

Conservation of Horticultural Genetic Resources: A Case Study of Nepal Genebank

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Abstract

National Agricultural Genetic Resources Centre (NAGRC) popularly known as Nepal Genebank plays a crucial role in the collection and conservation of horticultural crop genetic resources for long-term preservation and increasing access for breeders. This study aimed to evaluate the current status of the conservation of horticultural crop genetic resources at Nepal Genebank and identify potential issues and areas for improvement. Results showed that while 10084 accessions from 335 species of crops have been conserved in long-term seedbank, the proportion of horticultural crops was lower than cereals, pulses, millets and pseudocereals, despite horticulture being a dominant sector in terms of number of species available within the country territory. A total of 335 accessions belonging to 17 vegetable species have been conserved for long-term storage. Amaranth, bean, okra, cucumber, sponge gourd, broad-leaf mustard, brinjal, radish, pea and tomato recorded higher numbers of accessions conserved in long-term seed storage facilities, with 247, 268, 71, 55, 47, 35, 33, 29, 23 and 18 accessions, respectively. Very few accessions from fruit species have been conserved in the seed bank, however, more than 50 accessions of fruit species and more than 200 accessions of Colocasia and turmeric are being conserved and maintained at the field Genebank. The Genebank also has facilities for in-vitro conservation and a DNA bank where significant number of accessions or genetic materials are being conserved. Nepal Genebank has key role in on-farm conservation and utilization of horticultural crop genetic resources including its role in partnership-based local variety registration and release. The study concludes by highlighting challenges associated with the collection and conservation of horticultural crop diversity and providing recommendations for improving long-term preservation of horticultural genetic resources.

Keywords: Accessions, Long-term conservation, Nepal Genebank, Seed bank