

0203-JA-026 Transfer of Fusarium head blight resistance from wild relatives into durum wheat.

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PROJECT ABSTRACT

(1 Page Limit)

Hybridization with perennial wild grasses is helpful in transferring desirable traits into durum wheat. Scab or Fusarium head blight (FHB) is a devastating disease of wheat. We earlier found that two wild relatives of wheat – the tetraploid wheatgrass, *Thinopyrum junceiforme*, and diploid wheatgrass, *Lophopyrum elongatum* – are excellent sources of resistance to FHB. To transfer this resistance to durum wheat, we crossed two cultivars, Lloyd and Langdon, with the wild grasses and produced some fertile hybrid derivatives with the full chromosome complement of durum wheat plus a few chromosomes or chromosome segments of the *Th. junceiforme* or *L. elongatum* parent. Our preliminary work has shown that the two wild grasses offer an excellent source of FHB resistance. The objective of the proposed research is to exploit this valuable resource for producing desirable hybrid derivatives or genetic stocks that will facilitate breeding scab resistance into durum cultivars. The research to be conducted will involve: 1) Synthesis of intergeneric hybrids between commercial durum cultivars and the two donor species; 2) Occurrence of chromosome pairing and genetic recombination between wheat chromosomes and alien chromosomes; 3) Backcrossing intergeneric hybrids to the parent durum cultivar to reconstitute the durum genome and to restore fertility to hybrid derivatives; 4) Screening the fertile hybrid derivatives for FHB resistance; and 5) Characterizing the alien chromatin in the FHB-resistant hybrid derivatives, using fluorescent GISH (genomic *in situ* hybridization). Some promising hybrid material has already been produced.