

Small grain varieties for grain and forage in Wisconsin

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Performance trials for small grain varieties are conducted each year at several locations throughout Wisconsin (table 1). Trials include released varieties, experimental lines from Wisconsin and neighboring states, and lines from private seed companies. The primary objective of these trials is to obtain data on how varieties perform in different locations and years. Growers use these data to help them in their choice of varieties to plant, and breeders use performance data to determine whether or not to release a new variety.

New varieties developed and released in Wisconsin are automatically entered in the Wisconsin Certification Program. These varieties have demonstrated superior production qualities. In addition, superior varieties from other states may be recommended and/or certified in the state. As new varieties are released to the public, older varieties with inferior qualities are removed from the recommended list and

eventually dropped from the certified list as seed production declines.

Occasionally, varieties are certified without being recommended to Wisconsin growers. Varieties in this category may include commercial varieties developed by private seed companies or varieties where there is a substantial market for Wisconsin-produced seed. Thus, in Wisconsin, recommendation and certification do not mean the same thing. Recommended varieties are those with superior in-state production performance records, while certification provides the assurance of seed purity and seed quality.

VARIETY SELECTION

Factors to consider when selecting small grain varieties include grain or forage yield, maturity, straw strength, and disease resistance. Disease ratings



Table 1. Location and agronomics of small grain variety trials in Wisconsin

Location	Cooperators	Soil type	Row spacing (inches)	Average nitrogen applied (lb/a)	Planting date	Harvest date
Arlington (wheat)	M. Martinka, J. Gaska	silt loam	7.5	100	Sept. 19	July 24
Arlington (barley, oat)	P. Ehrhardt, J. Albertson	silt loam	6.0	50	April 16	July 31
Ashland **		red clay	8.0	60	—	—
Chilton (wheat)	Kolbe Seeds, M. Glewen	red clay	7.5	100	Sept. 28	July 27
Chilton (barley, oat)	Kolbe Seeds, M. Glewen	red clay	12.0	75	May 22	Aug. 15
Janesville	Rock Co. Farm, D. Nehring	silt loam	7.5	100	Sept. 27	July 19
Lancaster	T. Wood	silt loam	7.5	*	April 26	July 24
Madison	R. Duerst	silt loam	6.0	*	April 17	July 23
Marshfield	M. Bertram	silt loam	6.0	54	May 14	Aug. 5
Racine	Henderson Seeds	silt loam	7.5	66	Oct. 2	July 16
Spooner	R. Rand	sandy loam	8.0	66	May 3	Aug. 2
Sturgeon Bay	R. Weidman	silt loam	12.0	48	May 14	Aug. 15

*Nitrogen credited from previous alfalfa or soybean.

**Discontinued.

are performed by the Department of Agronomy for oats and barley. Winter-hardiness should be taken into account when selecting a winter wheat variety, and barley growers should consider whether or not a variety is acceptable for malting. Several varieties are now being evaluated for forage yield (tables 4 and 7).

The following tables describe small grain varieties and give performance data for the past 3 years in Wisconsin. Remember, variety performance is greatly influenced by weather, thus it is important to review previous growing seasons.

2002 Season. Growing conditions in 2002 were fair to good for winter wheat and spring-planted grains. Winter survival of wheat was excellent due to adequate snow cover and moderate temperatures. Exceptionally cool conditions in May slowed plant growth and drier conditions during July reduced yield at many locations, especially in southern Wisconsin.

Wisconsin moved from a third place ranking in oat production to second place, behind Minnesota. A jump in the number of harvested acres moved the total production from 12.5 million bushels last year to 15.0 million bushels this year. There were 250,000 acres of oats harvested with yields dropping 4 bushels to 60 bushels per acre.

Increased acreage was planted to wheat in 2002, allowing total production to show an increase despite a lower yield. There were 177,000 acres harvested for grain with a yield of 60.9 bushels per acre, declining 3.2 bushels from 2001. Of the total acres, winter wheat accounted for 170,000 acres harvested for grain. Winter wheat production was 10.5 million bushels with an average yield of 62 bushels per acre.

