

## Report: 2012 Uniform Fungicide Trials for Management of FHB and DON

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### INTRODUCTION

Uniform fungicide trials were again conducted in multiple states in 2012, on multiple classes of wheat (durum, hard red spring, hard red winter, and soft red winter). The purpose of the project was to test registered triazole and strobilurin fungicides alone, in combination, or in sequence, with application at several growth stages, to determine optimum strategies for reduction in FHB severity, FDK, and DON. Trials were established at multiple locations in Illinois, North Dakota and South Dakota, and one location in Arkansas, Minnesota and New York. All sites had either added inoculum in the form of *Fusarium graminearum* infested grain spawn, infested residue, or the fungus was spray inoculated at flowering. Several sites used mist or overhead irrigation to promote disease development. Four test sites (Fargo, ND; Aurora, NY; Fayetteville, AR; and Groton, SD) were too hot and too dry for adequate development of FHB to separate treatments.

### MATERIALS AND METHODS

Wheat varieties in trials with adequate FHB included: P25R47 soft red winter wheat at four locations in IL; Oklee and Brick hard red spring wheat, each grown at two sites in SD; Wesley hard red winter wheat in SD; Lebsack durum in; Kelby hard red spring wheat in ND; and Samson spring wheat in MN . Thirteen fungicide treatments were evaluated across six of these location/variety sites, while 10 treatments were evaluated across 12 location/variety sites.

Treatments included: the triazole fungicides Caramba (metconazole, BASF), Prosaro (prothioconazole + tebuconazole, Bayer CropScience); and Folicur (tebuconazole, various manufacturers) applied alone at Feekes 10.5, 10.5.1 or 5 days after Feekes 10.5.1; a strobilurin fungicide - Headline (pyraclostrobin, BASF) applied alone at Feekes 9, or in sequence with Headline at Feekes 9 followed by Caramba, Prosaro, or Folicur at Feekes 10.5.1. Sites that had only 10 treatments generally did not include the Caramba or Prosaro applied at Feekes 10.5 or Headline treatment applied at Feekes 9. Treatments generally were applied with small plot application methods and delivered in 20 gal water/acre, with non-ionic surfactant added.

### RESULTS

**FHB Index (% Field Severity):** In sites with significant differences, treatments that included a triazole fungicide generally reduced FHB index from that of the untreated, regardless of time of application or if applied after a Headline application. In 3 of the 4 Illinois sites, the Headline treatment alone also reduced FHB Index, while at four other locations with this treatment, Headline applied alone at Feekes 9 did not.

**FDK (% Fusarium damaged kernels):** FDK was available for 9 of the 12 location/variety trials, and values were very low except for those from Minnesota. For those sites with significant differences among treatments, Caramba at Feekes 10.5.1 or 5 days after Feekes 10.5.1, Headline followed by Caramba or Prosaro, and Prosaro at Feekes 10.5.1 or five days after Feekes 10.5.1 gave the most consistent reduction of FDK.

**DON (ppm):** For sites with all 13 treatments, Headline applied once at Feekes 9 generally had the highest DON level apart from the untreated check. Triazole fungicides applied at Feekes 10.5.1 or five days after Feekes 10.5.1 generally resulted in lowest DON levels across sites.

**Yields (bu/acre):** Yields ranged from 30+ bu in some hard red spring wheat sites, up to 80 to 90+ bushels in some soft red winter wheat sites, and yield responses to treatment varied among sites. When yields were converted to percent of untreated for each trial, average yield responses to fungicides generally ranged from 5 to 35%, with the greatest responses observed in MN where the FHB levels were the highest.