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Wisconsin Winter Wheat Performance Trials

2019

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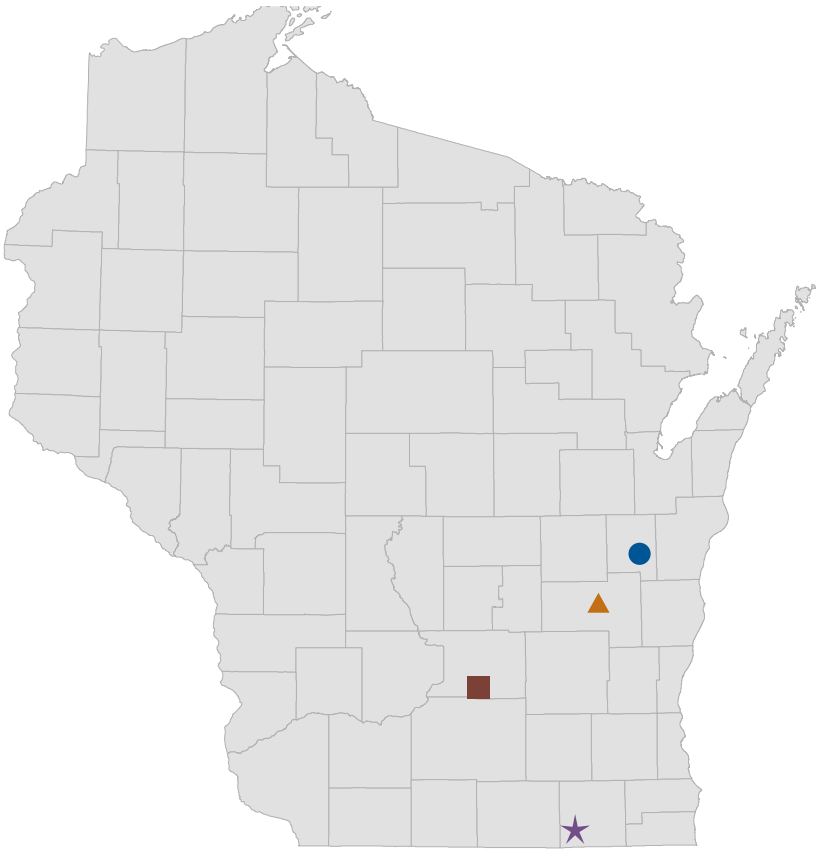
The Wisconsin Winter Wheat Performance Trials are conducted each year to give growers information to select the best-performing varieties that will satisfy their specific goals. The performance trials are conducted each year at four locations in Wisconsin: Arlington, Chilton, Fond du Lac and Sharon. Trials include released varieties, experimental lines from University breeding programs and lines from private seed companies. The primary objective of these trials is to quantify how varieties perform at different locations and across years. Growers can use this data to help select which varieties to plant; breeders can use performance data to determine whether to release a new variety.

Fond du Lac
Cooperator: Ed Montsma
Lomira silt loam
7.5 inch row spacing
Applied 55 lb N/a
Post-emergent herbicide: Huskie
Planted: September 27, 2018
Harvested: July 31, 2019

Arlington
Cooperator: Mike Bertram
Plano silt loam
7.5 inch row spacing
Applied 55 lb N/a
Post-emergent herbicide: Huskie
Planted: September 24, 2018
Harvested: July 24, 2019



Sharon
Cooperator: Mike Cerny
Plano silt loam
7.5 inch row spacing
Applied 55 lb N/a
Post-emergent herbicide: Huskie
Planted: October 14, 2018
Harvested: July 25, 2019

Chilton
Cooperator: Kolbe Seed Farms
Kewaunee loam
7.5 inch row spacing
Applied 55 lb N/a
Post-emergent herbicide: Huskie
Planted: September 28, 2018
Harvested: July 30, 2019

Acreage and Growing Conditions

Wisconsin saw a 14% decrease in winter wheat acres planted (210,000) in the 2018-2019 growing season compared to the previous year; 170,000 acres are forecasted to be harvested for grain, compared to 200,000 in 2018. The forecasted yield for the 2019 crop is 66 bu/a, down 5 bu/a from 2018. Wheat was planted late due to poor fall harvest issues, germinated late and had poor tiller development prior to winter dormancy. This led to some thin spring stands and weed control problems. Wheat broke dormancy in late April and crop development was delayed all season due to near 30 year low GDU accumulation. In general the crop was relatively short in stature. Frequent rainfall events delayed or prohibited many operations to the wheat crop including spring nitrogen, herbicide and fungicide applications.

Overall, winter wheat yield and test weights were below average in 2019. Wheat yields at the Arlington, Chilton, Fond du Lac and Sharon locations averaged 86, 118, 91, and 61 bu/a, respectively.

* Source: USDA National Agricultural Statistics Service (www.nass.usda.gov)

Diseases

Statewide, the major disease of winter wheat in 2019 was Fusarium head blight (FHB) caused by *Fusarium graminearum*. FHB could be found in many fields throughout the state, with incidence and severity depending on variety and location. Even as we moved from the south through to the northern areas of wheat production, we found moderate levels of FHB in some fields. Varieties with genetic resistance to the disease performed well, especially at the Sharon and Arlington variety trial locations. FHB was a less at the Fond du Lac and Chilton locations compared to Sharon and Arlington, but could be easily found in some plots.

Stripe rust was found at the Sharon location and the Fond du Lac locations at extremely low levels. Levels were not high enough to warrant rating. In 2018, stripe rust was not found anywhere in the state, thus it isn't surprising that levels were again very low in 2019.

Tan spot, spot blotch, and leaf rust were present in low levels to moderate levels in some fields throughout the state. Leaf rust was not yield-limiting in 2019. Tan spot and spot blotch were yield limiting in some varieties in the state if the diseases moved up to the flag leaf before or near the heading timing. Powdery mildew was nearly non-existent in the state for the sixth straight season.

Cephalosporium stripe, caused by the fungus *Cephalosporium gramineum*, was prevalent at our Fond du Lac location again in 2019 and present at high levels at the Sharon location. This is the first time we have observed Cephalosporium stripe at the Sharon location, while it is the third year we have observed this disease at the Fond du Lac location. The pathogen causes leaf striping and plant stunting. Cephalosporium stripe is favored by cool wet conditions, reduced tillage, and short rotations.

Using Data to Select Top-Yielding Varieties

As with any crop, variety selection is the most important factor to consider in maximizing winter wheat yield and profitability. When choosing a winter wheat variety, several factors must be considered. These include winter survival, insect and disease resistance, heading date, lodging, test weight and most importantly, yield. Since no variety is ideal for every location, it is important to understand the crop environment and pest complex that affects your specific region to maximize yield.

- **Yield** is based on the genetic potential and environmental conditions in which the crop is grown. Therefore, by diversifying the genetic pool that is planted, a grower can hedge against crop failure. Select those varieties that perform well not only in your area but also across experimental sites and years. This will increase the likelihood that, given next year's environment (which you cannot control), the variety you selected will perform well. (Table 3 gives an overview of yields across all locations.)

- **Test weight** is also an important factor to consider when selecting a variety. The minimum test weight to be considered a U.S. #2 soft red winter wheat is 58 lb./bu. Wheat at lower test weights will be discounted. Both environment and pests may greatly affect test weight; therefore, selecting a variety that has a high test weight potential in your region is critical to maximizing economic gain.

- Select a variety that has the **specific disease resistance** characteristics that fit your cropping needs. By selecting varieties with the appropriate level of resistance, crop yield loss may be either reduced or avoided without the need for pesticides. Careful management of resistant cultivars through crop and variety rotation are required to ensure that these characteristics are not lost.

- **Plant height and lodging potential** are also important varietal characteristics that may be affected by your cropping system. If the wheat crop is intended for grain only, it may be important to select a variety that is short in stature and has a low potential for lodging. This may decrease yield loss due to crop spoilage and harvest loss as well as increase harvesting rate. However, if the wheat crop is to be used as silage or is to be harvested as both grain and straw, then selecting a taller variety may be warranted.

Experimental Procedures

At Planting

Site details: Summarized on page 3.

Seedbed preparation: Conventional and no-till methods.

Seeding rate: 1.75 million seeds per acre.

Seed treatments: Identified in Table 2.

Fertilizer and herbicides: Nitrogen was applied in spring according to UWEX recommendations. Phosphorus and potassium were applied as indicated by soil tests. Herbicides were applied for weed control as necessary.

Planting: A grain drill with a 9 row cone seeder was used to plant the plots, all 25 feet in length. To account for field variability and for statistical analysis, each variety was grown in four separate plots (replicates) in a randomized complete block design at each location.

Midseason

Disease assessments: Foliar disease assessments were made at all trial locations during June at Feekes 10.0 (emerging heads). Assessments were made in the field by visual estimation of incidence (number of plants with symptoms) and average severity (magnitude of damage on plants with symptoms) across the plot using pre-made rating scale diagrams generated using the Severity Pro software (F. Nutter, Iowa State University). Fusarium head blight assessments were made two weeks after the completion of anthesis at all trial locations. Entire plots were visually assessed for Fusarium head blight incidence and severity using pre-made rating scale diagrams.

Harvest

Yield: The center seven rows of each plot were harvested with a self-propelled combine. Grain was weighed and moisture and test weight were determined in the field using electronic equipment on the plot harvester. Yield is reported as bu/a (60 lb/bu) at 13.5% moisture content.

Lodging: Lodging scores were based on the average erectness of the main stem of plants at maturity. 1 = all plants erect, 2 = slight lodging, 3 = plants lodged at 45° angle, 4 = severe lodging, 5 = all plants flat.

Data Presentation

Yield: Listed in Tables 3-7. Data for both 2018 and 2019 are provided if the variety was entered in the 2018 trials.

Least significant difference: Variations in yield and other characteristics occur because of variability in soil and other growing conditions that lower the precision of the results. Statistical analysis makes it possible to determine, with known probabilities of error, whether a difference is real or whether it may have occurred by chance.

