

Project Abstract

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| Project Title: | Integrated Management of Fusarium Head Blight of Barley in Pennsylvania | |
| Principal Investigator: | Alyssa Collins | The Pennsylvania State University |
| Co-Investigator: | Paul Esker | The Pennsylvania State University |

Project Summary

Our overall project goal is to understand the most effective and economical combination of Fusarium head blight (FHB) management approaches to support a growing local malt industry in Pennsylvania and surrounding states.

Project Objectives and Expected Outcomes

- 1) Evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON in all major grain classes, with emphasis on new combination fungicides, Prosaro Pro[®] and Sphaerex[®]. Expected outcome: Newly available commercial products will sufficiently reduce FHB and subsequent DON production as well, if not better, than previously available fungicides.
- 2) Compare the efficacy of Prosaro Pro and Sphaerex to that of Prosaro[®], Caramba[®], and Miravis Ace[®]. Expected outcome: Newly labeled fungicide mixes will control FHB and subsequent DON production as well, if not better, than previously available fungicides.
- 3) Generate data to further quantify the economic benefit of FHB and DON management programs. Expected outcome: A comparison of the costs of fungicide programs and their associated yield and quality benefits.
- 4) Generate data to validate and advance the development of FHB risk prediction models. Expected outcome: Controlled field conditions and careful observation will provide feedback to refine the FHB risk prediction tool at two geographically disparate locations.

One of the primary challenges to achieving the high standards required for malting grain has been the near constant threat of Fusarium head blight (FHB) and subsequent development of vomitoxin in regional barley crops. In order to address these production concerns, Penn State hopes to continue its participation in the USWBSI Integrated Management Coordinated Project for barley through Integrated Management (IM) and Uniform Fungicide Trials (UFT). Field plots will be established in Lancaster County and Centre County, representing two major small grain production zones of state. We will incorporate a known FHB susceptible and a known moderately resistant variety of malting barley as well as other high-performing varieties. Following analysis of agronomic qualities and toxin content, this information will be shared with the greater Coordinated Project in order to build a robust data set for statistical analysis and subsequent development of management recommendations.

Data from this and previous USWBSI-funded barley studies will be used to refine production recommendations and provide critical decision-making information to growers in Pennsylvania and the greater Mid-Atlantic region. They will be incorporated into e-newsletters, grower presentation, and production guides accessible through extension activities. While the results of these experiments will have impact for barley growers of all types, a special emphasis on factors important to maltsters will make this work valuable to the greatest scope of stakeholders.