



## Hard Red Spring Wheat

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Spring wheat varieties are compared in trial plots at Waseca, Lamberton, Morris, Crookston, Stephen, Roseau and St. Paul. Wheat varieties are grown in replicated plots at each location. These plots are handled so that the factors affecting yield and other characteristics are as nearly the same for all varieties at each location as possible. These hard red spring wheat trials are not designed for crop (species) comparisons, because the various crops are grown on different fields or with different management. The data should only be used to compare varieties within a table. Tested hard red spring wheat varieties are listed in the order of their flowering date in the tables.

### Variety Selection Criteria

While grain yield is an important economic trait, return per acre also is affected by grain quality. Because *Fusarium* Head Blight (FHB), or scab, can reduce grain quality and yield dramatically, it is an important consideration. The foliar disease rating, which represents the total complex of leaf diseases, other than leaf and stripe rust, includes the Septoria complex, tan spot, powdery mildew and bacterial blight.

Although varieties may differ for their response to each of those diseases, the rating does not differentiate among them. Consequently, the rating should be used as a general indication and only for varietal selection in areas where these diseases have been a problem or if the previous crop was wheat or barley. Control of leaf diseases with fungicides may be warranted, even for varieties with an above-average rat-

ing. Disease ratings are now on a 1-9 scale where 1 = most resistant and 9 = most susceptible. Rating differences of 2 or more should be considered significant.

Variety selection for 2007 continues to be a balance between yield potential, disease responses and grain quality. Leading varieties in Minnesota, based on acres planted, include Knudson, Oklee, Freyr, Granite, Briggs, Oxen and Alsen.

**Table 1. Origin and agronomic characteristics of hard red spring wheat varieties in Minnesota.**

Variety	Origin <sup>1</sup>	PVP Status	Days to Heading <sup>2</sup>	Height cm <sup>2</sup>	Straw strength <sup>3</sup>
Briggs	2002 SDSU	PVP (94)	53	32	Medium
Trooper	2004 Westbred	PVP (94)	53	29	V. Strong
Kelby	2006 AgriPro	PVP (pend)	54	27	—
Oklee	2003 MN	PVP (94)	54	30	Medium
Ulen	2005 MN	PVP (94)	54	32	Medium
Rush	2007 Westbred	PVP (pend)	54	30	—
Glenn	2005 NDSU	PVP (94)	54	34	Strong
Traverse	2006 SDSU	PVP (pend)	54	34	—
Oxen	1996 SDSU	PVP (94)	54	31	M. Strong
Walworth	2001 SDSU	PVP (94)	55	32	Medium
Banton	2004 Trigen	PVP (94)	55	31	Strong
Freyr	2004 AgriPro	PVP (94)	55	32	Medium
Howard	2006 NDSU	PVP (pend)	55	33	—
Steele-ND	2004 NDSU	PVP (94)	55	33	Medium
FBC-Dylan	2006 NPSAS/FBC	none	56	30	—
Granger	2004 SDSU	PVP (94)	56	35	Medium
Alsen	2000 NDSU	PVP (94)	56	32	Strong
Ada	2006 MN	PVP (pend)	56	30	M. Strong
Knudson	2001 AgriPro	PVP (94)	56	30	M. Strong
Bigg Red	2004 Westbred	PVP (pend)	57	33	—
Hat Trick	2007 Trigen	PVP (pend)	57	30	—
Reeder	1999 NDSU	PVP (94)	57	32	Strong
Fireball	2006 N. Star G.	PVP (pend)	58	29	—
Granite	2002 Westbred	PVP (94)	58	30	V. Strong
Marshall	1982 MN	none	59	30	Strong
Bakker Gold	2006 N. Star G.	PVP (pend)	59	33	—
Polaris	2003 N. Star G.	PVP (94)	60	34	V. Strong
Mean			55.7	31.0	

<sup>1</sup> Abbreviations: MN = Minnesota Agricultural Expt. Stn.; NPSAS/FBC = Northern Plains Sustainable Agriculture Society/Farmer Breeder Club; N. Star G. = North Star Genetics; NDSU = North Dakota State University Research Foundation; SDSU = South Dakota Agricultural Expt. Stn.; Trigen = Trigen Seed Services LLC.

<sup>2</sup> 2006 data. Days to heading is approximate because not all locations are included

<sup>3</sup> 2004-2006 data.