Growers can use the appropriate least significant difference (LSD) value at the bottom of the tables to determine true statistical differences. Where the difference between two selected varieties within a column is equal to or greater than the LSD value at the bottom of the column, there is a real difference between the two varieties in nine out of ten instances. If the difference is less than the LSD value, there may still be a real difference, but the experiment has produced no evidence of it. Data that is not significant is indicated by NS.

If an entrant is not listed for a brand, the entry was submitted either by the listed company or by the testing program.

Testing Agencies

The Wisconsin Winter Wheat Performance Trials were conducted by the Departments of Agronomy and Plant Pathology, 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. Both are updated annually.

Pest Management in Wisconsin Field Crops (A3646) available at learningstore.uwex.edu

The Wisconsin Certified Seed Directory available at wcia.wisc.edu

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

To access crop performance testing information electronically, visit: www.coolbean.info

For more information on wheat production please also follow Dr. Conley on Titter @badgerbean

Please click for A Visual Guide to Winter Wheat Development and Growth Staging

Table 1. 2019 Company Information

Brand (Entrant)	Company Name	Phone	Website
AgriMAXX	AgriMAXX Wheat Company	(855) 629-9432	www.agrimaxxwheat.com
AgriPro	AgriPro	(815) 953-2041	agriprowheat.com
CROPLAN	Winfield United	(651) 481-2222	www.winfieldunited.com
Diener	BioTown Seeds Inc.	(219) 984-6038	www.biotownseeds.com
Dyna-Gro	Dyna-Gro Seed	(608) 756-2934	www.dynagroseed.com
FS Wheat	GROWMARK, Inc.	(309) 242-3439	www.fsseed.com/midwest
Jung	Jung Seed Genetics	(608) 330-2511	www.jungseedgenetics.com
Kennel Seed Farms	Kennel Seed Farms	(608) 379-0585	
Kratz Farms	Kratz Farms, LLP	(414) 507-4631	www.kratzfarms.com
KWS Cereals	KWS Cereals	(217) 800-1008	www.kws.com
L-Brand (Ag Pro)	Ag Pro Enterprises, LLC	(920) 904-1758	www.limagraincerealseeds.com
L-Brand (Welter)	Welter Seed and Honey Company	(800) 470-3325	www.welterseed.com
LCS (Albert Lea)	Albert Lea Seed	(800) 352-5247	www.alseed.com
Legacy	Legacy Seeds Inc.	(715) 467-2555	www.legacyseeds.com
Limagrain Cereal Seeds	Limagrain Cereal Seeds	(309) 569-0008	www.limagraincerealseeds.com
Pioneer	Corteva Agriscience	(515) 535-3200	www.pioneer.com
PiP	Partners in Production	(608) 335-2112	www.pipseeds.com
Pro Seed Genetics	Pro Seed Genetics Cooperative	(920) 388-2824	
Public	WI Foundation Seeds	(608) 262-9954	www.wisconsinfoundationseeds.wisc.edu
Van Treeck's	Van Treeck's Seed Farm	(920) 467-2422	
Viking	Albert Lea Seed	(800) 352-5247	www.alseed.com

Table 2. 2019 Entered Varieties and Seed Treatments

Brand (Entrant)	Variety	Seed Treatment(s)
AgriMAXX	413	PRIME ST
	438	PRIME ST
	463	PRIME ST
	475	PRIME ST
	485	PRIME ST
	486	PRIME ST
	495	PRIME ST
	Exp 1902	PRIME ST
AgriPro	SY 100	Vibrance Extreme
	SY 547	CruiserMaxx, Vibrance
	SY 576	None
	SY Viper	Vibrance Extreme
CROPLAN	CP8550	Resonate, Warden Cereals II
	CP9203	Resonate, Warden Cereals II
	CP9415	Resonate, Warden Cereals II
	CP9606	Resonate, Warden Cereals II
Diener	D491W	Resonate, Warden Cereals II
	D498W	Resonate, Warden Cereals II
	D505W	Resonate, Warden Cereals II
	D510W	Resonate, Warden Cereals II
	XW1901	CereUs IM, Take Off
Dyna-Gro	9522	Awaken ST, Foothold Virock
	9701	Awaken ST, Foothold Virock
	9862	Awaken ST, Foothold Virock
	9932	Awaken ST, Foothold Virock
	9941	Awaken ST, Foothold Virock
	WX18416	Awaken ST, Foothold Virock
	WX19711	Awaken ST, Foothold Virock
FS Wheat	FS 599	CruiserMaxx, Vibrance
	FS 601	CruiserMaxx, Vibrance
	FS 603	CruiserMaxx, Vibrance
	FS 615	CruiserMaxx, Vibrance
	FS 624	CruiserMaxx, Vibrance
	FS WX19A	CruiserMaxx, Vibrance
	FS WX19B	CruiserMaxx, Vibrance

Table 2. 2019 Entered Varieties and Seed Treatments

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Brand (Entrant)	Variety	Seed Treatment(s)
Jung	5845	CruiserMaxx, Vibrance Extreme
	5850	CruiserMaxx, Vibrance Extreme
	5855	CruiserMaxx, Vibrance Extreme
	5888	CruiserMaxx, Vibrance Extreme
	5930	CruiserMaxx, Vibrance Extreme
Kennell Seed Farms	KS 1618	Ceres US IM, Senator, thiabendazole
Kratz Farms	KF 15241	CruiserMaxx
	KF 15334	CruiserMaxx
	KF 15639	CruiserMaxx
	KF 553	CruiserMaxx
	KF 667	CruiserMaxx
	KF 727	CruiserMaxx
KWS Cereals	KWS19X09	Cruiser 5FS, Vibrance Extreme
L-Brand (Ag Pro)	L-408	Sativa IM RTU, SabrEx
	L-416	CruiserMaxx, Vibrance
	L-418	Sativa IM RTU, SabrEx
	L-424	Sativa IM RTU, SabrEx
	L-488	Sativa IM RTU, SabrEx
	LCS Ammo	CruiserMaxx, Dividend Extreme
	L-Star	Sativa IM RTU, SabrEx
L-Brand (Welter)	L-334	CruiserMaxx
LCS (Albert Lea)	LCS 3334	None
Legacy	LW 1745	Sativa IM RTU, SabrEx
	LW 1785	CruiserMaxx, Vibrance
	LW 1825	CruiserMaxx, Vibrance
	LWX 1911	Fortimax
	LWX 1921	CruiserMaxx, Vibrance
	LWX 1922	CruiserMaxx, Vibrance
Limagrain Cereal Seeds	L11434	CruiserMaxx, Vibrance
	L11713	CruiserMaxx, Vibrance
	L11719	CruiserMaxx, Vibrance
Pioneer	25R25	LumiGEN
	25R34	LumiGEN
	25R40	LumiGEN
	25R74	LumiGEN
PiP	701	Charter, imidacloprid
	706	Charter, imidacloprid
	714	Charter, imidacloprid
	715	Charter, imidacloprid
	716	Charter, imidacloprid
	721	Charter, imidacloprid
	735	Charter, imidacloprid
	736	Charter, imidacloprid
	744	Charter, imidacloprid
	745	Charter, imidacloprid
	750	Charter, imidacloprid
	754	Charter, imidacloprid
	759	Charter, imidacloprid
	762	Charter, imidacloprid
	763	Charter, imidacloprid
	764	Charter, imidacloprid
	768	Charter, imidacloprid
	769	Charter, imidacloprid
Pro Seed Genetics	PRO 410	CeresUS
	PRO Ex 440A	Charter, imidacloprid
	PRO Ex 450	Charter, imidacloprid
	PRO Ex 460A	Charter, imidacloprid
Public	Harpoon	Warden Cereals II
	Kaskaskia	Metalaxyl, tebuconazole
	Sunburst	Ipconazole, metalaxyl
	Whale	Warden Cereals II
Van Treeck's	Alpha	Resonate, Warden Cereals II
	Bonanza	CruiserMaxx, Vibrance
	Echo	CruiserMaxx, Vibrance
Viking	191	Cruiser 5FS, Vibrance Extreme
	198	Cruiser 5FS, Vibrance Extreme
	207	Cruiser 5FS, Vibrance Extreme

