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SOUTH DAKOTA STATE UNIVERSITY®
AGRONOMY, HORTICULTURE, & PLANT SCIENCE DEPARTMENT

2020 South Dakota Winter Wheat Variety Trial Results Regional Summaries

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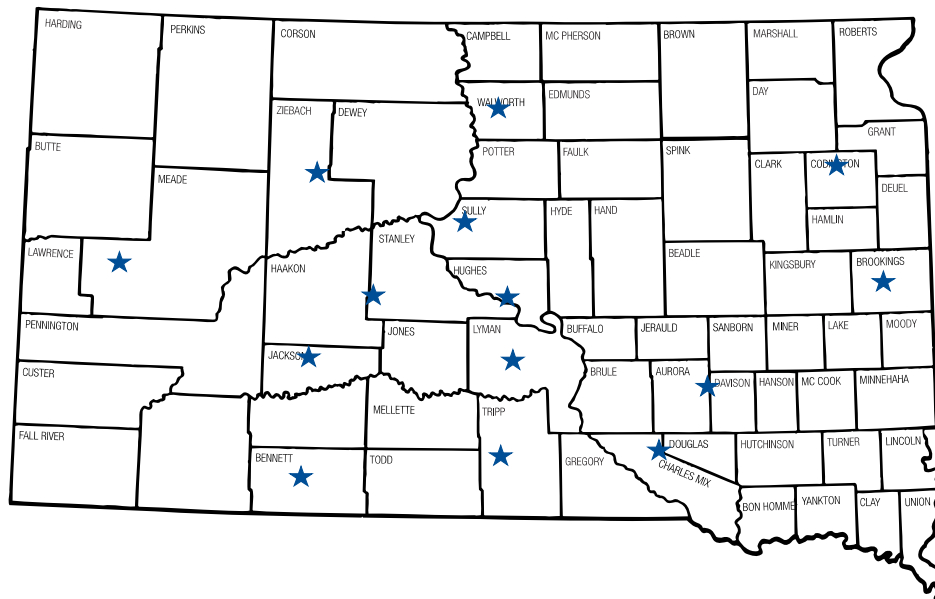
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Eastern trial locations: Brookings, Mt. Vernon, Platte, South Shore

Central trial locations: Hayes, Onida, Pierre, Selby, Vivian, Winner

Western trial locations: Lantry, Martin (lost to drought/hail), Sturgis, Wall

Individual trial location results can be accessed online at:
<https://extension.sdstate.edu/winter-wheat-variety-trial-results>

The 2019-20 winter wheat growing season in South Dakota was characterized by a wet fall followed by good spring growing conditions in most areas of the state. Precipitation varied across the state and the Martin location was abandoned due to drought conditions/soil variability. There were no reported outbreaks of fusarium head blight (scab) or wheat stripe rust. Harvest progressed quickly and produced excellent yields in most areas of the state.

New participants in the South Dakota State University Crop Performance Testing (CPT) winter wheat trials for 2019-20 included North Dakota, Montana, and Winfield United. In addition, CoAXium™ varieties were tested for the first time this season. These varieties have a natural mutation that confers tolerance to Aggressor™ herbicide, providing a new grass control option for wheat producers.

South Dakota State University CPT winter wheat trials in eastern SD locations (Bookings, Mt. Vernon, Platte, and South Shore) yielded an average of 76 bu/acre, ranging from 66 bu/acre at Mt. Vernon (affected by lodging due to a severe storm event) to 89 bu/acre in Brookings. Varieties yielding in the top 1/3 of the eastern SD trials over three years (2018-2020) were **Winner, Oahe, WB4462, Ideal, and Redfield**. Promising new varieties for eastern locations tested for the first time in 2020 include **LCS Diesel** and **LCS Helix AX**.

Yields in central SD (Hayes, Onida, Pierre, Selby, Vivian, and Winner) averaged 86 bu/acre, ranging from 66 bu/acre at Vivian to 103 bu/acre at Hayes. Varieties yielding in the top 1/3 of the central SD trials for 2018-2020 were **Winner, WB4462, Ideal, Draper, and Overland**. Promising new varieties for central locations tested for the first time in 2020 include **CP7017AX, WB4309, LCS Helix AX, and Crescent AX**.

