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

Winter Wheat Crop Tours – 2020

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Entire Variety Trial Results available at: <https://extension.sdstate.edu/wheat-variety-trial-results>

Table 1. List of winter wheat varieties tested in 2019-20 along with origin, agronomic, and grain quality characteristics.

Variety	Testing and Origin		Agronomic Characteristics			Grain Quality		Disease Ratings	
	Years tested in SD trials	Origin-Year	Relative Heading (days)	Height (inches)	2019 Lodging Score*	2019 Protein† (%)	2019 Test Wt. (lb/bu)	Stripe Rust	FHB (scab)
AP 18AX	new	AP-18	(-3)	-	-	-	-	(R)	(MS)
Cowboy	5+	WY-12	5	35	3	12.3	59.3	S	S
CP7010	new	WU-19	-	-	-	-	-	-	-
CP7017AX	new	WU-20	-	-	-	-	-	-	-
CP7050AX	new	WU-20	-	-	-	-	-	-	-
CP7909	new	WU-19	-	-	-	-	-	-	-
Crescent AX	new	PG-18	-	-	-	-	-	(MR-MS)	-
LCS Diesel	new	LCS-20	-	-	-	-	-	(R)	(R)
Draper	4	SD-19	2	32	1	12.9	59.2	MR-MS	MR
Expedition	5+	SD-02	June 11	34	2	13.4	59.6	S	MR
Flathead	new	MT-19	(late)	-	-	-	-	(R)	(S)
Guardian	new	PG-19	-	-	-	-	-	(MR)	-
Ideal	5+	SD-11	5	34	2	12.9	60.0	S	MS
Keldin	4	WB-13	7	35	2	12.9	60.1	(MR)	MS
Langin	4	PG-16	-1	29	4	12.2	58.7	(MR)	MR-MS
LCS Helix AX	new	LCS-20	-	-	-	-	-	(R)	(MR)
NE14696	new	NE-exp	(4)	-	-	-	-	(MR)	(MR)
MTF1435	new	MT-18	(late)	-	-	-	-	(R)	-
Northern	new	MT-15	(medium)	-	-	-	-	(R)	(S)
NW13493	2	NE-exp	2	32	4	13.1	60.6	-	-
Oahe	5+	SD-16	4	38	3	13.2	60.9	MR	MR
Overland	5+	NE-07	4	36	2	13.1	59.9	S	MR
Redfield	5+	SD-13	5	33	2	13.2	59.5	MR-MS	MR
SY 517 CL2	4	AP-17	-1	30	2	13.5	60.8	(R)	MR
SY Monument	5+	AP-15	4	33	1	12.6	58.1	MR-R	MR-MS
SY Sunrise	5+	AP-16	2	29	3	12.7	59.0	MR-R	MS
SY Wolverine	2	AP-19	0	28	1	12.8	59.6	(MR)	(MS)
Thompson	5+	SD-17	6	36	1	13.4	60.2	MR-MS	MR-MS
WB-Grainfield	5+	WB-12	-2	32	3	12.6	58.7	MR-MS	S
WB4309	new	WB-19	(-1)	-	-	-	-	(MR-MS)	(MR-MS)
WB4462	3	WB-16	-1	34	2	13.1	59.2	(S)	MR-MS
WB4595	2	WB-18	4	32	1	12.8	61.3	(MR)	S
Winner	4	SD-19	2	33	1	13.1	59.9	MR-MS	MR-MS
14Nord-1	new	ND-exp	-	-	-	-	-	(MR)	(MR-MS)
Trial Average	-	-	-	-	2.2	13.1	59.5	-	-

