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Project Title: Analysis of DON Accumulation in Green and Senesced Tissues of Wheat.

PROJECT 1 ABSTRACT

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Deoxynivalenol is unique amongst the mycotoxins because it is a pathogenicity factor as well as a mycotoxin. This position makes the toxin the focus of intensive study both in terms of fungal-plant interactions and accumulation in the final harvest. Several studies suggest that DON biosynthesis may be associated with the colonization of green plant tissue, and drops off as the tissue succumbs to disease. This proposal addresses this hypothesis by monitoring expression of the genes for DON biosynthesis throughout the colonization process. Strobilurins are fungicides that are associated with increased DON accumulation. They also delay natural senescence in plant tissues. This proposal will investigate the effect of strobilurins on expression of DON biosynthetic genes in inoculated plants.

This research addresses the FHB Management Priorities for (#1) validating integrated management strategies for DON, (#3) developing the next generation of management tools for DON control and (#4) developing a full understanding of the specific environmental and biological factors influencing infection and toxin accumulation that can be used to develop forecasting and risk assessment systems. An understanding of the tissue requirements for DON synthesis will impact management and forecasting strategies to reduce DON and may lead to an understanding of the high-DON, low-disease kernels that impact grain value.