

**Evaluation of foliar fungicide on several HRSW cultivars, Langdon, ND 2008**

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

A field experiment was planted on 6 May at Langdon, ND. The previous crop was wheat. Eighteen 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 CO2 backpack sprayer delivering 18.4 GPA at 40 psi. The spray 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 10.51 on 7 or 14 July by maturity. Prosaro fungicide (prothioconazole/tebuconazole) is manufactured by Bayer Cropscience and Induce by Helena Chemical Co. FHB disease incidence (number of spikes infected) and field severity were determined from a sample of twenty grain heads at early dough stage. Leaf severity was determined from a 5 leaf sample at the same time. Head severity rating is the number of FHB infected kernels per head divided by total kernels per individual spike. The FHB index was calculated (FHB incidence\*severity)/100. The experimental design was a split-plot with four replications.

Fungicide treatment and its interaction with cultivars were significant for test weight and tombstones. Cultivar yield response to fungicide application averaged 6.1 bushels and ranged from 3.1 to 11.0 bu/a. FHB disease pressure was light on resistant and moderate on susceptible cultivars. FHB was significantly different among cultivars and treatments but no interactions were significantly different. Incidence ranged from 40 to 80% and severities ranged from 1% on the treated Traverse to 20% on the untreated Samson. Leaf disease pressure was light but some difference were measured among cultivars. DON data reported as <0.5 was recored as 0.3 in the data set. DON was taken on 2 replications.

**Langdon HRSW Variety x Fungicide Trial**

<b>ANOVA</b>	<b>Yield</b>	<b>TW</b>	<b>Tombstones</b>	<b>DON</b>	<b>FHB Incidence</b>	<b>FHB Severity</b>	<b>FHB Index</b>	<b>Leaf Severity</b>
Cultivar	**	**	**	**	**	**	**	**
Fungicide	*	**	**	*	**	**	**	NS
C*F	NS	*	**	**	NS	NS	NS	NS

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

**Cultivar response to fungicide averaged over cultivars**

Fungicide Treat	YIELD	TW	TB	DON	FHB Incidence	FHB Severity	FHB Index	Leaf Severity
	bu/a	lbs/bu	%	ppm	%	%		%
No Fungicide	74.5	58.7	3.6	1.4	76.1	15.9	10.3	12.3
Fungicide	80.6	59.9	0.4	0.5	50.1	11.0	3.6	8.7
LSD 5%	4.3	0.2	0.6	0.3	3.4	1.7	2.5	NA
LSD 1%	NS	0.4	1.1	NS	6.2	3.1	4.5	NA
C.V.%	4.3	0.6	55.9	27.6	18.2	51.1	27.9	70.9

**Cultivar traits averaged over fungicide treatments**

Variety	YIELD	TW	Tombstones	DON	FHB Incidence	FHB Severity	FHB Index	Leaf Severity
	bu/a	lbs/bu	%	%	%	%		%
Alsen	67.6	59.9	0.8	0.5	63.8	12.3	5.9	7.8
Knudson	77.5	58.6	2.6	1.7	64.9	11.8	5.7	5.4
Briggs	78.1	59.3	2.0	0.8	52.5	11.3	4.4	6.3
Steele-ND	71.6	59.4	2.5	1.0	58.8	13.9	6.2	5.6
Freyr	70.8	58.4	1.3	0.6	63.8	12.9	6.2	8.5
Glenn	75.4	62.3	0.6	0.8	53.1	12.7	4.8	6.1
Kelby	70.9	59.2	1.6	0.6	77.5	18.2	12.3	7.5
Traverse	82.0	57.1	0.4	0.7	40.1	10.2	2.2	13.0
Ada	79.4	60.4	1.8	0.8	74.4	15.8	10.2	14.9
Howard	79.4	60.0	2.9	1.2	66.1	14.4	7.6	4.0
Faller	89.0	59.6	0.3	0.5	58.1	12.1	5.6	13.4
RB07	78.0	58.5	1.1	0.6	50.0	11.2	3.6	8.9
Kuntz	78.5	58.1	3.4	0.9	65.6	11.8	6.8	14.2
Tom	79.8	59.2	1.3	0.7	58.1	12.2	4.7	8.3
Hat Trick	81.1	59.8	2.0	0.9	81.3	17.6	13.2	28.1
Albany	78.5	58.9	1.3	0.7	63.8	11.9	6.2	14.1
Breaker	80.4	60.8	1.6	0.8	61.3	12.4	5.7	9.0
Samson	77.5	57.6	9.0	3.3	82.5	18.7	14.3	13.6
LSD 5%	5.7	0.6	0.8	0.4	16.9	3.6	4.4	8.6
LSD 1%	7.6	0.8	1.1	0.5	22.6	4.8	5.8	11.4

