

**HRS wheat variety response to foliar fungicides, Carrington, 2002.** (Gregory J. Endres and Blaine G. Schatz) The irrigated trial was established with 'Alsen', 'Reeder' and 'Walworth' HRS wheat planted on 2001 soybean ground (wheat straw distribution) at 1.5 million pure live seeds/acre on May 21 at the NDSU Carrington Research Extension Center. The trial had a randomized complete block design with four replications. Plot size was 5 by 22 ft. Fungicide treatments included: untreated check (UC), Folicur at 4 fl oz/A (Fol), and AMS 21619 at 5.7 fl oz/A + NIS (Induce) at 0.125% v/v (AMS). Fungicide treatments were applied to wheat in the early-bloom stage (Feekes 10.51) with a hand-boom plot sprayer equipped with 80015 twin jet nozzles delivering 17 gpa at 40 psi. 'Walworth' was treated on July 9 with 66F air temperature, 78% RH, 60% clear sky, 3 mph wind and moisture present on foliage. 1.21 inches of rainfall occurred on July 9. 'Alsen' and 'Reeder' were treated on July 12 with 66F air temperature, 87% RH, clear sky, 4 mph wind and moisture present on foliage. Approximately 1 inch of water was applied to the trial by sprinkler irrigation on July 16. Flag leaf disease was not evaluated due to moderate incidence of bacterial blight. Fusarium head blight was visually evaluated on August 5 at the soft-dough stage. The trial was harvested with a plot combine on August 27.

Fungicide treatments across the three varieties improved seed yield (5.4 to 6.3 bu/A), test weight (0.9 to 1.3 lb/bu), seed weight, and protein and decreased DON (0.6 to 1.1 % points) compared to the untreated check. The primary factor for wheat response to fungicides likely was due to reduction of fungal leaf spot disease (leaf rust and tan spot). 'Walworth' had the highest yield while 'Alsen' had the highest test weight, seed weight, and protein among varieties tested. 'Alsen' and 'Reeder' had slightly lower scab head severity and field severity than 'Walworth'. 'Alsen' and 'Walworth' had lower DON than 'Reeder'. DON was reduced with fungicide application with 'Reeder' and 'Walworth'. Although DON levels did not differ among fungicide treatments with 'Alsen', the DON levels were low and similar to levels of the other varieties treated with fungicides. 'Reeder' and 'Walworth' test weight improved with AMS 21619 while 'Alsen' test weight improved with Folicur compared to the untreated checks.

Table. HRS wheat variety response to foliar fungicides, Carrington, 2002.

| Treatment        | Scab - incidence (%) | Scab - head severity (%) | Scab - field severity (%) | DON (%)    | Grain yield (bu/ac) | Test weight (lb/bu) | 250 KWT (grams) | Protein (%) |
|------------------|----------------------|--------------------------|---------------------------|------------|---------------------|---------------------|-----------------|-------------|
| <b>Fungicide</b> |                      |                          |                           |            |                     |                     |                 |             |
| untreated        | 76.1                 | 45.3                     | 34.5                      | 1.6        | 20.9                | 55.0                | 5.1             | 16.2        |
| Folicur          | 73.0                 | 46.1                     | 33.8                      | 1.0        | 26.3                | 55.9                | 5.5             | 16.3        |
| AMS 21619        | 74.4                 | 42.5                     | 31.6                      | 0.5        | 27.2                | 56.3                | 5.6             | 16.4        |
| <i>LSD 0.05</i>  | <i>NS</i>            | <i>NS</i>                | <i>NS</i>                 | <i>0.3</i> | <i>2.5</i>          | <i>0.6</i>          | <i>0.2</i>      | <i>0.1</i>  |
| <b>Variety</b>   |                      |                          |                           |            |                     |                     |                 |             |
| Alsen            | 74.1                 | 39.7                     | 29.4                      | 0.7        | 22.3                | 57.1                | 5.7             | 17.3        |
| Reeder           | 73.3                 | 43.4                     | 31.7                      | 1.5        | 22.5                | 54.5                | 5.1             | 16.1        |
| Walworth         | 76.1                 | 50.8                     | 38.8                      | 1.0        | 29.6                | 55.5                | 5.3             | 15.9        |
| <i>LSD 0.05</i>  | <i>NS</i>            | <i>4.3</i>               | <i>4.4</i>                | <i>0.5</i> | <i>1.9</i>          | <i>0.4</i>          | <i>0.3</i>      | <i>0.3</i>  |
| <b>Fun X Var</b> |                      |                          |                           |            |                     |                     |                 |             |
| UCxAlsen         | 74.8                 | 38.5                     | 28.8                      | 0.9        | 18.8                | 56.3                | 5.4             | 17.1        |
| FolxAlsen        | 72.5                 | 40.6                     | 29.5                      | 0.6        | 24.7                | 58.0                | 6.0             | 17.0        |
| AMSxAlsen        | 75.0                 | 40.0                     | 29.9                      | 0.5        | 23.4                | 57.0                | 5.8             | 17.1        |
| UCxReeder        | 75.8                 | 44.9                     | 34.0                      | 2.4        | 18.4                | 53.7                | 4.8             | 16.0        |
| FolxReeder       | 71.5                 | 46.7                     | 33.4                      | 1.5        | 23.7                | 54.6                | 5.2             | 16.1        |
| AMSxReeder       | 72.5                 | 38.4                     | 27.7                      | 0.6        | 25.4                | 55.3                | 5.4             | 16.2        |
| UCxWalworth      | 77.7                 | 52.5                     | 40.7                      | 1.6        | 25.6                | 55.0                | 5.1             | 15.7        |
| FolxWalworth     | 75.0                 | 51.0                     | 38.4                      | 0.9        | 30.4                | 55.1                | 5.1             | 15.8        |
| AMSxWalworth     | 75.6                 | 49.0                     | 37.2                      | 0.5        | 32.8                | 56.5                | 5.6             | 16.0        |
| <i>mean</i>      | <i>74.4</i>          | <i>44.6</i>              | <i>33.3</i>               | <i>1.0</i> | <i>24.8</i>         | <i>55.7</i>         | <i>5.4</i>      | <i>16.3</i> |
| <i>C.V. %</i>    | <i>7</i>             | <i>13</i>                | <i>12</i>                 | <i>33</i>  | <i>9</i>            | <i>1</i>            | <i>4</i>        | <i>1</i>    |
| <i>LSD 0.05</i>  | <i>NS</i>            | <i>NS</i>                | <i>NS</i>                 | <i>0.5</i> | <i>NS</i>           | <i>1.1</i>          | <i>NS</i>       | <i>NS</i>   |