

Decision taken in the 74th Meeting of the Genetic Engineering Approval Committee held on 14.2.2007.

The 74th Meeting of the Genetic Engineering Approval Committee (GEAC) was held on 14.2.2007 at 11.00 noon in Room No. 624 in the Ministry of Environment and Forests under the Chairmanship of Shri B. S. Parsheera, Additional Secretary, MoEF and Chairman GEAC.

1.0 Consideration of Proposals

1.1 Renewal of GEAC permission for commercial release of RCH 134 Bt and RCH 317 Bt cotton hybrids developed by M/s Rasi Seeds Ltd. for the North Zone.

1.1.1. The Committee noted that the present request is for renewal of GEAC permission dated 06.04.2005 for commercial cultivation of RCH 134 Bt and RCH 317 Bt developed by M/s Rasi Seeds (P) Ltd in the North Zone. The Committee considered the information submitted by the applicant and comments received from the State Department of Agriculture, State Agricultural Universities and Expert members. The following points were noted:

- i) The status of compliance of GEAC conditions is satisfactory. No adverse report has been received.
- ii) The hybrid / State wise total under cultivation of RCH 134 Bt has increased from 104729 acres in 2005 to 205884 acres in 2006. Similarly the total area under RCH 317 Bt has increase from 25408 acres in 2005 to 48650 acres in 2006.
- iii) The post release monitoring carried out by the State Department of Agriculture and the Department of Entomology has observed:
 - Both RCH 134 Bt and RCH 317 Bt are highly tolerant to CLCUv.
 - No difference between build up of sucking pests in Bt and Non Bt crop
 - Both the genotypes proved very good yielders.
- iv) In terms of agronomic performance RCH 134 Bt and RCH 317 Bt hybrids got the first and second placement in the Punjab Agriculture University's package of recommendations (PAU 2006).
- v) The Company has submitted NOC from its licensor (M/s Mahyco).
- vi) The Company has also informed that they would like to provide non Bt seeds of some other hybrids instead of the Non Bt counterpart of RCH 134 Bt or RCH 317 Bt. Accordingly, they have submitted a declaration that the non Bt hybrids seeds provided by the Company for planting the refugia is of the same species, similar duration and similar fibre quality. To a query on how the Committee would verify that the Company is complying with the declaration, it was suggested that this aspect may be monitored by the State Agriculture Universities as part of the post release monitoring activity. The representatives of SAUs agreed to the above suggestion.

1.1.2 During the deliberations the representative of the State Department of Agriculture, Government of Punjab informed that 50% of the area under cotton cultivation is occupied by RCH 134 Bt. One of the expert members pointed out that the present issue is not whether Bt technology is effective in controlling bollworms but to ensure sustainability of the Bt technology for which there is a need to ensure release of diverse germplasm. The Member Secretary, RCGM informed that RCGM in its meeting held on 31.1.2007 has recommended release of 11 new Bt cotton hybrids for the North Zone. Member Secretary, GEAC clarified that the proposals for commercial release of new Bt cotton hybrids for the North Zone would be taken in the next GEAC meeting scheduled for 14.3.2007.

Director research, PAU, Ludhiana requested the Committee to keep in mind the early sowing season for the North Zone so that new hybrids are available to the farmers in a timely manner. Release of new hybrids would also enhance competition and diversity in germplasm.

1.1.3 On the issue of sustainability of Bt technology, the Member Secretary, GEAC informed the Committee that MoEF has notified Central Cotton Research Institute, Nagpur as the nodal Department for monitoring the development of bollworm resistance to Bt gene. Director, CICR informed the Committee that the monitoring for 2005-06 and 2006-07 have been completed and the results indicate that there is no indication of development of tolerance / resistance to Bt gene in the cotton bollworm except in localized pockets at Vadodara. The Committee requested Director, CICR to make a presentation on the above study in the next GEAC meeting.

1.1.4 During the deliberation it was also noted that compliance with respect to planting the refugia is not being complied by the farmers purely for economic reasons. One of the expert members also pointed out that the issue of refugia is particularly important for the Northern Zone in view of the large cotton belt in the area. As compared to the Northern Zone, the cotton growing area in the Central and South Zone is more dispersed in view of the mixed crop cultivation practices. Director, CICR pointed out that a detailed study on alternate options is being carried out by the Institute and the report will be submitted to the Ministry shortly. The Committee requested Director, CICR to make a detailed presentation on the above study so that appropriate conditions are stipulated while according permission for commercial release.

