## Project Abstract

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| **Project Title:** | **Integrated Management of Fusarium Head Blight of Small Grain Crops in Kentucky** | |
| **Principal Investigator:** | **Carl Bradley** | **University of Kentucky** |

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 product goal is to improve management of FHB and DON. The specific objectives of the proposed studies 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 new combination fungicides, Prosaro Pro® and Sphaerex®; 2) Compare the efficacy of Prosaro Pro and Sphaerex to that of Prosaro®, Caramba®, and Miravis Ace®; 3) Generate data to further quantify the economic benefit of FHB and DON management programs; and 4) Generate data to validate and advance the development of FHB risk prediction models.

In total, four trials will be conducted (two trials on soft red winter wheat and two trials on 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.