Western SD trial locations (Faith, Sturgis, and Wall) also had a good year, averaging 63 bu/acre, ranging from 49 bu/acre at Wall to 71 bu/acre at Lantry. Varieties yielding in the top 1/3 over three years in the western trial locations were **Keldin, Ideal, Cowboy, Draper, and WB4462**. Promising new varieties for central locations tested for the first time in 2020 include **LCS Diesel, Guardian, CP7017AX, and Crescent AX**.

The protein content of the crop was very consistent statewide, averaging 12.8%, 12.8%, and 12.7% in eastern, central and western SD, respectively. Detailed trial results, including yield, test weight, protein content, height, and lodging (where measured) for each location are available at: <https://extension.sdstate.edu/winter-wheat-variety-trial-results>.

Consider as much performance information as possible when selecting a variety, and give more weight to information from trials close to home, as some varieties may be better suited to certain geographic areas. Also pay close attention to relative performance over many locations. This type of performance is an indication of "yield stability". Good yield stability refers to the ability of a variety exhibit high yield potential at many locations over years. For example, a variety that ranks in the upper 40% at all locations exhibits better yield stability than a variety that is number one for yield at one location but ranks in the lower 40% at some other locations. Performance over multiple years is also very important. Growing conditions in a single season may favor certain varieties, providing a poor representation of yield potential over time. For example, growing conditions in 2020 tended to favor later-maturing varieties and the absence of stripe rust allowed susceptible varieties to perform better than average. Varieties with a slow growth pattern in the fall also did not fare well in late-planted trial locations. A good rule of thumb is to plant 65%-75% of your acres to varieties with a proven track record (i.e. a good multi-year average) and plant the remaining 25%-35% to a promising new variety.

It is important to remember that varieties may differ by 5 bu/acre or even more and still be statistically similar. This is due to inherent variability in the environment and the yield testing process. Varieties that are statistically similar to the top performing variety at each location can be calculated by subtracting the least significant difference (LSD) value from the top performing variety. The LSD is a statistic used to determine if varieties are truly different from one another.

The coefficient of variation (CV) listed at the bottom of each data column, which is often expressed as a percentage of a given trait mean, is a relative measure of the amount of test variation for that trait. Generally, in yield trials, a CV of 15% is considered acceptable and a CV of 10% or less indicates good quality data. Higher variability (and thus higher CVs) can be caused by several environmental factors, such as stand loss due to winterkill or drought, and reduces the ability to detect true differences between varieties.

Table 1. List of winter wheat varieties tested in 2019-2020 along with origin, agronomic, and grain quality characteristics.

