scientists of JNKVV who visited 25 farmers' fields on 8 to 14 November, 2002 and reported positive performance of the Bt cotton. The report is annexed.

Performance of Bt Cotton in Farmers' Field District - Khandwa

In all 25 farmers field at Burhanpur (7), Pandhana (5), Khalwa (1), Harsud (6), and Khandwa tehsil (6) were visited by the scientists of Main Cotton Research Station, B. M. College of Agriculture, J. N. K. V. V., Khandwa. Visit was performed on 8, 12 and 13 November, 2002, where Bt cotton hybrids have been sown. The sowing was completed during 2nd week of June (4), 3rd week of June (9) and 4th week of June (12) by the farmers. Out of 25 farmers, seventeen have been taken MECH 184, three farmers MECH 162 and five have taken MECH 12 hybrids. Light to medium soil type was observed. All the fields were provided with guard rows of non-Bt hybrid. Major attack of sucking pest fields was observed which includes jassid, aphids, thrips, mites and white fly. In general, attack was observed in all the fields except at two locations where severe jassid problem was seen in Burhanpur tehsil on MECH 12. Bollworm attack was between 5 to 10 percent. Attack of Myrothecium leaf spot and BLB was common and in a low range.

Opinion of all the farmers about Bt cotton hybrids was positive expect one, who was not satisfied because of low boll formation (30 to 50 bolls per plant) in MECH 184. Three farmers expressed that they will not grow MECH 12 next year. Number of bolls ranged from 30-50 per plant to 130-160 bolls per plant with an average of 65 to 90 bolls per plant. The farmers were cautioned about the indiscriminate sprayings. Major insecticides used by the farmers were Rogor, Endosulphan, Qunolphos, Tracer + Confidor, Monocrotophos, Pride, Imidagold, Tatamida, Thiomethaxin , Avants, Marshal, Curacron and Neem Oil.

Guard rows of the hybrids used have more vegetative growth and tendency towards lateness. One field in Bhagwanpura having MECH 184 has shown forced maturity in the light soil. In general farmers were happy with the Bt hybrids because of bollworm control.

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