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Research Category: MGMT

Duration of Award: 1 Year

Project Title: Integrated Cropping System Study across Multiple Grain Classes and Locations, ND.

PROJECT 2 ABSTRACT

(1 Page Limit)

A number of management strategies have been demonstrated to reduce FHB and DON, strategies such as use of fungicides, crop rotation, tillage, and tolerant cultivars. However, under severe epidemics, an individual strategy used alone, or even use of two strategies, can not reduce disease severity and DON to levels required by the grain industry. A combination of strategies, each building upon the other, is required for achieving the best management of FHB and for obtaining quality grain. This project will continue the work that was done in 2007 in ND, looking at combining management strategies in a number of grain classes. The purposes of this collaborative effort are:

Objectives:

- Demonstrate that integrated management is the most effective means of reducing losses to FHB/DON
- Increase grower adoption of integrated strategies by demonstration of their effectiveness in a wide range of environments
- Decrease the risk of the development of FHB epidemics and thus reduce losses to FHB and DON.

Multi-site, multi-grain class studies will be continued, to evaluate the benefits of combining previous crop, host resistance and fungicides for FHB/DON management. The sites and grain classes proposed are: hard red spring wheat at Fargo and Lisbon, winter wheat at Lisbon and Prosper; durum wheat at Minot or off-station cooperators site as well as at Langdon; barley at Fargo and barley and durum at Langdon. Studies at Fargo with spring wheat and barley will be a split-split plot design, including a previous crop residue of soybean or wheat as the main plot, with fungicide treatment and cultivars as sub-plots. At the other locations, the experiments will be split-plot designs with fungicide treatment as the main plot and cultivar as the sub-plot. At each location, a minimum of 4 cultivars will be tested. Four replications of each treatment at each location and a sub-plot dimension of at least 4.5' – 5' x 20 ft are planned. Planting date, fertility, weed control, and other agronomic practices will follow local recommendations. All trials will be run under natural rainfall conditions (i.e. no mist-irrigation will be used; no inoculation)

This project addresses the following priority of the FHB Management Area: *Integrated Disease Management*: Evaluation of methods and strategies for disease management, including determination of influence of modern crop management practices on disease development and selection of the best disease control systems that can be used in concert.