

Wheat, Hard Red Spring

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Spring wheat varieties were sown in trial plots at Crookston, Lamberton, Morris, Roseau, St. Paul, and Waseca and on-farm sites near Fergus Falls, Hallock, Oklee, Perley, Stephen and Strathcona. 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. These data should be used only to compare varieties within a table. Tested hard red spring wheat varieties are listed in alphabetical order 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. Disease ratings are on a 1-9 scale where 1 = most resistant and 9 = most susceptible. Rating differences of 2 or more should be considered significant.

Faller and Prosper are susceptible to leaf rust races that have increased since 2010. In 2011 leaf rust infections throughout Minnesota were low, however Faller and Prosper were among the most susceptible cultivars. Carefully consider a variety's rating for leaf rust, and plan to use a fungicide if a variety is rated 5 or higher

and disease levels warrant treatment. Varieties with ratings of 4 or better should not experience economic levels of damage in most years.

Stripe rust was a serious problem on susceptible varieties in some locations in 2004, and appeared in some locations in 2010. This disease is not

Table 1. Origin and agronomic characteristics of hard red spring wheat varieties in Minnesota in single-year (2011) and multiple-year comparisons (2009-2011).

Variety	Origin ¹	Days to Heading ²	Height Inches ²	Straw Strength ³
Ada	2006 MN	61.3	27.9	4
Albany	2009 Limagrain Cereal Seeds	63.3	27.4	5
Barlow	2009 NDSU	59.0	29.7	6
Blade	2007 WestBred	62.7	27.6	4
Breaker	2008 WestBred	61.9	28.4	4
Brennan	2009 AgriPro	59.1	25.5	4
Brick	2009 SDSU	55.7	30.3	5
Briggs	2002 SDSU	57.7	29.9	7
Brogan	2009 WestBred	61.2	27.5	4
Cromwell	2007 Thunder Seed	62.2	28.7	5
Edge	2008 WestBred	60.8	27.9	6
Faller	2007 NDSU	61.6	29.0	5
Glenn	2005 NDSU	58.1	29.8	4
Jenna	2009 AgriPro	63.5	27.0	4
Kelby	2006 AgriPro	59.1	25.5	4
Knudson	2001 AgriPro	61.3	27.8	5
Marshall	1982 MN	64.3	27.7	4
Oklee	2003 MN	57.8	28.5	6
Pivot	2009 WestBred	60.7	23.2	2
Prosper	2011 NDSU	61.7	29.4	5
RB07	2007 MN	60.4	27.9	5
Rollag	2011 MN	59.9	26.8	3
Rollag (1.3X)	30% higher seeding rate	59.9	26.8	4
Sabin	2009 MN	61.3	27.7	6
Samson	2007 WestBred	60.9	25.8	3
Select	2011 SDSU	56.3	30.0	5
SY-Soren	2011 AgriPro	60.0	26.1	4
Tom	2008 MN	60.1	28.5	6
Vantage	2007 WestBred	65.0	28.1	2
Velva	2012 NDSU	62.1	28.4	4
WB-Digger	2010 WestBred	60.8	28.7	5
WB-Lyn	2010 WestBred	64.8	27.6	4
WB-Mayville	2011 WestBred	60.0	25.8	3
Mean		60.7	27.8	

¹ Abbreviations: MN = Minnesota Agricultural Experiment Station; NDSU = North Dakota State University Research Foundation; SDSU = South Dakota Agricultural Experiment Station; Trigen = Trigen Seed Services LLC.

² 2011 data.

³ 1-9 scale in which 1 is the strongest straw and 9 is the weakest. Based on 2008-2011 data. The rating of newer entries may change by as much as one rating point as more data are collected. Entries are listed by the name under which they are submitted for testing, which may be either variety or brand.

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. Stem rust ratings are included in the disease tables 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.

Bacterial Leaf Streak ratings of all varieties are presented for the first time this year. This disease cannot be controlled with fungicides. If you have a history of problems with this disease, variety selection of more resistant varieties is the only recommend practice. Bacterial leaf streak symptoms are highly variable from

one environment to the next. The rating of newer entries may change by as much as one rating point as more data are collected.

