

F.No. 12019/01/2015-CS-III
Government of India
Ministry of Environment, Forests & Climate Change
CS -III Division



Email: hota@nic.in
Tele: 24695386

Indira Paryavaran Bhavan
Jorbagh, Aliganj
New Delhi-110003

Dated:01.07.2015

Subject: Providing information Under RTI Act-2005

Dear Sir,

This has reference to your RTI application no MOENF/R/2015/605983 dated 03.06.2015 regarding GM Mustard of Pro-Agro related issues. The information is as under:

1 & 3. In respect of para No.1 and 3 of the application, in terms of record retention schedule, such a record is not maintained beyond prescribed period and the relevant file pertaining to the year 2002 is not available. In respect of para No.2 of the application, the relevant minutes of GEAC discussed commercial cultivation of the GM Mustard are enclosed.

Yours faithfully,


(Dr. Manoranjan Hota)
Director

Mr. Ananthoo,
38, Besant Avenue, Adyar,
Chennai 20,
Pin: 600 020

Summary Record of the 34th Meeting of the Genetic Engineering Approval Committee (GEAC) held on 7th November, 2002.

The 34th Meeting of the Genetic Engineering Approval Committee was held on 7th November, 2002 at 10.30 A.M in the Ministry of Environment and Forests under the Chairmanship of Shri A.M. Gokhale, Additional Secretary, Ministry of Environment and Forests. List of the participants is annexed.

1.0 Opening Remarks of the Chairman

The Chairman welcomed all the members. He informed them about the change effected in the Ministry regarding handling of the GEAC work. He apprised them that Dr. Ranjini Warriar, Additional Director will now look after the GEAC work as Member Secretary of the Committee. The Chairman also welcomed Dr. K.R. Koundal, Project Director, Indian Agriculture Research Institute (IARI) Pusa, New Delhi who participated in this meeting as a special invitee.

On behalf of the Committee, the Chairman thanked Dr. G. V. Sarat Babu, Additional Director, MoEF and former Member Secretary, GEAC and Dr Sujata Arora, Joint Director, MoEF for the excellent technical inputs and arrangements provided by them for the GEAC meeting.

At the outset, the Chairman referred to the importance of the meeting and briefly dwelt upon the agenda before the Committee with specific reference to Proagro's proposal for commercial release of transgenic mustard and mustard seed. The Chairman mentioned that the request for commercial release of transgenic mustard is the first proposal that has come up before the GEAC after commercial release of Bt Cotton. The Chairman urged the members to develop a well-defined procedure and requested them to consider the proposal carefully. He also referred to the proposal of CARE and CRS to import Corn Soya Blend and Crude Degummed Soya Bean oil and requested the Committee to take a final decision after carefully reviewing the comments/ observations of ICMR.

2.0 Confirmation of the Minutes of the 33rd Meeting of the GEAC held on 5.07.2002.

The Chairman referred to the minutes of 33rd Meeting of GEAC held on 5th July, 2002, which were circulated to all members. As there were no comments, received from members, the minutes were confirmed. Thereafter the agenda items were taken up for discussion, beginning with the proposal on transgenic mustard seed.

PART A

3.0 Consideration of New Proposals

Agenda Item No. 3.1 Permission for commercial release and marketing of transgenic mustard and seed production of transgenic mustard by M/s Proagro Seed Company Ltd., Gurgaon.

The Committee invited the representatives of M/s Proagro Seed Company Ltd. to make a presentation on their proposal. The Committee noted the following:-

