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Research Area: CBC

Project Title: Uniform trials to identify safe fungicides and biological agents effective against Fusarium head blight across four locations and multiple wheat classes and barley in ND.

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PROJECT 1 ABSTRACT

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Uniform fungicide and biological agent treatment trials will be established in hard red spring wheat, durum wheat and spring barley across four locations in North Dakota. The uniform trials will be part of a cooperative effort among multiple states in spring grain regions and in winter wheat regions of the United States. The establishment of a core set of uniform treatments across a number of states allows evaluation of products and methods for consistency in performance over a wide number of environments and across grain types affected by FHB. Also, because FHB does not occur every year in every location, regardless of attempts to ensure infection through added inoculum or misting systems, having the trials across multiple environments increases the chance of favorable disease levels for evaluation across sites. In North Dakota, the uniform treatment trial will be established at Fargo in the southeast, at Carrington in the central region, at Minot in the north central region, and at Langdon in the northeast. These regions have variable weather patterns and different classes of small grains and varieties adapted to these areas. They also have had varied intensities of scab depending on year, but the disease has been severe in one or more locations in recent years. In 2002, disease levels were particularly high at Fargo, Carrington, and Langdon, while Minot was drier, just the opposite of wheat occurred in 2001. FHB was less damaging overall in 2002 than 2001 in ND, but DON levels were still above acceptable limits for many barley and durum fields. Additional information on fungicide performance is necessary to look at DON reductions and quality improvements.

Fungicides tested in the core treatment may include a standard triazole treatment, a strobilurin treatment, several experimental compounds that showed very good results in 2002, plus one or more promising biological agents. Treatments will be discussed during the 2002 Scab Forum in Cincinnati and finalized during early 2003. New experimental products, if available, will be included in the uniform trials of 2003. Results in locations with disease in 2001 and 2002 indicated enhanced control with several of the experimental products, and one or more locations had good results with a biological agent. In 2003, further testing with experimental products that may soon be on the market should be done again across environments, to get additional information on their efficacy and performance consistency. This information is critical for getting registration. This proposal is relevant to the US wheat and Barley Scab Initiative because it addresses immediate concerns about control of the disease and evaluates the efficacy and economics of one important management tool. Data provided by these trials also is critical for registration requests and decisions about further development of biological agents.