

Decisions taken in the 120th meeting of the Genetic Engineering Appraisal Committee (GEAC) held on 12.5.2014

The 120th meeting of the GEAC was held on 12.05.2014 in the Ministry of Environment and Forests (MoEF) under the chairmanship of Shri Hem Pande, Additional Secretary, MoEF and Chairman, GEAC

The deliberations and decisions taken in the GEAC meeting in respect of Agenda item 4 are as follows:

Agenda item No 4: Consideration of applications for confined field trials of transgenic crops (Event selection/ BRL-I/ BRL-II) as recommended by the RCGM

4.1 Permission to conduct event selection trial with 44 transgenic *Btrice* events (*Oryzae sativa* containing dual *Bt* (*Cry1Ab* & *Cry1Ca*) and *bar* genes, 18 events from *dual Bt*, and one event of LL Rice 62 with *bar* as control and 21 events containing *Cry1Ab* & *Cry1Ca* and *Cry 2 Ad* gene at Central and South zones by M/s. Bayer Biosciences Pvt. Ltd., Gurgaon

4.1.1 The Committee considered the application of M/s. Bayer Biosciences Pvt. Ltd., Gurgaon to conduct event selection trial of *Bt* rice containing *cry1Ab*, *cry1Ca*, *bar* and *cry2Ad* genes four events containing dual *Bt* (*cry1Ab* & *cry1Ca*) and *bar* gene; 18 events with dual *Bt* (*cry1Ab* & *cry1Ca*) one event of LL Rice 62 with *bar* as control and 21 events containing *cry1Ab*, *cry1C* and *cry2Ad* gene in Anand/ Surat/ Vadodara/ Panchmahal/ Nagpur/ Chandpur in Central zone and Patancheru and Eluru / Coimbatore/Trichy/ Madurai in South Zones respectively at company's long leased land in an area of 1 acre of each location by M/s. Bayer Bioscience Pvt. Ltd., Gurgaon.

4.1.2 The Committee noted that the objectives of the trials are:

- to evaluate and select the superior *Bt* events in comparison to non-transformed genotype for agronomic parameters, seed producibility, restoration capacity, herbicide tolerance and Insect Efficacy.
- randomized Complete Block Design with 3 replications.
- the seed producibility study will be non-replicated.

4.1.3 The Committee observed that the proposal has been recommended by the IBSC and RCGM in its 40th meeting and 23.10. 2012 respectively.

4.1.4 The Committee was of the view that in respect of HT crops, there is a need to verify if the herbicide has been approved by the Central Insecticide Board & Registration Committee (CIBRB). After detailed deliberations, it was decided to obtain following information from the applicant:

- (i) Dosage of Herbicide Glyphosate spray
- (ii) Approval of Central Insecticide Board & Registration Committee (CIBRB).
- (iii) Nature and extent of biodegradation
- (iv) Residual estimate of the herbicide in the soil
- (v) Impact on Mollusca and Crustacean should also be studied during field trials

4.1.5 In view of the above stated facts and taking into consideration the recommendations of the RCGM, the Committee approved the request for conduct of event selection trial with 44 transgenic *Btrice* events (*Oryzae sativa* containing dual *Bt* (*Cry1Ab* & *Cry1Ca*) and *bar* genes, 18 events from *dual Bt* and one event of LL Rice 62 with *bar* as control and 21 events containing *Cry1Ab* & *Cry1Ca* and *Cry 2 Ad* gene at company's long leased land in an area of 1 acre at one location each in the Central and South zones during any appropriate season subject to submission of NOC

from the State Government where the trials will be conducted. In addition, the Committee stipulated the following conditions:

- (i) Trials to be conducted with Alpha design and not Randomized Complete Block Design
- (ii) Surplus seeds to be burned and not be buried in muddy rice field as indicated in the application.
- (iii) If a gene shows weediness it should be reported immediately.
- (iv) Information sought in para 4.1.8

4.2 Permission to conduct Biosafety Research Level-1 (BRL-1) on trials of transgenic cotton (*Gossypiumhirsutum*) hybrids containing breeding stack events MON 15985 x COT102 (BGIII); transgenic cotton of breeding stack events MON 15985 x COT102 x MON 88913 (BGIII RRF) and transgenic cotton containing event COT102 during the years 2013-14 and 2014-15 in North, Central and South zone in India by M/s. Monsanto Holdings Private Ltd.

4.2.1 The Committee considered the request of M/s. Monsanto Holdings Private Ltd. to conduct BRL-1 trial on transgenic stacked cotton hybrids containing insect resistance genes *Cry1Ac*, *Cry2Ab2* and *Vip3A* i.e. Events MON 15985 X COT 102 (BGIII) ; stacked cotton hybrids containing insect resistance genes *Cry1Ac*, *Cry2Ab2* and *Vip3A* and herbicide tolerant gene *Cp4 epsps* i.e. Events MON 15985 X COT 102 X MON 88913 (Roundup Ready Flex; BGIII RRF) and transgenic cotton containing insect resistant gene *Vip3A* event COT102 in the North, Central and South Zones in Kharif 2013-14 and Kharif 2014-15.