1.1.5 After detailed deliberations the Committee approved the request for renewal of GEAC permission for commercial release of RCH 134 Bt and RCH 317 Bt developed by M/s Rasi Seeds in the North Zone for a period of three years.

1.2 Renewal of GEAC permission for commercial release of MRC 6301 Bt and MRC 6304 Bt cotton hybrids developed by M/s Mahyco for the North Zone.

1.2.1 The Committee noted that the present request is for renewal of GEAC permission dated 06.04.2005 for commercial cultivation of MRC 6301 Bt and MRC 6304 Bt developed by M/s Mahyco, in the North Zone. The Committee considered the information submitted by the applicant and comments received from the State Department of Agriculture, State Agricultural Universities and Expert members. The following points were noted:

- i) The status of compliance of GEAC conditions is satisfactory. No adverse report has been received.
- ii) The total area under cultivation of MRC 6301 Bt has increased from 25213 acres in 2005 to 55411 acres in 2006 and the total area under MRC 6304 Bt has increased from 1190 acres in 2005 to 36297 acres in 2006.
- iii) The post release monitoring carried out by the Department of Entomology, PAU, Ludhiana have observed :
 - Both MRC 6301 Bt and MRC 6304 Bt are highly tolerant to CLCUV.
 - No difference between build up of sucking pests in Bt and Non Bt crop
 - Both the genotypes recorded a higher yield than the non-Bt crop.
- iv) The company has established sucking pest and CLCUV screening facility at Sungro Research Farm, Janti, in Haryana state. MRC 6301 Bt and MRC 6304 Bt were screened for sucking pest as well as CLCUV under greenhouse facility in controlled condition along with resistant and susceptible checks hybrids, during Kharif 2005 and Kharif 2006. The study indicates both Bt and Non Bt hybrids of MRC 6301 and MRC 6304 were found to be resistant to CLCUV under poly-house condition. Virus inoculated plants of MRC 6301 and MRC 6304 remained free from

typical leaf curl like symptoms even after 120 days post inoculations. The check hybrids viz. Omshankar and LHH 144 were found to be susceptible to CLCUV infection.

1.2.2 After detailed deliberations and taking into consideration, the deliberations and decisions taken in Agenda item 4.1, the Committee decided to renew the GEAC permission for commercial release of MRC 6301 Bt and MRC 6304 Bt cotton hybrids developed by M/s Mahyco for the North Zone for a period of three years.

1.3 Renewal of GEAC permission for commercial release of Ankur 651 Bt and Ankur 2534 Bt cotton hybrids developed by M/s Ankur Seeds (P) Ltd. for the North Zone.

1.3.1 The Committee noted that the present request is for renewal of GEAC permission dated 25.3.2005 for commercial cultivation of Ankur 651 Bt and Ankur 2534 Bt developed by M/s Ankur Seeds (P) Ltd., in the North Zone. The Committee considered the information submitted by the applicant and comments received from the State Department of Agriculture, State Agricultural Universities and Expert members. The following points were noted:

- i) The status of compliance of GEAC conditions is satisfactory. No adverse report has been received.
- ii) The total area under cultivation of Ankur 651 Bt has increased from 948 acres in 2005 to 12034 acres in 2006 and the total area under Ankur 2534 Bt has increased from 3126 acres in 2005 to 23110 acres in 2006.
- iii) The post release monitoring carried out by the Department of Entomology, PAU, Ludhiana has observed:
 - Both Ankur 651 Bt and Ankur 2534 Bt are tolerant to CLCUV.
 - No difference between build up of sucking pests in Bt and Non Bt crop
 - Both the genotypes recorded a higher yield than the non-Bt crop. However the average seed cotton yield was lower than that of other Bt cotton hybrids released for the North Zone.
- iv) Agronomic evaluation of Bt cotton hybrids by Cotton Research Station, Haryana Agriculture University, Sirsa and by Punjab Agriculture University at Bhatinda and Faridkot during Kharif 2006 concludes that both the hybrids are resistant to CLCUV. However, the trial conducted at Cotton Research Station, Abhor by PAU during Kharif 2006 for screening CLCUV indicates that Ankur 651 and Ankur 2534 were susceptible. However the report concludes that the recommendations on the susceptibility of the hybrids to CLCUV would be made only after a period of three year testing. During the deliberations it was pointed out by one of the members that Abhor is a hot spot for CLCUV and most of the cotton hybrids whether Bt or non Bt are found to be susceptible to CLCUV in this area. Director Research pointed out that the time of attack of CLCUV is a factor which needs to be considered while deciding whether the hybrid is susceptible to CLCUV or not, as an early attack during the vegetative phase would result in yield loss. However, even if the attack during the late phase is severe there is no loss in yield. It was also noted that the Ankur hybrids are highly susceptible to parawilt.
- v) The Company has submitted NOC from its licensor