The “Other leaf disease” rating represents a combined reaction to septoria and tan spot. 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. Ada is more susceptible to powdery mildew than other varieties. Control of fungal leaf diseases with fungicides may be warranted, even for varieties with an above-average rating.

Leading varieties in Minnesota, based on acres planted in 2011 were Faller and RB07 with 29% and 22% of the acreage, respectively. Edge, SY-Soren, and WB-Mayville were new entries in the trials. Rollag, a 2011 release from the U of MN; Prosper, developed by NDSU and co-released by the U of MN in 2011; and Velva, released by NDSU for 2012, were all evaluated since 2009 and their data are presented in the tables. Testing of Freyr, Hat Trick, Howard and Kuntz was discontinued.

Due to the increased use of fungicides on wheat in Minnesota, we initiated an additional variety trial in 2004 in which fungicides are applied at the time of herbicide application (Feekes 5), flag leaf emergence (Feekes 9), and at the onset of flow-

Table 2. Grain quality of hard red spring wheat Varieties in Minnesota in single-year (2011) and multiple-year comparisons (2009-2011).

Variety	Test Weight (Lb/Bu)		Protein (%) ¹		Baking Quality ²	Pre-Harvest Sprouting ³
	2011	2-Year	2011	2-Year		
Ada	59.8	60.2	14.6	14.6	Medium	2
Albany	58.8	59.4	13.8	13.9	Low-Medium	3
Barlow	59.4	60.2	15.1	15.3	Medium-High	2
Blade	59.6	60.7	14.8	15.0	Medium-High	5
Breaker	59.6	60.9	14.7	14.8	Medium-High	4
Brennan	58.3	58.9	14.7	14.8	Medium	3
Brick	60.2	60.5	14.5	14.7	Medium	3
Briggs	59.7	59.9	14.8	14.9	Medium	2
Brogan	59.2	59.4	14.6	14.7	Low-Medium	1
Cromwell	59.8	60.5	14.8	14.8	Medium-High	3
Edge	56.9	—	14.9	—	—	—
Faller	58.2	58.9	14.4	14.4	Medium	2
Glenn	60.7	61.4	15.1	15.3	High	1
Jenna	58.5	59.0	14.9	14.8	Medium	5
Kelby	58.5	58.9	14.9	15.1	Medium	1
Knudson	59.1	59.6	14.4	14.3	Medium-High	2
Marshall	56.5	57.3	14.2	14.0	Low	2
Oklee	59.4	60.0	14.7	14.9	Low-Medium	3
Pivot	56.5	56.7	14.7	14.7	—	4
Prosper	58.5	59.0	14.7	14.6	Medium	2
RB07	58.8	59.0	14.5	14.7	Medium-High	2
Rollag	59.3	60.1	15.1	15.1	Low-Medium	2
Rollag (1.3X)	59.8	60.5	15.1	15.1	—	—
Sabin	58.1	58.7	14.9	14.8	Medium-High	5
Samson	58.1	58.3	14.4	14.3	Medium	5
Select	60.1	60.2	14.7	14.6	Medium-Low	3
SY-Soren	58.7	—	14.8	—	—	—
Tom	58.5	59.1	14.7	14.7	Medium	1
Vantage	59.8	60.9	15.5	15.6	Medium	2
Velva	56.5	57.5	14.7	14.8	Medium	2
WB-Digger	57.9	58.8	14.4	14.5	—	5
WB-Lyn	55.7	56.6	14.2	14.1	—	5
WB-Mayville	58.9	—	15.0	—	—	—
Mean	58.7	59.4	14.7	14.7	—	—

¹ 12% moisture basis.

² 2004-2009 crop years.

³ 1-9 scale in which 1 is best and 9 is worst. Values of 1-3 should be considered as resistant.

Entries are listed by the name under which they are submitted for testing, which may be either variety or brand.

Table 3. Disease reactions of hard red spring wheat varieties in Minnesota in multiple-year comparisons (2009-2011).

