Introduction of Transgenic Plants - Procedures

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With the advent of biotechnology in agriculture, considerable optimism has generated for expanding and sustaining crop production and productivity, particularly in nations that are largely dependent on agriculture. In India, now agricultural scientists are taking keen interest in the transgenic technology for increasing the crop production by incorporating genes responsible for value addition in the end product. Therefore, it becomes a vital component to regulate the flow of the transgenic material in the germplasm exchange process. In this direction, concern is being expressed for biosafety and safe movement of the genetically modified plants. Accordingly, Department of Biotechnology (DBT) in collaboration with National Bureau of Plant Genetic Resources (NBPGR), has already set some procedures to regulate the import of seeds of transgenic lines from various countries meant for research purpose.

Any transgenic material to be imported requires a permission which could be issued by the government after screening by the Review Committee on Genetic Manipulation (RCGM), RCGM examines the desirability of import of transgenic line, from the biosafety point of view under the Environment (Protection) Act, 1986. In accordance with this Act, all transgenic plants are regulated items.

Under the PFS order (1989) which governs quarantine regulations, and Plant Quarantine (Regulation of Import Into India) Order 2003, which came into force from 1st April 2004, NBPGR has been designated as the competent authority to issue import permits for import of seeds by public and private sector agencies for research purpose. The provisions of Plant Quarantine (Regulation of Import into India) Order 2003 are applicable to import of transgenic seeds as well. The Department of Biotechnology and the Ministry of Environment and Forest have separate set of prescribed procedures for providing permission for import of transgenics. An indentor who wish to import transgenics after getting permission from RCGM would apply for the issuance of Import Permit to Director, NBPGR, New Delhi. The issuance of import permit of transgenic material is extremely important from the point of view of their potential impact on environment and on agriculture in the country.

Issuance of Import Permit for Transgenics

With the enactment of New Policy on Seed Development, and PQ Order 2003, the Government of India has made it obligatory for all plant breeders and researchers intending to import seed/planting material to fulfill two mandatory requirements, *i.e.* (i) Import Permit before importing any material, and (ii) Phytosanitary certificate from country of origin. These two documents must accompany with every seed/plant consignment imported from abroad. The Director, NBPGR has been authorized to issue Import Permit on the basis of import
permission of DBT and receive imported materials from custom authorities for its quarantine inspection and clearance. The scientists/ institutes desirous of importing the materials has to apply on a prescribed application form. The Import Permit issued is valid for six months and it remains valid. Before obtaining import permit the indentor should furnish the information and provide the undertaking as well as certificate from the supplier as per para 4 and 5 of the permission accorded by the DBT, from safety point of view. The details of para 4 and 5 are given below.

Para No.4

- No transgenic material is permitted for experimentation in open environment without prior authorisation from the Government of India.
- Full account of transgenic plants raised from the imported seeds is to be kept in a bound book, which should be available for inspection by the authority in case such a need arises.
- All transgenic materials prescribed by he indentors may be available for inspection, whenever required.
- All the unwanted transgenic materials may be destroyed by burning after the experiments are conducted.
- All precautions would be taken to prevent the escape of the genetic material into the open environment and shall follow the Recombinant DNA Safety Guidelines of the Government of India.

Para No.5

- The supplier of the transgenic material shall certify that the transgenic has the genes as has been described in the permission.
- The supplier shall also certify that these transgenic materials do not contain any embryogenesis deactivator gene sequence.

After fulfilling the above requirements, the Director, NBPGR issues the import permit in duplicate to import the seeds meant for research purpose only. After obtaining import permit the indentor sends it to the concerned organisation which has agreed to supply the required transgenic material.

The second mandatory requirement is that of Phytosanitary Certificate which is to be issued by the National Plant Protection Agency of the donor country. It should also be ensured that the consignment must be addressed to the Director, NBPGR, Pusa Campus, New Delhi.

Registration, National Accessioning and Import Quarantine

All indents for import of transgenics are registered for assigning the case number and then forwarded to the Plant Quarantine (PQ) Division without opening the parcel alongwith duly filled Import Quarantine (IQ) form for detailed quarantine inspection and clearance. After clearance from PQ Division, the samples are first arranged taxonomically indicating their genus, species, common name and cultivar name etc. for national accessioning in the
national record. Each introduction/accession is assigned an EC(Exotic Collection) number which remains unchanged with information like name and address of donors, characteristics of the germplasm, relevant references, date of arrival, condition of the material and distribution of the materials. All assembled healthy plant material is regularly transmitted to the various researchers to make use of these valuable genetic resources.

**Fee and Service Charges**

A nominal fee of Rs.100.00 per sample for quarantine examination and Rs.150.00 a consignment for handling are being charged from private seed companies/growers. However, the fee is under revision for transgenic material.

**Status of Introduction**

The Bureau has introduced about 818 samples of transgenic material from 1997 onwards in crops *Oryza sativa, Brassica juncea, Brassica napus, Brassica oleracea* var. *capitata, Cicer arietinum, Glycine max, Gossypium hirsutum, Nicotiana tabacum, Solanum tuberosum, Triticum aestivum* and *Zea mays*, from 14 countries namely Australia, Belgium, Canada, China, Germany, Netherlands, Philippines, Scotland, Singapore, South Africa, Switzerland, UK, USA, Vietnam.