Table 3. 2019 Combined Winter Wheat Performance Trial Results

Brand (Entrant)	Entry	2019 4-test average Yield (bu/a)	2019 4-test average Test wt. (lb/bu)	Arlington Yield (bu/a)	Arlington Test wt. (lb/bu)	Chilton Yield (bu/a)	Chilton Test wt. (lb/bu)	Fond du Lac Yield (bu/a)	Fond du Lac Test wt. (lb/bu)	Sharon Yield (bu/a)	Sharon Test wt. (lb/bu)	2018 3-test average[1] Yield (bu/a)
AgriMAXX	413	86	55.7	80	53.2	118	59.4	88	55.9	60	54.4	* 90
	438	87	55.2	87	53.2	115	58.7	88	56.3	58	52.8	85
	463	87	56.1	* 92	55.2	112	58.1	89	56.6	58	54.8	88
	475	87	57.2	87	56.6	110	57.6	93	57.7	56	57.0	88
	485	89	57.5	87	55.3	118	59.9	91	57.2	60	57.8	* 92
	486	88	57.2	85	55.1	117	60.5	89	56.8	* 63	56.3	88
	495	85	58.2	79	55.6	114	61.6	88	57.9	57	57.8	--
	Exp 1902	88	56.5	84	54.1	120	60.2	88	56.2	57	55.6	--
AgriPro	SY 100	* 93	53.7	88	50.0	121	57.7	* 100	54.6	* 64	52.4	87
	SY 547	* 91	57.5	88	54.9	* 124	61.1	93	57.2	60	56.8	87
	SY 576	87	56.6	88	56.3	114	58.7	82	55.8	61	55.7	--
	SY Viper	* 93	57.0	88	54.0	* 129	60.7	* 96	57.3	62	56.0	--
CROPLAN	CP8550	87	57.2	81	53.9	119	61.2	88	57.3	61	56.6	88
	CP9203	90	56.6	* 89	55.0	116	58.5	93	57.1	61	55.6	--
	CP9415	* 94	56.9	* 90	55.0	* 125	60.7	* 96	56.5	* 66	55.3	88
	CP9606	90	55.9	87	53.9	113	58.2	* 97	56.8	* 65	55.0	86
Diener	D491W	90	55.9	* 90	54.6	112	58.4	* 95	56.1	* 63	54.3	* 94
	D498W	89	57.3	87	56.0	114	58.1	92	57.8	* 64	57.4	* 92
	D505W	89	57.3	87	56.0	118	60.5	91	56.5	60	56.1	* 90
	D510W	90	57.5	* 90	55.3	116	60.7	88	57.5	* 65	56.4	--
	XW1901	* 91	56.4	88	54.7	120	59.7	92	56.3	* 65	55.0	--
Dyna-Gro	9522	88	56.2	85	54.6	113	58.4	93	56.9	60	55.0	* 89
	9701	88	57.1	79	54.0	121	60.6	92	57.0	* 63	57.0	* 89
	9862	* 91	57.4	87	54.8	120	60.7	92	57.2	* 66	56.9	* 91
	9932	87	58.0	84	55.7	120	61.7	85	58.0	59	56.8	--
	9941	90	55.9	88	54.4	119	58.1	90	55.6	61	55.7	* 92
	WX18416	* 91	55.9	84	53.2	119	58.4	* 97	57.0	* 65	55.2	--
	WX19711	89	58.0	86	56.6	116	60.8	92	57.3	* 63	57.4	--
FS Wheat	FS 599	84	59.0	86	58.0	113	61.5	88	58.1	51	58.3	--
	FS 601	90	55.4	* 93	54.1	116	58.4	92	54.9	57	54.3	--
	FS 603	88	57.7	* 91	57.2	110	58.4	* 95	57.8	55	57.7	86
	FS 615	90	56.5	86	55.7	115	59.3	* 94	56.3	* 64	54.9	86
	FS 624	90	57.2	82	53.4	122	61.1	* 95	58.1	59	56.3	* 90
	FS WX19A	* 92	58.1	* 89	54.9	* 126	61.9	* 94	58.1	60	57.5	--
	FS WX19B	* 93	57.0	* 89	55.3	* 124	60.6	* 96	56.6	* 63	55.5	--
Jung	5845	81	55.8	77	51.8	111	59.9	84	57.9	53	53.8	85
	5850	85	54.8	81	50.7	114	58.4	86	56.7	58	53.5	83

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar [1] Fond du Lac was excluded from the multi-test average due to large coefficients of variation caused by Cephalosporium stripe

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Table 3. 2019 Combined Winter Wheat Performance Trial Results

continued from previous page

Brand (Entrant)	Entry	2019 4-test average Yield (bu/a)	2019 4-test average Test wt. (lb/bu)	Arlington Yield (bu/a)	Arlington Test wt. (lb/bu)	Chilton Yield (bu/a)	Chilton Test wt. (lb/bu)	Fond du Lac Yield (bu/a)	Fond du Lac Test wt. (lb/bu)	Sharon Yield (bu/a)	Sharon Test wt. (lb/bu)	2018 3-test average[1] Yield (bu/a)
Jung (cont'd)	5855	87	56.1	81	53.8	120	58.6	87	56.6	59	55.4	88
	5888	* 91	56.4	86	54.2	* 124	60.0	91	56.9	* 63	54.7	86
	5930	84	57.2	80	54.6	114	59.3	84	58.6	59	56.6	85
Kennell Seed Farms	KS 1618	* 94	55.4	* 89	53.0	* 124	58.0	* 97	56.3	* 64	54.4	--
Kratz Farms	KF 15241	* 93	58.0	88	56.1	116	59.9	* 98	58.6	* 68	57.5	* 90
	KF 15334	89	57.2	80	54.2	120	60.2	93	57.7	* 63	56.6	80
	KF 15639	* 91	58.3	* 90	57.0	118	61.3	* 94	58.0	* 63	56.9	87
	KF 553	89	57.3	81	55.3	* 123	60.2	93	58.0	59	55.8	78
	KF 667	* 93	56.6	* 89	54.3	* 123	59.2	93	57.0	* 68	55.9	--
	KF 727	* 92	56.7	* 91	54.9	120	59.1	* 94	57.1	* 64	55.7	77
KWS Cereals	KWS19X09	87	54.9	87	52.3	117	57.8	89	55.8	56	53.8	--
L-Brand (Ag Pro)	L-408	83	56.0	79	53.5	112	59.3	88	56.7	55	54.6	81
	L-416	88	56.6	84	53.8	112	59.2	90	56.9	* 63	56.4	85
	L-418	90	59.0	* 93	57.3	117	61.5	90	58.7	58	58.3	84
	L-424	82	55.5	78	52.5	109	58.9	86	56.3	55	54.5	81
	L-488	82	57.0	77	54.8	108	58.9	88	58.2	57	56.2	81
	LCS Ammo	82	56.7	78	55.6	111	56.6	85	57.4	55	56.9	--
	L-Star	* 94	55.5	88	53.4	* 128	58.3	* 99	56.2	62	54.0	* 91
L-Brand (Welter)	L-334	87	57.5	80	55.0	119	60.4	88	58.0	61	56.7	84
LCS (Albert Lea)	LCS 3334	84	56.7	79	53.9	114	59.6	88	58.0	54	55.4	--
Legacy	LW 1745	89	57.2	* 90	56.4	116	59.2	91	56.7	60	56.2	88
	LW 1785	89	57.5	86	55.2	122	60.9	90	57.3	59	56.5	88
	LW 1825	90	57.5	* 90	56.0	117	60.6	90	57.2	61	56.2	--
	LWX 1911	* 92	57.0	* 89	55.4	120	60.2	* 97	56.8	* 63	55.7	--
	LWX 1921	88	55.6	* 90	55.0	114	57.8	93	55.2	55	54.5	--
	LWX 1922	89	55.9	86	53.5	119	58.8	89	55.6	* 64	55.8	--
Limagrain Cereal Seeds	L11434	* 92	57.6	* 94	56.1	113	59.0	* 94	57.9	* 67	57.1	--
	L11713	89	57.7	85	56.1	119	60.4	93	57.8	60	56.6	--
	L11719	* 91	56.5	* 90	54.8	122	60.5	* 94	56.0	58	54.9	* 94
Pioneer	25R25	* 92	55.8	* 90	54.7	120	56.9	* 94	56.6	* 66	55.1	--
	25R34	90	55.8	83	53.4	122	58.9	* 94	56.1	* 63	55.0	--
	25R40	* 92	56.7	* 91	54.7	121	60.4	93	56.4	* 63	55.5	--
	25R74	* 94	57.1	* 94	55.8	118	59.8	* 96	57.0	* 66	56.0	--
PiP	701	* 91	54.3	87	51.4	119	56.5	* 94	56.0	* 63	53.3	--
	706	* 91	57.6	88	55.5	121	61.1	93	56.9	* 63	56.9	* 89
	714	* 92	57.3	* 89	55.2	122	60.9	* 94	56.6	62	56.6	* 92

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar [1] Fond du Lac was excluded from the multi-test average due to large coefficients of variation caused by Cephalosporium stripe

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Table 3. 2019 Combined Winter Wheat Performance Trial Results

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Brand (Entrant)	Entry	2019 4-test average Yield (bu/a)	2019 4-test average Test wt. (lb/bu)	Arlington Yield (bu/a)	Arlington Test wt. (lb/bu)	Chilton Yield (bu/a)	Chilton Test wt. (lb/bu)	Fond du Lac Yield (bu/a)	Fond du Lac Test wt. (lb/bu)	Sharon Yield (bu/a)	Sharon Test wt. (lb/bu)	2018 3-test average[1] Yield (bu/a)
PIP (cont'd)	715	89	57.1	79	53.9	* 125	60.6	91	56.9	* 63	57.0	* 90
	716	87	55.4	* 90	53.6	112	58.3	88	55.3	60	54.6	88
	721	* 93	55.8	* 91	53.9	122	59.1	* 97	56.6	62	53.9	88
	735	* 92	55.8	* 92	54.5	118	58.5	* 96	55.7	61	54.3	* 94
	736	* 92	58.5	* 92	58.0	119	60.2	92	58.0	* 66	57.8	* 90
	744	87	55.1	80	51.9	116	59.0	* 95	55.7	58	53.6	* 90
	745	* 91	57.5	* 92	56.7	118	58.8	93	57.1	62	57.6	* 91
	750	* 95	58.2	* 92	56.0	* 125	61.1	* 99	57.6	62	57.9	86
	754	* 92	56.4	* 91	54.4	* 125	60.3	89	56.0	* 63	55.0	* 93
	759	90	54.7	80	51.0	* 123	57.2	93	55.6	* 66	54.9	--
	762	* 93	58.1	* 94	56.0	* 123	61.6	90	57.8	* 63	57.2	--
	763	89	56.2	87	54.6	116	58.8	90	55.2	62	56.0	--
	764	90	58.1	* 91	57.5	118	59.0	91	58.0	61	57.8	--
	768	86	58.1	84	55.1	113	60.7	87	58.3	59	58.3	--
	769	90	56.0	87	54.8	120	58.3	92	56.2	60	54.6	--
Pro Seed Genetics	PRO 410	86	57.4	83	54.9	111	60.6	90	57.7	60	56.7	88
	PRO Ex 440A	87	54.9	85	51.8	117	58.9	84	55.1	61	53.7	88
	PRO Ex 450	* 92	58.1	* 90	56.2	* 125	61.0	85	57.3	* 67	58.0	--
	PRO Ex 460A	89	58.3	* 91	57.6	112	60.4	92	58.2	61	56.8	--
Public	Harpoon	* 91	56.2	* 92	55.3	119	58.9	93	55.7	58	54.9	88
	Kaskaskia	82	58.1	80	57.0	108	59.3	85	58.5	56	57.6	81
	Sunburst	85	59.0	78	56.7	117	62.5	88	59.5	58	57.5	78
	Whale	89	56.6	86	55.2	* 123	59.3	88	57.1	59	54.7	86
Van Treeck's	Alpha	* 92	57.0	* 92	55.8	* 123	60.6	92	55.9	61	55.8	* 94
	Bonanza	85	56.4	83	53.1	113	59.5	90	56.6	55	56.6	85
	Echo	87	57.3	* 92	56.5	115	60.3	85	57.5	58	54.7	88
Viking	191	89	55.2	86	53.7	114	56.8	* 95	55.9	61	54.5	--
	198	86	56.1	79	53.8	119	58.9	86	55.6	59	56.1	--
	207	* 91	54.7	88	52.0	121	59.1	* 98	55.0	54	52.9	--
	Mean	**89**	**56.7**	**86**	**54.7**	**118**	**59.5**	**91**	**56.9**	**61**	**55.8**	**87**
	LSD(.10)	**4**	**1.0**	**5**	**1.3**	**6**	**1.0**	**6**	**1.0**	**5**	**1.2**	**5**