*Lodging scores: 1, standing perfectly to 9, completely flat

†Grain protein content and test weight values as compared to trial averages

- AP-18AX (AgriPro, 2018):** New CoAXium™ variety from AgriPro. Company data says early-maturing with resistance to stripe rust and moderate susceptibility to FHB. Certified Seed Only. Performance in SD TBD.
- Cowboy (Wyoming, 2012):** Joint release from Wyoming and Colorado. Susceptible to stripe rust, tan spot, WSMV, and FHB. Over the last 5 years this has been a solid performer in western and central portions of SD. Seemed to fall off a bit in 2019, yields were only about average. Watch out for lodging and low GPC.
- CP7010 (Winfield, 2019):** High yield potential and a broad acre fit. Nice defensive product with high yield potential. Brings excellent test weight with mid-late head emergence. Good straw with average winterhardness, responds well to irrigation. Note: all wheats from Winfield (CROPLAN) are single season use only.
- CP7017AX (Winfield, 2020):** New CoAXium™ variety from CROPLAN. Strong yield potential with strong ability to handle stress. A medium-maturity variety that tolerates acid soils and droughty acres, with strong resistance to stem rust and FHB. Excellent winterhardness with moderate height and good standability.
- CP7050AX (Winfield, 2020):** New CoAXium™ variety from CROPLAN. Excellent yield potential with balanced protein especially on productive dryland or irrigated acres, with tolerance to acid soils. An early product with average winterhardness. Moderate height, good standability, and responds well to fungicides.
- CP7909 (Winfield, 2019):** Very high yield potential with higher protein for elite yielding acres. Very good winterhardness for a broad fit across the northern plains. Better suited to high-yield conditions, especially highly-managed irrigated acres. Responds well to fungicide, especially in stripe rust conditions. Medium tall plant with average straw and good baking quality.
- Crescent AX (PlainsGold, 2018):** Tested as CO14A050, this is a new CoAXium™ hard red winter wheat variety from the Colorado State breeding program with two genes of tolerance to Aggressor™ herbicide. It is advertised as higher yielding, with improved quality compared to Incline AX. Crescent AX has medium height, medium-early maturity with very good straw, and is intermediate for stripe and leaf rust resistance. It has good resistance to WSMV and good test weight, as well as good milling and baking quality. Certified Seed Only.
- LCS Diesel (DH11HRW55-4) (Limagrain, 2020):** First year for this entry from Limagrain Cereal Sciences. Company material claims “highly defensive disease protection, excellent standability, maximum yields, and very good tolerance to FHB”. Rated resistant to leaf, stem and stripe rust, FHB, and soil-borne mosaic virus. It is medium-tall with late maturity. Advertised area of adaptation includes south central SD.
- Draper (South Dakota, 2019):** Developed from the cross T154/SD06069, Draper has medium-tall height and early-medium maturity. It has excellent yield potential with average protein content and test weight. Moderately resistant to soil borne mosaic virus. Moderately resistant to moderately susceptible to stripe, leaf, and stem rust and above average resistance to FHB. Acceptable milling and baking quality. Best overall 3-year yielder in western SD and 3rd in central SD.
- Expedition (South Dakota, 2002):** Developed from the cross Tomahawk/Bennet, Expedition was released for its excellent winter survival ability, early maturity, and high yield potential. Moderately susceptible to tan spot, leaf and stripe rust, and WSMV. Moderately resistant to FHB in South Dakota. Very good milling and baking quality. Expedition is usually a contender for lowest yields in the trials, as it is getting some age on it.
- Flathead (Montana, 2019):** Developed from the cross Yellowstone*2/PI640431. Flathead is an early maturing, hollow-stemmed, medium height wheat with average yield, above average test weight, and average protein. Flathead has excellent resistance to stripe rust and is moderately resistant to both stem rust and dwarf bunt.
- Guardian (PlainsGold, 2019):** This variety carries two genes for resistance to WSMV as well as resistance to stripe, stem, and leaf rust. While promoted primarily as a defensive variety, it plays offense fairly well too, with excellent grain protein content and test weight. Very good quality characteristics. Performance in SD TBD. Certified Seed Only.
- Ideal (South Dakota, 2011):** Developed from the cross Brule//Bennett/Chisholm/3/Arapahoe, Ideal is medium-height and medium-late maturity wheat with very good winter-hardiness, a long coleoptile, good test weight, and good quality characteristics. Moderately resistant to stem and leaf rust, moderately susceptible to FHB, and susceptible to stripe rust and WSMV. Ideal has performed fairly well the past couple years, and ranks 3rd and 4th over 3 years in western and central SD, respectively.
- Keldin (Westbred, 2013):** Fourth year in the SD trials for this entry from Bayer. Moderately resistant to leaf rust and tan spot. Moderately resistant to stripe rust and moderately susceptible to FHB. Keldin has the 2nd best 3-year average yields in western SD and has been a historically good performer in the east as well. Oddly, it has only yielded about average in central locations. Later maturing (similar to Ideal) with good protein content.

Langin (PlainsGold, 2016): Fourth year for this entry from Colorado State. This variety is a double haploid line developed from the cross CO05270/Byrd. CSU material claims it is a high yielder despite being susceptible to most pathogens except stripe rust and WSMV. SDSU found it to be resistant to leaf rust and moderately resistant to tan spot. Langin had an excellent year in 2017 but has only been average at best in 2018 and 2019. Early-maturing with below average protein content and fair lodging potential.

