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## PROJECT 1 ABSTRACT

(1 Page Limit)

Based on harvested acres, soft red winter wheat (SRWW) is the third most widespread crop in Virginia, with approximately 210,000 acres harvested in 2016. New varieties with partial resistance to Fusarium head blight (FHB) and deoxynivalenol (DON) contamination have been developed for the region, but DON contamination in the wheat crop continues to be a perennial problem for growers in the state. Judicious use of fungicides based on FHB risk models provides some control of FHB and DON, but growers need integrated management approaches that incorporate variety selection, appropriate fungicide chemistries, and optimal timing of fungicide applications to minimize the impacts of FHB and DON in a cost-effective manner. A new fungicide, Miravis Ace®, will be available to growers within the next year or two, and it is a new chemistry for control of FHB with a potentially more flexible application timing window. Preliminary studies in Virginia and other states using Miravis Ace have been promising, but the benefits of integrating this new chemistry with new FHB resistant varieties needs to be evaluated. The overall goal of this project is to identify the most effective and economical approaches to FHB and DON management in SRWW. The specific objectives of this project 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®. Proposed experiments will generate data on the effectiveness of different fungicides and application timings and genetic resistance for FHB and DON management. Inoculated field experiments will be conducted over two years in southeastern Virginia. FHB severity, DON contamination, and yield data collected in 2018 and 2019 will contribute to the development of best management practices for mitigation of FHB and DON contamination. Grain elevators in the region have increased testing for DON, which results in discounts being taken at the buying point. This is necessary to ensure food safety, but 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 is greatly needed to maintain food/feed safety and profitability of wheat production in Virginia and the surrounding region.