

## Evaluation of foliar fungicide on several HRSW cultivars, Langdon, ND 2009

Bryan Hanson, Agronomist, NDSU Langdon Research Extension Center  
Scott Halley, Crop Protection, NDSU Langdon Research Extension Center

A field experiment was planted on 19 May at Langdon, ND. The previous crop was soybeans. Twenty-one HRSW cultivars were planted at a rate of 1.5 million pure live seeds/a. Seed was treated with Dividend. Plot size consisted of seven 6-inch rows 16 ft long. After herbicide application was completed, a *Fusarium* inoculum consisting of two isolates was hand-broadcast at rate of 150 gms/plot to encourage development of disease. Prosaro fungicide and Induce adjuvant were applied at 6.5 fl oz/a and 0.125% v/v with a CO<sub>2</sub> pressurized backpack sprayer delivering 18.4 GPA at 40 psi. The sprayer was equipped with a three-nozzle boom, nozzles spaced 20 inches on center, mounted on a double swivel and oriented to spray forward and backward 30 degrees downward from horizontal. The application was made at Feekes growth stage (G.S)10.51 on 7 or 14 July by cultivar maturity. Prosaro fungicide (a 50:50 blend of prothioconazole/tebuconazole) is manufactured by Bayer Cropscience and Induce by Helena Chemical Co. Leaf severity was determined visually from 10 leaves sampled 20 days after G.S. Feekes G.S.10.51. The experimental design was a split-block with four replications.

Cultivars were significantly different from one another for all traits examined. Fungicide treatment was significant for yield and *Fusarium* damaged kernels (FDK). Cultivar yield response to fungicide application averaged 9.4 bushels and ranged from 5.1 to 17.0 bu/a. FHB disease pressure was very light. No observations were made because of the low infections. Leaf disease pressure was light to moderate and primarily consisted of bacterial leaf blotch and septoria/tan spot complex. There was no significant difference in leaf severity between the fungicide treatments. Bacterial infections are not controlled by fungicide applications.

### Langdon HRSW Variety x Fungicide Trial

| ANOVA     | Yield | TW | FDK | Leaf Severity |
|-----------|-------|----|-----|---------------|
| Cultivar  | **    | ** | **  | **            |
| Fungicide | *     | NS | *   | NS            |
| C*F       | NS    | ** | **  | NS            |

P<0.05\*, P<0.01\*\*, NS=non-significant

### Yield, test weight, *Fusarium* damage kernel and leaf severity response by fungicide treatment averaged over cultivars

| Fungicide Treatment | YIELD<br>bu/a | TW<br>lbs/bu | FDK<br>% | Leaf Severity<br>% |
|---------------------|---------------|--------------|----------|--------------------|
| No Fungicide        | 86.4          | 60.5         | 0.0      | 43.0               |
| Fungicide           | 95.9          | 60.8         | 0.3      | 37.0               |
| LSD 5%              | 8.0           | NS           | 0.2      | NS                 |
| LSD 1%              | NS            | NS           | NS       | NS                 |
| C.V.%               | 5.8           | 0.8          | 0.3      | 11                 |

**Yield, test weight, Fusarium damaged kernels and leaf severity response  
by cultivar averaged over fungicide treatments**

| Variety   | YIELD | TW     | FDK | Leaf<br>Severity |
|-----------|-------|--------|-----|------------------|
|           | bu/a  | lbs/bu | %   | %                |
| Faller    | 105.5 | 60.8   | 0.0 | 33               |
| Traverse  | 104.2 | 59.0   | 0.0 | 33               |
| Albany    | 99.8  | 61.3   | 0.0 | 64               |
| Howard    | 98.2  | 61.2   | 0.3 | 30               |
| Breaker   | 97.5  | 60.0   | 0.0 | 26               |
| Cromwell  | 96.8  | 61.5   | 0.1 | 28               |
| Tom       | 95.0  | 60.9   | 0.0 | 41               |
| Steele-ND | 95.0  | 61.1   | 0.5 | 44               |
| Brick     | 94.9  | 61.4   | 0.0 | 40               |
| Sabin     | 93.6  | 60.4   | 0.0 | 37               |
| Jenna     | 91.3  | 60.1   | 0.4 | 44               |
| Ada       | 91.2  | 61.8   | 0.5 | 27               |
| Glenn     | 91.0  | 63.3   | 0.0 | 29               |
| Hat Trick | 90.9  | 61.4   | 0.1 | 58               |
| Samson    | 88.4  | 59.3   | 1.4 | 49               |
| Barlow    | 88.2  | 60.6   | 0.1 | 25               |
| Kuntz     | 83.6  | 59.8   | 0.3 | 48               |
| Freyr     | 80.6  | 58.9   | 0.0 | 40               |
| RB07      | 76.4  | 59.6   | 0.0 | 46               |
| Brennan   | 71.3  | 60.3   | 0.1 | 40               |
| Kelby     | 70.9  | 60.5   | 0.0 | 38               |
| LSD 5%    | 5.8   | 0.7    | 0.3 | 11               |
| LSD 1%    | 7.7   | 0.9    | 0.3 | 15               |