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar [1] Fond du Lac was excluded from the multi-test average due to large coefficients of variation caused by Cephalosporium stripe

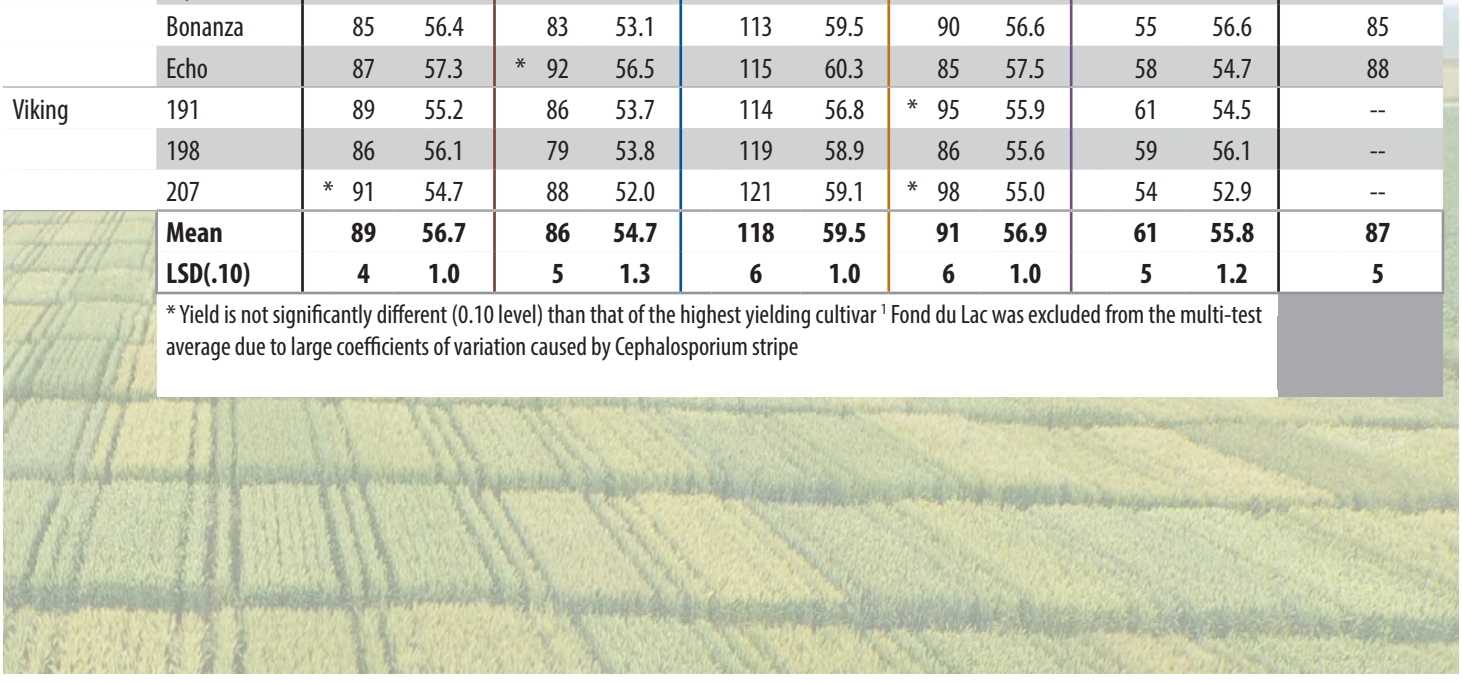

Table 4. 2019 Arlington Winter Wheat Performance Trial Results

		2019 means						2018 means	
		Yield	Test wt.	Height	Lodging	FHB[1]		Yield	Test wt.
Brand (Entrant)	Entry	(bu/a)	(lb/bu)	(in.)	(1-5)	I%[2]	S%[3]	(bu/a)	(lb/bu)
AgriMAXX	413	80	53.2	35	1.0	3	9	92	53.1
	438	87	53.2	39	1.0	8	11	85	51.3
	463	* 92	55.2	34	1.0	0	3	* 93	55.7
	475	87	56.6	34	1.0	1	8	92	56.5
	485	87	55.3	35	1.0	2	11	* 99	55.9
	486	85	55.1	37	1.0	1	6	89	55.8
	495	79	55.6	35	1.0	3	9	--	--
	Exp 1902	84	54.1	35	1.0	4	18	--	--
AgriPro	SY 100	88	50.0	36	1.0	2	8	85	50.1
	SY 547	88	54.9	39	1.0	16	13	92	56.4
	SY 576	88	56.3	37	1.0	3	10	--	--
	SY Viper	88	54.0	38	1.0	11	19	--	--
CROPLAN	CP8550	81	53.9	39	1.0	2	13	91	56.0
	CP9203	* 89	55.0	38	1.0	9	18	--	--
	CP9415	* 90	55.0	35	1.0	19	20	92	54.5
	CP9606	87	53.9	35	1.0	11	20	85	51.9
Diener	D491W	* 90	54.6	35	1.0	2	10	* 95	54.6
	D498W	87	56.0	34	1.0	1	12	* 95	56.8
	D505W	87	56.0	37	1.0	1	10	91	55.4
	D510W	* 90	55.3	34	1.0	1	8	--	--
	XW1901	88	54.7	32	1.0	6	11	--	--
Dyna-Gro	9522	85	54.6	35	1.0	2	13	* 93	53.7
	9701	79	54.0	38	1.0	2	5	* 94	56.0
	9862	87	54.8	35	1.0	1	4	* 95	54.5
	9932	84	55.7	36	1.0	1	14	--	--
	9941	88	54.4	36	1.0	1	10	* 95	54.7
	WX18416	84	53.2	37	1.0	3	11	--	--
	WX19711	86	56.6	34	1.0	1	3	--	--
FS Wheat	FS 599	86	58.0	33	1.0	1	5	--	--
	FS 601	* 93	54.1	36	1.0	1	8	--	--
	FS 603	* 91	57.2	35	1.0	3	6	86	56.5
	FS 615	86	55.7	38	1.0	1	7	84	52.2
	FS 624	82	53.4	37	1.0	10	15	88	54.9
	FS WX19A	* 89	54.9	37	1.0	2	10	--	--
	FS WX19B	* 89	55.3	35	1.0	7	13	--	--
Jung	5845	77	51.8	37	1.0	20	24	87	55.9
	5850	81	50.7	37	1.0	54	34	89	54.1
	5855	81	53.8	37	1.0	21	28	* 94	54.8
	5888	86	54.2	35	1.0	17	15	* 94	55.0
	5930	80	54.6	38	1.0	4	26	89	56.1

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar

[1] Fusarium head blight [2] % incidence [3] % severity

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Table 4. 2019 Arlington Winter Wheat Performance Trial Results

continued from previous page

		2019 means						2018 means	
		Yield	Test wt.	Height	Lodging	FHB[1]		Yield	Test wt.
Brand (Entrant)	**Entry**	(bu/a)	(lb/bu)	(in.)	(1-5)	I%[2]	S%[3]	(bu/a)	(lb/bu)
Kennell Seed Farms	KS 1618	* 89	53.0	37	1.0	32	25	--	--
Kratz Farms	KF 15241	88	56.1	39	1.0	4	19	* 96	57.5
	KF 15334	80	54.2	39	1.0	4	10	80	57.0
	KF 15639	* 90	57.0	42	1.0	21	18	89	57.0
	KF 553	81	55.3	39	1.0	4	10	71	55.3
	KF 667	* 89	54.3	36	1.0	8	8	--	--
	KF 727	* 91	54.9	37	1.0	1	6	76	53.3
KWS Cereals	KWS19X09	87	52.3	36	1.0	3	15	--	--
L-Brand (Ag Pro)	L-408	79	53.5	38	1.0	1	13	82	53.5
	L-416	84	53.8	38	1.0	11	15	89	55.8
	L-418	* 93	57.3	34	1.0	5	18	88	57.8
	L-424	78	52.5	37	1.0	2	10	82	52.9
	L-488	77	54.8	36	1.0	8	24	81	54.5
	LCS Ammo	78	55.6	32	1.0	5	4	--	--
	L-Star	88	53.4	37	1.0	23	14	* 93	54.1
L-Brand (Welter)	L-334	80	55.0	38	1.0	2	12	89	56.6
LCS (Albert Lea)	LCS 3334	79	53.9	39	1.0	2	4	--	--
Legacy	LW 1745	* 90	56.4	35	1.0	1	4	91	56.8
	LW 1785	86	55.2	32	1.0	3	11	* 93	55.6
	LW 1825	* 90	56.0	37	1.0	1	2	--	--
	LWX 1911	* 89	55.4	35	1.0	1	8	--	--
	LWX 1921	* 90	55.0	36	1.0	3	8	--	--
	LWX 1922	86	53.5	36	1.0	2	4	--	--
Limagrain Cereal Seeds	L11434	* 94	56.1	38	1.0	6	14	--	--
	L11713	85	56.1	35	1.0	3	4	--	--
	L11719	* 90	54.8	33	1.0	2	14	* 96	54.9
Pioneer	25R25	* 90	54.7	36	1.0	2	8	--	--
	25R34	83	53.4	37	1.0	3	15	--	--
	25R40	* 91	54.7	33	1.0	4	11	--	--
	25R74	* 94	55.8	34	1.0	2	14	--	--
PiP	701	87	51.4	32	1.0	10	20	--	--
	706	88	55.5	34	1.0	1	3	* 96	54.2
	714	* 89	55.2	36	1.0	3	11	* 95	55.2
	715	79	53.9	38	1.0	2	9	* 96	56.0
	716	* 90	53.6	35	1.0	2	9	91	54.6
	721	* 91	53.9	37	1.0	8	19	89	53.6
	735	* 92	54.5	35	1.0	3	8	* 95	54.5
	736	* 92	58.0	37	1.0	6	14	91	53.2
	744	80	51.9	36	1.0	2	10	* 93	52.8

