



25
TWENTY-FIVE YEARS OF NBPGR

GUIDELINES FOR SUBMISSION OF SEEDS/PROPAGULES WITH NATIONAL GENE BANK

**Central Sub-Committee on Crop Standards, Notification
and Release of Varieties of Agricultural Crops**
(Indian Council of Agricultural Research)
New Delhi-110 012

Agro-biodiversity (PGR) 16

PREAMBLE

A national system for notification and release of improved varieties of crops in the country has been developed under the patronage of the Indian Council of Agricultural Research (ICAR), Ministry of Agriculture, Government of India. It provides a mechanism for release of varieties by the Ministry of Agriculture, and thereby, facilitates production of quality seeds for cultivation.

The importance of genetic constellations created in the form of the new released varieties, which may be required in distant future for use in food and agriculture was duly recognised. The 30th meeting of Central Sub-Committee on Crop Standards, Notification and Release of Varieties of (CSC on CSN&RV) Agricultural Crops resolved that it will be mandatory to submit the requisite quantity of seed materials or propagules of the proposed varieties with National Genebank, National Bureau of Plant Genetic Resources (NBPGR), the nodal agency for conservation of Plant Genetic Resources, for the purpose of variety notification. This will enable the nation to conserve the valuable genetic material for posterity.

To operationalise the mechanism of seed submission and/or the propagule of the varieties proposed for release/notification, and conservation at NBPGR, the following guidelines should be followed:

PROCEDURE FOR SUBMISSION OF SEEDS AND/OR PROPAGULES OF A VARIETY PROPOSED FOR RELEASE/NOTIFICATION

1. Whom to Address the Genetic Material

All seeds/propagules material along with a copy of the proposal being submitted for notification should be addressed to:

The Director
National Bureau of Plant Genetic Resources
Pusa Campus
New Delhi-110 012

2. Desirable Information and Undertaking

- (i) A copy of the proposal.
- (ii) Relevant passport, evaluation data and area of adaptation.
- (iii) A declaration to the effect that working stock for supply to users would be maintained by the institution associated with the development of the material.

3. Guidelines for Submitting the Genetic Materials

(I) *Orthodox seeds*

- (i) A minimum number of 4000 seeds in cross-pollinated crop species, 2000 in self-pollinated, crop species and 500-1000 in difficult crop species, such as some vegetables, medicinal and aromatic plants, wild relatives etc. should be submitted. Supply of additional 500-2000 seeds will help NBPGR to conserve germplasm in cryobank as safety duplicates and develop DNA profiles.
- (ii) The seeds should be supplied from a fresh harvest and should not be more than 90 days old.
- (iii) The seed supplied should be sound, physiologically mature and collected from healthy plants.
- (iv) It is recommended to dry the seed materials immediately after harvest, in shade, to avoid infection, and to provide good quality seeds.
- (v) The potential viability of seeds should be more than 85 per cent in most crop species, except in special cases, such as cotton, some vegetable crops etc.
- (vi) Seeds should be free from any chemical treatment.
- (vii) Seeds should be packed in good quality paper, muslin cloth or plastic bag(s) with proper identity. If required, the bags should be packed in cardboard boxes to minimise damage and moisture absorption.

(II) *Recalcitrant/Intermediate seeds*

These are generally characterised by large size and high moisture content (20-80%) at the time of shedding.

- (i) Preferably more than 1000 seeds should be supplied. However, recognising the importance of material, even small quantity is acceptable.
- (ii) It should be sent as complete fruit, avoid any injury to the fruit surface. Send in aerated polythene bags/cardboard boxes.
- (iii) If the fruits are bulky and difficult to transport, the seeds may be extracted without any injury, packed in saw dust/charcoal/peatmoss etc. and transported within 48 hrs.
- (iv) Avoid transporting the seed materials under high temperature (above 30°C). Store and transport preferably in moist conditions between 15-20°C.
- (v) Extracted seeds may be treated with suitable fungicide (0.1% Captan/Thiram powder).
- (vi) Avoid air-drying and water washing of seeds.

