

PI: Kira Bowen

PI's E-mail: bowenkl@auburn.edu

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Project Title: Integrated Strategies for Improved Management of FHB and DON in Soft Red Winter Wheat in Alabama

PROJECT 1 ABSTRACT

(1 Page Limit)

Fusarium head blight (FHB) has been problematic in Alabama in recent years and farmers have become sensitive for the need to produce a disease- and DON-free wheat crop. In the humid conditions that prevail during wheat anthesis in AL production areas, there is a need for integrated strategies for better control of FHB and the vomitoxin, DON. This project proposes to evaluate the integration of fungicides applied at or near the time of anthesis (flower) with varying levels of host resistance using up to three soft red winter wheat (SRWW) cultivars adapted for coastal plains production areas. One integrated study will be done in central AL (PBU) and will be under mist irrigation. Appropriate plots in the study at PBU will be inoculated. At a second site in south AL (GCREC), two cultivars of varying FHB response will be planted as main plots and fungicides at varying timing relative to anthesis will be subplots. In addition, FHB management had become reliant on a single class of fungicides—the Demethylation Inhibitors (DMIs). Results from other regions indicates that a newer fungicide, in the Succinate Dehydrogenase Inhibitor (SDI) group, Miravis[®] Ace (with pydiflumetofen; commercially available late spring 2019), has good efficacy against FHB but additional evaluations are warranted. Further, another DMI, BAS 840, Sphaerex[®] (prothioconazole), is also showing promise in preliminary trials. Thus, our objectives are to: 1) evaluate the integrated effects of fungicide and genetic resistance on FHB and DON in SRWW grown in AL; and 2) evaluate the efficacy of Miravis Ace to standard Prosaro[®] and Caramba[®] treatments for FHB and DON management. Data collected from these studies will contribute to national efforts for improved FHB and DON management by: 3) quantifying the economic benefits, 4) developing more robust “*best-management practices*” guidelines, and 5) validating and advancing risk prediction models. Results of these studies will be shared with others in the MGMT Coordinated Project in order to contribute to the national effort for improved management of FHB. Proposed studies have been discussed with appropriate personnel, so that early preparations for winter wheat plot establishment can begin (e.g., obtaining seed, reserving site). Studies done in Alabama will demonstrate to local extension agents, experiment station personnel and growers the effectiveness of integrated strategies for FHB management.