

Report of the Committee constituted by the Ministry of Environment & Forests to institute a monitoring and verification mechanism to assess the performance of Bt Cotton during Kharif 2003.

Background

The Genetic Engineering Approval Committee accorded conditional approval in April, 2002 for the commercial cultivation of three Bt Cotton hybrids namely MECH-12, MECH-162 and MECH-184 of M/s Mahyco Hybrid Seed Company Ltd for a period of three years. Subsequently the Ministry of Environment and Forests constituted 6 monitoring committees vide letter No. 10/1/2002-CS dated 30.9.2002 to review the compliance of the terms and conditions imposed by GEAC while according approval for the commercial cultivation of Bt-cotton. The Committee constituted by the Ministry visited some Bt Cotton fields in the states of Maharashtra, Gujarat, Madhya Pradesh, Andhra Pradesh and Karnataka. The Committees have observed that the performance of Bt cotton is satisfactory in terms of bollworm infestation and reduction in use of pesticide sprays as compared to its non Bt. counterpart. However Newspaper reports and environmental activists have alleged that Bt cotton is a failure. Subsequently, the Ministry has received a report on the performance of Bt. Cotton from the respective State Govt. reports and Central Institute for Cotton Research. The analysis of the various reports indicates that due to severe drought conditions and low bollworm infestation during Kharif, 2002 the performance/advantage of Bt. cannot be established based on one year data. It has therefore, been decided to evaluate the performance of Bt. for a period of three years.

For the Kharif 2003, the Ministry of Environment and Forest constituted a Committee to institute a monitoring and verification mechanism to assess the performance of Bt cotton.

Following is the composition of the Committee:-

- i. Shri Ashish Bahuguna, JS, MOA- Chairman.
- ii. Dr G. Kalloo, Dy director General, ICAR.
- iii. Dr C.D Mayee, Director Central Cotton Research Institute, Nagpur.
- iv. Dr T. V Ramaniah, Director, DBT.
- v. Dr R Warriar, Member Secretary GEAC.

The Terms of Reference of the Committee is as follows:-

- i. Formulate a mechanism for verification of seed production and distribution and ensure quality control.
- ii. Formulate a mechanism for monitoring the performance of Bt cotton in the six states. The Committee will decide on the parameters to be monitored.
- iii. Constitute monitoring teams to monitor the Bt Cotton fields in the six states. The Committee will decide the appropriate time for monitoring in each State.
- iv. Standard format for submitting the monitoring report.

- v. Information to be provided/collected from the respective State Agriculture department.
- vi. Mechanism for detecting illegal release.

Recommendations of the Committee

The first meeting of the above Committee was held on 22nd April 2003. The list of members who attended the meeting is annexed. The recommendations of the Committee are as follows:

1. Formulate a mechanism for verification of seed production and distribution and ensure quality control.

- For verification of seed production, the company should inform the Agriculture Department of the concerned State regarding, the location, area and estimated quantity of seed production. The quantity of seed produced should be further verified at the processing plant by the Seed Inspector.
- To ensure quality control, the company should provide details of all its seed dealers and advance notice of delivery to the Agriculture Department of concerned State so that random checking for genetic purity can be carried out prior to field distribution. Out of the total distribution, 0.1 % should be checked on random sample basis.
- The presence of Bt. gene may be checked using the sampling kits developed by Center Institute of Cotton Research (CICR) for verifying the presence of Bt gene. Training for the officials of the State Government to enable them to scientifically examine the performance of Bt cotton may be conducted by CICR with the financial support of MOEF and MOA.
- If the seed sample tested does not contain the Bt gene, the entire consignment should be impounded under the provisions of the Seed Act. In case such seeds had already been distributed to farmers, the farmers would have to seek compensation in the consumer court as per the law of the land.

2. Formulate a mechanism for monitoring the performance of Bt cotton in the six states. The Committee will decide on the parameters to be monitored.

- The period of field assessment in each State should be decided taking into consideration the varying agro-climatic conditions,. Further, the Bt cotton fields within the State should be classified into irrigated /un-irrigated /drought prone area.
- The performance of Bt Cotton should be compared with its non Bt counterpart in the refuge area.
- The Bt cotton fields should be ideally monitored three times. The first assessment should be carried out during the flowering stage (35-40 days of sowing), the second assessment during the square formation stage (75-90 days of sowing) and the third at the time of harvesting (1st picking usually within 130-140 days).

- The parameters to be monitored would include details of pest incidence, number of sprays at 50% of boll bursting, yield, agronomic practice, type of hybrid etc.
- 10% of the total Bt fields on a random sample basis should be monitored as per the guidelines for monitoring developed by Dr Mayee, Director CICR. The Bt cotton fields for monitoring I should be carefully chosen so as to adequately represent the various agro-climatic zones and agricultural practices in the region.

3. Constitute monitoring teams to monitor the Bt Cotton fields in the six states. The Committee will decide the appropriate time for monitoring in each State.

- Monitoring Committees both at the State and District level comprising of representatives from the State Dept of Agriculture, Agriculture Commissionerate and State Agriculture Universities should be constituted by the State Govt. to monitor the performance of Bt. Cotton during Kharif, 2003. The State Govt. should Co-opt an agro economist on the above Committee to evaluate the economic benefits of Bt. Cotton vs. Non-Bt hybrids. The State Govts., may co-opt experts and representative of the public (farmers association, NGO etc).
- To introduce transparency into the monitoring system, The State Govt. should inform the MOEF/MOA the names of the members of the Monitoring Committee and scheduled dates for monitoring. The information should be placed on the MOEF website.

3. Standard format for submitting the monitoring report.

The monitoring report should be submitted to MOA as per the guidelines for data reporting recommended by CICR for further analysis.

4. Information to be provided/collected from the respective State Agriculture department.

Information on seed dealers, seed distribution, quantity of seed distributed, names of farmers, irrigated/un-irrigated area, yield during the previous year, types of cotton hybrids grown in the region during the previous years and number of pesticide sprays etc will be provided by the State Agriculture department to the Monitoring Committee.

5. Mechanism for detecting illegal release.

- MoEF should direct the State Govt. to put in place the SLBSC/DLBSC especially in the six States where release of Bt. cotton cultivation has been permitted.
- MoEF, DBT & MOA should organize training for the members of SLBSC/DLBSC.
- Action under seed Act and EPA should be initiated by MoEF and MOA against erring companies/individuals.

- MOA should notify referral laboratories for testing of transgenic seeds. Since CICR have the facilities to test for Cry 1 Ac gene, MOA may notify CICR as a referral laboratory for testing the Bt gene.

Monthly Observation: 10 plants / acre; Non - Bt-Cotton plot

Name of the Farmer			Name of hybrid				Date of Sowing:				Date of Observation				
Plant No.	Height	Squares		Flowers		Green Bolls		Jassid damage	Aphid Damage	White fly damage	Spodop	Helicoverpa		Pink	Spotted
		Total	Damage	Total	Damage	Total	Damage	Grade	Grade	Grade	Larvae	Eggs	Larvae	Larvae	Larvae
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
Total															
Average															

Instructions; Observation on sucking pest damage must be recorded as grades (+; less severe; ++: moderate; +++: high; ++++: severe)
 Destructive sampling of bolls should be carried out on bolls for pink bollworm damage.

