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PROJECT 1 ABSTRACT

(1 Page Limit)

Demethylation inhibitor (DMI) fungicides have been proven to be the most effective for Fusarium head blight (FHB) and deoxynivalenol (DON) management. When DMI fungicides are applied at or up to six days after anthesis to moderately resistant wheat cultivars, these fungicides provide more than 70% reduction of both FHB index and DON, relative to an untreated, susceptible check. The repeated use of a single class of fungicides, in this case DMI's, is not a good fungicide resistance management strategy. This proposal is part of a large coordinated effort to examine the efficacy of Miravas Ace®, which is one of a new class of fungicides called succinate dehydrogenase inhibitors. It is hoped that if this fungicide is effective in the control of FHB then it will provide an additional option for the chemical control of FHB and thus also reduce the risk of fungicide resistance developing to the DMI fungicides that are presently so heavily relied upon.

The specific objectives of this FHB Management Coordinated Project (MGMT_CP) are to:

1) Evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON in all major grain classes, with emphasis on a new (non-DMI) fungicide, Miravis Ace;
2) Compare the efficacy of Miravis Ace when applied at heading or at anthesis to that of standard anthesis application of Prosaro® or Caramba®;
3) Generate data to further quantify the economic benefit of FHB/DON management strategies
4) Develop more robust "*best-management practices*" for FHB and DON; and
5) Generate data to validate and advance the development of FHB and DON risk prediction models.

In Minnesota we plan to follow the standard protocol as developed by the CP, with modifications as necessary to accomplish the work in Minnesota. We plan to establish the integrated management trial (IM) and the uniform fungicide trial (UFT) as outlined in the standard protocol for both spring wheat and barley, with the field experiments to be established at two locations, St Paul and Crookston in Minnesota.