Variety	Leaf Rust ¹	Stem Rust ³	Bacterial Leaf Streak ⁴	Other Leaf Diseases ⁵	Scab
Ada	5	2	4	5 ⁶	6
Albany	3	3	6	5	4
Barlow	2	1	5	4	4
Blade	2	2	2	4	4
Breaker	3	2	2	4	4
Brennan	2	2	6	5	7
Brick	3	3	5	7	3
Briggs	1	2	5	5	5
Brogan	3	2	6	5	5
Cromwell	4	1	3	3	4
Edge	—	—	6	6	—
Faller	5 ²	1	4	4	4
Glenn	2	1	4	4	3
Jenna	4	2	5	4	7
Kelby	2	1	6	4	5
Knudson	2	3	4	3	6
Marshall	8	1	5	7	7
Oklee	4	1	4	5	5
Pivot	2	—	6	6	8
Prosper	5 ²	1	4	4	5
RB07	2	2	6	6	4
Rollag	4	2	4	5	3
Rollag (1.3X)	4	2	4	5	3
Sabin	3	1	4	6	4
Samson	5	1	5	6	8
Select	2	4	6	7	4
SY-Soren	—	—	4	4	—
Tom	4	1	5	5	4
Vantage	5	3	6	6	5
Velva	4	2	5	4	7
WB-Digger	3	—	6	5	7
WB-Lyn	3	—	3	6	7
WB-Mayville	—	—	6	7	—

¹ 1-9 scale where 1=most resistant, 9=most susceptible.

² Faller and Prosper are susceptible to leaf rust races that have increased since 2010. In 2011 leaf rust infections throughout Minnesota were low; however, Faller and Prosper were among the most-susceptible cultivars.

³ Stem rust levels have been very low in production fields in recent years, even on susceptible varieties.

⁴ Bacterial leaf streak symptoms are highly variable from one environment to the next. The rating of newer entries may change by as much as one rating point as more data are collected.

⁵ Combined rating of tan spot and septoria.

⁶ This variety is more susceptible to powdery mildew.

Entries are listed by the name under which they are submitted for testing, which may be either variety or brand.

ering (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. 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 damaging economic levels.

The additional performance evaluations were carried out adjacent to the conventional (no fungicides applied) trials, so results can be compared directly. Data from trials conducted in Lamberton, Morris, Crookston and Roseau are included in the 2011 and multi-year summaries. In 2011, the fungicide regime as applied in these trials increased grain yield on average by 5.6 bu/acre, consistent with the average effect over the past 3 years. Rather than the average increases in grain yield, the responses of individual varieties provide the most useful information; varieties rated susceptible to leaf rust and other fungal leaf diseases usually benefited most from fungicide applications.

Test Plot Research

Matt Bickell, Robert Bouvette, James Cameron, Dave Grafstrom, Mark Hanson, George Nelson, Steve Quiring, Galen Thompson and Donn Vellekson supervised test plot establishment and management.

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:

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

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	117

Table 4. Relative grain yield of hard red spring wheat varieties in northern Minnesota locations in single-year (2011) and multiple-year comparisons (2009-2011).