4.2.2 The Committee noted that the trials will be conducted at one location in each zone either in an SAU or in company's owned facility or Company leased land at Punjab, Haryana and Rajasthan, Maharashtra, Gujarat, Madhya Pradesh, Andhra Pradesh, Karnataka and Tamil Nadu in an area of less than 1 acre.

4.2.3 The Committee noted the objectives of the trials are:

1. to evaluate the efficacy of the BGIII cotton containing *Cry1Ac*, *Cry2Ab2* and *Vip3A* genes against target lepidopteron insect pests in transgenic cotton corresponding to their conventional counterpart and checks.
2. to study the weed control efficacy in BGIII RRF cotton with glyphosate tolerant trait (Event MON 88913) with post emergent application of Roundup formulation.
3. to estimate of level of expression of *Cry1Ac*, *Cry2Ab2*, *Vip3A* and CP4 EPSPS proteins in various plant parts (terminal leaf, square, boll) at different crop growth stages.
4. to monitoring the occurrence of beneficial and non-target insects on transgenic and non-transgenic counterparts and checks.
5. to comparatively assess oil ecosystem, effect on germination, aggressiveness, weediness, morphology and phenotypic characters of transgenic cotton and its conventional counterpart.
6. to generate baseline susceptibility data on detectable protein *Vip3A* proteins on target insect pest populations collected from the sites of trials.
7. to produce sufficient produce material to undertake required composition; feed and food safety studies.

4.2.4 The Committee also noted the response provided by the company that in order to fulfill the requirement of food and feed safety studies mandated by RCGM and GEAC, cotton seed produced from BRL-1 trials of BG III and BG III RRF cotton needs to be retained. Approximate production of cotton seed per treatment per location will be 12 kg. This material is planned to be used for compositional analysis study and any other mandatory feeding study as recommended by RCGM/GEAC.

4.2.5 The Committee observed that the proposal has been recommended by IBSC and RCGM in its meetings held on 18.12.2012 and 26.02.2013 respectively.

4.2.6 The Committee was of the view that in respect of HT crops, there is a need to verify if the herbicide has been approved by the Central Insecticide Board & Registration Committee (CIBRB). After detailed deliberations, it was decided to obtain following information from the applicant;

- (i) Dosage of Herbicide Glyphosate spray
- (ii) Approval of Central Insecticide Board & Registration Committee (CIBRB).
- (iii) Nature and extent of biodegradation
- (iv) Residual estimate of the herbicide in the soil
- (v) Impact on Mollusca and Crustacean should also be studied during field trials.

4.2.7 The Committee also requested the GEAC Secretariat to verify the reasons for withdrawal of an earlier application containing *Vip3A* genes submitted to the GEAC.

4.2.8 In view of the above stated facts and taking into consideration the recommendations of the RCGM, the Committee approved the request for conduct of BRL-1 on trials of transgenic cotton (*Gossypium hirsutum*) hybrids containing breeding stack events MON 15985 x COT102 (BGIII); transgenic cotton of breeding stack events MON 15985 x COT102 x MON 88913 (BGIII RRF) and transgenic cotton containing event COT102 in one location in the North, Central and South zones either in an SAU or in company's owned facility or Company's leased land at Punjab, Haryana and Rajasthan, Maharashtra, Gujarat, Madhya Pradesh, Andhra Pradesh, Karnataka and Tamil Nadu in an area of less than 1 acre during any appropriate season subject to submission of NOC from the State Government where the trials will be conducted and submission of details sought at para 4.2.12.

4.3 Permission to conduct second year Biosafety Research Level-I (BRL-I) trial with 2 transgenic maize (*Zea mays* L.) hybrids containing *cry1F*, *cry1Ab* and *CP4EPSPS* genes (stacked events of TC1507 x MON 810 x NK 603 (DAS-01570-1 x MON-00810-6 x MON-00603-6) by M/s. Pioneer Overseas Corporation (POC), Hyderabad.

4.3.1 The Committee considered the request of M/s. Pioneer Overseas Corporation (POC), Hyderabad to conduct second year BRL-I trial with 2 transgenic maize (*Zeamays* L.) hybrids namely; P3501YHR and 30B07YHR containing *cry1F*, *cry1Ab* and *CP4EPSPS* genes (stacked events of TC1507 x MON 810 x NK 603 (DAS-01570-1 x MON-00810-6 x MON-00603-6). The GEAC in its meetings held on 06.07.2011 and 08.02.2012 had approved the conduct of first year of BRL-I trials of above mentioned two hybrids at three different locations during appropriate seasons.

