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Project Title: Effect of Inoculum Levels, Host Resistance, Fungicide and Weather on FHB.

PROJECT 1 ABSTRACT

(1 Page Limit)

Wheat and barley have been succumbed to several scab or Fusarium head blight (FHB) epidemics since mid 1990's in North Dakota. The disease has caused significant losses to the state wheat growers and related industry. Managing FHB has become the priority of the state wheat and barley breeders and plant pathologists. Though a few partially resistant to FHB wheat cultivars have been made available to the state wheat growers, the disease is still primarily managed with fungicide and cultural practices. Fungicides are available to manage FHB, but there are two major constraints of using them: 1) increase in cost of production and 2) chemical pollution of the environment. Current pesticide use strategy dictates the avoidance of pesticides unless they are needed. A decision system is needed to accurately predict when an economic threshold of disease will occur, so that wise decision can be made about fungicide application. Knowledge of sources of inoculum and its abundance and weather variables necessary for FHB development is crucial in the development of a reliable, effective disease forecasting system. Additionally, information on the influence of host resistance and chemical application would also contribute in the development of disease forecasting system. The experiment suggested in this research project would provide information on the variables described above. The data obtained from North Dakota will be compared with the data of other collaborators who are using the same protocol, from Ohio, Indiana, Pennsylvania, and South Dakota. In conclusion, the information obtained in this research would ultimately speed up the efforts in the development of effective and precise forecaster, and would help wheat producers better manage disease. This is the second year of the project.