

Unlocking the Potential of Genebank Carrot Collections: Creating a Carrot Diversity Set as a Research and Pre-Breeding Resource

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Plant genetic resource collections such as the carrot collection held at the Warwick HRI Genetic Resources Unit are extremely useful assets for both crop improvement programmes and research. However, it is not practical to screen or assay all accessions within such collections for traits of interest; the Warwick HRI GRU holds over 1600 accessions of carrot and related wild species, which is too great a number for most screening programmes to handle. In order to make the diversity present in the collections more available, we have constructed a Carrot Diversity Set which samples the global carrot gene pool in terms of geographical origins and root morphology. We chose 77 accessions from the Warwick HRI GRU collection, and supplemented these with experimental lines such as the parents of genetic mapping populations kindly donated by other researchers. We will also include eight modern elite varieties for comparison in trait screening and genetic studies. The diversity set represents a snapshot of the global carrot gene pool held in a manageable format which will be made available to interested parties and allow collation of data from future studies.

