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**Project Title:** Integrated Management of Fusarium Head Blight of Small Grain Crops in Kentucky

### PROJECT 1 ABSTRACT

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Fusarium head blight (FHB) is one of the most economically important diseases of wheat and barley grown in Kentucky. Utilizing the best FHB management practices can help improve grain yield and quality and can reduce grain contamination by mycotoxins, such as deoxynivalenol (DON), that are produced by the FHB fungus, *Fusarium graminearum*. The best FHB management strategy consists of multiple practices, such as planting moderately-resistant cultivars and applying effective fungicides at the proper timing. Ideally, when these different management practices are deployed together, losses from FHB will be reduced compared to using only one of the management practices.

The overall project goal is to improve management of FHB and DON. The specific objectives of the proposed study are: 1) evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON in soft red winter wheat and winter barley, with emphasis on a new fungicide, Miravis Ace<sup>®</sup>; and 2) compare the efficacy of Miravis Ace when applied at early heading or at anthesis (heading in barley) to that of standard anthesis (heading in barley) application of Prosaro<sup>®</sup> or Caramba<sup>®</sup> fungicides.

Two trials will be conducted on both soft red winter wheat and winter barley. These trials include a non-irrigated “integrated management” trial and a mist-irrigated “uniform fungicide trial”. The trials will be conducted at the University of Kentucky Research and Education Center in Princeton, KY. The integrated management trials will evaluate different fungicides and fungicide application timings on different cultivars of soft red winter wheat and winter barley, and the uniform fungicide trials will evaluate several fungicides and application timings on FHB-susceptible cultivars of soft red winter wheat and winter barley in a mist-irrigated environment to encourage high FHB and DON levels.

Stakeholders in Kentucky and across the nation will benefit from these nationally-coordinated trials. Results from these trials will be used in local, regional, and national meetings to educate stakeholders on the importance of integrating management practices for the greatest FHB and DON reduction.