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Project Title: Integrated Management of FHB and DON in Wheat for South Dakota.

PROJECT 1 ABSTRACT

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Fusarium head blight (FHB) caused by mainly *Fusarium graminearum* negatively impacts yield and quality (through mycotoxin production, mainly deoxynivalenol, DON) of small grains in South Dakota. Effective FHB management relies heavily on integrated approach using resistant cultivars, crop rotation, residue management, and a timely triazole fungicide application. Recommended timing of fungicide application for the best FHB and DON reduction is at anthesis. However, this timing can often be missed because of unavoidable limitations like unfavorable weather conditions for applying fungicides.

This project will determine the effectiveness of a triazole fungicide (Prosaro® 421 SC) when applied 2, 4 and 6 days after 50% anthesis is achieved. Two classes of wheat, hard red winter wheat and spring wheat and three cultivars from each class (resistant, intermediate and susceptible) will be used in the experiments to be established at two locations (Volga near Brookings and South Shore). One location at Volga will be misted to increase chances of disease development.

At Feekes 11.2 (soft dough), FHB severity will be determined visually on 60 spikes per plot, and incidence, diseased head severity, and index calculated. The presence and flag leaf severity (as a percentage) of any foliar diseases will also be recorded. Plots will be harvested and yield and test weight determined. Grain from all plots will be rated to determine the percentage of *Fusarium* damaged kernels (FDK). Grain samples from each plot will be sent to one of the USWBSI-funded DON Testing Laboratories for DON analysis. It is hypothesized that cultivar resistance and fungicide application timing interaction will significantly suppress FHB and DON and give the grower flexibility in applying a fungicide treatment post anthesis.