4.3.2 The Committee observed that the second year trials will be conducted at 3 to 4 locations among the eleven locations: Anand Agricultural University, Gujarat; Navasari Agricultural University, Gujarat; Punjab Agricultural University, Punjab; CCS Haryana Agricultural University, Haryana; Maharana Pratap University of Agriculture and Technology, Rajasthan; Marathwada Agricultural University, Maharashtra; Acharya N.G. Ranga Agricultural University, Andhra Pradesh; Tamil Nadu Agricultural University, Tamil Nadu; University of Agricultural Sciences-Dharwad, Karnataka; Jawaharlal Nehru KrishiVishwa Vidyalaya, Madhya Pradesh and Directorate of Weed Science Research, Madhya Pradesh and Jawaharlal Nehru Krishi visvidhalaya, Jabalpur in an area of 2502.4 sq m (73.6 m x 34m).

4.3.3 The Committee also noted that the Maize hybrids containing stacked events TC1507 x MON810 x NK603 express novel proteins: the insecticidal protein Cry1F which confers resistance to lepidopteron stem borers (from TC1507), Cry1Ab which confers resistance to lepidopteran cob

borers (from MON810) and the CP4 EPSPS protein which confers tolerance to the herbicide glyphosate (from NK603).

4.3.4 The Committee noted the objectives of the trials are:

1. to study the efficacy of *cry1F* and *cry1Ab* genes (stacked event of TC1507 x MON810 x NK603) in terms of level of infestation of target lepidopteron insect pests and other secondary pests on transgenic maize hybrids corresponding to their conventional (non-transgenic) counterparts and checks.
2. to conduct comparative assessment of soil ecosystem & weediness, morphology & phenotypic characters of transgenic maize and its non-transgenic counterpart hybrids.
3. to evaluate weed management efficiency with K salt of glyphosate formulation under field conditions and carryover effect of glyphosate on succeeding crops.
4. to monitor the occurrence of beneficial insects, non-target insect pests and soil fauna on transgenic and non-transgenic maize hybrids.
5. to produce sufficient plant material to undertake biosafety research and to generate data on feed and food safety.
6. to study the level of expression of candidate proteins expressed by stacked event of TC1507 x MON810 x NK603 in different plant parts at regular intervals during crop growth stages.

4.3.5 The Committee also observed that the proposal has been recommended by the IBSC. RCGM has also recommended the proposal on 28.5.2013.

4.3.6 The Committee was of the view that in respect of HT crops, there is a need to verify if the herbicide has been approved by the Central Insecticide Board & Registration Committee (CIBRB). One of the members informed that the K salt of glyphosate is not approved. After detailed deliberations, it was decided in the first instance to obtain following information from the applicant;

- (i) Dosage of Herbicide Glyphosate spray
- (ii) Approval of Central Insecticide Board & Registration Committee (CIBRB).
- (iii) Nature and extent of biodegradation
- (iv) Residual estimate of the herbicide in the soil
- (v) Impact on Mollusca and Crustacean should also be studied during field trials.

4.3.7 The decision on the proposal was therefore deferred.

4.4 Permission to conduct Biosafety Research Level-I (BRL-I) trials with 2 transgenic maize P3501YH and 30B07YH (*Zea mays* L.) hybrids containing *cry1F* and *cry1Ab* genes (stacked events of TC1507 X MON 810) the events TC1507 x MON810 by M/s. Pioneer Overseas Corporation (POC), Hyderabad.

4.4.1 The Committee considered the request of M/s. Pioneer Overseas Corporation (POC), Hyderabad, to conduct BRL-I trials with 2 transgenic maize (*Zea mays* L.) hybrids namely; P3501YH and 30B07YH containing the containing *cry1F* and *cry1Ab* genes (stacked events of TC1507 X MON 810). The trials will be conducted in 3 to 4 locations among the ten locations; Gujarat; Punjab; Haryana; Rajasthan; Maharashtra; Tamil Nadu; -Dharwad, Karnataka; Madhya Pradesh and Directorate of Weed Science Research, Madhya Pradesh Jawaharlal Nehru Krishi visvidhalaya, Jabalpur in an area of 2106 Sq m.

4.4.2 The Committee noted the objective of the field trials are:

1. to study the efficacy of the *cry1F* and *cry1Ab* genes (stacked event of TC1507 x MON810) in terms of level of infestation on the target lepidopteran insect pests and

other secondary pests on transgenic maize hybrids corresponding to their conventional (non-transgenic) counterparts and checks.

2. to conduct comparative assessment of soil ecosystem, morphology & phenotypic characters of transgenic maize and its non-transgenic counterpart hybrids.
3. to monitor the occurrence of beneficial insects, non-target insect pests and soil fauna on transgenic and non-transgenic maize hybrids plots.
4. to produce sufficient plant material to undertake biosafety research and to generate data on feed and food safety.
5. to study the level of expression of candidate proteins expressed by stacked event of TC1507 x MON810 in different plant parts at regular intervals during crop growth stages.