Variety	Testing and Origin		Agronomic Characteristics				Grain Quality		
	Years tested in SD trials	Origin†-Year	Relative Heading (days)‡	Height (inches)	Lodging Score (1-5)§	Winter Hrd.¶	2020 Test Wt. (lb/bu)#	2020 Protein (%)#	Baking Quality††
AP 18AX	new	AP-18	0	32	1.8	NR‡‡	59.9	12.2	NR
Cowboy	5+	WY-12	3	33	2.1	(G)‡‡	60.2	11.9	(A)
CP7010	new	WU-19	3	31	1.4	(F)	61.8	12.3	NR
CP7017AX	new	WU-20	0	31	2.1	(E)	60.3	11.9	NR
CP7050AX	new	WU-20	-2	32	1.6	(F)	62.1	13.1	NR
CP7909	new	WU-19	-2	31	2.8	(G)	61.1	11.8	(E)
Crescent AX	new	PG-18	0	33	2.3	(E)	61.2	12.1	(G)
Draper	4	SD-19	2	32	1.6	G	60.0	12.9	G
Expedition	5+	SD-02	June 2	34	2.0	G	60.4	12.9	G
Flathead	new	MT-19	1	33	1.6	(F)	60.3	13.0	(G)
Guardian	new	PG-19	3	33	1.7	(E)	60.9	12.7	(G)
Ideal	5+	SD-11	4	34	2.2	G-E	60.8	12.7	A
Keldin	4	WB-13	5	34	1.8	(E)	60.8	12.6	(E)
Langin	4	PG-16	-1	31	2.5	(E)	59.9	11.8	(E)
LCS Diesel	new	LCS-20	2	32	2.1	(E)	61.0	13.1	(E)
LCS Helix AX	new	LCS-20	1	32	1.9	(E)	61.3	12.0	(E)
MTF 1435	new	MT-18	7	40	1.9	(G)	58.4	13.2	(G)
ND Noreen	new	ND-20	5	37	1.5	(G)	61.9	13.3	(A)
NE14696	new	NE-exp	3	36	2.4	(G)	60.3	13.0	(G)
Northern	new	MT-15	7	33	1.4	(G)	59.9	13.4	(G)
NW13493	2	NE-exp	1	32	2.3	(G)	60.9	12.9	(G)
Oahe	5+	SD-16	2	37	2.5	G-E	61.1	12.7	A
Overland	5+	NE-07	2	35	2.0	G-E	61.0	12.8	(A)
Redfield	5+	SD-13	3	32	1.9	G	61.0	13.0	G
SY 517 CL2	4	AP-17	0	31	2.0	(G)	61.8	12.9	(A)
SY Monument	5+	AP-15	3	33	1.6	G-E	58.9	12.5	(E)
SY Sunrise	5+	AP-16	1	30	1.7	(E)	60.4	12.1	(G)
SY Wolverine	2	AP-19	0	30	1.4	(G)	60.6	12.8	(G)
Thompson	5+	SD-17	3	36	1.6	G	60.9	13.0	A
WB-Grainfield	5+	WB-12	-2	32	2.1	F	60.5	12.5	A
WB4309	new	WB-19	2	33	2.1	(G)	60.4	13.0	(E)
WB4462	3	WB-16	-1	35	2.0	(G)	60.8	12.7	(G)
WB4595	2	WB-18	3	32	1.4	(G)	62.0	12.2	(A)
Winner	4	SD-19	1	33	1.8	G	60.8	12.7	G
Trial Average	-	-	-	-	1.9	-	60.7	12.6	-

† AP, AgriPro; LCS, Limagrain Cereal Seeds; ND, North Dakota; NE, Nebraska (Husker Brand Genetics); MT, Montana; PG, PlainsGold; SD, South Dakota; WB, WestBred; WU, Winfield United; WY, Wyoming; and – (Year of Release).

‡ Relative heading compared to Expedition in 2020.

§ Lodging score: 1, perfectly standing; to 5, completely flat; ¶ Winter hardiness: E, excellent; G, good; F, fair; P, poor.

Test weight (lbs/bu) and protein (%) as averaged from central SD testing sites.

†† Baking quality: E, excellent; G, good; A, acceptable; P, Poor. Note: SDSU does not typically do baking quality analysis.

‡‡ Italics designate estimated ratings (X), based on information provided by entity that submitted the variety, NR - Not reported.

Table 2. Winter wheat variety disease ratings.