Variety	Crookston			Roseau ¹		Stephen			Fergus Falls			Perley ²	Oklee			Strathcona ³		Hallock ³	
	2011	2-Year	3-Year	2011	2-Year	2011	2-Year	3-Year	2011	2-Year	3-Year	2-Year	2011	2-Year	3-Year	2011	2-Year	2011	2-Year
Ada	97	101	99	105	109	100	93	95	95	95	94	102	98	100	98	91	96	103	98
Albany	101	114	113	99	104	120	119	113	110	117	112	119	118	125	124	131	125	123	119
Barlow	104	96	99	90	93	106	98	102	102	101	101	96	101	92	93	117	100	102	101
Blade	99	104	103	99	92	117	107	103	91	91	95	105	97	98	99	95	101	108	102
Breaker	109	107	106	92	96	118	108	104	97	102	103	100	105	105	97	79	91	98	99
Brennan	93	95	96	96	90	79	86	90	96	92	95	91	94	101	100	89	99	87	93
Brick	97	96	91	86	88	97	88	91	101	94	97	95	103	96	99	107	102	95	98
Briggs	101	93	95	100	95	103	92	97	103	104	100	96	99	87	90	103	88	98	93
Brogan	107	94	95	103	100	85	85	89	101	106	103	103	101	97	99	121	111	95	97
Cromwell	93	97	99	101	104	111	105	102	99	94	95	99	99	96	97	93	102	101	97
Edge	96	—	—	90	—	85	—	—	89	—	—	—	92	—	—	90	—	93	—
Faller	110	111	115	108	112	100	106	111	112	116	115	111	111	112	114	85	97	110	112
Glenn	101	93	91	99	89	104	92	93	102	101	95	93	91	82	86	101	98	93	88
Jenna	98	100	102	97	99	95	106	102	107	102	102	104	105	107	104	95	110	100	101
Kelby	95	96	92	98	93	84	91	91	93	90	89	89	91	97	95	105	102	84	92
Knudson	103	105	106	97	98	116	107	106	107	103	104	102	100	99	99	106	102	107	107
Marshall	91	88	91	79	93	93	90	88	73	80	84	92	98	100	98	89	87	97	87
Oklee	98	97	97	105	97	101	97	97	100	97	98	84	97	95	95	95	91	96	93
Pivot	106	106	—	102	101	92	104	—	95	98	—	—	97	107	—	96	99	107	109
Prosper	112	113	115	93	103	118	112	113	113	113	111	109	114	112	114	107	105	115	110
RB07	102	98	99	89	94	103	104	103	95	100	106	105	93	97	99	87	92	97	101
Rollag	98	100	101	101	103	93	95	96	94	94	94	101	95	100	100	101	99	96	100
Rollag (1.3X)	101	102	—	106	106	96	97	—	96	96	—	—	93	96	—	97	99	94	97
Sabin	96	96	96	103	101	91	89	93	97	104	102	107	102	98	100	97	98	96	94
Samson	106	110	113	112	112	102	107	109	110	103	101	102	105	110	106	124	115	110	106
Select	105	95	97	104	99	91	93	95	106	103	102	100	103	94	95	106	96	94	95
SY-Soren	101	—	—	102	—	80	—	—	99	—	—	—	97	—	—	112	—	90	—
Tom	98	95	94	102	96	97	95	99	99	94	93	97	99	97	97	89	96	94	94
Vantage	102	98	101	118	117	99	101	99	94	96	98	95	103	104	101	100	102	100	100
Velva	92	93	97	80	90	101	100	102	100	107	101	101	102	97	100	94	99	110	106
WB-Digger	108	109	—	105	104	93	105	—	103	104	—	—	104	100	—	90	98	110	105
WB-Lyn	84	89	—	67	82	96	104	—	88	98	—	—	102	106	—	120	104	101	100
WB-Mayville	106	—	—	103	—	106	—	—	98	—	—	—	97	—	—	102	—	103	—
Mean (Bu/Acre)	66.6	74.2	78.3	73.7	66.5	53.8	65.1	69.8	66.5	74.0	77.0	81.3	78.2	85.8	86.2	66.3	79.6	79.4	87.9
LSD (0.10)	4.7	11.7	8.7	7.3	15.9	5.7	13.7	9.5	4.6	11.2	9.1	7.9	1.2	12.6	9.7	7.6	16.2	4.5	9.0
CV	3.4	—	—	5.3	—	4.2	—	—	3.4	—	—	—	0.9	—	—	4.5	—	3.3	—

¹ The 2009 Roseau site was not planted due to excessive wetness.

² The 2011 Perley site was abandoned due to excessive wetness; 2-year data are 2009-2010 average.

³ The 2009 Hallock and Strathcona sites were abandoned to due excessive field variability.

Entries are listed by the name under which they are submitted for testing, which may be either variety or brand.

Table 5. Relative grain yield of hard red spring wheat varieties in southern Minnesota locations in single-year (2011) and multiple-year comparisons (2009-2011).