LCS Helix AX (LCH15ACC-8-21) (Limagrain, 2020): New CoAXium™ variety from Limagrain. Company material claims “very good stripe rust tolerance, good FHB tolerance, broadest adaptation of the CoAXium varieties, and two-gene resistance to Agressor brand herbicides”. Rated intermediate to leaf rust, and resistant to stem and stripe rust, FHB, and soil-borne mosaic virus. It is medium in height with medium-early maturity. Advertised area of adaptation includes south central SD.

NE14696 (Nebraska, experimental): From Dr. Baenziger: “First year for this potential hard red winter wheat from Nebraska, derived from the cross NE05537/Overland. It is relatively late, semidwarf wheat with good winterhardiness that is resistant to wheat soilborne mosaic virus, moderately resistant to stem and stripe rust, moderately resistant to moderately susceptible to leaf rust, and susceptible to wheat streak mosaic virus, Hessian fly, and wheat stem sawfly. In the 2018 and 2019 Northern Regional Performance Nursery, it was the highest yielding line in both years in South Dakota of the lines that were tested.”

MTF1435 (Montana, 2018): MTF1435 is a late maturing, tall, awnless hard red winter wheat developed mainly for forage production. MTF1435 was derived from the cross MT08186//Yellowstone*2 /98X168E1. Montana State University has partnered with Sioux Nation, LLC of Fort Pierre, SD to market and distribute MTF1435 in SD, ND, and NE. Developed as a successor to Willow Creek (Montana, 2005) with the benefits of dual purpose to harvest as grain or as forage. MTF 1435 is earlier in maturity than Willow Creek with similar forage quality and yield with the added benefit of 35% higher grain production.

Northern (Montana, 2015): Northern was developed from the cross Yellowstone sib//MTW0072/NW97S151. Northern is a medium-late maturing, medium-short statured wheat with high yield (similar to Yellowstone), average test weight, and average protein. Northern is resistant to both stem and stripe rust.

NW13493 (Nebraska, experimental): Second year for this potential hard white wheat from Nebraska, derived from the cross SD98W175-1/NW03666. From Dr. Baenziger: “There is little doubt that if NW13493 were a hard red wheat, it would be released. It is a very high yielding, early, semi-dwarf with good winterhardiness and disease resistance (leaf, stem, and stripe rust; wheat soilborne mosaic virus). However, it is susceptible to WSMV and Hessian fly. While it has good test weight, it tends to be slightly below average for grain protein content. It has very good end-use quality. It has good sprouting tolerance and FHB resistance nearly on par with Lyman and Overland.” In 2018, this variety performed slightly above average in central SD. Did not do well in western SD.

Oahe (South Dakota, 2016): Developed from the cross Ransom/SD96240-3-1. It is a tall variety with good winter hardiness. Moderately resistant to stripe rust, leaf rust (Lr16), WSMV, and FHB. It has good test weight, average protein content, and milling quality and baking qualities are comparable to Overland. Sixth overall for 3-year average yields in central SD. This variety has excellent yield potential but does not seem to be very consistent. Lodging can be a concern.

Overland (Nebraska, 2006): Overland was developed from the cross NE94482(=Arapahoe/Abilene//NE86488)/ND8974. Excellent adaptation to South Dakota, it was co-released with Nebraska. Moderately resistant to stem and leaf rusts but susceptible to stripe rust. Relatively poor end-use quality wheat. Despite the age of this variety, it is still in the top 1/3 for 3-year average in central SD and just out of the top 1/3 in western SD. About average east river.

Redfield (South Dakota, 2013): This variety was developed from the cross Wesley/ CDC Falcon, it is a medium to late-maturity variety with good winter-hardiness. Named in part for its distinctive red chaff. It is a tall semi-dwarf with very stiff straw. It is moderately resistant to FHB but is moderately susceptible to leaf and stem rust. Rated MR-MS for stripe rust. Susceptible to WSMV. Three-year yields are just out of the top 1/3 in western SD and right around average in central SD.

SY 517 CL2 (AgriPro, 2017): This will be the 4th year for this entry in the SD trials. Hit hard by a late-spring frost at the Vivian location this year. Ranked by the company as resistant to stripe rust and MR to FHB. Otherwise good disease package. Short and early-maturing. Yields have not been terribly impressive in the SD trials but may be a good option for the Clearfield production system...currently the only CL variety in the trials. Certified Seed Only.

SY Monument (AgriPro, 2014): AgriPro claims western adaptation for this variety but it seems to perform well throughout SD. Good disease package with moderate resistance to all rusts and WSMV. Medium-late maturity. Good tolerance to acid soils. Good standability. Ranks 2nd and 4th over 3 years in central and western SD, respectively. Arguably one of the most consistent yield performers in the SD trials. Seems to have a lower than average GPC and test weight.

