Overview of Wheat Fusarium Head Blight Fungicide Trials

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Four fungicide trials were conducted at the Carrington Center in 1999 to continue the multi-state cooperative efforts to manage Fusarium head blight (FHB), scab, in small grain. The trials included:

- Uniform fungicide (12 treatments including eight fungicides and two application stages)
- Fungicide application techniques (12 treatments with two fungicides, two spray volumes, and three spray pressures)
- Novartis fungicide application timing and rates (15 treatments with six fungicides, three application timings, and variable rates)
- BASF fungicide evaluation (13 treatments with four fungicides, two application timings, and variable rates)

The trials were established under center-pivot irrigation to provide an environment of increased incidence of Fusarium head blight. 'Kulm' HRS wheat was planted May 13 on 1998 spring wheat ground. Most fungicide treatments were applied at early-flowering with a backpack sprayer equipped with 8002 twin-jet nozzles at a spray angle of 30 degrees from vertical. FHB incidence and head severity, as well as flag leaf disease, were visually evaluated. Grain yield and other seed characteristics including DON (vomitoxin) were determined.

The uniform fungicide trial was conducted as a multi-state project. At Carrington, FHB field severity ranged from 2.2 to 6.3 percent. Nearly all fungicide treatments did not reduce FHB field severity compared to the untreated check, but flag leaf disease was generally reduced with fungicides. Most fungicide treatments improved grain yield 10 to 16.3 bushels per acre compared to the untreated check.

The fungicide application techniques included Folicur and Quadris applied at spray volumes of 20 or 30 GPA and at spray pressures of 30, 45, or 60 PSI. No differences were found among individual treatments with FHB or wheat performance. Means averaged across fungicides and spray pressures indicated a yield advantage of 2.5 bushels/acre with the spray volume of 20 GPA compared to 30 GPA. Means averaged across fungicides and spray volumes indicated a grain yield increase of about 2 bushels/acre with a spray pressure of 60 PSI compared to 30 or 45 PSI.

The Novartis fungicide application timing and rates study showed that fungicide applications made prior to the beginning of first flower were not effective in suppressing scab. The study showed that three different treatments made at early-flowering resulted in significant grain yield increases as compared to the untreated check. Each of the fungicide treatments that resulted in increased yields were tank-mixes of fungicide and either a non-ionic surfactant or a crop oil.

The BASF fungicide study provided evidence that timing an application at the first flower is more effective than applications made at 50 percent heading. There were a number of treatments that caused a significant increase in grain yield. However, there was no definitive pattern that would associate this yield increase with application timing or rate of product. This trial also showed that these fungicides were very effective in controlling leaf spot diseases even though the application timing was later than normally advised for specific control of leaf diseases.

Specific trial data is available upon request.