# 1999-2000 NATIONAL FUSARIUM HEAD BLIGHT UNIFORM FUNGICIDE TEST FOR KENTUCKY

Donald Hershman, University of Kentucky
Scott Jones and Scott VanSickle, Wheat Tech, Inc.

**RESEARCH OBJECTIVE:**

To evaluate the role of various foliar fungicide treatments in the management of Fusarium head blight (FHB). The effort is part of a Auniform@ test being administered by the National Fusarium Head Blight Initiative.

**METHODS:**

Tests were established on the Sanger Farm near Hickman in Fulton County, in far southwest Kentucky and on the Thompson Farm, located near Keysburg, Logan County, in south central Kentucky. Both test locations were in corn during 1999. In Fulton, the seedbed was rotary mowed, followed by three discings. In Keysburg, soil was disced, mulch-tilled and disced twice. Seed of the soft red winter wheats, Madison and Patterson, were planted at Fulton (October 14, 1999) and Keysburg (October 20, 1999), respectively. For both tests, a seeding rate was used to achieve a plant density of approximately 35 seed/$ft^2$. Except for the evaluation of Caramba at the Fulton location, fungicide treatments were the same for both locations. All treatments were applied at Feeke=s growth stage 10.51, which is early flowering. Fungicides were applied (April 28 at Fulton and April 31 at Keysburg) with $CO^2$-pressurized backpack sprayers delivering 20 gpa at 40 psi (Fulton) and 15 gpa at 35 psi (Keysburg); At Fulton, plots were sprayed using a forward/backward nozzle configuration with 8001 flat-fan nozzles. At Keysburg, fungicides were delivered trough a traditional nozzle configuration and flat-fan nozzles. Treatments were replicated seven times at Fulton and five times at Keysburg and were arranged following a randomized complete block design. In Fulton, plots were 4-ft -wide x 10-ft-long. In Keysburg, plots were 5-ft-wide x 15-ft-long. Preventative treatments for non-target pests were as follows: Fulton: Warrior (3.5 oz/A on November 17 and February 21) and Harmony (0.5 oz/A on March 7); Keysburg: Hoelon (2 pt/A on December 2), Warrior (2.56 oz/A on December 8, March 29, and April 27), and Harmony Xtra plus 2,4-D (0.3oz/A and 6.0 oz/A, respectively, on March 2). In Fulton, nitrogen fertility was a fall application of 30 lbs N/A on November 5, 1999 and a split spring application of 39 lbs N applied on March 1, 2000, followed by 56 lbs applied on April 1. At Keysburg, 100 lbs of 10-50-0 and 50 lbs of 0-0-60 were applied pre-plant. In the spring, 40 and 60 lbs actual N/A were applied on February 16 and March 10, respectively. Entire plots (Fulton) or plots trimmed to ca. 12 ft (Keysburg) were harvested on June 12 using a Hege small plot combine; seed yields were calculated based on a moisture of 13.5%. Foliar disease ratings were made by D. Hershman at both locations just prior to the soft dough stage of grain development. FHB was rated by evaluating 100 consecutive heads in the center row and middle of each plot. FHB severity was estimated, visually, as percent surface area affected.

**RESULTS**:
FHB levels were extremely low at both test locations. FHB incidence ranged from 0.4-1.6% at Fulton and 0.3-1.5% at Keysburg. There were no significant differences among any of the treatments in regards to FHB incidence, severity, or field severity at either location. Extremely low FHB pressure probably existed because of an extended period of dry, low humidity conditions which existed while tests test crops were flowering in May.

At Fulton, leaf rust was present at moderate levels late in the season. In that test, all fungicide treatments significantly controlled leaf rust (data not presented) compared with the control. However, there was no significant yield difference among treatments at the 0.05% probability level. Similarly, at Keysburg, low levels of Stagonospora leaf and glume blotch existed, but no significant yield differences were detected among treatments

**CONCLUSION:**
FHB levels were not sufficient to permit evaluation of the fungicide treatments against FHB. All fungicides tested effectively controlled leaf rust, but disease levels were too low to damage crop yield. All fungicidal treatments would have resulted in a significant net economic loss in a farm setting. Data suggest that FHB forecasting systems need to be developed so that sprays can be targeted only to crops that are at a high risk for FHB development.

**FHB Uniform Fungicide Test - Fulton, KY**

| | % Fusarium Head Blight[1] | | | | |
|---|---|---|---|---|---|
| Treatment and rate* | Inc | Field sev | Sev | (bu/A) | (lbs/bu) |
| Non-treated | 1.6 | 1.7 | 33.6 | 91.8 | 58.9 |
| Folicur 4 fl oz + 0.125% v/v induce | 0.4 | 0.6 | 47.9 | 93.4 | 58.9 |
| Tilt 4 fl oz + 0.06 v/v induce | 1.3 | 1.8 | 47.7 | 92.6 | 59.0 |
| Stratego 14 fl oz + 0.06% v/v induce | 1.9 | 2.4 | 47.3 | 95.8 | 58.9 |
| BAS 500F 12.3 fl oz+ 1% v/v agridex | 1.1 | 1.8 | 50.7 | 92.3 | 59.1 |
| BAS 500F 6.2 fl oz + Folicur 2.0 fl oz + 1% v/v agridex | 1.0 | 1.4 | 47.9 | 93.6 | 58.9 |
| Quadris 9.2 fl oz + Benlate 50SP 4 oz | 1.4 | 1.8 | 43.6 | 91.3 | 58.5 |
| Caramba 13.5 fl oz | 1.1 | 1.2 | 32.1 | 93.8 | 58.4 |
| LSD, P=0.05 | NS | NS | NS | NS | NS |

*Product rate per acre [1]Inc=incidence; sev=severity (ave. surface area diseased of infected heads only); field sev=field severity (ave. % surface area diseased of all heads in plots).

**FHB Uniform Fungicide Test - Keysburg, KY**

| Treatment and rate* | %Fusarium Head Blight[1] Inc | Field sev | Sev | (bu/A) | (lbs/bu) |
|---|---|---|---|---|---|
| Non-treated | 0.5 | 0.03 | 25.8 | 101.1 | 60.3 |
| Folicur 4 fl oz + 0.125% v/v induce | 1.0 | 0.8 | 32.8 | 99.6 | 60.0 |
| Tilt 4 fl oz + 0.06 v/v induce | 0.6 | 0.2 | 29.1 | 106.5 | 60.8 |
| Stratego 14 fl oz + 0.06 v/v induce | 0.3 | 0.03 | 20.0 | 100.3 | 60.3 |
| BAS 500F 12.3 fl oz+ 1% v/v agridex | 1.5 | 0.9 | 28.5 | 102.5 | 60.4 |
| BAS 500F 6.2 fl oz + Folicur 2.0 fl oz + 1% v/v agridex | 1.0 | 0.9 | 29.0 | 101.9 | 60.4 |
| Quadris 9.2 fl oz + Benlate 50SP 4 oz | 0.3 | 0.02 | 21.7 | 106.3 | 60.1 |
| LSD, P=0.05 | NS | NS | NS | NS | NS |

*Product rate per acre [1]Inc=incidence; sev=severity (ave. surface area diseased of infected heads only); field sev=field severity (ave. % surface area diseased of all heads in plots).