Variety	Lamberton			Morris ¹			St. Paul			Waseca ²
	2011	2-Year	3-Year	2011	2-Year	3-Year	2011	2-Year	3-Year	2-Year
Ada	101	93	90	98	97	100	79	69	81	93
Albany	114	107	113	110	113	112	134	129	121	135
Barlow	106	109	104	107	104	104	108	108	103	97
Blade	100	98	97	95	92	92	86	88	92	96
Breaker	95	99	101	106	106	104	92	85	92	102
Brennan	99	103	106	82	93	96	101	99	104	100
Brick	97	95	93	99	95	95	85	83	87	98
Briggs	121	109	102	110	106	102	100	95	94	94
Brogan	108	104	104	108	106	108	107	99	102	103
Cromwell	97	104	102	108	106	103	110	103	97	103
Edge	88	—	—	90	—	—	94	—	—	—
Faller	110	111	116	112	116	114	98	114	107	117
Glenn	92	104	102	87	92	86	93	90	96	81
Jenna	106	108	107	112	109	108	114	122	114	114
Kelby	82	90	87	78	86	87	93	94	98	86
Knudson	107	112	108	114	107	106	123	109	103	103
Marshall	76	86	92	74	83	87	75	84	86	78
Oklee	105	102	104	103	104	104	104	93	96	102
Pivot	99	93	—	101	98	—	112	100	—	—
Prosper	104	97	103	107	105	106	107	105	103	119
RB07	97	89	93	98	95	95	100	111	105	103
Rollag	77	85	88	78	86	85	67	78	83	99
Rollag (1.3X)	91	93	—	89	93	—	68	88	—	—
Sabin	100	108	104	101	96	96	121	109	111	107
Samson	105	100	100	105	101	103	120	118	116	101
Select	124	110	101	114	107	108	108	111	108	96
SY-Soren	110	—	—	94	—	—	89	—	—	—
Tom	97	96	98	92	93	89	84	93	95	94
Vantage	89	95	102	95	107	107	106	103	100	99
Velva	100	91	94	95	99	98	102	97	97	92
WB-Digger	98	100	—	101	94	—	86	84	—	—
WB-Lyn	97	96	—	86	90	—	103	105	—	—
WB-Mayville	99	—	—	97	—	—	95	—	—	—
Mean (Bu/Acre)	31.9	52.8	57.2	49.7	60.4	56.4	54.7	56.2	56.9	58.8
LSD (0.10)	11.5	11.7	12.3	5.9	10.0	8.2	5.8	15.3	13.3	12.9
CV	8.4			4.3			3.5			

¹ Morris 2010 was a fungicide-treated trial.

² Waseca 2011 was abandoned to due excessive field variability; 2-year data are 2009-2010 average.

Entries are listed by the name under which they are submitted for testing, which may be either variety or brand.

Table 6. Relative grain yield of hard red spring wheat varieties in Minnesota in single-year (2011) and multiple-year comparisons (2009-2011).

Variety	State			North			South		
	2011	2-Year	3-Year	2011	2-Year	3-Year	2011	2-Year	3-Year
Ada	98	97	97	99	99	99	93	89	91
Albany	115	119	117	114	118	116	118	119	119
Barlow	103	99	99	102	97	98	107	105	102
Blade	99	98	98	101	100	100	94	93	94
Breaker	100	100	100	100	101	100	98	98	99
Brennan	91	94	97	91	94	95	93	96	102
Brick	97	95	95	97	95	95	94	94	93
Briggs	102	96	96	101	94	94	110	102	99
Brogan	102	100	100	101	99	99	108	104	104
Cromwell	101	100	99	100	99	99	106	105	101
Edge	91	—	—	91	—	—	91	—	—
Faller	107	111	112	107	110	112	107	114	113
Glenn	97	92	91	98	92	91	90	92	92
Jenna	102	105	105	100	103	103	111	111	110
Kelby	91	93	92	92	94	93	84	89	90
Knudson	107	104	104	105	103	103	115	109	105
Marshall	86	88	89	89	90	90	75	84	86
Oklee	100	96	97	99	95	95	104	100	102
Pivot	101	101	—	100	103	—	104	95	—
Prosper	109	109	110	110	110	111	106	105	107
RB07	96	99	100	95	99	100	98	99	99
Rollag	92	96	96	96	99	99	74	86	88
Rollag (1.3X)	95	97	—	98	99	—	83	94	—
Sabin	100	100	100	98	98	99	107	106	104
Samson	109	108	107	109	108	108	110	106	105
Select	104	99	99	101	97	97	115	107	104
SY-Soren	97	—	—	97	—	—	97	—	—
Tom	96	94	95	97	95	96	91	93	94
Vantage	101	102	101	103	102	101	97	103	102
Velva	97	97	99	97	99	100	98	93	95
WB-Digger	101	100	—	103	103	—	96	92	—
WB-Lyn	93	98	—	93	99	—	94	96	—
WB-Mayville	101	—	—	102	—	—	97	—	—
Mean (Bu/Acre)	62.2	70.0	70.8	69.3	75.7	78.1	44.3	57.6	57.2
LSD (0.10)	5.9	4.0	3.2	6.7	4.5	3.6	11.6	7.5	6.1
No. of Environments	10	22	31	7	15	20	3	7	11