**Table 2. Grain quality of hard red spring wheat varieties in Minnesota.**

Variety	Test Weight (Lb/Bu)		Protein (%) <sup>1</sup>		Baking Quality <sup>2</sup>	Falling Number <sup>3</sup>	Pre-Harvest Sprouting
	2006	2005-06	2006	2005-06			
Briggs	61.5	60.5	14.3	–	Med.	5,1,1,0	R
Trooper	61.7	60.8	13.9	14.2	Med.-high	–	R
Kelby	60.9	–	14.8	–	–	–	–
Oklee	61.3	60.5	14.7	14.9	Low-med.	6,0,0,1	R
Ulen	61.1	59.8	14.7	15.0	Med.	6,1,0,0	MR-MS
Rush	61.4	–	14.8	–	–	–	–
Glenn	63.7	62.6	14.8	15.4	High	–	R
Traverse	59.1	57.8	13.3	13.6	–	–	MR-MS
Oxen	60.4	58.0	14.3	14.4	High-med.	5,2,0,0	R
Walworth	60.2	59.1	14.6	14.7	Med.-high	6,1,0,0	R
Banton	62.4	61.6	14.5	14.6	High-med.	6,0,0,1	MR-MS <sup>4</sup>
Freyr	61.0	59.7	14.2	14.5	Med.	–	R
Howard	61.9	60.9	14.5	14.9	–	–	R
Steele-ND	61.9	60.8	14.6	15.0	High	7,0,0,0	R
FBC-Dylan	61.2	–	14.1	–	–	–	–
Granger	61.3	60.2	14.4	14.6	Med.	4,3,0,0	MR
Alsen	61.6	60.7	14.6	15.0	High	7,0,0,0	R
Ada	62.0	61.0	14.3	14.6	Med.-high	7,0,0,0	R
Knudson	61.1	60.1	13.9	14.2	Med.-high	5,2,0,0	R
Bigg Red	62.2	–	13.3	14.1	–	–	–
Hat Trick	61.9	–	14.2	–	–	–	–
Reeder	61.1	58.9	13.8	13.9	Med.-high	7,0,0,0	R
Fireball	59.3	–	15.3	–	–	–	–
Granite	62.1	61.3	15.2	15.3	Med.-low	3,3,1,0	MR
Marshall	60.0	57.4	13.4	13.8	Low	5,2,0,0	R
Bakker Gold	59.8	–	13.4	–	–	–	–
Polaris	59.7	58.4	13.4	13.6	Med.	–	R
Mean	61.3	60.0	14.3	14.3			

<sup>1</sup> 12% moisture basis.

<sup>2</sup> 2001-2004 crop years.

<sup>3</sup> Falling Number is the number of trials in which the variety had falling numbers greater than 400, 350-400, 300-350, and less than 250. Based on 7 environments in 2003 and 2004. A variety that had falling numbers of greater than 400 in all 7 environments (i.e. 7,0,0,0) is best.

<sup>4</sup> Banton showed a variable response, being resistant at Morris and St. Paul locations, but MS at Crookston.

### **Hard red spring wheat planting rate and date.**

Calculating and seeding the appropriate amount of seed is an important first step towards maximizing yield. The seeding rate is a function of the number of kernels per pound of seed, the percent germination of the lot, the expected stand loss as a function of the quality of the seedbed, and the desired stand. In Minnesota, an average optimum stand for hard red spring wheat when planted early is between 28 to 30 plants per square foot or approximately 1.25 million plants per acre. This number should increase by 1 to 2 plants per square foot for every week planting is delayed past the early, optimum, seeding date. Expected stand loss even under good seedbed conditions is between 10% to 20% and will increase with a poor seedbed or improper seed placement due to poor depth control.

The general formula for calculating a seeding rate is:

$$\text{Seeding Rate (Pounds/Acre)} = \frac{\text{Desired Stand (Plants/Acre)} \times (1 - \text{Expected Stand Loss})}{(\text{Seeds/Pound}) \times \text{Percentage Germination}}$$

Calculate the seeding rate for every single seed lot and calibrate the drill accordingly.

#### **Example: Early variety.**

Desired Stand, (Plants/Acre)	Expected Stand Loss	Seeds per Pound	Percentage Germination	Seeding Rate, (Lb/Acre)
1.25 million	0.20	14,000	0.95	113

New releases for 2006 are Ada (MN), Bakker Gold and Fireball (North Star Genetics), FBC-Dylan (Northern Plains Sustainable Agriculture Society/Farmer Breeder Club), Howard (NDSU), Kelby (AgriPro), and Traverse (SDSU).