**Yield, test weight, Fusarium damaged kernels and leaf severity  
by cultivar and fungicide treatment**

| Treatment          | YIELD        | TW          | FDK        | Leaf<br>Severity |
|--------------------|--------------|-------------|------------|------------------|
|                    | bu/a         | lbs/bu      | %          | %                |
| <b>Steele-ND+F</b> | <b>98.8</b>  | <b>61.5</b> | <b>0.0</b> | <b>47</b>        |
| Steele-ND          | 91.1         | 60.7        | 1.0        | 41               |
| <b>Freyr+F</b>     | <b>84.9</b>  | <b>58.8</b> | <b>0.0</b> | <b>37</b>        |
| Freyr              | 76.4         | 59.1        | 0.0        | 43               |
| <b>Glenn+F</b>     | <b>95.4</b>  | <b>63.4</b> | <b>0.0</b> | <b>28</b>        |
| Glenn              | 86.5         | 63.2        | 0.0        | 30               |
| <b>Kelby+F</b>     | <b>75.4</b>  | <b>61.2</b> | <b>0.0</b> | <b>35</b>        |
| Kelby              | 66.3         | 59.9        | 0.0        | 41               |
| <b>Traverse+F</b>  | <b>107.5</b> | <b>59.1</b> | <b>0.0</b> | <b>32</b>        |
| Traverse           | 100.8        | 58.9        | 0.0        | 35               |
| <b>Ada+F</b>       | <b>97.0</b>  | <b>62.1</b> | <b>0.0</b> | <b>24</b>        |
| Ada                | 85.4         | 61.5        | 1.0        | 30               |
| <b>Howard+F</b>    | <b>103.7</b> | <b>61.1</b> | <b>0.0</b> | <b>24</b>        |
| Howard             | 92.8         | 61.3        | 0.5        | 36               |
| <b>Faller+F</b>    | <b>111.1</b> | <b>60.9</b> | <b>0.0</b> | <b>32</b>        |
| Faller             | 99.8         | 60.7        | 0.0        | 33               |
| <b>RB07+F</b>      | <b>79.9</b>  | <b>59.6</b> | <b>0.0</b> | <b>48</b>        |
| RB07               | 73.0         | 59.7        | 0.0        | 44               |
| <b>Kuntz+F</b>     | <b>88.8</b>  | <b>59.9</b> | <b>0.0</b> | <b>44</b>        |
| Kuntz              | 78.4         | 59.8        | 0.5        | 52               |
| <b>Tom+F</b>       | <b>100.1</b> | <b>60.8</b> | <b>0.0</b> | <b>35</b>        |
| Tom                | 89.9         | 61.0        | 0.0        | 47               |
| <b>Hat Trick+F</b> | <b>94.3</b>  | <b>61.5</b> | <b>0.0</b> | <b>55</b>        |
| Hat Trick          | 87.6         | 61.3        | 0.3        | 60               |
| <b>Albany+F</b>    | <b>103.0</b> | <b>61.4</b> | <b>0.0</b> | <b>70</b>        |
| Albany             | 96.5         | 61.3        | 0.0        | 59               |
| <b>Breaker+F</b>   | <b>104.8</b> | <b>59.5</b> | <b>0.0</b> | <b>20</b>        |
| Breaker            | 90.2         | 60.4        | 0.0        | 31               |
| <b>Samson+F</b>    | <b>97.0</b>  | <b>60.1</b> | <b>0.8</b> | <b>38</b>        |
| Samson             | 79.9         | 58.6        | 2.0        | 60               |
| <b>Sabin+F</b>     | <b>96.1</b>  | <b>60.6</b> | <b>0.0</b> | <b>34</b>        |
| Sabin              | 91.0         | 60.3        | 0.0        | 40               |
| <b>Brick+F</b>     | <b>99.0</b>  | <b>61.7</b> | <b>0.0</b> | <b>38</b>        |
| Brick              | 90.7         | 61.1        | 0.0        | 42               |
| <b>Jenna+F</b>     | <b>98.0</b>  | <b>60.3</b> | <b>0.0</b> | <b>34</b>        |
| Jenna              | 84.5         | 60.0        | 0.8        | 53               |
| <b>Brennan+F</b>   | <b>74.5</b>  | <b>60.7</b> | <b>0.0</b> | <b>40</b>        |
| Brennan            | 68.0         | 59.8        | 0.3        | 40               |
| <b>Barlow+F</b>    | <b>93.0</b>  | <b>60.4</b> | <b>0.0</b> | <b>25</b>        |
| Barlow             | 83.5         | 60.7        | 0.3        | 26               |
| <b>Cromwell+F</b>  | <b>100.6</b> | <b>61.3</b> | <b>0.0</b> | <b>22</b>        |
| Cromwell           | 93.1         | 61.6        | 0.3        | 35               |
| LSD 5%             | NA           | 0.7         | 0.3        | NA               |
| LSD 1%             | NA           | 1.0         | 0.5        | NA               |