Barley acreage in Wisconsin increased from last year, but was still lower than 2 years ago. Farmers harvested 40,000 acres for grain. Yields fell 7 bushels from 2001 and 19 bushels per acre from 2000.

Source: USDA National Agricultural Statistics Service (USDA-NASS). Agricultural Statistics Database

2001 Season. Growing conditions were excellent for winter wheat with location average yields ranging from 71 to 101 bushels per acre. For spring small grains excessive moisture during planting and harvest delayed field operations. Drier conditions during July reduced yield at many locations, especially in northeastern

Wisconsin. Statewide, production of barley, oat, and spring wheat fell 43, 34, and 14% from 2000 production levels, mostly due to reduced acreage. Winter wheat production increased 24% due to both increased acreage (19%) and yield (3%) from 2000 production levels.

2000 Season. Hail, high winds, and excess moisture characterized small grain growing conditions during 2000. Small grain variety trials at Chilton were lost due to hail. The yields at the Janesville site were influenced by excess moisture. Drier conditions in early spring and late summer allowed for earlier planting dates and provided good harvesting conditions.

Small grain farmers produced record-high yields. Wisconsin farmers produced 19.0 million bushels of oats, up 2% from 1999. Oat yield increased 6 bushels from 1999 to 68 bushels per acre. Winter wheat production totaled 8.37 million bushels on 135,000 harvested acres. Winter wheat yield was 62 bushels, up 2 bushels from 1999. Spring wheat and barley averaged 45 and 64 bushels/acre.

Licensed Varieties

The Wisconsin Agricultural Experiment Station has granted sole authority to the Wisconsin Crop Improvement Association to issue formal licenses for the production of certified seed of Chilton and Kewaunee barley; Bay, Belle, Dane, ForagePlus, Gem, Horicon, Prairie, and Vista oats; Spooner rye; and Glacier winter wheat. The Wisconsin Alumni Research Foundation has granted sole authority to the Wisconsin Crop Improvement Association to issue formal licenses for the production of certified seed of Moraine oat. These procedures are intended to reinforce Plant Variety Protection regulations and to generate research and development funds for the Wisconsin small-grain breeding program. These varieties are "protected" and "licensed" and can be marketed only as certified seed. Each bag of seed will have a special red and white Licensed Variety tag attached or preprinted on the bag.

Testing agencies

The small grain variety tests were conducted by the Department of Agronomy, College of Agricultural and Life Sciences and the University of Wisconsin-Extension in cooperation and with support from the Wisconsin Crop Improvement Association.

ADDITIONAL INFORMATION

Check the following publications for additional information on small grain production and seed availability. They are available at your county Extension office.

Pest Management in Wisconsin Field Crops
(A3646)—updated annually

The Wisconsin Certified Seed Directory

For information on seed availability of public varieties, contact the Wisconsin Crop Improvement Association, 554 Moore Hall, 1575 Linden Drive, Madison, WI 53706, (608) 262-1341, www.wisc.edu/wcia/.

