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Research Area: CBCC

Duration of Award: 1 Year

Project Title: Preharvest Management Strategies in Barley to Reduce FHB and DON.

PROJECT 1 ABSTRACT

This is the second year of a farmer driven project that arose due to farmer pressure to investigate the effect on DON and FHB of pre-harvest management strategies that they were undertaking or were considering using. The aim of this project is to investigate FHB and DON in barley after use of pre-harvest desiccant herbicides and swathing both used to speed drying of the crop and weeds and thus reduce losses due to lodging, head shattering and green plant material interfering with threshing.

As *Fusarium* is both a pathogen and saprophyte and is favored by warm temperatures and high humidity the act of swathing a crop could result in an increase in *Fusarium* levels during the latter stages of crop maturity. As rainfall during grain ripening and maturity are variable between years, simulated rainfall will be achieved by irrigation and/or rainout canopies over the swath. The amounts of simulated rainfall quantity and frequency will be calculated by analyzing historical rainfall patterns at each trial site. The crop will be assessed for DON, visual kernel infection, microbial analyses and important; yield and quality components.

Unexpected effects from combinations of disease and herbicides have been reported for decades so that the preliminary Canadian reports of herbicide-disease interactions between FHB and glyphosate require critical field experimentation to assess their importance in the upper mid-west of the US. A range of herbicides registered for use as pre-harvest desiccants will be tested at the recommended growth stages. Susceptible and moderately resistant cultivars will be tested under a range of environmental conditions. The crop will be assessed for DON, visual kernel infection, microbial analysis and important; yield and quality components.

The outcome of this project will be a series of management recommendations for industry on the use of pre-harvest desiccant herbicides and swathing and their impact on FHB and DON in barley.