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Research Area: VDUN

Project Title: Breeding FHB Resistant Winter Wheat by Marker-Assisted Selection.

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PROJECT 1 ABSTRACT

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The goal of this research is to develop as quickly as possible effective control measures that minimize the threat of Fusarium head blight (FHB) to producers, processors, and consumers of wheat. Wheat cultivars with resistance to FHB will substantially reduce production and grain quality losses due to this devastating disease.

Objective:

Use already-identified FHB resistance QTL markers to identify wheat lines and plants in segregating populations that have specific single and multiple FHB resistance QTLs.

We have developed partially adapted and agronomically competitive advanced wheat lines that have one or a combination of several sources of FHB resistance, together with resistance to other fungal and viral pathogens and Hessian fly. DNA markers have been identified for certain of the FHB resistance QTLs. These markers will be utilized to pyramid the various FHB resistance QTLs in intercrosses between partially resistant wheat lines and to pyramid resistance QTLs by backcrossing to adapted advanced lines that have FHB resistance for which markers have not yet been identified.

Crossing, backcrossing, and F1 generations will be carried out in the greenhouse, with two consecutive generations per year (winter wheat). F2 and subsequent generations will be largely managed in field nurseries and specific lines will be screened with markers and point inoculation.