4.4.3 The Committee also observed that the proposal is recommended by the IBSC. RCGM has also recommended the proposal on 28.5.2013.

4.4.4 The Committee was of the view that in respect of HT crops, there is a need to verify if the herbicide has been approved by the Central Insecticide Board & Registration Committee (CIBRB). After detailed deliberations, it was therefore decided to obtain following information from the applicant:

- (i) Dosage of Herbicide Glyphosate spray
- (ii) Approval of Central Insecticide Board & Registration Committee (CIBRB).
- (iii) Nature and extent of biodegradation
- (iv) Residual estimate of the herbicide in the soil
- (v) Impact on Mollusca and Crustacean should also be studied during field trials.

4.4.5 The decision on the proposal was therefore deferred.

4.5 Permission for conduct of event selection trial (EST17) on 16 SPT1 and 16 SPT6 Rice (*Oryzasativa L.*) containing *DsRed2*, *Zm-AA1*, *OsMSCA1* genes by M/s. Pioneer Overseas Corporation, Hyderabad.

4.5.1 The Committee considered the request of M/s. Pioneer Overseas Corporation, Hyderabad to conduct event selection trials on 32 transgenic Rice (*Oryzasativa L.*) events from SPT1 and SPT6 constructs. These are DKC118, SPT1-3006, SPT1-4015, JH15b, JH36, SPT1-3011, SPT1-4011, DKC1049a, DKC376, SPT1-4007, SPT1-4010, SPT1-4006, JH26a, SPT1-3002, JH17 and DKC45 derived from SPT1 and SPT6-2008, J6-1-129d, SPT6-1007, SPT6-1008, SPT6-1016, J6-1-4d, SPT6-1004, SPT6-1005, J6-1-7d, J6-1-8, SPT6-1003, SPT6-2014, SPT6-2009, SPT6-1018, SPT6-1009 and SPT6-2005 derived from SPT6 construct. The trial will be conducted at 4 locations, in Medak Distt and Nizamabad distt Andhra Pradesh, and Navsari and Anand Agricultural University in Gujarat in both Kharif 2014 and Rabi 2014-15 seasons. The size of the each trial will be 1 hectare.

4.5.2 The Committee also noted that the Rice Seed Production Technology (SPT) is a process that facilitates large-scale production of male sterile rice lines. These male sterile lines can be used as female inbred parents for subsequent hybrid seed production.

4.5.3 The Committee noted the objectives of the trial are:

1. to assess the frequency of transgene transmission through pollen in SPT events.
2. to assess the outcross seed producibility of SPT events.
3. to evaluate *DsRed2* and *Zm-AA1* expression in leaf, anther and seeds of SPT events.
4. to study transgene segregation in SPT maintainer events.

4.5.4 The Committee also observed that the proposal has been recommended by IBSC and RCGM on 22.08.2012 and 25.09.2013 respectively.

4.5.5 In view of the above stated facts and taking into consideration the recommendations of the RCGM, the Committee approved the request for conduct of event selection trial (EST17) on 16 SPT1 and 16 SPT6 Rice (*Oryzasativa L.*) containing *DsRed2*, *Zm-AA1*, *OsMSCA1* genes in any one locations each in Andhra Pradesh (Medak/ Nizamabad District) and Gujarat (Navsari / Anand Agricultural University) during any appropriate season subject to submission of NOC from the State Government where the trials will be conducted. The Committee also advised that the applicant may be requested to make a presentation on SPT technology before the Committee.

4.6 Permission to conduct event selection on transgenic rice (*Oryzasativa*) marker free Bt events namely MHRM01 to MHRM20 containing *cry1Ab* gene for resistance to Rice Yellow Stem Borer (*Scirpophagaincertulas*) by M/s. Metahelix Life Sciences Ltd., Bangalore.

4.6.1 The Committee considered the request of M/s. Metahelix Life Sciences Ltd., Bangalore to conduct event selection on transgenic rice (*Oryzasativa*) marker free Bt events namely MHRM01 to MHRM20 containing *cry1Ab* gene for resistance to Rice Yellow Stem Borer (*Scirpophagaincertulas*) at Vattinagulapalli Village, RR Dist. Andhra Pradesh in an area of 612m²

4.6.2 The Committee noted the objective of the trial is to validate the agronomically superior and the most efficacious event (s) against rice stem borer and leaf folder.

4.6.3 The Committee observed that the proposal has been recommended by the IBSC. RCGM has also recommended the proposal on 25.06.2013.

4.6.4 In view of the above stated facts and taking into consideration the recommendations of the RCGM, the Committee approved the request for conduct of event selection on transgenic rice (*Oryzasativa*) marker free Bt events namely MHRM01 to MHRM20 containing *cry1Ab* gene for resistance to Rice Yellow Stem Borer (*Scirpophagaincertulas*) at Vattinagulapalli Village, RR Dist. Andhra Pradesh during any appropriate season subject to submission of NOC from the State Government where the trials will be conducted.