Variety	Disease Ratings†						
	Stripe Rust	Stem Rust	Leaf Rust	Tan Spot	Bacterial Leaf Streak	WSMV§	FHB¶ (Scab)
AP 18AX	(MR)‡	(S)	7	6	(MR)	(MR)	5
Cowboy	S	(MR)	5	7	8	(S)	5
CP7010	(MS)	NR	6	8	(MS)	NR	4
CP7017AX	(MR)	(R)	7	8	(MR)	NR	8
CP7050AX	(R)	(S)	7	7	(MS)	NR	7
CP7909	(S)	(MS)	7	7	NR	NR	8
Crescent AX	(MR-MS)	NR	6	7	NR	(R)	5
Draper	MR-MS	MR-MS	6	6	7	-	4
Expedition	S	R	7	7	7	S	5
Flathead	(R)	NR	7	6	NR	(S)	6
Guardian	(R)	R	8	7	NR	(R)	5
Ideal	S	MR	4	6	5	S	4
Keldin	(MR)	-	4	4	6	-	6
Langin	(MR)	(S)	5	5	4	(MS)	7
LCS Diesel	(R)	(R)	6	6	(R)	(MR)	9
LCS Helix AX	(R)	(R)	4	6	NR	NR	7
MTF 1435	(R)	(S)	6	7	NR	NR	3
ND Noreen	(MR)	(MR)	4	7	(R)	NR‡‡	2
NE14696	(MR)	(MR)	4	7	NR	(S)	5
Northern	(R)	NR	7	8	NR	(S)	6
NW13493	(MR-MS)	(MR)	6	7	4	(S)	5
Oahe	MR	MR-MS	6	6	5	MR	4
Overland	S	MR	4	6	5	MS	5
Redfield	MR-MS	MR	7	7	6	S	6
SY 517 CL2	(MR-MS)	(R)	3	6	7	-	3
SY Monument	MR-R	(R)	4	5	6	(MS)	5
SY Sunrise	MR-R	(R)	4	7	5	(MR-MS)	6
SY Wolverine	(MR)	(R)	4	5	7	(MR)	4
Thompson	MR-MS	MR-MS	4	6	7	MS	6
WB-Grainfield	MR-MS	MR	5	7	5	MR	7
WB4309	(MR-MS)	(MR-MS)	5	7	(MS)	(MS)	7
WB4462	(S)	-	5	7	5	(S)	4
WB4595	(MR)	-	5	7	7	(MR)	7
Winner	MS	MR	6	7	7	-	4

† Disease ratings: R, resistant; MR, moderately resistant; MS, moderately susceptible; S, susceptible; or 1, most resistant to 9, most susceptible. Note: SDSU does not perform nursery screenings for all listed pathogens in each growing season.

§ Wheat Streak Mosaic Virus; ¶ Fusarium Head Blight

‡ Italics denote estimated rankings (X) based on information provided by the program that submitted the variety.

‡‡ NR - not reported

Table 3. 2018-20120 winter wheat variety performance trial results for testing sites in eastern South Dakota. Varieties ranking in the top 1/3 of each trial category are shaded light blue.