OAT

Table 2. Oat variety descriptions

Variety	Origin	Year released	Kernel color	Maturity ^a		Lodging	Test wt ^c (lb/bu)	Kernel protein	Disease resistance ^d						PVP ^f	Wis. cert.
				(head date)	Ht ^b (in.)				Leaf rust	Stem rust	Sep-toria	Smut	BYDV ^e			
Recommended varieties																
Belle	Wisconsin	1995	yellow	6-30	39	strong	36	low	R	I	I	R	I	yes	yes	
Dane	Wisconsin	1990	yellow	6-21	36	med	35	med	I	I	S	R	I	yes	yes	
Gem	Wisconsin	1996	yellow	6-26	40	med	36	med	R	R	—	S	R	yes	yes	
Jim	Minnesota	1996	yellow	6-23	39	med	37	med	I	I	—	—	R	no	yes	
Moraine	Wisconsin	2001	yellow	6-23	40	med	36	med	R	—	—	R	I	yes	yes	
Richard	Minnesota	2000	yellow	6-25	43	strong	35	med	R	R	—	I	I	yes	no	
Sesqui	Minnesota	2001	yellow	6-30	40	med	35	med	I	—	—	R	I	yes	no	
Vista	Wisconsin	1999	yellow	6-28	42	med	35	low	R	R	—	—	I	yes	yes	
Wabaska	Minnesota	2001	white	6-25	40	med	34	med	R	—	—	R	I	yes	yes	
Other varieties																
Bay	Wisconsin	1993	yellow	late	med	med	low	high	S	S	I	I	R	yes	no	
Blaze	Illinois	1997	tan	med	med	strong	high	—	S	S	—	—	R	yes	no	
Hazel	Illinois	1985	tan	med	med	med	med	med	S	S	S	S	R	no	no	
Horicon	Wisconsin	1989	tan	med	med	med	med	med	I	I	S	R	I	yes	no	
Milton	Minnesota	1994	yellow	late	med	strong	med	med	I	I	—	I	I	yes	no	
Ogle	Illinois	1981	yellow	med	med	med	med	low	S	S	S	S	R	no	yes	
Porter	Indiana	1982	tan	late	med	med	med	med	S	I	R	R	I	yes	no	
Prairie	Wisconsin	1992	tan	med	med	med	med	low	S	I	R	I	R	yes	no	
Riser	S. Dakota	1998	yellow	early	short	strong	high	—	R	R	—	R	I	yes	no	
Robert	Canada	—	—	late	tall	weak	low	—	S	S	—	—	—	no	no	
Troy	S. Dakota	1991	white	med	med	med	high	med	I	R	—	R	I	no	no	

^a Maturity (month-day) as indicated by heading date in 19 Wisconsin tests conducted 2000–2002. Varieties with generalized ratings indicate the following: early = before June 23, med = June 23–27, late = after June 27.

^b Height (inches) at maturity in 21 Wisconsin tests conducted 2000–2002. Varieties with generalized ratings indicate the following: short = <33 inches, med = 33–40 inches, tall = >40 inches.

^c Test weight (pounds/bushel) in 21 Wisconsin tests conducted 2000–2002. Varieties with generalized ratings indicate the following: low = <32 lb/bu, med = 32–34 lb/bu, high = >34 lb/bu.

^d Disease resistance: R = resistant or moderately resistant, I = intermediate or some tolerance, S = moderately susceptible or susceptible.

^e BYDV=Barley yellow dwarf virus or red leaf disease.

^f PVP=Plant Variety Protection. A “yes” indicates that these varieties cannot be reproduced and sold as seed by variety name without certification.

— = information not available.

Variety	Mean	Southern			Northern			Ashland	Marsh- field
		Arlington	Lancaster	Madison	Chilton	Spooner	Sturgeon Bay		
2002 YIELDS									
—2002 yields (bu/a)—									
Early maturing									
Dane	100*	173*	108*	151*	69*	62*	67	—	70
Jim	94	164	100	142	63	52	76	—	63
Moraine	97*	157	102*	148*	65	60*	78	—	71*
Midseason									
Gem	100*	162	103*	145*	59	66*	94*	—	73*
Ogle	100*	162	107*	144*	56	58*	99*	—	75*
Richard	100*	158	113*	139	66*	67*	90*	—	67
Wabasha	96	159	88	137	66*	60	92	—	68
Mid- to late-season									
Vista	100*	142	115*	147*	66*	65*	83*	—	80*
Late maturing									
Belle	101*	160	113*	149*	74*	54	87*	—	68
Sesqui	100*	159	103*	145*	65	63	95	—	70
Mean	99	160	105	145	65	61	86	—	70
LSD (0.05) ^a	4	8	14	8	8	10	16	—	9
HISTORIC YIELDS									
—2000–2002— 2000–2001 2000,2002									
Early maturing									
Dane	102	148	97*	119	73	85*	113	105	67
Jim	102	154*	91	124	74	84*	121*	97	59
Moraine	105*	154*	98*	127*	76	85*	109	116*	68
Midseason									
Gem	105*	147	95*	124	77	83*	123*	108*	70
Ogle	102	141	94*	117	67	85*	125*	112*	69
Richard	101	153*	98*	130*	73	83*	96	106	57
Mid- to late-season									
Vista	106*	141	102*	122	79*	83*	117	113*	81*
Late maturing									
Belle	104*	150*	93*	126*	84*	79*	112	114*	64
Mean	103	148	96	124	75	83	115	109	67
LSD (0.05) ^a	2	4	6	5	6	7	8	8	8