4.7 Permission to conduct event selection trials (EST -8) on 23 transgenic rice (*Oryzasativa*) events generated using constructs namely Bt38 (*Cry1Ab* + *Cry2Ad*), Bt40 (*Cry1Ab*+*Cry2Ad*), Bt46 (*Cry1Ab* + *Cry2Ad*), pTVE544 (*Cry1Ca* + *bar*) and pTSVH0207 (*Cry1Ab* + *bar*) constructs by M/s Pioneer Overseas Corporation, Hyderabad

4.7.1 The Committee considered the request of M/s Pioneer Overseas Corporation Limited, Hyderabad to conduct event selection trials with 21 transgenic rice (*Oryzasativa L.*) comprising events with *Cry1Ab* and *Cry2Ad* genes in Bt and null inbred and Bt hybrid backgrounds for 1 event from Bt38, 16 event from Bt40 and 4 events from Bt46 constructs. In addition to 21 events, two events namely, OSB952 and OSB958 containing *Cry1C* and *Cry1Ab* genes from construct (pTVE544 + pTSVH0207) would be tested in Bt inbred background..

4.7.2 The trial will be conducted at any two of the locations at Gujarat/Maharashtra/Tamil Nadu/Andhra Pradesh during any appropriate seasons of 2014. The trials will be conducted in an area of 4000 m².

4.7.3 The Committee noted the objective of the trial is to evaluate dual mode of action Bt rice events for the phenotypic performance and trait efficacy against Yellow stem borer under field

conditions.

4.7.4 The Committee observed that the GEAC in its meetings held 12th January 2011, 21st September 2011, 12th October 2011 and 8th February 2012 had accorded approvals to M/s. E.I. Dupont India Pvt. Ltd., Dupont Knowledge Center, Hyderabad to conduct events selection trials on Inbreds and Inbred and Hybrids on transgenic rice events against Yellow stem borer and rice leaf folder using Bt39, Bt40 & Bt43 constructs and pTVE544 and pTSVH0207 constructs.

4.7.5 The Committee also observed that the proposal has been recommended by IBSC and RCGM on 07.05.2013 and 25.05.2013 respectively.

4.7.6 In view of the above stated facts and taking into consideration the recommendations of the RCGM, the Committee approved the request for conduct of event selection trials (EST -8) on 23 transgenic rice (*Oryzasativa*) events generated using constructs namely Bt38 (Cry1Ab + Cry2Ad), Bt40 (Cry1Ab+Cry2Ad), Bt46 (Cry1Ab + Cry2Ad), pTVE544 (Cry1Ca + bar) and pTSVH0207 (Cry1Ab + bar) constructs at any two of the locations in Gujarat/Maharashtra/Tamil Nadu/Andhra Pradesh during any appropriate season subject to submission of NOC from the State Government where the trials will be conducted

4.8 Permission to conduct event selection trials on 32 transgenic rice (*Oryzasativa*) events generated using constructs namely Bt38 (Cry1Ab + Cry2Ad), Bt40 (Cry1Ab+Cry2Ad), Bt46 (Cry1Ab + Cry2Ad) and pTVE544 (Cry1Ca + bar) and pTSVH0207 (Cry1Ab + bar) constructs by M/s Pioneer Overseas Corporation, Hyderabad.

4.8.1 The Committee considered the request of M/s Pioneer Overseas Corporation Limited, Hyderabad has requested for permission to conduct event selection trials with 30 transgenic rice (*Oryzasativa* L.) comprising events with Cry1Ab and Cry2Ad genes in Bt and null inbred and Bt hybrid backgrounds for 1 event from Bt38, 16 event from Bt40 and 13 events from Bt46 constructs. In addition to 30 events, two events namely, OSB952 and OSB958 containing Cry1C and Cry1Ab genes from construct (pTVE544 + pTSVH0207) would be tested in Bt inbred background.

4.8.2 The trial will be conducted at any two of the locations at Gujarat/Maharashtra/Tamil Nadu/Andhra Pradesh during appropriate seasons of 2014. The trials will be conducted in an area of 4000 m².

4.8.3 The Committee noted the objective of the trial is to evaluate dual mode of action Bt rice events for the phenotypic performance and trait efficacy against Yellow stem borer under field conditions.

4.8.4 The Committee noted that the GEAC in its meetings held 12th January 2011, 21st September 2011, 12th October 2011 and 8th February 2012 had accorded approvals to M/s. E.I. Dupont India Pvt. Ltd., Dupont Knowledge Center, Hyderabad to conduct events selection trials on Inbreds and Hybrids on transgenic rice events against Yellow stem borer and rice leaf folder using Bt39, Bt40 & Bt43 constructs and pTVE544 and pTSVH0207 constructs.

4.8.5 The Committee observed that the proposal has been recommended by the IBSC and RCGM on 07.05.2013 and 25.05.2013 respectively.