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar

[1] Fusarium head blight [2] % incidence [3] % severity

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Table 4. 2019 Arlington Winter Wheat Performance Trial Results

continued from previous page

		2019 means						2018 means	
		Yield	Test wt.	Height	Lodging	FHB[1]		Yield	Test wt.
Brand (Entrant)	**Entry**	(bu/a)	(lb/bu)	(in.)	(1-5)	I%[2]	S%[3]	(bu/a)	(lb/bu)
PiP (cont'd)	745	* 92	56.7	36	1.0	2	11	* 93	56.6
	750	* 92	56.0	37	1.0	1	8	86	57.2
	754	* 91	54.4	33	1.0	6	10	* 98	54.8
	759	80	51.0	37	1.0	43	15	--	--
	762	* 94	56.0	37	1.0	1	5	--	--
	763	87	54.6	36	1.0	5	8	--	--
	764	* 91	57.5	35	1.0	1	4	--	--
	768	84	55.1	35	1.0	3	11	--	--
	769	87	54.8	36	1.0	1	8	--	--
Pro Seed Genetics	PRO 410	83	54.9	38	1.0	13	15	86	54.8
	PRO Ex 440A	85	51.8	36	1.0	4	11	* 93	51.3
	PRO Ex 450	* 90	56.2	36	1.0	1	2	--	--
	PRO Ex 460A	* 91	57.6	37	1.0	1	10	--	--
Public	Harpoon	* 92	55.3	35	1.0	1	1	90	55.1
	Kaskaskia	80	57.0	43	1.0	31	19	76	55.3
	Sunburst	78	56.7	33	1.0	7	18	81	56.6
	Whale	86	55.2	37	1.0	15	19	92	54.5
Van Treeck's	Alpha	* 92	55.8	32	1.0	9	10	* 96	54.9
	Bonanza	83	53.1	40	1.0	3	20	88	55.6
	Echo	* 92	56.5	36	1.0	1	5	92	56.3
Viking	191	86	53.7	35	1.0	2	11	--	--
	198	79	53.8	34	1.0	4	13	--	--
	207	88	52.0	35	1.0	26	25	--	--
	Mean	**86**	**54.7**	**36**	**1.0**	**6**	**12**	**89**	**55.1**
	LSD (.10)	**5**	**1.3**	**2**	**NS**	**11**	**8**	**6**	**1.2**

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar

[1] Fusarium head blight [2] % incidence [3] % severity

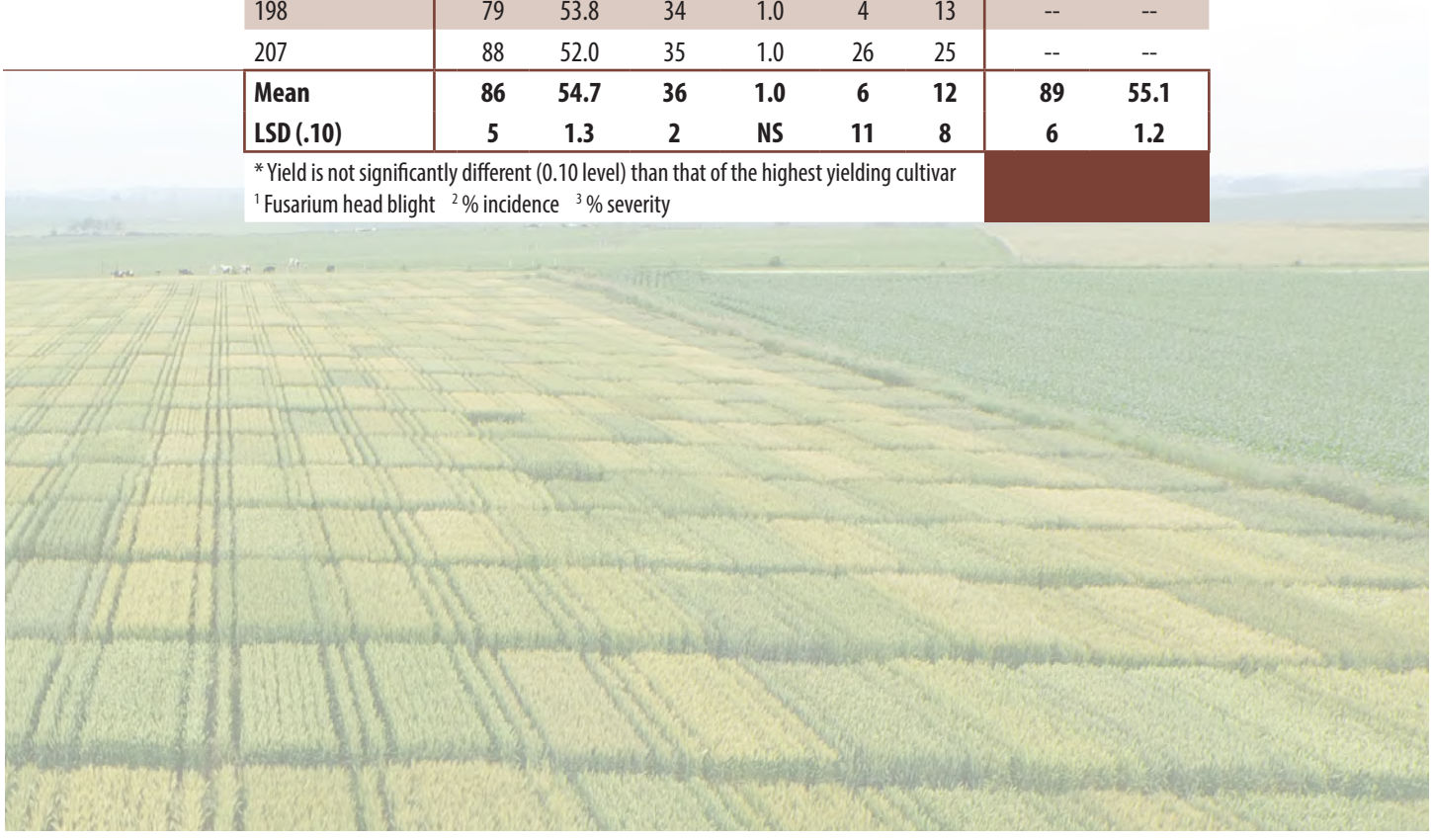

Table 5. 2019 Chilton Winter Wheat Performance Trial Results

		2019 means						2018 means	
		Yield	Test wt.	Height	Lodging	FHB[1]		Yield	Test wt.
Brand (Entrant)	Entry	(bu/a)	(lb/bu)	(in.)	(1-5)	I%[2]	S%[3]	(bu/a)	(lb/bu)
AgriMAXX	413	118	59.4	38	2.3	11	10	81	54.9
	438	115	58.7	40	2.8	1	13	* 86	55.3
	463	112	58.1	35	1.3	1	3	73	54.7
	475	110	57.6	35	2.3	3	4	78	56.8
	485	118	59.9	38	2.6	1	3	84	56.2
	486	117	60.5	38	1.5	15	7	80	55.5
	495	114	61.6	38	1.0	12	13	--	--
	Exp 1902	120	60.2	37	2.0	1	8	--	--
AgriPro	SY 100	121	57.7	39	2.5	4	9	* 86	53.0
	SY 547	* 124	61.1	42	1.0	4	9	74	56.7
	SY 576	114	58.7	41	1.8	1	5	--	--
	SY Viper	* 129	60.7	41	2.3	7	12	--	--
CROPLAN	CP8550	119	61.2	39	2.0	2	3	78	56.5
	CP9203	116	58.5	40	3.5	6	4	--	--
	CP9415	* 125	60.7	41	1.8	8	7	78	56.8
	CP9606	113	58.2	38	2.5	10	10	84	55.2
Diener	D491W	112	58.4	38	2.5	30	13	* 89	56.1
	D498W	114	58.1	36	2.0	4	5	81	56.5
	D505W	118	60.5	40	2.5	33	9	81	55.2
	D510W	116	60.7	37	3.3	1	3	--	--
	XW1901	120	59.7	36	2.5	33	10	--	--
Dyna-Gro	9522	113	58.4	40	2.3	15	8	83	55.9
	9701	121	60.6	42	2.5	1	1	76	56.3
	9862	120	60.7	39	2.8	1	1	81	55.7
	9932	120	61.7	40	1.3	6	8	--	--
	9941	119	58.1	40	3.8	13	10	80	55.2
	WX18416	119	58.4	40	3.3	14	25	--	--
	WX19711	116	60.8	36	1.3	30	8	--	--
FS Wheat	FS 599	113	61.5	35	1.5	3	3	--	--
	FS 601	116	58.4	38	3.8	6	11	--	--
	FS 603	110	58.4	37	2.0	2	5	76	56.8
	FS 615	115	59.3	41	2.3	2	13	84	55.7
	FS 624	122	61.1	41	2.0	4	29	84	56.3
	FS WX19A	* 126	61.9	42	1.8	5	5	--	--
	FS WX19B	* 124	60.6	36	2.0	46	16	--	--
Jung	5845	111	59.9	39	2.3	0	0	72	55.9
	5850	114	58.4	42	2.6	5	18	76	57.0
	5855	120	58.6	40	1.5	2	15	78	56.1
	5888	* 124	60.0	40	1.9	2	7	74	56.0
	5930	114	59.3	41	2.5	1	2	73	56.6

