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RESTORATION CONSERVATION AND CHARACTERIZATION OF LOST GENETIC DIVERSITY OF WHEAT LANDRACES FROM ISRAEL AND PALESTINE

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During the 20th century, the worldwide genetic diversity of wheat was sharply eroded by continual selection for high yields and industry demands for particular standardized qualities. Wheat landraces cultivated in Israel and Palestine demonstrate high genetic diversity, and accumulation of adaptive imprints to various environments. While most of the local Israeli-Palestinian wheat landraces were lost in the transition to Green Revolution varieties, some germplasm collections made at the beginning of the 20th century have survived in genebanks worldwide (VIR, USDA, CGN etc.) and in private collections. The current status, poor conservation and lack of knowledge put this unique genetic resource in high risk of erosion and in urgent conservation priority.

The overall long-term goal of this project is to restore, conserve, study and characterize an exhaustive collection of Israeli and Palestine landraces (IPLR) (n=794). Herein, we focus on characterizing the IPLR tetraploid sub-collection, which include *Triticum durum* (n=575), *T. dicoccum* (n=17), *T. polonicum* (n=7) and a reference panel of elite Israeli cultivars (n=51). Characterization is based on detailed passport data, morphological and phenotypic field based assessment and genetic profiling. Lines were genotyped based on 84 SNP markers distributed evenly across the wheat A and B genomes [*Kaspar* Durum World Reference Collection (DWRC) assay]. SNP data show high genetic diversity in the IPLR-durum collection compared to modern cultivars. Likewise, variable preliminary phenotypic data show the high potential of this exotic germplasm. A core collection of 96 durum lines was constructed based on the genetic distances between accessions of the durum IPLR sub collection and was added as an associated panel to the DWRC, and genotyped using the iSelect 90K bead chip array. This will enable comparisons of the diversity of the two collections and other regional collections.

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