Entries are listed by the name under which they are submitted for testing, which may be either variety or brand.

Table 7. Grain yield (bushels per acre) of hard red spring wheat varieties grown under conventional (Conv) and intensive (Int) management.

Variety	North						South						State					
	2011		2-Year		3-Year		2011		2-Year		3-Year		2011		2-Year		3-Year	
	Conv	Int	Conv	Int	Conv	Int	Conv	Int	Conv	Int	Conv	Int	Conv	Int	Conv	Int	Conv	Int
Ada	70.9	80.1	73.6	80.0	75.6	81.8	40.4	40.1	48.9	48.3	50.8	51.0	55.7	60.1	63.0	66.4	63.6	66.4
Albany	70.2	82.9	76.9	80.6	81.1	85.6	45.4	48.1	55.8	61.5	59.8	67.3	57.8	65.5	67.9	72.4	70.8	76.5
Barlow	67.9	77.1	66.4	76.0	71.2	79.5	43.5	42.3	56.2	58.6	56.3	60.6	55.7	59.7	62.0	68.5	64.0	70.0
Blade	69.2	79.0	69.5	79.2	73.0	81.0	39.6	41.9	50.2	51.1	51.7	54.3	54.4	60.4	61.2	67.2	62.4	67.7
Breaker	70.1	82.3	71.6	79.1	75.2	81.5	41.4	37.5	52.5	52.6	54.2	55.2	55.8	59.9	63.4	67.7	65.1	68.4
Brennan	66.6	79.3	65.2	74.6	69.0	79.2	36.2	33.8	50.0	50.1	54.7	57.4	51.4	56.5	58.6	64.1	61.8	68.3
Brick	63.8	75.2	65.0	74.3	66.3	76.9	40.0	40.2	49.8	53.3	50.6	55.4	51.9	57.7	58.5	65.3	58.7	66.2
Briggs	70.6	78.0	66.1	73.6	69.9	76.6	46.5	46.0	56.6	58.3	54.9	58.8	58.6	62.0	62.0	67.0	62.4	67.7
Brogan	73.6	88.1	68.1	78.1	71.4	80.5	44.1	46.1	54.5	55.9	57.3	58.7	58.9	67.1	62.3	68.6	64.3	69.6
Cromwell	68.1	76.8	70.6	80.6	74.1	82.4	42.4	41.7	54.6	56.1	54.9	57.4	55.2	59.2	63.7	70.1	64.5	69.9
Edge	65.2	75.0	—	—	—	—	36.4	42.8	—	—	—	—	50.8	58.9	—	—	—	—
Faller	76.4	91.2	78.5	90.2	84.1	93.9	45.5	46.7	57.7	59.2	61.2	64.9	60.9	69.0	69.6	76.9	72.6	79.4
Glenn	70.1	72.0	64.0	68.1	66.3	69.9	36.4	41.7	51.0	57.9	50.6	57.0	53.3	56.8	58.4	63.7	58.4	63.5
Jenna	68.2	83.4	70.0	82.5	74.5	86.0	44.6	45.5	56.4	54.1	58.0	59.4	56.4	64.5	64.2	70.3	66.3	72.7
Kelby	68.0	74.7	66.5	69.6	68.0	71.2	32.4	35.3	44.6	48.0	45.9	49.7	50.2	55.0	57.1	60.4	57.7	60.4
Knudson	70.2	81.7	71.6	80.8	76.0	84.6	45.4	38.5	58.5	56.9	58.3	59.4	57.8	60.1	66.0	70.6	67.1	72.0
