Project FY22-IM-016: Coordinated IPM for FHB and DON in SRWW - Wisconsin

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1. **What are the major goals and objectives of the research project?**
   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.
   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.
   4) Generate data to validate and advance the development of FHB risk prediction models.

2. **What was accomplished under these goals or objectives?** *(For each major goal/objective, address these three items below.)*

   What were the major activities?

   The IM-CP standard protocols were followed and implemented in Wisconsin on soft red winter wheat (SRWW). This included conducting the integrated management (IM) protocol, treating resistant and susceptible varieties with various fungicides at different application timings. We also conducted the uniform fungicide trial (UFT) to bolster multi-state recommendations for efficacious fungicides. We are contributing data to the multi-state efforts to understand the economic benefits of fungicides for FHB and DON Management and to better predict FHB epidemics.

   What were the significant results?

   We are finding that the new products, Prosaro Pro and Sphaerex, are excellent additions to the fungicide portfolio available for managing FHB and DON in Wisconsin. These products seem comparable to Miravis Ace, and in fact, these products seem a bit better in efficacy compared to Prosaro and the now phased out product, Caramba. This information has been useful in educating farmers about new options for FHB and DON management in Wisconsin. We also continue to show that varietal resistance is an excellent way to control FHB and DON and to rely on resistant varieties that fit their operation.

   List key outcomes or other achievements.

   Key outcomes of this work have been improved fungicide recommendations for FHB management in Wisconsin. We are amassing a reliable dataset to show farmers that there are additional fungicide options now. Up until this point, we really had only a few tools available for FHB and DON in-season control. With the addition of Prosaro Pro and Sphaerex, we now have additional modern tools along with Miravis Ace at our disposal.

3. **What opportunities for training and professional development has the project provided?**

   While this project does not directly fund a graduate student, my two graduate students and one undergraduate student currently in the lab help us conduct disease ratings and are involved with other data acquisition tasks. Thes students obtain experience in experimental design and disease management in wheat.

4. **How have the results been disseminated to communities of interest?**

   Results obtained were disseminated to stakeholders using cooperative extension outlets. The University of Wisconsin Field Crops Pathology program maintains a website (https://badgercropdoc.com) for data distribution. All pertinent results from these trials were posted in online portals. In addition, data were delivered to growers via annual cooperative extension Badger Crops and Soils Update Meetings and Winter Agronomy meetings. All data were also supplied to the IM-CP manager to be included in the multi-state analysis.

5. **What do you plan to do during the next reporting period to accomplish the goals and objectives?**

   We plan to repeat the trials specified above as necessary. We are committed to conducting the uniform trials, contributing data to the project leaders, and delivering a coordinated outreach message as a result of this ongoing research.