1. The company has developed three hybrids namely MT95002, MT95003 and MT 95005. These hybrids contain three genes for three useful traits; these are (i) bar (glucosinolate ammonium tolerance trait), and (ii) barnase (male sterility producing trait), and (iii) barstar (restoration of fertility trait). Based on the results of large scale trials conducted by the company, approval of the GEAC is being sought only for environmental release of two transgenic mustard hybrids namely MT 95003 and MT 95005 and production of F1 hybrid and parent seed production in the states of M.P and Haryana on 120 acres and 5.52 acres respectively.
2. The pollen flow studies conducted by the company to assess the maximum distance up to which transgenes could escape is observed upto 35 m and at this distance about 0.01% transfer is estimated. The Committee sought information on the pollen transfer and level of contamination at a distance of 1 to 5 m. This information was not available the company. Considering the agro climatic conditions and small land holdings of Indian farmers, the Committee was of the view that the non-GM Mustard seed from the adjoining field is likely to get contaminated by male sterility BARNASE Gene, BARSTAR, NEOMYCIN and BAR genes. This factor may affect the stability of the properties of the non-transgenic varieties.
3. Trial studies conducted by the company also indicate the presence of male sterile plants in the progeny population of non-transgenic Brassica growing in the vicinity of transgenics. It has been estimated that the average percent of male sterile plants i.e the presence of barnase gene is about 0.31 %. The Committee noted that the presence of barstar and bar gene in the contaminated native plants is an important issue that has not been taken into consideration while estimating the transgene spread.
4. The Bar gene used as a marker gene in the transgenic mustard is responsible for resistance to a herbicide (glucosinolate ammonium) derived from *Streptomyces hygroscopicus* and expresses in many plant tissues. The issue of resistance to herbicide resulting in increased weediness and consequent use of more toxic persistent herbicide was discussed. The Company clarified that glufosinate (Basta), a proprietary herbicide is not be registered in India and therefore the issue of weediness or tolerance to herbicide will not arise. At this point, one of the members informed the Committee that glufosinate is freely available in India and is registered for use only in tea gardens. The Committee was of the view that the company should give a legal undertaking not to register the above herbicide in India for the purpose of mustard crop.
5. Studies related to agronomic advantage indicate that Hybrid MT 95003 is best adapted in Gujarat, Madhya Pradesh and UP with 18 -23% advantage in seed yield over best check – Varuna and 26% advantage in oil yield. Hybrid MT 95005 is best adapted in UP and Haryana with 16%- 18% advantage in seed yield and 18% advantage in oil yield.
6. On the issue of toxicological and allergency studies, the Committee was of the view that information on feeding studies in cattle (cows or buffaloes) with transgenic mustard cake and the presence of PAT protein in the milk and also toxic effects in the animals needs to be estimated. The company should also conduct allergency studies in BNR system using mustard leaves as a source material.

After the presentation, the members deliberated at length on the results of the trials conducted by M/s Proagro. In view of the complex environmental and health issues involved, some Ministries requested for some more time to analyze and interpret the information / data available. It was therefore, decided to defer decision on the proposal and continue the discussion in the next GEAC meeting.

Summary Record of the 36th Meeting of the Genetic Engineering Approval Committee (GEAC) held on 25th APRIL, 2003.

The 36th Meeting of the Genetic Engineering Approval Committee was held on 25th April, 2003 at 10.00 AM in the Ministry of Environment and Forests under the Chairmanship of Ms Sushma Choudhary, Additional Secretary, Ministry of Environment and Forests. List of the participants is annexed.

1.0 Opening Remarks of the Chairman

The Chairman welcomed all the members. The Chairman briefly dwelt upon the follow up to the decision taken in the Inter-ministerial Meeting on 26th March, 2003 and 34th GEAC meeting held on 6th March, 2003. She informed the Committee that comments from some of the Ministries and Members have been received on the issues raised in the inter-ministerial discussions. She requested all the Members to forward their comments so that matter can be further discussed and task force set up in the next inter-ministerial meeting tentatively scheduled for 3rd week of May, 2003. The Committee was also informed about the recent meeting of the Committee constituted by the Ministry to institute a proper monitoring and verification mechanism to assess the performance of Bt Cotton during Kharif 2003.