1.3.2 During the deliberations, the Committee requested the representatives of the State Government and SAU to clarify the suitability of the hybrids for Punjab. It was informed that Ankur 651 Bt and Ankur 2534 Bt are early maturing variety and therefore, suitable for the agricultural practices of Punjab. Also the hybrids have performed much better than the non Bt hybrids available in the region and the Committee may therefore, consider renewal of the hybrids for the region.

1.3.3 In view of the above and taking into consideration the need for maintaining diversity in germplasm as well as to curb the sale of illegal Bt cotton seeds, the Committee decided to renew the GEAC permission for commercial release of Ankur 651 Bt and Ankur 2534 Bt developed by M/s Ankur Seeds in the North Zone for a period of three years.

1.4 Renewal of GEAC permission for commercial release of RCH 2 Bt cotton hybrid developed by M/s Rasi Seeds Ltd. for the Central and South Zones.

1.4.1 The present request is for renewal of GEAC permission dated 6.4.2004 for commercial cultivation of RCH 2 Bt developed by M/s Rasi seeds (P) Ltd., in the Central and South Zones. The Committee considered the information submitted by the applicant and comments received from the State Department of Agriculture, State Agricultural Universities and Expert members. The following points were noted:

- i) RCH 2 non -Bt is a centrally notified variety (S.O 340 (E) dated April 2000)
- ii) The status of compliance of GEAC conditions is satisfactory. No adverse report has been received.
- iii) The total area under RCH 2 Bt. has increased from 413015 acres in 2004 to 1382917 acres in 2005 and 1490527 acres in 2006 in the Central and South Zone.
- iv) The post release monitoring carried out by the SAUs at different locations have observed :
 - RCH 2 Bt hybrids exhibited consistent high yield performance and was found to be agronomically suitable for the Central and South Zones especially in irrigated conditions.
 - RCH 2Bt was found to be effective in controlling the incidence of bollworms. No single sprays was taken against cotton bollworms in Bt cotton hybrids.
 - RCH 2 Bt exhibited higher number of open bolls than its non Bt check
 - RCH 2 Bt is under testing as national check in several MLT and LST trials.
- v) On the request of the Company for release of RCH 2 Bt in Orissa, the Committee was not inclined to consider the request at this stage as no field testing of the hybrid has been conducted in Orissa.
- vi) The Company has submitted NOC from its licensor

1.4.2 After detailed deliberations and taking into consideration, the deliberations and decisions taken in Agenda item 4.1 to 4.3, the Committee decided to renew the GEAC permission for commercial release of RCH 2 Bt developed by M/s Rasi Seeds (P) Ltd. for the Central and South Zones for a period of three years.

1.5 Re-Renewal of GEAC permission for commercial release of MECH 162 Bt cotton hybrids developed by M/s Mahyco for the Central and South Zones (except Andhra Pradesh).

1.5.1 The Committee was informed that in respect of MECH 162 Bt, the GEAC permission dated 5.4.2002 for commercial cultivation of the hybrid in the Central and South zones (except Andhra Pradesh) was renewed by the GEAC on 10.5.2005 for a period of two years in May 2005 based on the views received from the State Government. The Committee noted that the present request is for re-renewal of the GEAC permission for commercial release of MECH 162 Bt in the Central and South Zone except Andhra Pradesh. The Committee considered the information submitted by the applicant and comments received from the State Department of Agriculture, State Agricultural Universities and Expert members. The following points were noted:

- i) The status of compliance of GEAC conditions is satisfactory. No adverse report has been received.
- ii) The total area under MECH 162 Bt has increased from 251015 acres in 2005 to 277507 acres in 2006.

- iii) MECH 162 Bt was found to be effective in controlling the incidence of bollworms. No single sprays were taken against cotton bollworms in Bt cotton hybrids.
- iv) Inconsistent yield performance during the first year of release is now corrected.
- v) MECH 162 Bt has performed well under rain-fed conditions.