4.8.6 In view of the above stated facts and taking into consideration the recommendations of the RCGM, the Committee approved the request for conduct of event selection trials on 32 transgenic rice (*Oryzasativa*) events generated using constructs namely Bt38 (Cry1Ab + Cry2Ad), Bt40 (Cry1Ab+Cry2Ad), Bt46 (Cry1Ab + Cry2Ad) and pTVE544 (Cry1Ca + bar) and pTSVH0207 (Cry1Ab + bar) constructs at any two of the locations at Gujarat/Maharashtra/Tamil

Nadu/Andhra Pradesh during any appropriate season subject to submission of NOC from the State Government where the trials will be conducted

4.9 Permission to conduct event selection (Trial-4) on 48 transgenic rice (Oryzasativa) events generated using DKHT3, DKHT4, DKHT5, DKHT6, DKHT17 and DKHT18 constructs at Andhra Pradesh/Gujarat/Maharashtra/Tamil Nadu by M/s. Pioneer Overseas Corporation, Hyderabad

4.9.1 The Committee considered the request of M/s. Pioneer Overseas Corporation (POC), Hyderabad has requested for permission for event selection (Trial-4) on 48 transgenic rice (Oryzasativa) events generated using DKHT3, DKHT4, DKHT5, DKHT6, DKHT17 and DKHT18 constructs All events are single copy events. The trials will be conducted at Andhra Pradesh/Gujarat/Maharashtra/Tamil Nadu. The events were developed by transforming inbred Indica line and in an area of 4000m²

4.9.2 The Committee also noted that the objectives of the field trial are:

1. to evaluate the trait efficacy
2. to assess agronomic parameters of GAT events

4.9.3 The Committee observed that the proposal has been recommended by the IBSC. The proposal is also recommended by RCGM on 25.6.2013.

4.9.4 The Committee was of the view that in respect of HT crops, there is a need to verify if the herbicide has been approved by the Central Insecticide Board & Registration Committee (CIBRB). After detailed deliberations, it was decided to obtain following information from the applicant;

- (i) Dosage of Herbicide Glyphosate spray
- (ii) Approval of Central Insecticide Board & Registration Committee (CIBRB).
- (iii) Nature and extent of biodegradation
- (iv) Residual estimate of the herbicide in the soil
- (v) Impact on Mollusca and Crustacean should also be studied during field trials

4.9.5 In view of the above stated facts and taking into consideration the recommendations of the RCGM, the Committee approved the request for conduct of event selection (Trial-4) on 48 transgenic rice (Oryzasativa) events generated using DKHT3, DKHT4, DKHT5, DKHT6, DKHT17 and DKHT18 constructs at Andhra Pradesh/Gujarat/Maharashtra/Tamil Nadu any two locations during any appropriate season subject to submission of NOC from the State Government where the trials will be conducted . The Committee also advised applicant to submit details of the GAT gene.

4.10 Permission to conduct event selection (Trial-5) on 48 transgenic rice (Oryzasativa) events generated using DKHT3, DKHT5, DKHT9, DKHT10, DKHT15 and DKHT16 constructs by M/s. Pioneer Overseas Corporation, Hyderabad.

4.10.1 The Committee considered the request of M/s. Pioneer Overseas Corporation (POC), Hyderabad to conduct event selection (Trial-5) on 48 transgenic rice (Oryzasativa) events generated using DKHT3, DKHT5, DKHT9, DKHT10, DKHT15 and DKHT16 constructs The events were developed by transforming inbred Indica line. All events are single copy events. The trial will be conducted at Andhra Pradesh or Gujarat or Maharashtra or Tamil Nadu at an area of 4000 m².

4.10.2 The Committee also noted that the objectives of the field trial are:

1. to test the trait efficacy and agronomics of glyphosate tolerant rice events.
2. to assess agronomic parameters of GAT events

4.10.3 The Committee observed that the proposal is recommended by the IBSC. RCGM has also recommended on 25.6.2013

4.10.4 The Committee was of the view that in respect of HT crops, there is a need to verify if the herbicide has been approved by the Central Insecticide Board & Registration Committee (CIBRB). After detailed deliberations, it was decided to obtain following information from the applicant;

- (i) Dosage of Herbicide Glyphosate spray
- (ii) Approval of Central Insecticide Board & Registration Committee (CIBRB).
- (iii) Nature and extent of biodegradation
- (iv) Residual estimate of the herbicide in the soil
- (v) Impact on Mollusca and Crustacean should also be studied during field trials

4.10.5 In view of the above stated facts and taking into consideration the recommendations of the RCGM, the Committee approved the request for conduct of event selection (Trial-5) on 48 transgenic rice (*Oryzasativa*) events generated using DKHT3, DKHT5, DKHT9, DKHT10, DKHT15 and DKHT16 constructs at any two locations at Andhra Pradesh/Gujarat/Maharashtra/Tamil Nadu during any appropriate season subject to submission of NOC from the State Government where the trials will be conducted. The Committee also advised applicant to submit details of the GAT gene.