(III) *Vegetative propagules*

In case of vegetatively propagated crop species the germplasm/propagules (**tubers, bulbs, rhizomes, cuttings** etc.) has to be supplied to the concerned crop-based designated

National Active Germplasm Site (NAGS-Annexure) for initial establishment and conservation*. A certificate to this effect has to be obtained from concerned NAGS and supplied to NBPGR for record and onward submission to Member Secretary, Central Sub-Committee on Crop Standards, Notification and Release of Varieties of Agricultural Crops. Following guidelines need to be remembered for safe supply and conservation of germplasm:

- (i) At least 10-25 propagules (depending on crops) should be supplied to the concerned NAGS for maintenance in their field repository or *in vitro* repository (if available) with a request for acknowledgment.
- (ii) The concerned NAGS should be informed in advance about the supply of material to facilitate processing and establishment of germplasm.
- (iii) The genetic materials, stocks, propagules of vegetatively propagated crops are generally being maintained in the form of **grafts, crafts, slips, propagules, seedlings and plants**. While supplying these genetic materials, following steps and precautions should be remembered (depending on the crop):
 - (a) The **slips, grafts, crafts, propagules or plants** supplied to the NAGS should be free from any insect, weed and disease. The material should be well labelled and packed properly in aerated polythene bags. During the dry summer the grafts or crafts should be wrapped in moist moss grass to retain the moisture.
 - (b) In case of crops like coconut, the material is sent either as embryos or seedlings. If the **embryos** need to be transferred from the field, the embryos embedded in the endosperm should be packed in the sterile plastic bags with sterile moist cotton. These should be kept in the refrigerator overnight and transferred in the same box with proper labels.

In case of **seedlings** the embryos should be grown using the river sand in plastic bags/boxes. Once the seedlings are established these should be transferred to bigger pots. The healthy, vigorous seedlings should be supplied.
- (iv) The material should be packed in small wooden/card-board boxes with proper aeration in it. Also these boxes should be well marked with labels at three or four places "**to be handled carefully: seedlings**", in order to avoid any damage during transit.
- (v) The material should be sent to the NAGS immediately after harvest either by speed post, courier service(s) or air freight to avoid any delay in transaction.

Note:

The sample size of propagules/seed quantity to be submitted may be revised on case to case basis in consultation with the Director, NBPGR.

*The NAGS at the later stage may supply to the NBPGR these materials for *in vitro* maintenance or cryopreservation as base collections. Vegetatively propagated species material should preferably be supplied as *in vitro* cultures (wherever possible). The NAGS will ensure establishment and supply of *in vitro* generated material to NBPGR at least of those crops for which protocols are available at NBPGR.