Rust diseases were minimal in 2006, but both leaf rust and stripe rust have caused significant losses on some varieties in recent years.

Varieties with ratings of 5 or higher should be closely monitored during the season for rust development.

Varieties with ratings of 4 or better should not experience economic levels of damage to these fungi in most years. Stripe rust was a serious problem on susceptible varieties in some locations in 2004. This disease is not as widespread and does not occur as regularly as leaf rust, but can be very damaging when temperatures remain unseasonably cool into early July. Most varieties are resistant or moderately resistant. Trooper and Walworth are more susceptible, and sustained economic levels of damage in 2004. Stem rust ratings have been added in the disease tables again because there are differences in variety reaction. However, the levels of this disease have been very low in production fields in recent years, even on susceptible varieties.

Falling number data, an important end-use quality trait that can be determined at most local elevators, has been added to the grain-quality table. Falling number is measured in seconds, and values of 300 or higher are required for milling quality wheat. Falling number is related to preharvest sprouting, in that sprouted grain will always have low falling numbers. In the absence of visual sprouting, falling numbers are generally greater than 400, except in certain varieties.

Due to the increased use of fungicides in wheat in Minnesota, we have implemented an additional variety trial in which fungicides are applied at the time of herbicide application (Feekes 5), flag leaf emergence (Feekes 9), and at the

onset of flowering (Feekes 10.51). The practice of three fungicide applications during the growing season is not recommended. This fungicide regime was implemented to measure the performance of varieties when fungal diseases were controlled to the maximum extent possible. A grower's decisions regarding fungicide applications should be based on the available decision support systems, and only if and when disease levels are forecasted to reach economic damaging levels.

The additional performance evaluations were carried out adjacent to the conventional (no fungicides applied) trials, so results can be

compared directly. The trials were conducted in Lamberton, Morris, Crookston and Roseau in 2006 and in Morris, Crookston and Roseau in 2004 and 2005. In 2006, the fungicide regime as applied in these trials increased grain yield across varieties 2 to 4 bu/acre. Except for the 2-year analysis across the northern locations, the 2- and 3-year comparisons showed an increase in grain yield of 6 to 12 bu/acre. Rather than the average increases in grain yield, the responses of individual varieties provide the most useful information; varieties rated susceptible to leaf rust, stripe rust and powdery mildew benefited most from fungicide applications.

**Table 3. Disease reactions of hard red spring wheat varieties in Minnesota.**<sup>1</sup>

Variety	Leaf Rust	Stripe Rust	Stem Rust	Other Leaf Diseases <sup>2</sup>	Scab
Briggs	1	1	2	4	5
Trooper	4	7	1	8 <sup>4</sup>	6
Kelby	2	—	1	—	—
Oklee	4	1	1	4	5
Ulen	3	1	1	5	6
Rush	4 <sup>3</sup>	—	4	—	—
Glenn	1	1	1	4	3
Traverse	4	—	2	—	—
Oxen	7	1	3	7	8
Walworth	6	6	1	8 <sup>4</sup>	5
Banton	2	1	1	5	5
Freyr	4	1	4	—	4
Howard	1	—	1	—	—
Steele-ND	1	1	1	4	6
FBC-Dylan	7 <sup>3</sup>	—	1	—	—
Granger	3	1	1	4	5
Alsen	3	1	1	6	4
Ada	2	1	2	3 <sup>4</sup>	6
Knudson	1	3	3	3	6
Bigg Red	8	—	2	—	—
Hat Trick	4 <sup>3</sup>	—	3	—	—
Reeder	8	1	1	4	7
Fireball	4	—	1	—	—
Granite	6	3	3	5 <sup>5</sup>	6
Marshall	8	1	1	7	7
Bakker Gold	3 <sup>3</sup>	—	7	—	—
Polaris	6	1	8	3	7

<sup>1</sup> 1-9 scale where 1=most resistant, 9=most susceptible.

<sup>2</sup> Includes tan spot, septoria, bacterial leaf blight, and powdery mildew.

<sup>3</sup> This rating is based on limited data.

<sup>4</sup> These varieties are more susceptible to powdery mildew.

