PI: Marcia McMullen **PI's E-mail: mmcmulle@ndsuext.nodak.edu**

Project ID: 0405-MC-115 **FY03 ARS Agreement #: 59-0790-9-053**

Research Area: **CBC** **Duration of Award: 1 Year**

Project Title: Integrated Project - Ground and Aerial Application of Fungicides for Improved FHB Control.

PROJECT 3 ABSTRACT
(1 Page Limit)

Small grain producers use both aerial and ground application equipment to apply fungicides for control of Fusarium head blight; in North Dakota the ratio of acres sprayed by each method is approximately 50:50%. Improvements in application technology will improve control achieved with fungicides by increasing the amount of deposition of product and improving appropriate site of deposition to achieve maximum control. This integrated project will combine the resources and expertise of three universities and one USDA ARS project to study commercial ground and aerial application techniques that may improve applications.

Aerial: Aerial application practices that deposit higher levels of active ingredient on wheat heads, as determined in aerial field deposition studies in 2003, will be integrated into interdisciplinary deposition and efficacy trials at multiple locations in 2004. This cooperative project will be between the USDA-ARS Aerial Application Technology research team at College Station, Texas, and Research and Extension Pathologists in North Dakota (Marcia McMullen and Scott Halley), Michigan (Gary Van Ee) and Minnesota (Char Hollingsworth). Five aerial treatments that were shown to increase deposits on wheat heads in 2003 studies were selected for inclusion in the 2004 integrated project. Research/Extension staff will identify cooperators for two commercial field locations in ND and one in NW MN, arrange field studies based on cooperative identification of treatments, and notify USDA cooperators of optimum spray application schedules at the three locations. The USDA ARS team will provide a modern agricultural aircraft with pilot, ground crew, and associated equipment and will apply the selected treatments. The University cooperators will jointly collect plant and artificial samplers from each treatment replication at each location to assess spray deposits. The USDA ARS team will provide analytical instrumentation and procedures to analyze spray deposits on wheat heads and artificial samplers. The State Research and Extension specialists at each location will assess the treated plots for FHB infection, harvest replicated plots for yield determinations, and sample and process grain from the treated plots for DON levels. The data from all aspects of the cooperative study will be shared equally; the USDA ARS team will lead in analysis and presentation of the deposition data, and the State Research and Extension Teams will lead in analysis and presentation of the efficacy and yield data. The goals of this integrated cooperative project are to determine aerial spray application practices that increase spray deposits on wheat heads and reduce the incidence of FHB and associated DON levels in wheat. The aerial techniques selected for these studies are practices that could be readily implemented by aerial applicators and producers to manage FHB.

The PI will coordinate one location in SE North Dakota, in collaboration with a commercial wheat producer in the area.