

Short Communication

Germplasm Holdings of Agri-Horticultural Crops in Gene Bank

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The National Bureau of Plant Genetic Resources at New Delhi has the national mandate to collect, evaluate, document and conserve genetic diversity in crop plants and their wild relatives. Seed storage facilities have been developed and the National Gene Bank (repository) holds over 1,00,000 collections.

India is an important centre of diversity for many crops. Concerted efforts have been made to collect this diversity in various agri-horticultural crop plants, which, with the spread of HYVs, is getting eroded. Thus, large indigenous collections have been built up and these include primitive cultivars/landraces, wild/weedy types, obsolete cultivars, currently grown varieties, etc. The best way by which the plant genetic resources could be conserved safely and cheaply is through seed storage, and facilities for this, have been established at NBPGR.

Seeds are compact, they require less space and are easy to handle and store. The moisture content (m.c.) of majority of agri-horticultural crops could be reduced upto 5-8% at low temperature of 15°C and at 15% RH. These seeds fall in the category of orthodox seeds.

Gene bank Operational Procedure

Purity analysis of the seed samples is done. The seeds are cleaned, germinability checked and processed for storage. First undersized, shrivelled, immature seeds and pieces of seeds resulting from breakage less than one half of their original size, diseased seeds, insect and nematode infested seeds are rejected. Empty glumes, and sterile florets of grasses and cereal, weed seeds and other debris are separated out.

Accessions are tested for viability standards following ISTA rules, 1985. All accessions meeting the viability standard of 85% or more are processed further for drying to the required moisture content of 5-7 per cent. Wherever, samples show less than 85% viability, the seed supplier is advised to send freshly harvested seed for storage in the gene bank. The recommended size of seed sample for storage of crops with heterogeneous population is 12,000 seeds per accession in the base collection and 5,000 in the active collection and for crops with genetically homogenous population 4,000 for base collection and 3,000 for active collections.

After germination and moisture testing, the dried seeds are transferred to three layered specially designed laminated aluminium foil packets as per IBPGR standards and then packets are hermetically sealed. The sealed packets are stored safely at about +4°C temperature for medium term and at -20°C for long-term.

Germplasm Holdings at Genebank

Upto December 1988, the Gene Bank holdings comprised 1,02,352 accessions of different agri-horticultural crops (Table 1) consisting of cereals (28,002), pseudo

TABLE 1. GERMLASM ASSEMBLAGE IN NATIONAL REPOSITORY (UPTO 1988)

Crops	Accessions conserved
Cereals	28,002
Pseudocereals	1,988
Milletts & minor millets	8,142
Pulses	16,432
Fibre crops	245
Medicinal & Aromatic Plants	126
Oil seeds	9,073
Vegetables	929
Others	135
Released varieties	307
Exotic germplasm	16,322*
Exploration material	20,651*
Total	1,02,352

*Kept as reference voucher specimen.

cereals (1,988), millets and minor millets (8,142), pulses (16,432), fibre crops (245), medicinal and aromatic plants (126), oilseeds (9,073), vegetables (929), released varieties (307), exotic germplasm (16,322), exploration material (20,651) and others (135).

Recently, storage facilities were increased to accomodate over 2 lakh samples through addition of four more cold store modules (Watford, UK).

REFERENCE

Anonymous. 1985. International rules for seed testing. Seed Sci. Technology. 13(2) : 307-520.