

**PI:** Stephen Baenziger

**PI's E-mail:** pbaenziger1@unl.edu

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**Research Category:** HWW-CP

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**Project Title:** Genomics Selection for Hard Winter Wheat

## PROJECT 2 ABSTRACT

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Our goal is to develop hard winter wheat cultivars that are resistant to Fusarium head blight and that accumulate reduced levels of DON following infection. Specifically, we will address the following objectives and associated research activities:

*Increase efficiency of individual breeding programs by developing phenotypic and genomic selection models through coordinated efforts of pyramiding major and minor genes leading to the development and release FHB resistant varieties with lower levels of DON,*

Our plan is to genotype 200 lines from the Nebraska breeding program (our portion of the project) and 200 lines from the South Dakota breeding program. The 400 lines will be phenotypically evaluated in cooperation with Dr. Clay Sneller in Ohio, as well as evaluate the lines in their respective states of origin. The genotypic and phenotypic data will be used in future years to further develop genomic selection algorithms. We will also determine if the Ohio phenotypic data is relevant to the Nebraska environment.

This outreach activity will allow growers to choose the best cultivars and apply the best fungicides in the most efficacious manner to reduce DON.