SY Sunrise (AgriPro, 2015): Company website says this is a good candidate for irrigation. Good disease package, SD tests show resistance to stripe rust and moderate susceptibility to FHB. Sunrise had the best 3-year average in central SD and third best in eastern SD in 2016-2018 but did not perform well last year. Does not seem to be a good choice in western regions of SD. Recommended for high-yield environments. Certified Seed Only.

- SY Wolverine (AgriPro, 2019):** This is the second year for this entry developed from the cross Everest/Platte//SY Wolf. Company rates it as MR to stripe rust and WSMV and R to leaf rust. No rating for FHB. Company info states 'Similar to SY Wolf in agronomic qualities, disease resistance, etc.; outstanding yield performance; 7% yield advantage over SY Wolf in SD over 3 years. Yields were above average in the 2019 SD trials, just made the top 1/3 in central testing locations.
- Thompson (SDSU, 2017):** Thompson was developed from the cross SD97088/KS920709-B-5-2//Jagalene. Taller semi-dwarf with medium to late maturity with good winter hardiness. Moderately resistant to stripe rust and leaf rust. Tolerant to WSMV and FHB. Average protein content and test weight. Over 3 years, Thompson has yielded near the trial average throughout the state but seems to do the best in central SD.
- WB-Grainfield (Westbred, 2012):** This entry is short in height and very early in maturity with very good winter hardiness and straw strength. Moderately resistant to all the rusts but susceptible to FHB. Has typically been a solid, consistent yielder in SD trials but had a poor showing in 2018 and was only about average in 2019. Resistance to current races of stripe and especially leaf rust has eroded away in this older line.
- WB4309 (Westbred, 2019):** This is the first year of testing for this newly released variety. In early internal testing at Westbred it has shown above average yield and grain protein with adaptation to SD and ND. For disease it is weaker on FHB, but stronger on most other prominent diseases including leaf and stripe rust, and WSMV. Certified Seed Only.
- WB4462 (Westbred, 2016):** This is the 3rd year for this entry from Westbred. It is susceptible to stripe rust and MR-MS to FHB. Excellent yield potential. Early maturity (similar to Grainfield), good TW and average GPC. Best overall yielder in central SD over 2 years and 4th best in western SD. Arguably the current best-yielding material in the SD trials from Westbred/Bayer.
- WB4595 (Westbred, 2018):** Second year for this entry from Westbred. Company rates it MR for stripe rust and SD trials have found it to be susceptible to FHB. Advertised to have excellent yield potential and broad adaptation. Medium-late maturity and short plant stature. In 2019 it tied for 2nd place overall in central testing locations. Certified Seed Only.
- Winner (South Dakota, 2019):** Winner was developed from the cross T154/SD07165 and has medium height and early-medium maturity. It has an excellent yield potential with average protein content and test weight. Moderately resistant to stem rust and average resistance to FHB. Moderately resistant to moderately susceptible to stripe and leaf rust. Good baking quality in WQC test. Best overall 3-year yields in central SD and 5th in western SD. Named in part for Winner, SD and the fact that it is often a 'yield trial winner'.
- 14Nord-1 (North Dakota, experimental):** From Dr. Marais: "14Nord-01 was selected from the cross Decade/Armour. It is a tall semi-dwarf with intermediate flowering. It has very good winter-hardiness and lodging resistance. The primary tiller grows notably taller than the secondary tillers, giving it an uneven appearance. It has moderate resistance to leaf, stem and stripe rust and has been resistant to bacterial leaf streak at Casselton, ND. It shows moderate resistance to FHB but does not carry known FHB resistance QTL. It yields well and typically gives high test weight seed with satisfactory milling extraction and loaf volume potential."
- SD12DHA03282 (SDSU experimental):** This is the third year for this SD experimental line developed from the cross Striker/SD03184-4 using doubled haploid technology. Medium in height and late in maturity. High yielding with average protein but above average test weight and good end-use quality. Over 2 years it ranked 3rd and 4th among released varieties in western and central, SD, respectively. Resistant to stripe rust, moderately resistant to barley yellow dwarf virus, and rated MR-MS to FHB.
- SD12DHA02346 (SDSU experimental):** This is the second year for this experimental doubled haploid line developed from the cross Smoky Hill/Redfield. Medium height and medium maturity with very good straw strength. Good yield potential with average test weight and protein content and very good milling and baking quality. Moderately resistant to US stem rust races (Lr37/Sr38/Yr17) and above average tolerance to FHB. Yielded in the top 1/3 in western SD in 2019.