4.11 Permission to conduct confined field trial for event selection (Trial-6) on 48 transgenic rice (*Oryzasativa*) events generated using DKHT3, DKHT5, DKHT16, DKHT10, DKHT17 and DKHT19 constructs at Andhra Pradesh/Gujarat/Maharashtra/Tamil Nadu by M/s. Pioneer Overseas Corporation, Hyderabad.

4.11.1 The Committee considered the request of M/s. Pioneer Overseas Corporation (POC), Hyderabad for event selection (Trial-6) on 48 transgenic rice (*Oryzasativa*) events generated using DKHT3, DKHT5, DKHT16, DKHT10, DKHT17 and DKHT19 constructs at Andhra Pradesh/Gujarat/Maharashtra/Tamil Nadu. The events were developed by transforming inbred Indica line. All events are single copy events. The trial will be conducted at Andhra Pradesh or Gujarat or Maharashtra or Tamil Nadu. Details will be provided when the trial will be initiated during the appropriate season of 2014.

4.11.2 The Committee noted that the objectives of the field trial are:

1. to test the trait efficacy and agronomics of glyphosate tolerant rice events.
2. to assess agronomic parameters of GAT events

4.11.3 The Committee observed that the proposal has been recommended by the IBSC and RCGM on 07.05.2013 and 25.6.2013 respectively.

The Committee was of the view that in respect of HT crops, there is a need to verify if the herbicide has been approved by the Central Insecticide Board & Registration Committee (CIBRB). After detailed deliberations, it was decided to obtain following information from the applicant;

- (i) Dosage of Herbicide Glyphosate spray
- (ii) Approval of Central Insecticide Board & Registration Committee (CIBRB).
- (iii) Nature and extent of biodegradation
- (iv) Residual estimate of the herbicide in the soil
- (v) Impact on Mollusca and Crustacean should also be studied during field trials

4.11.4 In view of the above stated facts and taking into consideration the recommendations of the RCGM, the Committee approved the request for conduct of event selection (Trial-6) on 48 transgenic rice (*Oryzasativa*) events generated using DKHT3, DKHT5, DKHT16, DKHT10, DKHT17 and DKHT19 constructs at one any two locations at Andhra Pradesh/Gujarat/Maharashtra/Tamil Nadu at Andhra Pradesh/Gujarat/Maharashtra/Tamil Nadu during any appropriate season subject to submission of NOC from the State Government where the trials will be conducted. The Committee also advised applicant to submit details of the GAT gene.

4.12 Permission to conduct event selection (Trial-7) on 48 transgenic rice (*Oryzasativa*) events (Hybrids) generated using DKHT3, DKHT5, DKHT16, DKHT10, DKHT17 and DKHT19 constructs by M/s. Pioneer Overseas Corporation, Hyderabad.

4.12.1 The Committee considered the request of M/s. Pioneer Overseas Corporation (POC), Hyderabad for event selection (Trial-7) on 48 transgenic rice (*Oryzasativa*) events (Hybrids) generated using DKHT3, DKHT5, DKHT16, DKHT10, DKHT17 and DKHT19 constructs at Andhra Pradesh/ Gujarat/ Maharashtra/ Tamil Nadu The events were developed by transforming inbred Indica line. All events are single copy events. The trial will be conducted at Andhra Pradesh or Gujarat or Maharashtra or Tamil Nadu. The trials will be conducted at an area of 4000m².

4.12.2 The Committee also noted that the objectives of the field trial are:

1. to evaluate the trait efficacy and agronomics of glyphosate tolerant rice events.
to assess agronomic parameters of GAT events

4.11.3 The Committee observed that the proposal has been recommended by the IBSC and RCGM on 07.05.2013 25.6.2013 respectively.

4.11.4 The Committee was of the view that in respect of HT crops, there is a need to verify if the herbicide has been approved by the Central Insecticide Board & Registration Committee (CIBRB). After detailed deliberations, it was decided to obtain following information from the applicant;

- (vi) Dosage of Herbicide Glyphosate spray
- (vii) Approval of Central Insecticide Board & Registration Committee (CIBRB).
- (viii) Nature and extent of biodegradation
- (ix) Residual estimate of the herbicide in the soil
- (x) Impact on Mollusca and Crustacean should also be studied during field trials

4.12.5 In view of the above stated facts and taking into consideration the recommendations of the RCGM, the Committee approved the request for conduct of event selection (Trial-7) on 48 transgenic rice (*Oryzasativa*) events (Hybrids) generated using DKHT3, DKHT5, DKHT16, DKHT10, DKHT17 and DKHT19 constructs at Andhra Pradesh/Gujarat/Maharashtra/Tamil Nadu at any two locations at Andhra Pradesh/Gujarat/Maharashtra/Tamil Nadu during any appropriate season subject to submission of NOC from the State Government where the trials will be conducted. The Committee also advised applicant to submit details of the GAT gene.

