

# Research to ensure sustainable plant-genetic resources in PHL

By **BusinessMirror**

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A research and development (R&D) on germplasm repository in the Philippines is being undertaken by a government agricultural research agency in order to address the challenges of climate change.

The R&D program of the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology (DOST-PCAARRD) will enable the council to fulfill its task of ensuring the conservation and sustainable use of plant-genetic resources for food and agriculture.

The program, titled “Restoring Crop Diversity at the National Germplasm Repository,” will tackle concerns on climate change by increasing biodiversity and securing the supply of plant-derived products.

One of the major outputs of the program is the development of the National Plant Genetic Resources Laboratory (NPGRL) Database Management System, now known as the National Plant Genetic Resources Information and Data Management System. The NPGRL makes sure that plant varieties’ genetic resources can be conserved for breeding new improved varieties in the future.

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A total of 3,988 new accessions of vegetables, food legumes, cereals, feeds and industrial crops and fruits were collected under the program. Ninety-six vegetables and 833 legumes germplasm were repatriated from the United States Department of Agriculture and the World Vegetable Center.

Moreover, 5,160 accessions of vegetables (654), legumes (1,593), cereals (1,166), rootcrops (799), and herbal and medicinal plants (948) germplasm were regenerated and conserved in the cold storage and field genebank.

The new collections, which include 115 species, are being maintained as seedlings in the nursery, for eventual establishment in the field genebank. The field genebank, which is in Pasong Kipot in Bay, Laguna, covers 16 hectares and currently stores 77 different fruit species.

To fully realize the importance of the germplasm, morphological characterization and evaluation were done on 3,843 and 3,670 accessions, respectively. Morphological characterization is a means of studying plant materials with desired traits and is considered as an essential step for the effective use of crop germplasm.

The plant breeders of the Institute of Plant Breeding of the University of the Philippines Los Baños (IPB-UPLB) were able to identify a total of 275 promising accessions, which comprise of 76 vegetable, 81 legumes, 78 cereals, 40 rootcrops and medicinal plants. These have been selected for special traits, pest and disease resistance, and high antioxidant properties.

The promising accessions are currently undergoing advance screening trials. They will be used as parental materials for breeding. Selected and validated fruits and rootcrops can be clonally propagated and directed for production of the planting materials.

The program also developed in vitro minimal growth protocols for conservation of banana, sweetpotato, yam and taro.

Using in vitro culture, 23 accessions of cassava, 300 for yam, 56 for taro, 310 for sweetpotato, 164 for banana and 8 for abaca were introduced and reintroduced.

To ensure drought tolerance for sweetpotato, 107 accessions were evaluated using the optimized in vitro screening protocol. Of this number, 27 promising sweet potato accessions were further screened under greenhouse condition. Fifteen of these accessions showed better performance compared with the released varieties. *S&T Media Service*

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