<sup>5</sup> This variety is more susceptible to bacterial leaf blight.

**Table 4. Relative grain yield of hard red spring wheat varieties in northern Minnesota locations.**

Variety	Crookston			Roseau		Stephen			On-Farm		
	2006	2-Year	3-Year	2006	2-Year <sup>1</sup>	2006	2-Year	3-Year	2006	2-Year	3-Year
Briggs	116	107	104	101	105	107	99	100	111	105	102
Trooper	107	101	102	77	78	84	93	99	99	98	101
Kelby	102	–	–	84	–	89	–	–	101	–	–
Oklee	96	102	100	89	96	95	97	99	103	102	99
Ulen	99	98	95	110	113	105	96	96	106	104	102
Rush	86	–	–	80	–	101	–	–	90	–	–
Glenn	92	97	98	111	108	98	103	101	104	103	–
Traverse	110	118	–	114	–	118	112	–	110	–	–
Oxen	107	103	97	104	105	109	108	103	95	93	96
Walworth	104	101	101	89	93	95	105	104	103	103	100
Banton	98	96	99	97	97	96	98	99	110	100	–
Freyr	98	104	103	98	96	98	108	100	98	102	100
Howard	110	109	–	111	–	104	102	–	106	–	–
Steele-ND	105	102	98	113	106	107	101	102	109	105	101
FBC-Dylan	97	–	–	105	–	100	–	–	–	–	–
Granger	94	105	97	105	102	103	109	107	108	105	106
Alsen	95	97	99	105	103	97	94	94	97	95	96
Ada	97	102	105	96	100	87	94	96	97	98	–
Knudson	108	112	113	104	96	106	109	105	108	107	105
BiggRed	95	–	–	104	–	92	–	–	96	–	–
Hat Trick	82	–	–	90	–	78	–	–	–	–	–
Reeder	105	93	91	102	103	97	92	95	97	93	95
Fireball	91	–	–	107	–	97	–	–	92	–	–
Granite	102	106	108	89	99	87	94	93	94	87	92
Marshall	99	95	92	92	84	81	78	84	84	–	–
Bakker Gold	87	–	–	109	–	99	–	–	92	–	–
Polaris	92	107	107	106	103	103	121	115	87	94	100
Mean (Bu/Acre)	77.1	69.7	75.3	78.3	83.9	70.9	77.1	75.2	64.9	64.8	74.7
LSD (0.05)	12.9	20.4	14.6	12.1	16.0	11.8	24.5	19.1	13.5	10.1	6.5

<sup>1</sup> Roseau was abandoned in 2005 due to flooding. Two-year data are 2004 and 2006.

**Table 5. Relative grain yield of hard red spring wheat varieties in southern Minnesota locations.**

Variety	Lamberton			Morris			St. Paul			Waseca		
	2006	2-Year	3-Year	2006	2-Year	3-Year	2006	2-Year	3-Year	2006	2-Year	3-Year
Briggs	107	113	108	108	113	112	99	102	100	103	106	104
Trooper	76	74	79	107	110	101	114	108	115	89	84	85
Kelby	86	–	–	73	–	–	101	–	–	97	–	–
Oklee	93	105	102	97	98	101	94	94	97	99	112	109
Ulen	98	107	105	109	105	105	108	111	116	119	125	124
Rush	88	–	–	83	–	–	89	–	–	84	–	–
Glenn	88	89	89	79	83	90	84	103	103	86	102	98
Traverse	127	144	–	116	123	–	111	105	–	113	122	–
Oxen	91	84	84	115	97	96	110	90	96	104	103	101
Walworth	104	107	105	92	104	96	105	108	107	101	110	109
Banton	84	98	95	84	95	98	98	100	102	92	97	93
Freyr	104	113	112	116	112	110	100	94	97	101	101	101
Howard	108	112	–	117	111	–	103	109	–	97	116	–
Steele-ND	105	115	110	116	107	105	98	114	116	96	111	111
FBC-Dylan	92	–	–	116	–	–	95	–	–	96	–	–
Granger	113	117	115	99	102	104	96	96	96	108	132	118
Alsen	96	90	91	87	96	96	91	96	93	103	97	95
Ada	110	114	114	93	99	101	104	91	89	97	103	102
Knudson	108	98	104	106	110	112	102	115	111	102	101	108
BiggRed	101	–	–	99	–	–	96	–	–	97	–	–
Hat Trick	94	–	–	109	–	–	94	–	–	100	–	–
Reeder	90	75	80	100	89	95	105	107	109	98	91	93
Fireball	90	–	–	104	–	–	90	–	–	92	–	–
Granite	105	112	112	85	93	94	95	94	95	107	99	99