Marshall	59.3	75.7	63.3	75.5	67.2	78.9	30.6	37.3	42.8	51.0	48.1	55.8	45.0	56.5	54.5	65.0	58.0	67.3
Oklee	71.3	79.5	68.1	73.0	71.3	74.7	42.2	39.5	53.1	54.1	56.0	57.4	56.8	59.5	61.7	64.9	63.9	66.0
Pivot	72.7	79.9	73.2	81.0	—	—	40.9	40.3	49.4	49.7	—	—	56.8	60.1	63.0	67.6	—	—
Prosper	71.3	89.2	76.3	87.3	81.5	91.7	43.1	46.7	52.0	57.6	56.5	65.0	57.2	68.0	65.9	74.6	69.4	78.4
RB07	66.5	76.4	67.6	80.0	71.6	82.6	39.7	37.4	47.5	47.6	50.8	53.3	53.1	56.9	59.0	66.1	61.2	67.9
Rollag	69.6	81.8	71.1	82.4	74.7	83.0	31.7	38.8	42.9	47.8	46.0	52.4	50.7	60.3	59.0	67.5	60.4	67.7
Rollag (1.3X)	73.0	83.3	72.9	82.4	—	—	36.6	38.5	47.4	50.0	—	—	54.8	60.9	62.0	68.5	—	—
Sabin	69.8	82.4	69.1	82.4	72.1	85.2	41.0	38.4	54.8	52.8	54.9	58.0	55.4	60.4	62.9	69.7	63.5	72.1
Samson	76.6	86.7	78.0	86.8	83.0	89.4	42.7	43.9	52.6	58.6	55.1	60.1	59.7	65.3	67.1	74.7	69.5	74.7
Select	73.2	78.3	68.1	71.2	71.7	75.3	48.0	40.3	57.4	54.5	56.4	57.6	60.6	59.3	63.5	64.0	64.3	67.1
SY-Soren	71.4	82.3	—	—	—	—	41.0	39.3	—	—	—	—	56.2	60.8	—	—	—	—
Tom	70.1	77.4	67.2	73.6	69.8	75.0	38.4	35.8	49.2	45.6	50.4	50.1	54.3	56.6	59.5	61.6	60.1	62.6
Vantage	77.6	86.5	75.2	82.2	78.6	85.9	37.8	39.4	49.3	50.0	54.4	54.6	57.7	63.0	63.5	68.4	66.1	70.3
Velva	60.1	72.7	64.3	73.5	69.4	77.8	39.5	39.8	47.9	51.9	50.5	55.5	49.8	56.3	57.3	64.2	60.3	66.6
WB-Digger	74.9	84.7	75.1	81.7	—	—	40.8	40.8	51.8	49.1	—	—	57.9	62.8	65.1	67.7	—	—
WB-Lyn	52.8	69.4	60.4	75.6	—	—	36.8	41.2	48.1	52.6	—	—	44.8	55.3	55.2	65.7	—	—
WB-Mayville	73.2	86.9	—	—	—	—	39.8	38.1	—	—	—	—	56.5	62.5	—	—	—	—
Mean (Bu/Acre)	69.5	80.3	69.8	78.5	73.3	81.2	40.3	40.7	51.4	53.1	53.8	57.2	54.9	60.5	61.9	67.7	63.7	69.2
LSD (0.10)	7.9	7.3	6.3	6.9	5.5	5.7	4.3	6.1	4.5	6.8	4.6	5.2	4.8	4.9	4.5	5.2	3.7	4.1
No. of Environments	2	2	4	4	5	5	2	2	3	3	5	5	4	4	7	7	10	10

Entries are listed by the name under which they are submitted for testing, which may be either variety or brand.