Variety	2018	2019	2020			2-year			3-year		
	Yield (bu/a)	Yield (bu/a)	Yield (bu/a)	Test Wt (lbs)	Protein %	Yield (bu/a)	Test Wt (lbs)	Protein %	Yield (bu/a)	Test Wt (lbs)	Protein %
Winner	71.8	59.9	81.2	59.7	12.5	75.9	57.5	12.2	71.3	57.5	13.6
Oahe	69.5	65.5	74.0	60.0	12.9	70.1	57.9	12.4	70.2	58.5	13.6
WB4462	70.5	54.4	79.3	59.5	13.2	72.1	57.4	12.7	69.6	58.0	13.7
Ideal	71.3	61.8	78.3	58.8	12.4	76.0	56.8	12.0	69.4	56.9	13.3
Redfield	68.7	59.9	78.0	59.4	13.1	74.8	57.2	12.6	68.3	57.1	13.7
Draper	67.8	54.3	79.5	58.4	12.8	72.9	56.6	12.5	68.2	56.9	13.7
Keldin	69.2	43.6	82.2	59.9	12.2	68.6	57.5	12.1	67.6	56.9	13.5
Cowboy	68.5	55.8	79.5	58.8	12.0	73.7	56.4	11.7	67.5	56.5	12.8
Thompson	70.1	60.8	73.5	59.8	12.8	70.8	57.6	12.4	66.9	57.0	13.7
SY Monument	67.8	57.5	73.7	58.3	12.5	71.4	55.7	12.1	66.4	55.4	13.3
Overland	65.6	52.8	74.7	60.2	13.0	67.9	58.0	12.6	65.4	58.1	13.9
Langin	65.1	50.5	78.2	59.2	12.3	71.6	56.7	12.0	65.2	57.3	13.2
SY Sunrise	63.8	49.0	76.8	58.5	12.4	68.9	56.6	12.1	63.8	56.3	13.4
SY 517 CL	59.1	45.0	72.1	60.5	13.2	64.2	58.3	13.0	60.5	59.1	14.2
WB-Grainfield	56.6	38.9	76.6	59.4	12.7	65.4	57.0	12.4	59.3	57.1	13.6
Expedition	58.4	39.7	70.2	59.5	13.0	61.2	57.4	12.9	58.9	58.3	14.2
WB4595	-	48.3	78.3	60.8	12.1	70.7	58.6	11.9	-	-	-
NW13493	-	56.8	72.2	60.2	13.0	68.8	58.2	12.4	-	-	-
SY Wolverine	-	31.2	79.8	58.8	13.0	65.1	56.8	12.8	-	-	-
LCS Diesel	-	-	79.8	59.3	13.1	-	-	-	-	-	-
LCS Helix AX	-	-	79.2	60.8	12.3	-	-	-	-	-	-
Crescent AX	-	-	77.9	60.0	13.0	-	-	-	-	-	-
Guardian	-	-	77.7	60.4	12.6	-	-	-	-	-	-
CP7017AX	-	-	77.5	58.2	12.3	-	-	-	-	-	-
WB4309	-	-	76.9	59.0	13.9	-	-	-	-	-	-
CP7909	-	-	76.3	59.0	12.5	-	-	-	-	-	-
NE14696	-	-	76.2	59.8	12.9	-	-	-	-	-	-
AP 18AX	-	-	75.4	58.4	12.5	-	-	-	-	-	-
CP7010	-	-	73.4	60.6	12.1	-	-	-	-	-	-
ND Noreen	-	-	72.0	61.3	13.0	-	-	-	-	-	-
Flathead	-	-	71.4	58.7	12.9	-	-	-	-	-	-
Northern	-	-	70.9	58.1	13.3	-	-	-	-	-	-
CP7050AX	-	-	70.1	60.6	14.1	-	-	-	-	-	-
MTF 1435	-	-	54.1	55.8	13.4	-	-	-	-	-	-
Trial Average#	65.4	51.3	76.0	59.5	12.8	73.1	58.6	12.9	68.2	57.9	13.6
LSD(0.05)†	7.3	7.5	4.7	1.1	0.6	11.0	1.4	0.8	7.3	1.7	0.6
C.V.%‡	5.4	10.5	4.6	1.4	4.6	5.7	1.4	4.3	6.8	2.0	3.8

Trial averages may include values from experimental lines that are not reported.

† Value required (\geq LSD) to determine if varieties are significantly different from one another.

‡ C.V. is a measure of variability or experimental error, 15% or less is considered acceptable.

Note: Eastern trial sites include Brookings, Mt. Vernon, Platte, and South Shore.

Table 4. 2018-2020 winter wheat variety performance trial results for testing sites in central South Dakota. Varieties ranking in the top 1/3 of each trial category are shaded light blue.

