

Brief record of the 34th Meeting of GEAC held on 7.11.2002.

The 34th meeting of the GEAC was held on 7.11.2002 at 10.30 A.M in the MoEF under the Chairmanship of Shri A.M. Gokhale, Additional Secretary, MoEF. List of 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.

Confirmation of the Minutes of the 33rd meeting of the GEAC held on 5.7.2002

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 levels 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 progeny population of non-transgenic Brassica growing in the vicinity of transgenic. 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 allergenicity 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 allergenicity 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.

Agenda Item no. 3.2 Permission for import of Corn Soya Blend (CSB) and Crude Degummed Soya Bean Oil by M/s CARE and CRS.

The Member Secretary briefed the Committee on the proposal of CARE and CRS to import refined soya oil, corn soya blend and crude degummed soya bean oil.

The GEAC in its 32nd meeting held on 05.07.2002, approved the import of refined Soya oil since it does not contain Protein or DNA. Decision on the other two products was deferred in view of the apprehension expressed by ICMR. Comments of ICMR was placed before the Committee for taking a final view on the import of corn soya blend and crude degummed soya bean oil.

After detailed deliberation, the Committee approved the proposal to import Crude degummed Soya Bean Oil (CDSO) since ICMR's comments specifically clarified that CDSO does not contain any protein and hence even CDSO processed from GM soyabean would not contain any GM Material. The Committee was also of the view that a post marketing surveillance through ICDS Program Managers, as recommended by ICMR, should be carried out and results of the monitoring should be submitted for consideration of GEAC after obtaining the views of ICMR. In view of the above recommendation, the Committee decided to permit import of CDSO initially only for a period of one year.

On the issue of corn soya blend (CSB), the committee noted that information submitted by ICMR merely indicates the countries which have approved the product. In the absence of any clear-cut recommendation/information on the presence of any DNA/protein in the CSB, the Committee decided not to permit its import on the following grounds:

- i. Lack of evidence on the presence of any contaminant does not necessarily prove the absence of the contaminant in the product.
- ii. In the absence of a notified GM Food policy, adequate testing facilities and monitoring mechanism, permission for import of any GM food (even as food aid) needs to be treated with great caution as it is likely to open up avenues for private parties to import the same product.

PART – B

Agenda Item No. 3.3 to 3.12 and

Agenda Item No. 4.1. to 4.3

Discussion on the remaining proposals was deferred till the next GEAC meeting due to the non-availability of time.

Other issues:

The Committee requested the Chairman to call for a meeting with NGO's and the Scientists specialized in mustard seed research for detailed discussion prior to the next GEAC meeting.

The meeting ended with a Vote of Thanks to the Chair.

List of participants who attended 34th GEAC meeting held on 7.11.2002

Genetic Engineering Approval Committee (GEAC)

1.	Shri A.M. Gokhale	Chairman
2.	Dr. Sushil Kumar	Co-chairman
3.	Dr. T.V. Ramanaiah	Member
4.	Shri S.R. Vijayavaghavani	Rep. of DCGI
5.	Shri S.P. Shani	Rep. of DCGI
6.	Dr (Mrs.) S. Kulshreshtha	Member
7.	Shri Arun K. Sahi	Rep. of MEA
8.	Shri A.K. Bhatnagar	Member
9.	Shri S.K. Mahajan	Member
10.	Shri M. Sundaravadivel	Rep. of CPCB
11.	Shri J.S. Choudhary	Rep. of MOHA
12.	Shri Ashish Bahuguna	Member
13.	Dr. S. Prakash Tiwari	Rep. of ICAR
14.	Dr. D.R. Chawla	Rep. of M/o Industry
15.	Dr. Rakesh Mittal	Rep. of ICMR
16.	Dr. V. Muthuswamy	Rep. of ICMR
17.	Dr. R. Warriar	Member Secretary

Special Invitee

1.	Dr. K.R. Koundal	Rep. of IARI.
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MoEF officials

1.	Dr. Sujata Arora, Joint Director
2.	Ms. Madhu Gupta, RA

Project Authorities

Representatives of M/s Proagro Seed Company Ltd.