Science Societies

Comparing Solid Stem Wheat Stem Sawfly Resistance Alleles in Winter Wheat

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Adult wheat stem sawfly. Photo by Robert K. Peterson.

Wheat stem sawfly (Cephus cinctus Norton, WSS) has been a major spring wheat pest in the Northern Great Plains of North America since the early 1900s. More recently, it has adapted to winter wheat grown in Montana, Colorado, Nebraska, and Wyoming. Currently, the most effective way to reduce sawfly damage is by growing solid stem varieties. Alleles for breeding solid stem wheat originally came from the variety Rescue. Recently, a new solid stem allele that provides sawfly resistance in spring wheat was discovered in the variety Conan. This allele has not been tested in winter wheat.

A new article in *Crop Science* evaluates winter wheat near-isogenic line (NIL) pairs that varied for the solid stem alleles derived from Rescue and Conan to compare expression of the solid stem trait, reaction to wheat stem sawfly (WSS) infestation, and agronomic performance. Overall, NILs with the Conan-derived allele expressed lower stem-solidness and lower WSS resistance than the Rescue-derived allele. Results from this study suggest the Conan-derived allele is not as effective at providing WSS resistance in winter wheat as it is in spring wheat.

Adapted from Wong, M.-L., Bruckner, P. L., Berg, J. E., Lamb, P. F., Hofland, M. L., Caron, C. G., ... & Cook, J. P. (2022). Evaluation of wheat stem sawfly resistant solid stem Qss.msub-3BL alleles in hard red winter wheat. *Crop Science*. https://doi.org/10.1002/csc2.20866 (in press)