*Varieties not significantly different from the highest yielding variety in the trial.

^aThe LSD (least significant difference) figures listed under the yield columns are a statistical measure of variation within the trial. If the difference in yield of two varieties is equal to or greater than LSD, the yields are significantly different. If the difference is less than the LSD, the yield difference may have been due to environmental factors.

Table 4. Forage dry matter yield of spring oat varieties harvested at late boot/early heading

OAT

Variety	Yield (t/a)			Harvest date	Crude protein (%)	RFV ^a	Yield (t/a)	Harvest date
	Madison	Arlington	Mean					
	2002				1998,1999,2001		2000–2002	
Belle	2.48	2.44	2.46	6-25	13.2	94.1	2.44	6-22
Dane	1.70	1.75	1.73	6-16	15.1*	96.2	1.70	6-14
ForagePlus	3.07*	2.98*	3.03*	7-1	11.9	89.3	3.37*	6-29
Gem	1.96	2.16	2.06	6-22	14.6	92.6	2.16	6-19
Jim	1.77	2.06	1.92	6-18	15.5*	102.0*	1.99	6-15
Moraine	1.69	1.88	1.79	6-20	15.6*	102.6*	1.86	6-15
Ogle	1.81	1.99	1.90	6-20	15.1*	92.4	1.97	6-18
Richard	1.96	2.27	2.12	6-22	—	—	—	—
Sesqui	2.17	2.35	2.26	6-24	—	—	—	—
Vista	2.28	2.43	2.36	6-23	13.5	89.1	2.51	6-21
Wabasha	2.20	2.31	2.26	6-22	—	—	—	—
LSD (0.05)	0.20	0.18	0.13	0.4	0.6	2.4	0.10	0.3

*Varieties not significantly different from highest yielding variety in the trial.

^aRFV= Relative feed value. Relative feed values can be used to make comparisons among varieties listed in this table, but should not be used to compare with other crops such as alfalfa.

Table 5. Barley variety descriptions

BARLEY

Variety	Origin	Year released	Awns	Quality	Maturity ^a (head date)	Ht ^b (in.)	Lodging ^c (%)	Test wt ^d (lb/bu)	Disease resistance ^e					Spot blotch	PVP ^f	Wis cert.
									Leaf rust	Stem rust	Loose smut	Powd. mildew				
Recommended varieties																
Bounty	Canada	1989	smooth	feed	6-20	36	med	44	I	I	S	R	S	yes	yes	
Drummond	N. Dakota	2001	smooth	malt	6-21	34	med	46	—	R	S	—	R	yes	no	
Hazen	N. Dakota	1984	smooth	feed	6-21	36	med	45	S	R	S	I	R	no	yes	
Kewaunee	Wisconsin	1997	smooth	feed	6-20	36	med	45	R	R	—	R	R	yes	yes	
Lacey	Minnesota	2000	smooth	malt	6-21	34	med	47	—	R	S	—	R	yes	no	
Robust	Minnesota	1983	smooth	malt	6-21	37	med	46	S	I	S	S	R	yes	yes	
Stander	Minnesota	1993	smooth	feed	6-21	34	strong	45	—	R	S	S	R	yes	no	
Other varieties																
Chilton	Wisconsin	1990	smooth	feed	med	med	med	high	R	R	—	R	R	yes	no	
Excel	Minnesota	1990	smooth	malt	early	med	med	med	S	R	S	S	R	yes	no	
MNBrite	Minnesota	1998	smooth	—	med	med	med	high	R	R	S	S	R	no	no	

^aMaturity (month-day) as indicated by heading date in 20 Wisconsin tests conducted 2000–2002. Varieties with generalized ratings indicate the following: early = before June 22, med = June 22–25, late = after June 25.

