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

### 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. This project proposes to evaluate the integration of fungicides applied at flower with varying levels of host resistance using four soft red winter wheat (SRWW) cultivars adapted for coastal plains production areas. This 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 in two fields—one field following corn and the second following a non-grain crop—fungicides at flower will be subplots. Inoculation is not planned for the GCREC studies since high FHB intensity has occurred there in recent years. In addition, FHB management has become reliant on a single class of fungicides—the Demethylation Inhibitors (DMIs). Preliminary results from other regions indicates that a newer fungicide, in the Succinate Dehydrogenase Inhibitor (SDI) group, MiravisAce®, has good efficacy against FHB but additional evaluations are warranted. In addition to evaluating Miravis Ace at the two locations already noted, this treatment will be included at a third site, in Belle Mina, AL for comparison to Prosaro® for FHB management. 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.