CROP BASED NATIONAL ACTIVE GERmplasm SITES

Crop(s)	Institute/ AICRP/ NRC*	Address	Phone	Fax
Field crops				
Cotton	Central Institute of Cotton Research	Nagpur 440 010	0712-75536	0712-75529
Crops of North-East Region	ICAR, Research Complex, NEH Region	Shillong, Meghalaya	0364-570257	0364-570288
Fodder crops	Indian Grassland & Fodder Research Institute	Jhansi 284 003	0517-444771	0517-440833
Groundnut	NRC for Groundnut	Junagarh 362 001	0285-623041	0285-651550
Jute & Allied Fibers	Central Research Institute of Jute & Allied Fibers	Barrackpore 743 101	033-5356124	033-5350415
Maize	Directorate of Maize Research	IARI, New Delhi 110012	011-5772105	011-5768195
Oilseeds	Directorate of Oil Seeds Research	Hyderabad 500 030	040-4015222	040-4017969
Pearl millet	AICRP on Pearl millet	Mandore, Jodhpur 342 304	0291-571408	0291-571909
Pulses	Indian Institute of Pulses Research	Kalyanpur, Kanpur 208024	0512-572011	0512-572582
Rapeseed-Mustard	NRC on Rapeseed-Mustard	Sewar, Bharatpur 321 303	05644-24688	0564-22137
Rice	Central Rice Research Institute	Cuttack 753 006	0671-643015	0671-641744
Rice & Lathyrus	Indira Gandhi Agricultural University	Raipur 492 012	0771-425219	0771-424532
Small millets	AICRP on Small millets	UAS, Bangalore 560 065	080-3332387	080-3332387
Sorghum	NRC on Sorghum	Rajendranagar, Hyderabad 500 030	040-4015349	040-4016378
Soybean	NRC on Soybean	Indore 452 001	0731-364879	0731-470520
Sugarcane	Sugarcane Breeding Institute	Coimbatore 641 007	0422-476261	0422-472923
Tobacco	Central Tobacco Research Institute	Rajahmundry 533 105	0883-448995	0883-448341
Under Utilised crops	AICRP on UU & UEC	NBPGR, New Delhi 110 012	011-5784835	011-5784835
Wheat & Barley	Directorate of Wheat Research	Karnal 132 001	0184-271830	0184-251390
Horticultural/Agroforestry crops				
Agroforestry spp	NRC on Agroforestry	IGFRI Campus, Jhansi 284003	0517-442446	0517-440833
Arid fruits	Central Institute on Arid Horticulture	Bikaner 334 006	0151-250147	0151-250145
Banana	NRC for Banana	Tiruchy 620 017	0431-770797	0431-770564
Cashew	NRC for Cashew	Puttur, Dakshin Kannada 574 202	08251-20992	08251-24350
Citrus species	NRC for Citrus	Nagpur 440 010	0712-500572	0712-500813
Grapes	NRC for Grapes	Pune 412 307	020-6914246	0212-814246
Leech, Bael	Central Horticultural Experiment Station	IIFRI, Ranchi 834 010	0651-260207	0651-260141
Aonla & Jackfruit	NRC on M & AP	Bonavi, Anand 387 310	0268-78602	0268-78601
M & A P	Central Institute for Sub Tropical Horticulture	Lucknow 226 002	0522-841022	0522-841025
Mango	Central Institute for Sub Tropical Horticulture	Lucknow 226 002	0522-841022	0522-841025
Mulberry	Silkworm and Mulberry Germplasm Station	Hosur 635 109	04344-22013	04344-21149
Oil Palm	NRC on Oil Palm	Iluru 534 003	08812-75409	08812-75531
Onion & Garlic	NRC for Onion & Garlic	Rajmunnagar, Pune-410505	02135-22026	02135-24056
Orchids	NRC for Orchids	Tadang, Gangtok 737 102	03592-57954	03592-57954
Ornamentals & Non	National Botanical Research Institute	Lucknow 226 001	0522-205848	0522-282881
Traditional crops	Central Plantation Crops Research Institute	Kasaragod 671 124	0499-430894	0499-430322
Plantation crops	Central Potato Research Institute	Shimla 171 001	0177-224830	0177-224460
Potato	Central Potato Research Institute	Shimla 171 001	0177-224830	0177-224460
Spices	Indian Institute of Spices Research	Calicut 673 012	0495-371410	0495-370294
Temperate Horticultural Crops	Central Institute of Temperate Horticulture, NBPGR Regional Sta	Shimla 171 001	0177-252453	0177-213853
Tropical fruits	Indian Institute of Horticultural Research	Bangalore 560 089	080-8466471	080-8466291
Tuber crops	Central Tuber Crops Research Institute	Shreekarayan, Thiruvananthapuram 695 017	0471-598431	0471-590063
Vegetables	Indian Institute of Vegetable Research	Varanasi 221 005	0542-635236	05443-29007

*AICRP: All India Co-ordinated Research Project; NRC: National Research Centre; M&AP: Medicinal and Aromatic Plants.