^bHeight (inches) at maturity in 23 Wisconsin tests conducted 2000–2002. Varieties with generalized ratings were included in other tests and indicate the following: short = <28 inches, med = 28–32 inches, tall = >32 inches.

^cLodging: strong = <15%, med = 15–35%, weak = >35%.

^dTest weight (pounds/bushel) in 23 Wisconsin tests conducted 2000–2002. Varieties with generalized ratings indicate the following: low = <42 lb/bu, med = 42–46 lb/bu, high = >46 lb/bu.

^eDisease resistance: R = resistant or moderately resistant, I = intermediate or some tolerance, S = moderately susceptible or susceptible.

^fPVP = Plant Variety Protection. A “yes” indicates that these varieties cannot be reproduced and sold as seed by variety name without certification.

— = information not available.

BARLEY

Table 6. Barley variety grain yield comparisons in Wisconsin

Variety	Mean	Southern			Northern				
		Arlington	Lancaster	Madison	Ashland	Chilton	Marshfield	Spooner	Sturgeon Bay
2002 YIELDS									
2002 yields (bu/a)									
Bounty	68	121*	54*	88*	—	58*	45*	38*	74
Drummond	65	112	52*	81*	—	57*	43*	37*	74
Hazen	68	115	48	88*	—	60	47*	38*	82*
Kewaunee	71*	123*	52*	89*	—	60*	44*	43*	84*
Lacey	65	122*	51*	87*	—	55	37	34	73
MNBrite	63	111	43	86*	—	46	43*	39*	76*
Robust	63	104	52*	84*	—	53	36	34	76*
Stander	67	115	57*	83*	—	56*	37	38*	79*
Mean	66	115	51	86	—	56	41	38	77
LSD (0.05) ^a	2	6	7	8	—	4	5	6	8
HISTORIC YIELDS									
2000–2002 2000–2001 2000–2002									
Bounty	72	111	57	82	77	57	60	55*	80*
Hazen	73	108	57	89	81*	59	62*	53*	81*
Kewaunee	78*	114*	61*	96*	83*	61*	66*	58*	83*
Lacey	74	113*	57	94*	83*	63*	59	51	74
MNBrite	64	100	45	82	70	47	57	45	67
Robust	70	103	59*	85	80	58	60	50	70
Stander	70	106	58*	85	78*	55	62*	44	80*
Mean	72	108	56	88	79	57	61	51	76
LSD (0.05) ^a	2	2	3	5	5	3	4	5	5

*Varieties not significantly different from highest yielding variety in the trial.

^aThe LSD (least significant difference) figures listed under the yield columns are a statistical measure of variation within the trial. If the difference in yield of two varieties is equal to or greater than the LSD, then the yields are significantly different. If the difference is less than the LSD, then the yield difference may have been due to environmental factors.

BARLEY

Table 7. Forage dry matter yield of barley varieties harvested at late boot/early heading

Variety	Yield (t/a)			Harvest date	Crude protein %	RFV ^a	Yield (t/a)	Harvest date
	Madison	Arlington	Mean					
2002 —1998, 1999, 2001— —2000–2002—								
Hazen	1.51	1.93*	1.72*	6-17	15.3*	94.6*	1.86*	6-13
Kewaunee	1.83*	1.62	1.73*	6-16	15.8*	95.9*	1.87*	6-13
Lacey	1.50	1.55	1.53	6-14	—	—	—	—
LSD (0.05) ^b	0.20	0.18	0.13	0.4	0.6	2.4	0.10	0.3

^a*Varieties not significantly different from highest yielding variety in the trial.

RFV=Relative feed value. Relative feed values can be used to make comparisons among varieties, but should not be used to compare with other crops such as alfalfa.

