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PYRAMIDING INTO DURUM AND BREAD WHEAT FUSARIUM HEAD BLIGHT RESISTANCE AND OTHER USEFUL TRAITS FROM *THINOPYRUM PONTICUM*

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In recent years, mainly due to climatic changes, Fusarium Head Blight (FHB) has become a severe problem in wheat cultivation in areas where it was not previously present, Italy included. The intensity of the attacks and their negative incidence on grain quality and yield, combined with the lack of resistant cultivars within adapted germplasm, have worldwide stimulated breeding efforts to develop FHB resistant wheats. In searching for effective resistance genes, exploitation of related species represents a valuable approach, especially for wheat, since gene synteny is well preserved among cereal species, and its polyploid nature represents a favourable condition to well tolerate the introgression of related alien DNA. We have used the decaploid wild wheat relative *Thinopyrum ponticum* as a source of FHB resistance to be introduced into wheat by chromosome engineering.

The donor accession carries the FHB resistance gene on the long arm of its $7el_2$ chromosome. On the other hand, the *Lr19+Yp* genes (for leaf rust resistance and yellow endosperm pigmentation, respectively) are located at similar position on the long arm of a homologous $7el_1$ chromosome of a different *Th. ponticum* accession, susceptible to FHB. In order to combine the potential benefit from both alien sources, durum and bread wheat recombinant lines, already possessing $7el_1L$ segments including the *Lr19+Yp* genes, have been crossed with wheat translocation lines involving the $7el_2L$ arm. Since $7el_1$ vs. $7el_2$ homology is full, their recombination is expected to allow pyramiding of all the desired traits in a single wheat genotype. Suitable, polymorphic DNA markers have been identified in the region of interest, which will facilitate the follow-up of the $7el_1/7el_2$ alleles in the course of the multi-targeted transfer process.