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar

[1] Fusarium head blight [2] % incidence [3] % severity

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Table 5. 2019 Chilton Winter Wheat Performance Trial Results

continued from previous page

		2019 means						2018 means	
		Yield	Test wt.	Height	Lodging	FHB[1]		Yield	Test wt.
Brand (Entrant)	**Entry**	(bu/a)	(lb/bu)	(in.)	(1-5)	I%[2]	S%[3]	(bu/a)	(lb/bu)
Kennell Seed Farms	KS 1618	* 124	58.0	41	3.0	19	15	--	--
Kratz Farms	KF 15241	116	59.9	42	2.5	4	8	77	56.9
	KF 15334	120	60.2	44	3.3	3	7	75	57.6
	KF 15639	118	61.3	43	2.8	17	10	78	57.3
	KF 553	* 123	60.2	43	3.0	2	13	76	58.0
	KF 667	* 123	59.2	39	2.5	21	16	--	--
	KF 727	120	59.1	38	1.8	16	16	73	56.6
KWS Cereals	KWS19X09	117	57.8	38	2.3	22	16	--	--
L-Brand (Ag Pro)	L-408	112	59.3	41	2.5	7	10	79	55.9
	L-416	112	59.2	42	2.0	6	12	76	57.1
	L-418	117	61.5	37	3.0	10	13	71	57.1
	L-424	109	58.9	41	2.0	4	11	80	55.3
	L-488	108	58.9	39	3.8	20	8	76	56.9
	LCS Ammo	111	56.6	33	1.6	0	1	--	--
	L-Star	* 128	58.3	40	3.0	19	15	84	56.6
L-Brand (Welter)	L-334	119	60.4	41	3.3	1	4	75	57.6
LCS (Albert Lea)	LCS 3334	114	59.6	40	3.6	1	1	--	--
Legacy	LW 1745	116	59.2	36	1.6	8	5	76	57.0
	LW 1785	122	60.9	36	2.3	7	9	71	54.7
	LW 1825	117	60.6	40	2.0	22	9	--	--
	LWX 1911	120	60.2	36	1.8	18	8	--	--
	LWX 1921	114	57.8	39	3.3	7	6	--	--
	LWX 1922	119	58.8	39	3.3	4	9	--	--
Limagrain Cereal Seeds	L11434	113	59.0	40	2.6	7	18	--	--
	L11713	119	60.4	39	3.3	28	18	--	--
	L11719	122	60.5	37	1.8	48	14	* 88	55.1
Pioneer	25R25	120	56.9	39	2.5	3	4	--	--
	25R34	122	58.9	41	3.5	9	13	--	--
	25R40	121	60.4	35	2.0	45	15	--	--
	25R74	118	59.8	36	3.3	1	5	--	--
PiP	701	119	56.5	34	2.9	6	15	--	--
	706	121	61.1	38	2.8	2	5	79	56.0
	714	122	60.9	39	2.0	14	10	81	55.5
	715	* 125	60.6	42	2.8	1	1	80	55.7
	716	112	58.3	38	3.0	10	10	74	54.9
	721	122	59.1	39	3.5	5	14	* 85	55.8
	735	118	58.5	41	2.3	16	14	* 88	55.4
	736	119	60.2	41	3.0	4	8	* 86	56.3
	744	116	59.0	40	3.0	23	10	77	55.0
	745	118	58.8	38	2.3	5	6	81	57.1

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar

[1] Fusarium head blight [2] % incidence [3] % severity

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Table 5. 2019 Chilton Winter Wheat Performance Trial Results

continued from previous page

		2019 means						2018 means	
		Yield	Test wt.	Height	Lodging	FHB[1]		Yield	Test wt.
Brand (Entrant)	**Entry**	(bu/a)	(lb/bu)	(in.)	(1-5)	I%[2]	S%[3]	(bu/a)	(lb/bu)
PIP (cont'd)	750	* 125	61.1	41	1.0	4	8	74	56.9
	754	* 125	60.3	36	2.3	45	16	83	56.1
	759	* 123	57.2	40	3.0	13	21	--	--
	762	* 123	61.6	38	3.0	2	5	--	--
	763	116	58.8	39	2.8	22	8	--	--
	764	118	59.0	38	1.5	6	7	--	--
	768	113	60.7	38	2.0	6	9	--	--
	769	120	58.3	38	3.0	4	10	--	--
Pro Seed Genetics	PRO 410	111	60.6	40	2.0	2	15	83	56.1
	PRO Ex 440A	117	58.9	39	2.8	8	11	77	55.2
	PRO Ex 450	* 125	61.0	37	1.0	1	8	--	--
	PRO Ex 460A	112	60.4	39	3.0	24	20	--	--
Public	Harpoon	119	58.9	37	1.0	2	9	75	54.4
	Kaskaskia	108	59.3	43	3.0	48	15	78	57.9
	Sunburst	117	62.5	37	1.3	1	11	70	57.3
	Whale	* 123	59.3	40	1.3	2	5	75	55.5
Van Treeck's	Alpha	* 123	60.6	36	2.0	40	13	* 88	55.1
	Bonanza	113	59.5	40	1.5	4	28	74	56.9
	Echo	115	60.3	38	2.0	13	15	77	56.4
Viking	191	114	56.8	39	2.5	19	11	--	--
	198	119	58.9	38	2.0	8	20	--	--
	207	121	59.1	34	1.3	3	14	--	--
	Mean	**118**	**59.5**	**39**	**2.3**	**11**	**10**	**78**	**56.3**
	LSD (.10)	**6**	**1.0**	**2**	**0.7**	**11**	**8**	**4**	**0.6**