^bThe LSD (least significant difference) figures listed under the yield columns are a statistical measure of variation within the trial. If the difference in yield of two varieties is equal to or greater than the LSD, then the yields are significantly different. If the difference is less than the LSD, then the yield difference may have been due to environmental factors.

Table 8. Winter rye variety descriptions

RYE

Variety	Origin	Year released	Seed color	Maturity	Height	Straw strength	Test weight	Leaf rust resistance ^a	PVP ^b	Wis. certified
Hancock	Wisconsin	1979	tan	med	tall	good	high	R	no	yes
Spooner	Wisconsin	1993	tan	med	tall	v. good	high	R	yes	yes
Frederick	S. Dakota	1984	tan	med	tall	poor	high	S	no	no

^aLeaf rust resistance: R = resistant or moderately resistant, I = intermediate or some tolerance, S = moderately susceptible or susceptible.

^bPVP = Plant Variety Protection. A "yes" indicates that these varieties cannot be reproduced and sold as seed by variety name without certification.

Table 9. Winter wheat variety descriptions

WHEAT

Variety	Origin	Year released	Type	Awns	Maturity ^a (head date)	Ht. ^b	Stem strength	Test wt. ^c	Disease resistance ^e						Wis. cert.	
									WH ^d	BYDV ^f	Leaf rust	Stem rust	Powd. mildew	Scab		PVP ^g
Bravo	Ohio	2000	soft red	N	early	med	med	high	excel	—	I	—	S	S	Y	N
Cardinal	Ohio	1986	soft red	N	med	tall	strong	med	excel	—	R	—	I	—	Y	Y
Glacier	Wisconsin	1991	soft red	N	med	tall	med	med	excel	R	R	I	—	—	Y	Y
Honey	Ohio	2000	soft red	Y	med	short	med	med	excel	—	S	—	R	MS	N	N
Hopewell	Ohio	1995	soft red	N	early	med	strong	med	excel	—	S	—	I	S	Y	Y
Howell	Illinois	1990	soft red	Y	late	tall	strong	high	good	—	S	I	S	—	Y	Y
Kaskaskia	Illinois	1998	soft red	Y	med	tall	med	high	good	—	I	S	S	R	Y	Y

^aMaturity: early = before May 26, med = May 26–June 1, late = after June 1.

^bHeight at maturity: short = <38 inches, med = 38–40 inches, tall = >40 inches.

^cTest weight: low = <56 lb/bu, med = 56–58 lb/bu, high = >58 lb/bu.

^dWH = winter hardiness.

^eDisease resistance: R = resistant or moderately resistant, I = intermediate or some tolerance, S = moderately susceptible or susceptible.

^fBYDV = barley yellow dwarf virus.

^gPVP = Plant Variety Protection. A "yes" indicates that these varieties cannot be reproduced and sold as seed by variety name without certification.

— = information not available.

Table 10. Performance of winter wheat varieties in Wisconsin (2001–2002)

WHEAT

Brand	Variety	Type ^a	2002 means				2002 yields ^c				2-year ^d mean yield
			Yield	Ht.	Lodging ^b	Test wt.	ARL	JAN	RAC	CHL	
			(bu/a)	(in)		(lb/bu)	(bu/a)				
Public	Bravo	SR	84	39	1	58	99	75	69	93*	86
	Cardinal	SR	81	41	0	57	94	76	65	88	83
	Glacier	SR	70	42	1	56	79	61	59	80	73
	Honey	SR	85	36	1	56	98	80	64	97*	
	Hopewell	SR	78	38	0	56	92	76	57	89	87
	Howell	SR	75	42	0	58	81	65	71	84	79
	Kaskaskia	SR	85	41	1	59	93	80	80	88	84
Agripro	Elkhart	SR	81	41	0	58	93	79	64	88	83
	Patton	SR	86	40	1	58	103	82	77	82	
Diener	DB 491 W	SR	85	41	1	59	94	87	72	88	86
	DB 494 W	SR	88*	41	1	58	98	90	76	88	88
	DB 500 W	SR	87*	42	0	58	96	90	73	90	89
	DXW 1	SR	88*	34	0	58	100	95*	68	90	
	DXW 2	SR	83	42	1	58	93	76	73	90	
	DXW 3	SR	86	39	0	58	91	92*	68	93*	

