

PI: Marcia McMullen

PI's E-mail: mmcmulle@ndsuxext.nodak.edu

Project ID: 0506-MC-060

FY04 ARS Agreement #: 59-0790-4-114

Research Area: CBC

Duration of Award: 1 Year

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

PROJECT 2 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.

This specific project will address aerial application to wheat at one site in southeast North Dakota.

Aerial: Aerial application practices that deposit higher levels of active ingredient on wheat heads were integrated into an interdisciplinary deposition and efficacy trial at multiple locations in 2004. This cooperative project was 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). Six aerial treatments with Folicur fungicide compared three water volumes and 2 droplet sizes for efficacy in controlling FHB. Initial indications from the coverage data and one of the research sites indicated low water volume was not adequate for disease control, and larger droplet size was slightly better in coverage and disease control.

In 2005, the goal is to continue the work and re-test certain parameters from 2004 and identify additional aerial spray parameters that may improve disease control. 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. The NDSU team will identify an experienced, local commercial aerial applicator to do the aerial applications. 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 goals of this integrated cooperative project are to determine aerial spray application practices that reduce the incidence and severity 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 Vern Hofman, NDSU Agricultural Engineer, and a commercial wheat producer in the area. Vern Hofman will identify the cooperating aerial applicator and work with the applicator to adjust nozzles and spray gallonages for the identified treatments.