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar

[1] Fusarium head blight [2] % incidence [3] % severity

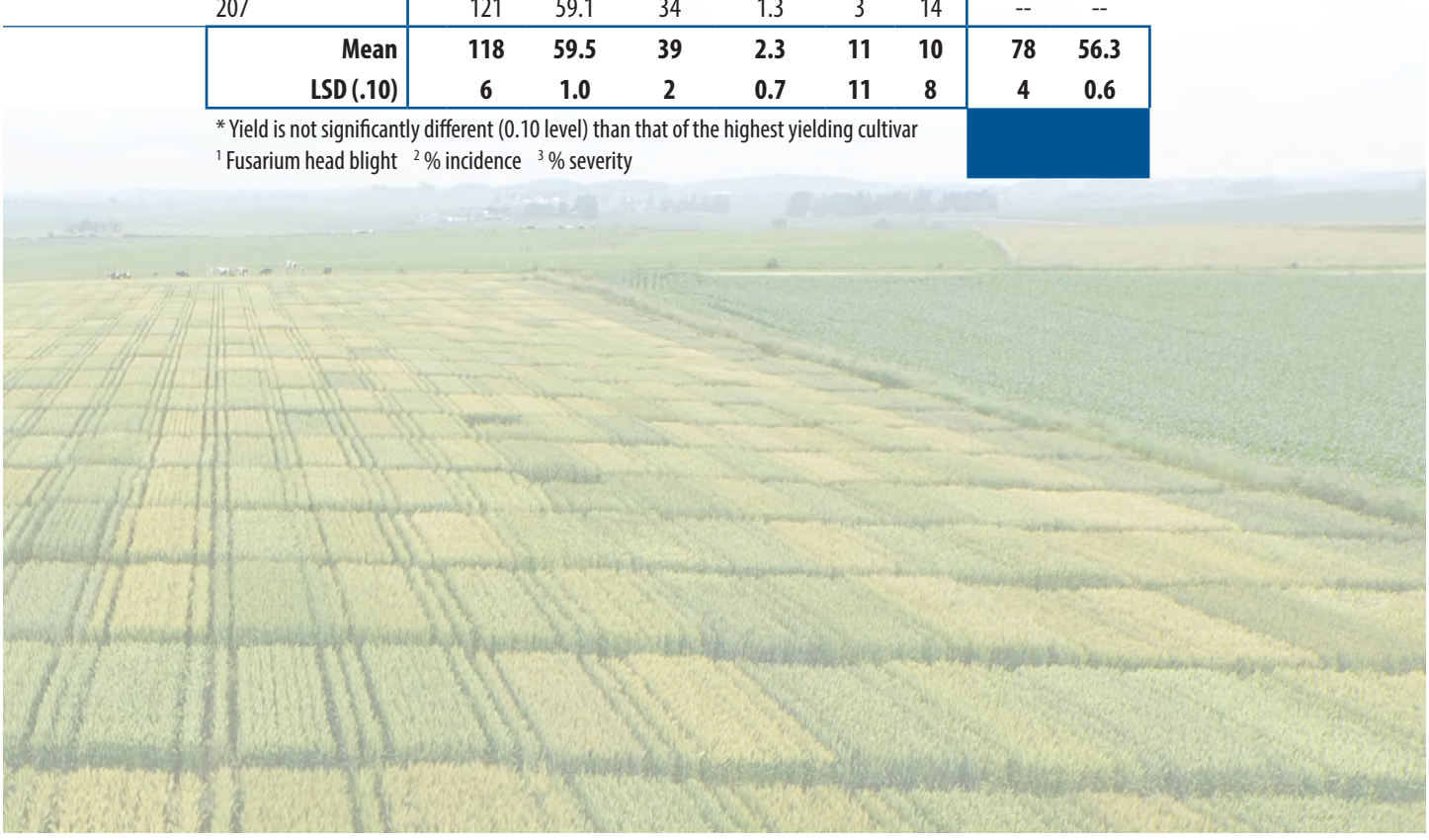

Table 6. 2019 Fond du Lac Winter Wheat Performance Trial Results

		2019 means						2018 means		
		Yield	Test wt.	Height	Lodging	FHB[1]		Yield	Test wt.	CS[4]
Brand (Entrant)	Entry	(bu/a)	(lb/bu)	(in.)	(1-5)	I%[2]	S%[3]	(bu/a)	(lb/bu)	%
AgriMAXX	413	88	55.9	33	1.0	28	20	* 64	51.7	10
	438	88	56.3	39	1.0	6	19	* 72	54.2	1
	463	89	56.6	33	1.0	1	3	62	52.5	3
	475	93	57.7	35	1.0	8	9	* 68	55.2	4
	485	91	57.2	35	1.0	11	13	* 69	55.6	1
	486	89	56.8	37	1.0	7	10	63	53.0	10
	495	88	57.9	36	1.0	15	15	--	--	--
	Exp 1902	88	56.2	37	1.0	16	16	--	--	--
AgriPro	SY 100	* 100	54.6	35	1.0	10	14	* 64	50.8	18
	SY 547	93	57.2	39	1.0	19	30	* 68	54.8	6
	SY 576	82	55.8	35	1.0	10	11	--	--	--
	SY Viper	* 96	57.3	40	1.0	7	30	--	--	--
CROPLAN	CP8550	88	57.3	38	1.0	5	7	* 65	55.1	10
	CP9203	93	57.1	37	1.0	4	18	--	--	--
	CP9415	* 96	56.5	36	1.0	48	26	* 69	54.8	19
	CP9606	* 97	56.8	35	1.0	19	19	62	53.1	6
Diener	D491W	* 95	56.1	35	1.0	28	16	* 69	53.5	9
	D498W	92	57.8	35	1.0	9	13	* 66	55.4	9
	D505W	91	56.5	36	1.0	11	9	* 67	54.1	5
	D510W	88	57.5	34	1.0	3	13	--	--	--
	XW1901	92	56.3	33	1.0	34	24	--	--	--
Dyna-Gro	9522	93	56.9	36	1.0	13	14	* 64	54.3	5
	9701	92	57.0	38	1.0	3	6	* 67	54.2	6
	9862	92	57.2	35	1.0	2	9	* 67	53.9	15
	9932	85	58.0	36	1.0	23	16	--	--	--
	9941	90	55.6	35	1.0	8	10	* 67	51.8	14
	WX18416	* 97	57.0	39	1.0	15	20	--	--	--
	WX19711	92	57.3	33	1.0	1	11	--	--	--
FS Wheat	FS 599	88	58.1	32	1.0	2	11	--	--	--
	FS 601	92	54.9	36	1.0	10	11	--	--	--
	FS 603	* 95	57.8	34	1.0	9	10	* 66	55.8	0
	FS 615	* 94	56.3	38	1.0	21	18	* 64	54.4	4
	FS 624	* 95	58.1	37	1.0	11	19	61	53.4	3
	FS WX19A	* 94	58.1	37	1.0	13	20	--	--	--
	FS WX19B	* 96	56.6	33	1.0	39	30	--	--	--
Jung	5845	84	57.9	38	1.0	10	23	63	55.5	5
	5850	86	56.7	40	1.0	26	25	61	53.7	3
	5855	87	56.6	36	1.0	16	18	* 64	53.7	8
	5888	91	56.9	37	1.0	16	21	61	52.4	6

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar

[1] Fusarium head blight [2] % incidence [3] % severity

[4] Cephalosporium stripe expressed as % of diseased and stunted plants

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Table 6. 2019 Fond du Lac Winter Wheat Performance Trial Results

continued from previous page

		2019 means						2018 means		
		Yield	Test wt.	Height	Lodging	FHB[1]		Yield	Test wt.	CS[4]
Brand (Entrant)	**Entry**	(bu/a)	(lb/bu)	(in.)	(1-5)	I%[2]	S%[3]	(bu/a)	(lb/bu)	%
Jung (cont'd)	5930	84	58.6	38	1.0	6	13	60	54.4	16
Kennell Seed Farms	KS 1618	* 97	56.3	36	1.0	25	26	--	--	--
Kratz Farms	KF 15241	* 98	58.6	39	1.0	9	15	* 70	55.8	4
	KF 15334	93	57.7	40	1.0	4	16	61	56.0	11
	KF 15639	* 94	58.0	40	1.0	31	16	55	53.8	19
	KF 553	93	58.0	40	1.0	6	21	57	55.4	20
	KF 667	93	57.0	35	1.0	12	17	--	--	--
	KF 727	* 94	57.1	38	1.0	29	26	* 64	54.4	13
KWS Cereals	KWS19X09	89	55.8	36	1.0	31	20	--	--	--
L-Brand (Ag Pro)	L-408	88	56.7	36	1.0	18	19	63	53.8	5
	L-416	90	56.9	40	1.0	33	25	* 65	54.0	14
	L-418	90	58.7	35	1.0	24	16	59	56.6	9
	L-424	86	56.3	37	1.0	13	16	60	53.1	11
	L-488	88	58.2	36	1.0	36	20	* 65	54.1	5
	LCS Ammo	85	57.4	33	1.0	15	10	--	--	--
	L-Star	* 99	56.2	37	1.0	26	20	* 74	54.6	4
L-Brand (Welter)	L-334	88	58.0	38	1.0	4	11	61	55.6	16
LCS (Albert Lea)	LCS 3334	88	58.0	38	1.0	8	24	--	--	--
Legacy	LW 1745	91	56.7	36	1.0	2	10	56	53.4	16
	LW 1785	90	57.3	33	1.0	19	18	61	52.4	5
	LW 1825	90	57.2	37	1.0	12	10	--	--	--
	LWX 1911	* 97	56.8	36	1.0	13	16	--	--	--
	LWX 1921	93	55.2	36	1.0	11	10	--	--	--
	LWX 1922	89	55.6	35	1.0	5	13	--	--	--
Limagrain Cereal Seeds	L11434	* 94	57.9	38	1.0	17	19	--	--	--
	L11713	93	57.8	36	1.0	34	24	--	--	--
	L11719	* 94	56.0	33	1.0	50	24	63	53.5	15
Pioneer	25R25	* 94	56.6	36	1.0	6	11	--	--	--
	25R34	* 94	56.1	37	1.0	20	24	--	--	--
	25R40	93	56.4	34	1.0	44	23	--	--	--
	25R74	* 96	57.0	34	1.0	7	9	--	--	--
PiP	701	* 94	56.0	31	1.0	21	20	--	--	--
	706	93	56.9	33	1.0	5	14	* 72	55.5	1
	714	* 94	56.6	38	1.0	20	16	* 71	54.3	1
	715	91	56.9	39	1.0	8	10	61	52.7	25
	716	88	55.3	35	1.0	19	18	* 65	52.1	11
	721	* 97	56.6	39	1.0	13	13	* 68	53.9	5
	735	* 96	55.7	36	1.0	10	11	* 68	53.9	16
	736	92	58.0	37	1.0	36	18	* 72	53.7	9

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar

[1] Fusarium head blight [2] % incidence [3] % severity

[4] Cephalosporium stripe expressed as % of diseased and stunted plants

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Table 6. 2019 Fond du Lac Winter Wheat Performance Trial Results

continued from previous page

		2019 means						2018 means		
		Yield	Test wt.	Height	Lodging	FHB[1]		Yield	Test wt.	CS[4]
Brand (Entrant)	**Entry**	(bu/a)	(lb/bu)	(in.)	(1-5)	I%[2]	S%[3]	(bu/a)	(lb/bu)	%
PIP (cont'd)	744	* 95	55.7	36	1.0	11	20	* 64	52.3	10
	745	93	57.1	35	1.0	6	9	60	53.7	28
	750	* 99	57.6	38	1.0	4	13	* 69	54.6	5
	754	89	56.0	32	1.0	43	26	* 68	54.0	13
	759	93	55.6	37	1.0	18	20	--	--	--
	762	90	57.8	35	1.0	7	13	--	--	--
	763	90	55.2	37	1.0	28	16	--	--	--
	764	91	58.0	37	1.0	10	9	--	--	--
	768	87	58.3	36	1.0	6	11	--	--	--
	769	92	56.2	35	1.0	6	8	--	--	--
Pro Seed Genetics	PRO 410	90	57.7	37	1.0	23	25	54	51.4	31
	PRO Ex 440A	84	55.1	35	1.0	17	15	59	51.8	9
	PRO Ex 450	85	57.3	35	1.0	1	7	--	--	--
	PRO Ex 460A	92	58.2	36	1.0	33	21	--	--	--
Public	Harpoon	93	55.7	34	1.0	1	9	* 64	53.2	5
	Kaskaskia	85	58.5	43	1.0	45	26	57	56.6	10
	Sunburst	88	59.5	34	1.0	12	16	53	55.3	26
	Whale	88	57.1	36	1.0	21	25	* 70	54.1	0
Van Treeck's	Alpha	92	55.9	33	1.0	55	30	63	53.5	15
	Bonanza	90	56.6	39	1.0	19	24	63	54.6	4
	Echo	85	57.5	35	1.0	20	14	59	53.8	13
Viking	191	* 95	55.9	36	1.0	14	18	--	--	--
	198	86	55.6	37	1.0	33	26	--	--	--
	207	* 98	55.0	32	1.0	40	25	--	--	--
	Mean	**91**	**56.9**	**36**	**1.0**	**17**	**17**	**63**	**54.0**	**10**
	LSD (.10)	**6**	**1.0**	**2**	**NS**	**12**	**8**	**10**	**1.8**	**NS**