**Table 5. Relative grain yield of hard red spring wheat varieties in southern Minnesota locations (continued).**

Variety	Lamberton			Morris			St. Paul			Waseca		
	2006	2-Year	3-Year	2006	2-Year	3-Year	2006	2-Year	3-Year	2006	2-Year	3-Year
Marshall	79	58	65	96	72	71	101	73	64	96	63	64
Bakker Gold	107	—	—	98	—	—	95	—	—	105	—	—
Polaris	108	84	88	121	103	105	93	96	99	113	92	91
Mean (Bu/Acre)	49.1	42.5	46.6	65.8	72.0	75.7	92.3	71.7	70.1	66.5	53.2	57.4
LSD (0.05)	13.8	17.2	29.0	20.5	33.2	20.8	7.9	28.4	19.6	10.1	32.4	20.2

**Table 6. Relative grain yield of hard red spring wheat varieties in Minnesota.**

Variety	State			North			South		
	2006	2-Year	3-Year	2006	2-Year	3-Year	2006	2-Year	3-Year
Briggs	106	106	105	108	101	102	104	108	106
Trooper	93	94	95	89	94	95	97	94	95
Kelby	91	—	—	92	—	—	89	—	—
Oklee	95	101	101	93	99	99	96	102	102
Ulen	107	107	108	105	99	99	108	112	113
Rush	87	—	—	89	—	—	86	—	—
Glenn	91	98	98	100	103	102	84	94	95
Traverse	116	121	—	114	115	—	117	123	—
Oxen	106	97	97	107	105	101	105	93	94
Walworth	99	105	103	96	101	101	101	107	104
Banton	93	98	98	97	97	98	89	97	97
Freyr	102	105	103	98	106	102	105	105	105
Howard	107	110	—	108	106	—	106	112	—
Steele-ND	106	109	107	108	103	101	104	112	111
FBC-Dylan	100	—	—	101	—	—	100	—	—
Granger	102	110	106	101	108	104	104	112	108
Alsen	96	96	95	99	97	97	94	95	94
Ada	97	100	101	93	99	101	101	102	101
Knudson	105	107	108	106	110	107	104	106	109
BiggRed	98	—	—	97	—	—	98	—	—
Hat Trick	92	—	—	83	—	—	99	—	—
Reeder	99	91	94	101	93	94	98	90	94
Fireball	96	—	—	98	—	—	94	—	—
Granite	96	99	100	93	99	101	98	99	100
Marshall	92	73	73	91	87	87	93	67	66
Bakker Gold	100	—	—	98	—	—	101	—	—
Polaris	105	100	101	100	115	111	109	94	96
Mean (Bu/Acre)	71.1	61.7	65.8	75.5	74.1	76.9	68.4	55.5	59.5
LSD (0.05)	8.3	9.2	7	7.1	12.6	9.8	7.4	13	9.6
No. of Environments	7	14	20	3	6	8	4	8	12

**Table 7. Grain yield (bushels/acre) of hard red spring wheat varieties grown under conventional and intensive management <sup>1</sup>.**