Variety	2018	2019	2020			2-year			3-year		
	Yield (bu/a)	Yield (bu/a)	Yield (bu/a)	Test Wt (lbs)	Protein %	Yield (bu/a)	Test Wt (lbs)	Protein %	Yield (bu/a)	Test Wt (lbs)	Protein %
Winner	69.6	76.9	92.5	60.8	12.7	84.1	60.2	12.9	79.2	60.5	13.1
WB4462	74.4	71.3	90.7	60.8	12.7	81.8	59.9	12.9	79.1	60.3	12.9
Ideal	68.1	73.1	88.7	60.8	12.7	81.5	60.3	12.8	77.6	60.7	12.9
Draper	68.0	73.5	88.8	60.0	12.9	81.4	59.4	12.9	76.9	59.7	13.1
Overland	63.0	75.1	87.4	61.0	12.8	81.5	60.3	13.0	75.6	60.7	13.0
SY Monument	64.1	73.6	86.9	58.9	12.5	80.9	58.4	12.6	75.3	58.7	12.5
Oahe	64.7	74.1	86.4	61.1	12.7	80.0	60.9	13.0	75.1	61.1	13.0
Keldin	61.0	73.4	90.3	60.8	12.6	80.8	60.3	12.8	74.4	60.3	13.0
SY Sunrise	60.3	71.2	88.6	60.4	12.1	79.8	59.6	12.4	74.2	59.8	12.6
Redfield	64.4	71.1	86.0	61.0	13.0	78.5	60.1	13.2	74.1	60.5	13.2
Cowboy	67.7	71.6	84.4	60.2	11.9	77.7	59.7	12.1	74.0	60.2	12.2
Langin	62.9	70.1	89.3	59.9	11.8	79.6	59.1	12.1	73.8	59.5	12.3
WB-Grainfield	62.5	71.3	86.2	60.5	12.5	77.8	59.5	12.6	73.0	59.8	12.8
Thompson	63.2	72.4	81.3	60.9	13.0	76.6	60.4	13.2	72.6	60.8	13.2
Expedition	63.0	64.6	81.7	60.4	12.9	73.2	59.9	13.2	69.6	60.5	13.3
SY 517 CL	55.5	65.1	82.3	61.8	12.9	74.1	61.2	13.3	67.8	61.4	13.4
WB4595	-	74.1	88.3	62.0	12.2	81.3	61.6	12.5	-	-	-
SY Wolverine	-	72.2	88.3	60.6	12.8	80.4	59.9	12.9	-	-	-
NW13493	-	72.1	83.9	60.9	12.9	77.2	60.7	13.1	-	-	-
CP7017AX	-	-	92.3	60.3	11.9	-	-	-	-	-	-
WB4309	-	-	89.6	60.4	13.0	-	-	-	-	-	-
LCS Helix AX	-	-	89.6	61.3	12.0	-	-	-	-	-	-
Crescent AX	-	-	88.9	61.2	12.1	-	-	-	-	-	-
CP7909	-	-	88.3	61.1	11.8	-	-	-	-	-	-
Guardian	-	-	88.3	60.9	12.7	-	-	-	-	-	-
AP 18AX	-	-	88.2	59.9	12.2	-	-	-	-	-	-
NE14696	-	-	86.0	60.3	13.0	-	-	-	-	-	-
LCS Diesel	-	-	85.3	61.0	13.1	-	-	-	-	-	-
CP7010	-	-	84.0	61.8	12.3	-	-	-	-	-	-
Flathead	-	-	83.7	60.3	13.0	-	-	-	-	-	-
CP7050AX	-	-	81.9	62.1	13.1	-	-	-	-	-	-
ND Noreen	-	-	80.2	61.9	13.3	-	-	-	-	-	-
Northern	-	-	79.8	59.9	13.4	-	-	-	-	-	-
MTF 1435	-	-	61.0	58.4	13.2	-	-	-	-	-	-
Trial Average#	64.2	70.9	86.4	60.7	12.7	79.4	60.1	12.8	75.6	60.3	12.9
LSD(0.05)†	6.0	2.9	5.0	0.4	0.4	4.0	0.6	0.4	4.8	0.7	0.3
C.V.‡	10.3	7.3	5.9	1.2	3.8	6.3	1.3	3.5	7.5	1.4	3.6

Trial averages may include values from experimental lines that are not reported.

† Value required (\geq LSD) to determine if varieties are significantly different from one another.

‡ C.V. is a measure of variability or experimental error, 15% or less is considered acceptable.

Note: Central trial sites include Hayes, Onida, Pierre, Selby, Vivian, and Winner.

Table 5. 2018-2020 winter wheat variety performance trial results for testing sites in western South Dakota. Varieties ranking in the top 1/3 of each trial category are shaded light blue.

