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Project Title: Split fungicide application and crop management to control FHB in barley.

PROJECT 3 ABSTRACT

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Fusarium head blight (FHB) has reduced the quality of barley grown in the midwest for the last decade due to fungus infected kernels, pinched grain and the presence of the toxin, deoxynivalenol (DON). Individual control measures have reduced disease, but have been unsuccessful in getting the level of control necessary for the requirements of the malting barley industry. Fungicide application while showing good promise often fail to adequately reduce levels of disease or more importantly in barley DON levels.

The focus of this project is to fine tune the application of fungicides to increase their effectiveness at reducing disease.

It is likely that the reduced control with fungicides is due to the long period during which the plant is susceptible to infection and the relatively short period of effectiveness of the fungicides used for control. With many diseases that have high disease pressure and multiple infections over time more than one fungicidal spray is used. In high value crops this is economic.

We propose that multiple applications be made of the best available fungicidal treatment to determine if this will reduce FHB and DON to acceptable levels. The fungicides Folicur and AMS 21619 were selected for their proven effect on Fusarium head blight disease when used as a foliar application to barley. Multiple rates of fungicide will be used to find a rate that is both effective and economic. In the greenhouse, fungicide treatments will be a factorial combination of four rates (0, 1x, 1/2x, 1/3x) of either of the two fungicides (Folicur or AMS 21619) by three application dates. In the field recommended and 1/2x, rates will be used.

Field trials will be established at two locations in the Minot area and repeated at Fargo which has a different climate, soil type and potentially also different disease pressure.