	North						South						State					
	1-Year		2-Year		3-Year		1-Year		2-Year		3-Year		1-Year		2-Year		3-Year	
	Conv.	Inten.	Conv.	Inten.	Conv.	Inten.	Conv.	Inten.	Conv.	Inten.	Conv.	Inten.	Conv.	Inten.	Conv.	Inten.	Conv.	Inten.
Briggs	84.3	89.7	76.3	82.5	84.2	86.2	60.0	61.3	56.8	56.8	65.9	68.3	73.2	75.5	67.1	70.4	76.4	78.6
Trooper	71.3	84.6	67.2	77.2	72.6	88.4	50.9	49.8	50.2	49.3	55.4	64.0	62.0	67.2	59.2	64.0	65.3	78.1
Kelby	72.5	76.2	-	-	-	-	44.8	53.5	-	-	-	-	59.9	64.8	-	-	-	-
Oklee	71.8	72.7	70.4	69.3	77.6	77.7	53.1	58.0	49.4	55.7	60.0	67.9	63.3	65.4	60.5	62.9	70.2	73.6
Ulen	81.1	75.9	74.4	72.4	-	-	57.7	56.6	52.5	53.4	-	-	70.5	66.2	64.1	63.5	-	-
Rush	64.7	71.9	-	-	-	-	47.7	47.5	-	-	-	-	57.0	59.7	-	-	-	-
Glenn	79.1	73.4	74.0	70.7	-	-	46.8	49.9	43.4	47.8	-	-	64.4	61.7	59.6	60.0	-	-
Traverse	87.3	84.5	-	-	-	-	68.3	68.8	-	-	-	-	78.6	76.7	-	-	-	-
Oxen	82.3	94.9	75.5	83.1	83.2	87.5	57.4	65.2	48.6	61.9	56.7	70.6	71.0	80.1	62.9	73.1	72.0	80.3
Walworth	74.9	78.7	70.4	74.6	77.2	83.4	55.0	58.7	53.2	56.4	56.9	66.7	65.8	68.7	62.3	66.0	68.6	76.3
Banton	75.7	83.8	70.3	77.8	79.7	83.5	47.1	50.7	46.9	48.7	57.9	60.2	62.7	67.3	59.2	64.1	70.5	73.7
Freyr	76.1	84.1	73.7	77.1	78.6	81.0	61.1	64.8	56.0	60.7	64.9	72.0	69.3	74.5	65.4	69.4	72.8	77.2
Howard	86.0	81.7	-	-	-	-	62.4	65.6	-	-	-	-	75.3	73.6	-	-	-	-
Steele-ND	84.6	87.4	77.1	77.9	82.7	81.5	61.7	58.0	54.6	53.3	62.3	62.2	74.2	72.7	66.5	66.3	74.0	73.4
FBC-Dylan	78.6	78.0	-	-	-	-	57.6	64.3	-	-	-	-	69.1	71.1	-	-	-	-
Granger	77.3	79.2	75.9	77.2	81.5	81.5	59.2	66.5	54.2	62.2	64.2	69.8	69.1	72.8	65.7	70.1	74.2	76.6
Alsen	77.7	78.8	72.2	74.0	78.9	80.8	51.3	55.3	49.1	51.7	57.7	61.7	65.7	67.1	61.4	63.5	70.5	72.7
Ada	72.0	86.0	-	-	-	-	56.8	62.3	-	-	-	-	65.1	74.1	-	-	-	-
Knudson	82.2	86.8	78.8	81.3	83.5	86.0	59.8	60.9	57.9	58.5	68.7	70.3	72.0	73.9	68.9	70.6	77.2	79.4
BiggRed	77.3	85.3	-	-	-	-	56.0	58.8	-	-	-	-	67.6	72.0	-	-	-	-
Reeder	78.0	90.3	69.0	78.6	76.7	86.3	52.9	57.5	45.9	54.3	57.2	66.6	66.6	73.9	58.1	67.2	68.4	78.0
Granite	73.2	78.1	71.4	75.0	78.8	85.7	53.2	57.8	52.6	55.5	60.3	66.5	64.1	67.9	62.6	65.8	71.0	77.6
Marshall	74.4	85.3	68.4	81.5	71.9	88.5	48.9	60.0	38.4	56.6	43.7	66.0	62.8	72.7	54.3	69.8	60.0	79.0
Polaris	76.9	86.6	76.7	85.7	81.9	90.3	64.0	64.2	57.0	60.9	66.1	69.7	71.0	75.4	67.4	74.1	75.2	81.6
Mean	77.5	82.2	73.0	77.4	79.3	84.6	55.6	59.0	50.6	55.5	59.4	66.8	67.5	70.6	62.4	67.1	70.7	77.1
LSD	13.7	11.6	NS	NS	8.3	NS	12.3	7.2	10.3	5.3	9.6	6.2	8.2	7.4	7.2	6.2	6.1	5.7
Env.	2	2	3	3	5	5	2	2	3	3	4	4	4	4	6	6	9	9

<sup>1</sup> Intensive trials received fungicide treatments at Feekes 5 (Stratego @ 5 fl.oz/acre), Feekes 9 (Tilt @ 4 fl.oz/acre), and Feekes10.51 (Folicur @ 4 fl.oz./acre). Conventional trials received no fungicide.