Variety	2018	2019	2020			2-year			3-year		
	Yield (bu/a)	Yield (bu/a)	Yield (bu/a)	Test Wt (lbs)	Protein %	Yield (bu/a)	Test Wt (lbs)	Protein %	Yield (bu/a)	Test Wt (lbs)	Protein %
Keldin	65.1	62.2	68.6	57.6	12.3	64.2	56.6	12.7	65.0	56.9	12.6
Ideal	61.2	60.9	70.1	58.5	12.6	64.2	56.5	12.7	63.0	57.0	12.7
Cowboy	65.2	57.5	66.9	57.7	12.4	60.8	55.9	12.6	62.4	56.8	12.2
Draper	59.8	64.0	63.2	56.8	12.7	63.0	57.0	13.1	62.2	57.3	13.0
WB4462	57.8	63.7	63.7	58.0	12.4	63.0	56.6	13.1	62.1	56.7	13.0
Oahe	55.9	59.5	72.1	58.5	12.4	64.2	57.4	12.8	61.7	57.7	12.9
Winner	50.8	66.7	68.6	57.5	12.4	66.8	56.7	12.8	61.3	56.8	13.0
SY Monument	59.8	61.0	61.8	56.5	12.5	60.6	54.9	12.6	60.8	55.5	12.6
Redfield	59.9	62.8	59.2	56.9	13.0	60.5	56.5	13.1	60.6	57.4	13.0
WB-Grainfield	52.5	58.3	63.6	56.1	12.7	59.9	56.4	12.9	58.7	56.6	12.8
SY 517 CL	57.6	52.6	61.0	59.2	13.3	55.5	57.9	13.5	57.7	58.2	13.3
Overland	55.2	57.4	62.6	58.7	12.8	58.9	57.1	12.5	57.6	57.2	12.8
Thompson	55.5	54.5	58.7	57.7	13.0	55.6	57.3	13.2	55.3	57.6	13.2
SY Sunrise	55.1	51.8	58.0	56.9	12.5	53.7	55.4	12.8	55.2	56.1	12.7
Langin	48.1	51.0	59.0	56.1	12.2	53.7	55.6	12.5	52.3	55.9	12.6
Expedition	52.5	49.6	46.2	57.6	13.0	47.4	55.5	13.0	50.1	56.2	13.0
SY Wolverine	-	61.3	57.4	58.1	12.6	58.8	53.9	13.0	-	-	-
WB4595	-	55.9	62.0	59.1	12.0	57.8	57.6	12.3	-	-	-
NW13493	-	52.9	65.3	57.6	12.7	57.6	56.8	13.1	-	-	-
LCS Diesel	-	-	73.0	58.4	12.8	-	-	-	-	-	-
Guardian	-	-	68.2	59.1	12.6	-	-	-	-	-	-
CP7017CAX	-	-	67.5	57.5	12.2	-	-	-	-	-	-
Crescent AX	-	-	64.2	57.8	12.4	-	-	-	-	-	-
LCS Helix AX	-	-	62.9	57.9	12.2	-	-	-	-	-	-
CP7909	-	-	62.2	57.4	12.7	-	-	-	-	-	-
WB4309	-	-	62.1	57.8	12.8	-	-	-	-	-	-
AP 18AX	-	-	61.5	56.3	12.1	-	-	-	-	-	-
CP7010	-	-	61.3	59.8	12.4	-	-	-	-	-	-
NE14696	-	-	59.5	57.1	12.5	-	-	-	-	-	-
ND Noreen	-	-	59.4	58.6	13.0	-	-	-	-	-	-
CP7050CAX	-	-	58.9	59.7	13.1	-	-	-	-	-	-
Northern	-	-	57.7	57.3	13.2	-	-	-	-	-	-
Flathead	-	-	53.2	56.3	13.1	-	-	-	-	-	-
MTF 1435	-	-	49.0	54.2	13.0	-	-	-	-	-	-
Trial Average#	58.9	57.7	63.6	57.7	12.7	60.8	56.7	12.7	60.3	57.0	12.8
LSD(0.05)†	6.7	4.0	4.7	1.6	0.3	7.1	1.6	0.9	7.4	1.3	0.5
C.V.%‡	10.4	9.9	9.4	3.6	3.0	9.6	2.9	5.0	9.5	3.2	4.5

Trial averages may include values from experimental lines that are not reported.

† Value required (\geq LSD) to determine if varieties are significantly different from one another.

‡ C.V. is a measure of variability or experimental error, 15% or less is considered acceptable.

Note: Western trial sites include Lantry/Faith, Martin, Sturgis, and Wall.