4.13 Permission for conduct of event selection trial (EST15) on 10 SPT1 and 10 SPT6 Rice (*Oryzasativa L.*) containing *DsRed2*, *Zm-AA1*, *OsMSCA1* genes by M/s. Pioneer Overseas Corporation, Hyderabad.

4.13.1 The Committee considered the request of M/s. Pioneer Overseas Corporation, Hyderabad has requested for permission to conduct event selection trials on 20 transgenic Rice (*Oryzasativa L.*) events from SPT1 and SPT6 constructs. These are JH02, JH17, JH22, JH37, DKC118, DKC320, SPT1-3002, SPT1-3006, SPT1-3011 and SPT1-3012 derived from SPT1 and J6-1-4d, J6-1-7d, SPT6-1006, SPT6-1007, SPT6-1008, SPT6-1011, SPT6-1012, SPT6-1015, SPT6-1016 and SPT6-1020 derived from SPT6 construct. The trial will be conducted at 4 locations, Andhra Pradesh (Masaipet Village, Medak Distt , and in Gujarat (Anand Agricultural University, Navasari Agricultural University in Kharif and Rabi season. The size of the each trial will be 4000 m².

4.13.2 The Committee observed that Rice Seed Production Technology (SPT) is a process that facilitates large-scale production of male sterile rice lines.

4.13.3 The Committee noted that the objectives of the trial are:

1. to assess the frequency of transgene transmission through pollen in SPT events.
2. to assess the outcross seed producibility of SPT events.
3. to evaluate *DsRed2* and *Zm-AA1* expression in leaf, anther and seeds of SPT events.
4. to study transgene segregation in SPT maintainer events.

4.13.4 The Committee observed that the proposal has been recommended by the IBSC and RCGM on 03.12.2012 and 26.2.2013 respectively

4.13.5 In view of the above stated facts and taking into consideration the recommendations of the RCGM, the Committee approved the request for conduct of event selection (EST15) on 10 SPT1 and 10 SPT6 Rice (*Oryzasativa L.*) containing *DsRed2*, *Zm-AA1*, *OsMSCA1* genes at any two locations in Andhra Pradesh (Masaipet Village, Medak Distt , and in Gujarat (Anand Agricultural University, Navasari Agricultural University during any appropriate season subject to submission of NOC from the State Government where the trials will be conducted. The applicant is also advised to make a presentation before GEAC as indicated in the Agenda item No. 4.5.

4.14 Permission for conduct of event selection trial (EST16) on 10 SPT1 and 10 SPT6 Rice (*Oryzasativa L.*) containing *DsRed2*, *Zm-AA1*, *OsMSCA1* genes by M/s. Pioneer Overseas Corporation, Hyderabad.

4.14.1 The Committee considered the request of M/s. Pioneer Overseas Corporation, Hyderabad to conduct event selection trials on 20 transgenic Rice (*Oryzasativa L.*) events from SPT1 and SPT6 constructs. These are JH04, JH16b, JH25b, JH26a, JH35, JH36, DKC45, DKC376, DKC1049a and SPT1-3016 derived from SPT1 and J6-1-8, SPT6-1001, SPT6-1002, SPT6-1003, SPT6-1004, SPT6-1005, SPT6-1009, SPT6-1017, SPT6-1018 and SPT6-1019 derived from SPT6 construct. The trial will be conducted at 4 locations, in Andhra Pradesh (Masaipet Village, Medak Distt , and in Gujarat (Anand Agricultural University, Navasari Agricultural University)in Kharif and Rabi season. The size of the each trial will be 4000 m².

4.14.2 The Committee also observed that the Rice Seed Production Technology (SPT) is a process that facilitates large-scale production of male sterile rice lines. These male sterile lines can be used as female inbred parents for subsequent hybrid seed production.

4.14.3 The Committee noted that the objectives of the trial are:

1. To assess the frequency of transgene transmission through pollen in SPT events.
2. To assess the outcross seed producibility of SPT events.
3. To evaluate DsRed2 and Zm-AA1 expression in leaf, anther and seeds of SPT events.
4. To study transgene segregation in SPT maintainer events.

4.14.4 The Committee observed that the proposal has been recommended by the IBSC and RCGM on 03.12.2012 and 26.2.2013 respectively

4.14.5 In view of the above stated facts and taking into consideration the recommendations of the RCGM, the Committee approved the request for conduct of event selection (EST16) on 10 SPT1 and 10 SPT6 Rice (*Oryzasativa L.*) containing *DsRed2*, *Zm-AA1*, *OsMSCA1* genes at any two locations in Andhra Pradesh (Masaipet Village, Medak Distt) and in Gujarat (Anand Agricultural University /Navasari Agricultural University) during any appropriate season subject to submission of NOC from the State Government where the trials will be conducted. The applicant is also advised to make a presentation before GEAC as indicated in the agenda item No. 4.5.