**Cultivar response to fungicide treatments**

Treatment	YIELD	TW	TB	DON	FHB Incidence	FHB Severity	FHB Index	Leaf Severity
	bu/a	lbs/bu	%	ppm	%	%		%
Alsen	64.9	59.4	1.3	0.6	73.8	13.0	7.5	9.4
<b>Alsen+F</b>	<b>70.3</b>	<b>60.3</b>	<b>0.3</b>	<b>0.3</b>	<b>53.8</b>	<b>11.5</b>	<b>4.4</b>	<b>6.3</b>
Knudson	74.4	58.0	4.5	2.5	71.3	12.5	6.7	7.6
<b>Knudson+F</b>	<b>80.7</b>	<b>59.3</b>	<b>0.8</b>	<b>1.0</b>	<b>58.5</b>	<b>11.1</b>	<b>4.7</b>	<b>3.3</b>
Briggs	75.6	58.8	3.8	1.2	70.0	13.0	7.4	2.8
<b>Briggs+F</b>	<b>80.5</b>	<b>59.8</b>	<b>0.3</b>	<b>0.4</b>	<b>35.0</b>	<b>9.5</b>	<b>1.4</b>	<b>9.7</b>
Steele-ND	68.3	58.8	4.0	1.3	73.8	16.6	9.2	8.5
<b>Steele-ND+F</b>	<b>74.9</b>	<b>60.1</b>	<b>1.0</b>	<b>0.8</b>	<b>43.8</b>	<b>11.3</b>	<b>3.2</b>	<b>2.7</b>
Freyr	69.1	58.2	2.3	0.9	75.0	13.9	8.6	6.8
<b>Freyr+F</b>	<b>72.5</b>	<b>58.7</b>	<b>0.3</b>	<b>0.3</b>	<b>52.5</b>	<b>11.8</b>	<b>3.7</b>	<b>10.2</b>
Glenn	73.3	61.9	1.0	1.2	62.5	13.2	6.1	8.1
<b>Glenn+F</b>	<b>77.6</b>	<b>62.8</b>	<b>0.3</b>	<b>0.4</b>	<b>43.8</b>	<b>12.1</b>	<b>3.4</b>	<b>4.0</b>
Kelby	67.6	58.6	3.0	0.9	83.8	21.5	16.3	6.9
<b>Kelby+F</b>	<b>74.1</b>	<b>59.8</b>	<b>0.3</b>	<b>0.3</b>	<b>71.3</b>	<b>14.8</b>	<b>8.3</b>	<b>8.1</b>
Traverse	80.5	56.5	0.8	1.0	50.0	11.2	3.4	16.7
<b>Traverse+F</b>	<b>83.6</b>	<b>57.6</b>	<b>0.0</b>	<b>0.3</b>	<b>30.3</b>	<b>9.2</b>	<b>1.0</b>	<b>9.4</b>
Ada	74.4	59.8	3.5	1.4	90.0	19.5	15.8	17.9
<b>Ada+F</b>	<b>84.5</b>	<b>60.9</b>	<b>0.0</b>	<b>0.3</b>	<b>58.8</b>	<b>12.1</b>	<b>4.5</b>	<b>11.9</b>
Howard	76.0	59.3	5.0	2.0	80.0	18.0	11.9	4.1
<b>Howard+F</b>	<b>82.8</b>	<b>60.7</b>	<b>0.8</b>	<b>0.5</b>	<b>52.3</b>	<b>10.9</b>	<b>3.2</b>	<b>3.9</b>
Faller	86.8	59.1	0.5	0.7	76.3	15.6	9.6	17.9
<b>Faller+F</b>	<b>91.2</b>	<b>60.1</b>	<b>0.0</b>	<b>0.3</b>	<b>40.0</b>	<b>8.6</b>	<b>1.5</b>	<b>9.0</b>
RB07	75.5	58.0	2.3	0.9	70.0	12.6	6.1	11.8
<b>RB07+F</b>	<b>80.5</b>	<b>59.1</b>	<b>0.0</b>	<b>0.3</b>	<b>30.0</b>	<b>9.7</b>	<b>1.1</b>	<b>6.0</b>
Kuntz	74.3	57.1	6.0	1.5	83.8	15.3	11.4	16.5
<b>Kuntz+F</b>	<b>82.6</b>	<b>59.1</b>	<b>0.8</b>	<b>0.3</b>	<b>47.5</b>	<b>8.4</b>	<b>2.1</b>	<b>11.9</b>
Tom	77.6	58.7	2.3	1.1	68.8	13.9	6.4	8.1
<b>Tom+F</b>	<b>82.0</b>	<b>59.7</b>	<b>0.3</b>	<b>0.3</b>	<b>47.5</b>	<b>10.6</b>	<b>2.9</b>	<b>8.5</b>
Hat Trick	78.3	58.9	4.0	1.4	95.0	20.9	19.2	29.7
<b>Hat Trick+F</b>	<b>84.0</b>	<b>60.6</b>	<b>0.0</b>	<b>0.3</b>	<b>67.5</b>	<b>14.3</b>	<b>7.2</b>	<b>26.5</b>
Albany	77.0	58.5	2.3	1.0	82.5	14.9	10.5	16.4
<b>Albany+F</b>	<b>80.1</b>	<b>59.3</b>	<b>0.3</b>	<b>0.5</b>	<b>45.0</b>	<b>9.0</b>	<b>1.9</b>	<b>11.7</b>
Breaker	75.5	60.3	3.0	1.2	76.3	15.9	9.2	13.1
<b>Breaker+F</b>	<b>85.3</b>	<b>61.3</b>	<b>0.3</b>	<b>0.3</b>	<b>46.3</b>	<b>9.0</b>	<b>2.2</b>	<b>5.0</b>
Samson	72.0	56.4	15.3	5.3	87.5	23.9	20.1	19.1
<b>Samson+F</b>	<b>83.0</b>	<b>58.7</b>	<b>2.8</b>	<b>1.4</b>	<b>77.5</b>	<b>13.5</b>	<b>8.5</b>	<b>8.1</b>
LSD 5%	NA	0.6	1.6	0.6	NA	NA	NA	NA
LSD 1%	NA	NS	2.1	0.8	NA	NA	NA	NA

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