1.5.2 The issue of continuous renewals of GEAC permission for transgenic crops was discussed briefly. The Committee was of the view that continued renewals in future once the performance of the hybrids are considered satisfactory and has been renewed twice may not be necessary. The Member Secretary GEAC informed the Committee that the present procedure of renewal is as per the requirement of Rule 13 (2) of Rules 1989 which specifies that all approvals of the GEAC shall be for a specified period not exceeding four years at the first instance renewable for 2 years at a time. The Committee requested the Member Secretary, GEAC to bring up the matter as a separate agenda item in the next GEAC meeting.

1.5.3 After detailed deliberations and taking into consideration, the observations made by the representatives of the State Department of Agriculture and State Agricultural Universities, the Committee decided to renew the GEAC permission for commercial release of MECH 162 Bt in the Central and South Zones (except Andhra Pradesh).

2.0 Issue of GM free rice certificate:

2.1 While discussing agenda item No. 2 on the confirmation of minutes of the 73rd GEAC meeting held on 10.1.2007, the representative of Ministry of Commerce informed the Committee that there is a general belief that no GM crop trials are safe and even after all the precautions are taken contamination may not be avoidable. He requested the Committee not to permit open field trials of food crops until all the safety tests are complete so as not to put exports of Basmati rice or other food crops in jeopardy.

2.2 The Member Secretary, GEAC clarified that a decision has been taken in the GEAC meeting held on 10.1.2007 that no field trials on GM rice in farmers field shall be permitted in proximity to should be away from Basmati rice growing area especially in the state of Haryana, Punjab and Uttaranchal. However, green house trials and MLT in the institutional farm can continue. Further, in the absence of any field testing the safety aspect cannot be ascertained. The Member Secretary, RCGM further informed that the concerns of the Rice Growers' Association for notification of referral laboratories / agencies for issuance of GM free rice certificate have been taken on board. The RCGM in its recently held meeting has constituted a Sub-Committee to review the existing GM testing protocols and develop specific protocols for GM testing of rice which can be utilized by the Rice Exporters and also the regulatory agencies for issuance of GM free certificate.

2.3 The representative of Ministry of Commerce specifically requested the Committee to clarify whether the GEAC is in a position to issue a clear official statement that the Indian non GM rice is uncontaminated. The Co-Chairman, GEAC informed that the present mechanism of field testing of GM crops and the safeguards followed are adequate to ensure that there is no contamination of non GM rice in India.

3.2 Export of raw cotton and cotton seeds.

3.2.1 The Co-Chairman GEAC informed the Committee that large quantity of raw cotton and cotton seeds are being exported to China. There is an urgent need to look into the above matter as the farmers would fetch better price if the product is exported after value addition. He requested the Ministry of Commerce to take up the matter with the concerned administrative Ministries. The representative of Ministry of Commerce clarified that it would not be appropriate for the Department to issue any direction in this regard. However, the matter would be taken up at the appropriate forum.

3.3 Representation received from M/s Nath Seeds regarding the monitoring of Baseline susceptibility (development of tolerance/resistance) in the cotton bollworm (*Helicoverpa armigera*) by CICR, Nagpur.

3.3.1 The Member Secretary, GEAC informed the Committee that in accordance with the conditions stipulated by the GEAC, MoEF has notified Central Institute of Cotton Research, Nagpur for monitoring the baseline susceptibility study in the cotton bollworm at the applicant's cost. M/s Nath Seeds have informed that CICR, Nagpur is charging Rs. 10 lakhs for the proposed study during 2006-07. They have requested that alternate agencies like Entomology Laboratories at Tamil Nadu Agriculture University (Coimbatore) and University of Agricultural Sciences (Dharwad) may be involved in the monitoring of baseline susceptibility studies with a view to lowering the costs of monitoring.

3.3.2 Director, CICR informed the Committee that the cost of the monitoring was decided in consultation with Industry and presently they are monitoring the baseline susceptibility in cotton hybrids developed by M/s Mahyco (Bollguard I and Bollguard II) and M/s J.K. Agrigenetics (P) Ltd. Views were expressed that the SAUs have adequate expertise to monitor and generate the baseline susceptibility data provided the capacity of the SAUs is adequately enhanced. The Committee requested the representatives of the SAUs to submit a detailed proposal in this regard to the DBT for funding the monitoring program. The Committee concluded that until an alternate mechanism is put in place, CICR, Nagpur would be the nodal agency to monitor the baseline susceptibility. The Committee also requested Director, CICR to involve the SAUs while conducting the susceptibility study. The Committee requested the Member Secretary advised the applicant accordingly.
