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Project ID: FY06-MC-054

FY05 ARS Agreement #: 59-0790-4-114

Research Area: CBCC

Duration of Award: 1 Year

Project Title: Evaluation of Application Technologies That May Impact Fungicidal Control of FHB.

PROJECT 1 ABSTRACT

(1 Page Limit)

Improvements in application techniques for fungicidal control of FHB are necessary for consistent and positive response to fungicides. Information on nozzle angle, gallonage, pressure, adjuvants, and timing of application for fungicides has been provided to producers and adopted by many for their conventional ground sprayers. In the past two years, experiments examining timing of application and use of split rates of Folicur have indicated that one application of fungicide at early flowering is still the optimal timing for application of Folicur fungicide to hard red spring wheat and durum wheat, while in barley, multiple applications were necessary to provide control under multiple infection conditions. Adjuvant experiments have shown improvement over standard use adjuvants for slightly enhanced FHB control, but manufacturers of adjuvants have not been consistent in registering the best adjuvants tested.

Although gains in knowledge about application techniques have occurred, the improvements often are not adequate for maximum disease control under severe epidemics or when more susceptible lines or grain classes are grown. When fungicides were applied to the more FHB tolerant spring wheat lines in 2005, an epidemic year, often better disease control occurred than when fungicides were applied to susceptible lines; a similar response previously was seen in barley experimental lines (Horsley, et al.). Similar evaluations have not been done for durum cultivars.

Another factor that may affect fungicide performance in spring wheat is the addition of nitrogen in the fungicide mix for enhancing protein, a practice used by some ND hard red spring wheat producers in hopes of attaining protein premiums. Little is known about the effects on FHB control with the practice of combining fungicides and nitrogen to headed or flowering grain.

The goals of the 2006-2007 greenhouse studies on fungicide application techniques will be: a) to further examine adjuvants being developed by manufacturers and determine if a single new adjuvant or combination of adjuvants will increase penetration of fungicide into sites of infection beyond the awn structure common to cultivars of the spring grain region - awns often collect the fungicide; b) to determine if a popular grower practice of liquid Nitrogen application at heading interferes with fungicidal control of FHB in wheat; and c.) to determine if three 2005 NDSU durum releases, Alkabo, Divide and Grenora, which have improved FHB tolerance, will respond more favorably to fungicide application than the commonly grown cultivar Mountrail, which is more susceptible to FHB than these three new cultivars.