

FY20 USWBSI Project Abstract

PI: David Langston, Jr.

PI's E-mail: vegpath@vt.edu

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Project Title: Integrated Management of Fusarium head blight and DON in Virginia small grains

PROJECT 1 ABSTRACT

(1 Page Limit)

Soft red winter wheat is the third most widespread crop in Virginia, with 115,000 acres harvested in 2019. New varieties with partial resistance to Fusarium head blight (FHB) and deoxynivalenol (DON) contamination have been developed for the region, but DON contamination continues to be a perennial problem for growers. Though still comprising small acreage, there is increased interest in growing barley, especially malting varieties, as a specialty crop. However, quality issues including DON are a major constraint to successful production in the region. Judicious use of fungicides based on FHB risk models provides some control of FHB and DON, but integrated approaches that incorporate variety selection, appropriate fungicide chemistries, and optimal timing of fungicide applications are needed to minimize impacts of FHB and DON in a cost-effective manner. A new fungicide, Miravis Ace, is a novel chemistry for control of FHB with a potentially more flexible application timing window. However, efficacy of pre-anthesis applications of Miravis Ace has been inconsistent, and benefits of integrating this new chemistry with FHB resistant varieties needs to be evaluated. The overall goal of the proposed project is to identify effective and economical approaches to FHB and DON management in Virginia small grains. The specific objectives correspond to those of the FHB Management Coordinate Project which are to 1) evaluate the integrated effects of fungicide treatment and genetic resistance on FHB and DON, with emphasis on a new fungicide, Miravis[®] Ace; and 2) compare the efficacy of Miravis Ace when applied at heading or at anthesis to that of standard anthesis application of Prosaro[®] or Caramba[®]. Inoculated wheat and barley field experiments will be conducted over two years in southeastern Virginia, and FHB severity, DON, and yield data will be collected. Data generated by proposed experiments will contribute to development of best management practices for mitigation of FHB and DON contamination in the region. Grain elevators have increased testing for DON which results in discounts being taken at the buying point. This is necessary to ensure food safety, but in years when grain prices are low, this poses a significant economic burden on growers. Applied research evaluating the efficacy of integrated approaches to management of FHB and DON that can be disseminated to growers through extension and outreach is greatly needed to maintain food/feed safety and profitability of wheat production and to promote malting barley as a specialty crop in Virginia and the surrounding region.