2.0 Confirmation of the Minutes of the 35th Meeting of the GEAC held on 06.03.2003.

The Chairman referred to the minutes of the 35th Meeting of GEAC held on 6th March, 2003, which were circulated to all members. The Minutes were confirmed with the following modification:-

Para 5.0 – Policy Issues – Point 1 modified as follows:-

DBT is receiving many proposals from companies to permit use of higher fermentation vessels (more than 20 lit.) for standardization of process and also using the product for development of pre-clinical and clinical data. As per DBT guidelines any production above 20 lit requires the approval of GEAC. DBT has recommended that cases where higher fermentation capacities are required for research purpose standardization of process guidelines of pre-clinical and clinical data, permission may be granted by RCGM on a case to case basis after making the necessary amendments in the DBT guidelines. **The Committee endorsed the recommendations made by DBT.**

3.0 Consideration of Proposals.

A. Commercial Release of Transgenic Mustard (*Brassica Juncea*) By M/s Proagro Seeds Pvt. Ltd.

The transgenic mustard developed by M/s Proagro Seeds Company Ltd. contain 3 genes namely Barnase (male sterility producing trait), barstar (restoration of fertility trait) and bar (marker gene having glucosinolate anomium tolerance trait). The Committee apprehended that the male sterility gene and the herbicide resistant gene could migrate to related species and impart such characteristics upon them. Considering the small land holdings, the Committee was of the view that, the risks attached to migration of these genes need to be studied in great detail.

The Committee deliberated at length on the results of the trials conducted by the Company and ICAR to address the issues related to yield, crossability, gene flow, resistance to herbicides and health aspects. The Committee noted the following :-

1. ICAR have conducted trials at only 4 locations which is not adequate.
2. The agronomic superiority of these transgenic mustard seeds is yet to be fully established. At one of the ICAR trial locations the yield increase was only 5% as against 20% increase in yield claimed by the company.
3. The coefficient of variation between the trials conducted by the company and ICAR are at variance. The ICAR trials indicate pollen flow upto 75 meter whereas the company has reported pollen flow upto 50 meters.
4. Mustard being an edible crop important policy issues related to labeling, traceability etc. need to be put in place prior to commercial release.
5. Toxicity and allergenicity studies conducted by the company to assess the health impacts are not adequate.

After detailed deliberation, the Committee concluded that the trials conducted by ICAR are not conclusive and further trials should be conducted by ICAR to address all bio-safety and agronomic issues such as crossability, gene flow, resistance to herbicide, agronomic superiority, etc. The committee also noted that mustard being an edible crop, further studies to establish health safety aspects need to be conducted.

B. Commercial release of Bt cotton MECH-915 variety in the Northern States by M/s Mayco Seed Company Pvt Ltd.

M/s Mahyco have developed cotton hybrid MECH915 Bt that matures in 150 160 days keeping the specific requirements of the northern region.

The Bt hybrid MECH- 915 has been tested by ICAR under AICCIP programme during Kharif 2002-03 season at nine selected locations for various parameters such as genetic uniformity, agronomic performance and performance against pests and diseases in the North Zone in the states of Punjab, Rajasthan, Haryana and Uttar Pradesh. Field experiments have been conducted at Sirca, Hisar, Ludhiana, Faridkot, Abhor, Srganganagar, Banswara, Modipuram and Kanpur. MECH 915 Bt Hybrid along with its non Bt hybrid has been tested with MECH 162, MECH Non Bt Hybrid, as well as both national and local checks. The national checks were Om Shankar and LHH, 144. ICAR has carried out the following sets of evaluations/trials:

- a) Evaluation of Bt cotton Hybrids for agronomic performance.
- b) Evaluation of Bt cotton Hybrids for genetic performance.
- c) Evaluation of Bt cotton Hybrids for pest and disease performance under pest protected and unprotected conditions, under integrated pest management regimes, under Bio- intensive plant production, Farmers practice of plant protection.

The Committee deliberated in detail the results of the trials conducted by ICAR. The Committee observed that the quality and yield parameters though at par with the National and local checks, the MECH 915 Bt hybrid was highly susceptible to foliage damage and Curl Leaf Curl virus which is rampant in the area where it is to be grown.

The Committee noted with concern that cotton production in the north could be adversely affected by wide spread cultivation of this sensitive MECH 915 hybrid. The Committee therefore rejected the proposal.

4.0 Monitoring of Bt Cotton for the Kharif 2003.

The Member Secretary GEAC briefed the Committee on the report received from the State Governments on the performance of Bt. Cotton in each State. The Committee was of the