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar

[1] Fusarium head blight [2] % incidence [3] % severity

[4] Cephalosporium stripe expressed as % of diseased and stunted plants

Table 7. 2019 Sharon Winter Wheat Performance Trial Results

★

		2019 means							2018 means	
		Yield	Test wt.	Height	Lodging	FHB[1]		CS[4]	Yield	Test wt.
Brand (Entrant)	Entry	(bu/a)	(lb/bu)	(in.)	(1-5)	I%[2]	S%[3]	%	(bu/a)	(lb/bu)
AgriMAXX	413	60	54.4	31	1.0	6	10	0	* 98	52.3
	438	58	52.8	34	1.0	6	19	6	85	51.1
	463	58	54.8	29	1.0	2	6	1	* 97	54.9
	475	56	57.0	28	1.0	2	9	18	95	56.1
	485	60	57.8	31	1.0	2	5	0	94	53.2
	486	* 63	56.3	33	1.0	8	6	5	* 96	55.5
	495	57	57.8	31	1.0	4	13	0	--	--
	Exp 1902	57	55.6	29	1.0	4	6	10	--	--
AgriPro	SY 100	* 64	52.4	30	1.0	18	11	3	88	49.8
	SY 547	60	56.8	34	1.0	23	13	1	* 96	55.5
	SY 576	61	55.7	33	1.0	30	5	14	--	--
	SY Viper	62	56.0	33	1.0	10	23	6	--	--
CROPLAN	CP8550	61	56.6	34	1.0	7	5	0	95	54.8
	CP9203	61	55.6	33	1.0	6	10	6	--	--
	CP9415	* 66	55.3	30	1.0	38	14	0	94	55.0
	CP9606	* 65	55.0	31	1.0	19	20	3	88	52.0
Diener	D491W	* 63	54.3	30	1.0	6	10	2	* 99	55.4
	D498W	* 64	57.4	30	1.0	3	4	8	* 101	54.7
	D505W	60	56.1	33	1.0	34	6	1	* 98	54.4
	D510W	* 65	56.4	31	1.0	2	5	2	--	--
	XW1901	* 65	55.0	28	1.0	46	10	17	--	--
Dyna-Gro	9522	60	55.0	32	1.0	19	16	3	91	53.5
	9701	* 63	57.0	34	1.0	14	6	0	* 96	54.6
	9862	* 66	56.9	32	1.0	8	13	13	* 98	53.6
	9932	59	56.8	31	1.0	10	13	7	--	--
	9941	61	55.7	29	1.0	4	8	0	* 100	52.8
	WX18416	* 65	55.2	34	1.0	15	18	8	--	--
	WX19711	* 63	57.4	29	1.0	4	6	1	--	--
FS Wheat	FS 599	51	58.3	28	1.0	2	5	1	--	--
	FS 601	57	54.3	29	1.0	9	4	13	--	--
	FS 603	55	57.7	29	1.0	4	9	1	* 98	55.5
	FS 615	* 64	54.9	32	1.0	11	10	7	91	53.9
	FS 624	59	56.3	32	1.0	9	29	14	* 98	54.5
	FS WX19A	60	57.5	32	1.0	7	10	0	--	--
	FS WX19B	* 63	55.5	28	1.0	16	18	22	--	--
Jung	5845	53	53.8	33	1.0	5	8	1	* 96	52.7
	5850	58	53.5	34	1.0	44	29	8	84	50.4
	5855	59	55.4	33	1.0	7	16	0	91	53.3

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar

[1] Fusarium head blight [2] % incidence [3] % severity

[4] Cephalosporium stripe expressed as % of diseased and stunted plants

continued on next page

Table 7. 2019 Sharon Winter Wheat Performance Trial Results

continued from previous page

		2019 means							2018 means	
		Yield	Test wt.	Height	Lodging	FHB[1]		CS[4]	Yield	Test wt.
Brand (Entrant)	**Entry**	(bu/a)	(lb/bu)	(in.)	(1-5)	I%[2]	S%[3]	%	(bu/a)	(lb/bu)
Jung (cont'd)	5888	* 63	54.7	33	1.0	20	11	1	90	52.6
	5930	59	56.6	34	1.0	1	9	0	92	53.0
Kennell Seed Farms	KS 1618	* 64	54.4	31	1.0	30	35	21	--	--
Kratz Farms	KF 15241	* 68	57.5	33	1.0	6	10	0	* 98	55.0
	KF 15334	* 63	56.6	35	1.0	5	9	9	86	53.5
	KF 15639	* 63	56.9	36	1.0	25	19	1	93	55.8
	KF 553	59	55.8	33	1.0	7	13	0	87	54.3
	KF 667	* 68	55.9	31	1.0	40	18	2	--	--
	KF 727	* 64	55.7	32	1.0	26	31	0	81	53.4
KWS Cereals	KWS19X09	56	53.8	32	1.0	19	15	7	--	--
L-Brand (Ag Pro)	L-408	55	54.6	34	1.0	18	16	3	83	52.0
	L-416	* 63	56.4	34	1.0	11	29	1	90	53.6
	L-418	58	58.3	31	1.0	24	13	8	93	55.1
	L-424	55	54.5	32	1.0	12	16	11	82	53.1
	L-488	57	56.2	31	1.0	16	16	1	85	52.9
	LCS Ammo	55	56.9	27	1.0	4	5	8	--	--
	L-Star	62	54.0	31	1.0	30	33	7	* 98	52.1
L-Brand (Welter)	L-334	61	56.7	34	1.0	2	4	5	89	53.8
LCS (Albert Lea)	LCS 3334	54	55.4	34	1.0	1	5	19	--	--
Legacy	LW 1745	60	56.2	30	1.0	4	7	10	* 97	55.6
	LW 1785	59	56.5	29	1.0	23	13	5	* 99	54.8
	LW 1825	61	56.2	34	1.0	30	6	2	--	--
	LWX 1911	* 63	55.7	30	1.0	4	5	1	--	--
	LWX 1921	55	54.5	30	1.0	6	8	0	--	--
	LWX 1922	* 64	55.8	31	1.0	10	11	1	--	--
Limagrain Cereal Seeds	L11434	* 67	57.1	31	1.0	4	10	1	--	--
	L11713	60	56.6	31	1.0	8	15	0	--	--
	L11719	58	54.9	29	1.0	45	19	42	* 97	54.4
Pioneer	25R25	* 66	55.1	31	1.0	11	11	1	--	--
	25R34	* 63	55.0	33	1.0	14	23	16	--	--
	25R40	* 63	55.5	28	1.0	23	11	6	--	--
	25R74	* 66	56.0	30	1.0	2	9	11	--	--
PiP	701	* 63	53.3	27	1.0	28	13	2	--	--
	706	* 63	56.9	31	1.0	8	5	0	93	53.0
	714	62	56.6	33	1.0	11	8	4	* 98	55.3
	715	* 63	57.0	36	1.0	4	5	9	95	56.1
	716	60	54.6	30	1.0	7	10	6	* 100	54.2
	721	62	53.9	34	1.0	8	19	1	90	51.3

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar

[1] Fusarium head blight [2] % incidence [3] % severity

[4] Cephalosporium stripe expressed as % of diseased and stunted plants

continued on next page

Table 7. 2019 Sharon Winter Wheat Performance Trial Results

continued from previous page

		2019 means							2018 means	
		Yield	Test wt.	Height	Lodging	FHB[1]		CS[4]	Yield	Test wt.
Brand (Entrant)	**Entry**	(bu/a)	(lb/bu)	(in.)	(1-5)	I%[2]	S%[3]	%	(bu/a)	(lb/bu)
PiP (cont'd)	735	61	54.3	31	1.0	7	8	7	* 100	54.0
	736	* 66	57.8	33	1.0	4	6	1	94	52.6
	744	58	53.6	29	1.0	20	16	13	* 99	51.5
	745	62	57.6	29	1.0	7	9	8	* 100	56.0
	750	62	57.9	31	1.0	5	8	1	* 99	56.1
	754	* 63	55.0	28	1.0	26	16	23	* 99	54.6
	759	* 66	54.9	32	1.0	46	23	6	--	--
	762	* 63	57.2	31	1.0	9	5	2	--	--
	763	62	56.0	30	1.0	23	10	5	--	--
	764	61	57.8	30	1.0	9	11	2	--	--
	768	59	58.3	31	1.0	6	5	13	--	--
	769	60	54.6	31	1.0	2	3	3	--	--
Pro Seed Genetics	PRO 410	60	56.7	33	1.0	9	20	1	95	54.4
	PRO Ex 440A	61	53.7	30	1.0	25	14	1	94	51.5
	PRO Ex 450	* 67	58.0	30	1.0	4	8	1	--	--
	PRO Ex 460A	61	56.8	31	1.0	10	13	15	--	--
Public	Harpoon	58	54.9	29	1.0	4	5	7	* 99	54.3
	Kaskaskia	56	57.6	38	1.0	66	33	0	88	54.9
	Sunburst	58	57.5	32	1.0	15	11	0	82	56.3
	Whale	59	54.7	32	1.0	14	18	0	89	52.7
Van Treeck's	Alpha	61	55.8	29	1.0	28	15	3	* 97	54.4
	Bonanza	55	56.6	33	1.0	5	23	22	94	53.6
	Echo	58	54.7	31	1.0	35	11	7	* 96	54.4
Viking	191	61	54.5	31	1.0	20	24	1	--	--
	198	59	56.1	31	1.0	8	10	2	--	--
	207	54	52.9	29	1.0	28	24	5	--	--
	Mean	**61**	**55.8**	**31**	**1.0**	**14**	**13**	**6**	**93**	**54.0**
	LSD (.10)	**5**	**1.2**	**1**	**NS**	**12**	**9**	**14**	**5**	**1.5**

* Yield is not significantly different (0.10 level) than that of the highest yielding cultivar

[1] Fusarium head blight [2] % incidence [3] % severity

[4] Cephalosporium stripe expressed as % of diseased and stunted plants

Extension
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