(continued)

WHEAT

Table 11. Performance of winter wheat varieties in Wisconsin (2001–2002)—*continued*

Brand	Variety	Type ^a	2002 means				2002 yields ^c				2-year ^d mean yield
			Yield	Ht.	Lodging ^b	Test wt.	ARL	JAN	RAC	CHL	
			(bu/a)	(in)		(lb/bu)	(bu/a)				
Trelay	Excel 307	SR	88*	41	1	59	95	92*	74	91	90
	Excel 333	SR	88*	40	1	58	101	86	73	92	
Growmark	FS 450	SR	89*	42	1	59	99	89	79	88	89
	FS 539	SR	89*	41	1	60	100	91	74	91	
	FS 640	SR	84	40	2	58	98	85	74	81	90
	FS 652	SR	89*	36	0	57	103	98*	66	88	
Jung	5880	SR	93*	39	1	59	102	95*	81	94*	94*
	5950	SR	86	40	1	58	101	90	68	83	89
Kaltenberg	KW 34	SR	87	42	0	58	98	87	79	82	89
	KW 38	SR	87*	40	1	58	101	87	76	85	
	KW 39	SR	86	38	1	58	100	91*	66	85	88
	KW 42	SR	83	43	1	58	97	84	65	87	87
	KW 43	SR	90*	34	1	58	103	98*	70	89	92
	KW 44	SR	88*	39	0	58	102	93*	69	89	90
	KW 45	SR	89*	38	0	58	102	93*	74	87	
	KW 46	SR	85	37	0	58	93	85	63	97*	
Pioneer	KW 47	SR	89*	39	1	57	101	80	75	99*	
	25R23	SR	87	38	1	59	92	87	77	92	
	25R37	SR	92*	37	0	59	99	96*	79	95*	96*
	25R49	SR	88*	37	0	58	101	89	70	94*	94*
Pro Seed	25R57	SR	92*	39	0	59	99	91*	82*	96*	95*
	PRO 100	SR	77	37	0	59	77	78	68	84	
Seed-link	PRO 200	SR	92*	41	2	59	112*	79	87*	88	91
	ACS 51013	HR	81	38	1	59	93	80	66	86	
UAP Great Lakes	ACS 98009	HR	78	43	0	57	85	82	64	83	
	ACS 98091	HR	81	37	0	60	95	77	57	93*	
	DG 403	SR	86	39	1	58	98	85	73	87	89
QTI Seeds	DG 419	SR	84	41	1	57	92	80	70	93*	87
	Patriot	HR	73	40	1	59	92	87	77	92	
Public - EXP	Bubba	HR	68	42	1	56	76	62	51	82	
	Daisy	SR	81	38	0	56	85	71	72	94*	
	Lisbo	SR	81	37	0	59	86	79	72	90	
	Titan	HR	78	38	0	57	88	76	58	91	
	Valor	SR	84	41	1	57	100	70	72	94*	
	Vicar	SR	73	35	1	56	84	68	56	84	
	IL 87-2834-1	SR	83	41	0	58	96	80	73	84	
	IN 92145A2-4-6-2-8	SR	84	37	0	58	95	93*	69	80	
IN W 0123	SR	86	41	0	58	99	88	75	82		
OH 645	SR	84	40	0	58	91	84	72	90		
Mean			84	39	1	58	94	83	70	88	88
LSD (0.10)			6.1	1.2	0.8	1.2	5.6	7.2	5.3	6.4	4.3

^aType: SR = soft red winter wheat, HR = hard red winter wheat.

^bBelgian Lodging System rounded to whole number (0=none, 9=severe).

^cARL = Arlington, JAN = Janesville, RAC = Racine, CHL = Chilton.

^dTwo-year mean yields are an eight-test mean including all four sites in 2001 and 2002.

*Varieties not significantly different from the highest yielding variety.

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