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PROJECT 1 ABSTRACT

(1 Page Limit)

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 three locations in North Dakota and Minnesota in 2004. One of the priorities of the Chemical and Biological Control Program for 2004 is to evaluate aerial and ground application technologies that can enhance efficacy of fungicides for control of FHB. This cooperative project between the USDA-ARS Aerial Application Technology research team at College Station, Texas, and Research and Extension Pathologists in North Dakota and Minnesota is directed to the aerial application segment of that research priority. Five aerial treatments that were shown to increase deposits on wheat heads in 2003 studies were selected for inclusion in the 2004 integrated project. The cooperating Research and Extension staffs will select wheat producer cooperators, arrange field studies based on cooperative identification of treatments, identify field plots for selected 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 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 technologies selected for these studies are practices that could be readily implemented by aerial applicators and producers to manage FHB.