NA-non-applicable because ANOVA for F\*V was NS

**Yield and estimated revenue by cultivar and fungicide treatment, Langdon 2009.**

| Variety   | Yield (bu/a) |           |            | Revenue (\$/a) <sup>1</sup> |           |            |
|-----------|--------------|-----------|------------|-----------------------------|-----------|------------|
|           | No Fungicide | Fungicide | Difference | No Fungicide                | Fungicide | Difference |
| Faller    | 99.8         | 111.1     | 11.3       | 529                         | 569       | 40         |
| Traverse  | 100.8        | 107.5     | 6.7        | 534                         | 550       | 15         |
| Breaker   | 90.2         | 104.8     | 14.6       | 478                         | 535       | 57         |
| Howard    | 92.8         | 103.7     | 10.9       | 492                         | 530       | 38         |
| Albany    | 96.5         | 103.0     | 6.5        | 512                         | 526       | 14         |
| Cromwell  | 93.1         | 100.6     | 7.5        | 493                         | 513       | 20         |
| Tom       | 89.9         | 100.1     | 10.2       | 477                         | 511       | 34         |
| Brick     | 90.7         | 99.0      | 8.3        | 481                         | 505       | 24         |
| Steele-ND | 91.1         | 98.8      | 7.6        | 483                         | 503       | 20         |
| Jenna     | 84.5         | 98.0      | 13.5       | 448                         | 499       | 52         |
| Ada       | 85.4         | 97.0      | 11.6       | 452                         | 494       | 42         |
| Samson    | 79.9         | 97.0      | 17.0       | 424                         | 494       | 70         |
| Sabin     | 91.0         | 96.1      | 5.1        | 482                         | 489       | 7          |
| Glenn     | 86.5         | 95.4      | 8.9        | 459                         | 486       | 27         |
| Hat Trick | 87.6         | 94.3      | 6.6        | 464                         | 480       | 15         |
| Barlow    | 83.5         | 93.0      | 9.6        | 442                         | 473       | 31         |
| Kuntz     | 78.4         | 88.8      | 10.4       | 415                         | 451       | 35         |
| Freyr     | 76.4         | 84.9      | 8.4        | 405                         | 430       | 25         |
| RB07      | 73.0         | 79.9      | 6.9        | 387                         | 403       | 16         |
| Kelby     | 66.3         | 75.4      | 9.1        | 351                         | 380       | 28         |
| Brennan   | 68.0         | 74.5      | 6.5        | 360                         | 375       | 15         |
| Avg       | 86.0         | 95.4      | 9.4        | 456                         | 485       | 30         |

<sup>1</sup>Fungicide + ground application - \$20/a, HRSW price \$5.30/bu

**Yield and estimated revenue by cultivar and fungicide treatment with protein adjustments, Langdon 2009.**

| Variety   | Protein | Price/bu | Revenue(\$/a) with protein discounts <sup>1</sup> |           |            |
|-----------|---------|----------|---|-----------|------------|
|           |         |          | No Fungicide                                      | Fungicide | Difference |
| Faller    | 13.2    | 4.50     | 449   | 480       | 31         |
| Traverse  | 12.8    | 4.20     | 423   | 432       | 8          |
| Breaker   | 13.5    | 4.70     | 424   | 473       | 49         |
| Howard    | 13.4    | 4.70     | 436   | 467       | 31         |
| Albany    | 12.4    | 4.00     | 386   | 392       | 6          |
| Cromwell  | 13.5    | 4.70     | 437   | 453       | 15         |
| Tom       | 13.5    | 4.70     | 423   | 450       | 28         |
| Brick     | 13.3    | 4.50     | 408   | 426       | 18         |
| Steele-ND | 13.7    | 4.90     | 447   | 464       | 17         |
| Jenna     | 13.7    | 4.90     | 414   | 460       | 46         |
| Ada       | 13.5    | 4.70     | 401   | 436       | 35         |
| Samson    | 13.3    | 4.50     | 360   | 416       | 57         |
| Sabin     | 13.9    | 5.10     | 464   | 470       | 6          |
| Glenn     | 13.9    | 5.10     | 441   | 467       | 25         |
| Hat Trick | 13.3    | 4.50     | 394   | 404       | 10         |
| Barlow    | 13.7    | 4.90     | 409   | 436       | 27         |
| Kuntz     | 13.4    | 4.70     | 368   | 397       | 29         |
| Freyr     | 13.6    | 4.90     | 374   | 396       | 21         |
| RB07      | 13.7    | 4.90     | 358   | 371       | 14         |
| Kelby     | 14.0    | 5.30     | 351   | 380       | 28         |
| Brennan   | 13.8    | 5.10     | 347   | 360       | 13         |
| Avg       |         |          | 405   | 430       | 24         |

<sup>1</sup>Proteins were not taken on trial data. Numbers provided are a 5-site average from Langdon and off-stations locations in 2009. Proteins adjustments are \$0.20 1/5 up and down from 14%, \$0.10 down from 13%.