Table 2. Three-year 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	2019			2-year			3-year		
	Yield (bu/a)	Test Wt (lbs)	Protein %	Yield (bu/a)	Test Wt (lbs)	Protein %	Yield (bu/a)	Test Wt (lbs)	Protein %
Winner	75.9	59.9	13.1	74.1	60.5	13.3	68.2	60.5	13.5
SY Monument	74.4	58.1	12.6	70.5	58.7	12.7	66.8	59.1	13.1
Draper	73.5	59.2	12.9	72.4	59.9	13.3	66.6	60.0	13.7
Ideal	72.4	60.0	12.9	71.6	60.9	13.1	66.5	60.7	13.6
Cowboy	71.4	59.3	12.3	70.6	60.4	12.5	65.6	60.2	12.7
Oahe	73.9	60.9	13.2	70.6	61.4	13.1	65.2	61.2	13.5
Overland	75.4	59.9	13.1	70.4	60.8	13.2	64.6	60.8	13.7
SY Wolf	73.0	60.0	13.3	68.8	60.4	13.6	64.6	60.5	13.7
Thompson	72.3	60.2	13.4	69.7	61.0	13.4	64.5	60.8	13.8
Langin	70.0	58.7	12.2	66.6	59.5	12.5	64.4	60.3	12.7
Keldin	71.7	60.1	12.9	67.4	60.0	13.2	63.6	60.0	13.5
Redfield	70.2	59.5	13.2	68.9	60.4	13.4	63.4	60.4	13.9
SY Sunrise	71.1	59.0	12.7	66.4	59.5	13.0	62.8	60.2	13.5
Avery	66.8	58.8	12.2	64.2	59.4	12.4	62.6	60.1	12.6
WB-Grainfield	70.6	58.7	12.6	67.6	59.6	12.9	62.4	60.2	13.3
Lyman	65.1	60.0	14.4	68.4	60.7	14.3	61.0	60.6	14.8
Wesley	66.3	58.5	13.5	65.5	59.3	13.6	60.0	59.3	14.2
Expedition	64.4	59.6	13.4	64.1	60.7	13.6	59.5	60.9	14.1
LCS Mint	67.3	60.8	12.9	64.6	61.7	12.9	59.3	61.9	13.2
Alice	60.9	58.6	13.3	61.8	59.6	13.3	56.9	59.7	13.9
SY 517 CL2	65.3	60.8	13.5	60.4	61.4	13.7	55.7	61.7	14.1
WB4462	71.8	59.2	13.1	74.5	60.2	13.1	-	-	-
LCS Chrome	68.6	59.8	14.1	68.3	60.6	14.0	-	-	-
NHH144913-3	65.2	56.3	13.9	60.3	57.2	14.0	-	-	-
WB4595	74.4	61.3	12.8	-	-	-	-	-	-
SY Wolverine	72.7	59.6	12.8	-	-	-	-	-	-
NW13493	71.2	60.6	13.1	-	-	-	-	-	-
Canvas	66.8	59.4	12.9	-	-	-	-	-	-
Trial Average#	70.6	59.6	13.8	69.0	60.2	13.2	63.6	60.4	13.6
LSD(0.05)†	2.7	0.5	0.3	2.5	0.4	0.2	2.7	0.3	0.2
C.V.%‡	7.2	1.4	3.8	9.0	1.0	2.8	11.6	1.5	4.4

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.

Table 3. 2017-2019 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	2019			2-year			3-year		
	Yield (bu/a)	Test Wt (lbs)	Protein %	Yield (bu/a)	Test Wt (lbs)	Protein %	Yield (bu/a)	Test Wt (lbs)	Protein %
Draper	64.0	56.5	13.1	63.1	57.2	13.0	57.2	58.0	13.1
Keldin	62.2	55.9	12.7	64.8	56.5	12.7	56.0	57.5	13.1
Ideal	60.9	55.5	12.5	61.3	56.6	12.7	55.8	57.7	13.0
SY Monument	61.0	53.9	12.5	61.7	55.2	12.6	54.8	56.7	12.7
Winner	66.7	55.8	12.9	59.7	56.4	13.1	54.4	57.6	13.3
Cowboy	57.5	54.8	12.3	61.7	56.6	12.1	54.1	57.7	12.3
SY Wolf	56.0	53.3	13.2	58.4	55.3	13.2	53.7	57.1	13.3
Redfield	62.8	56.1	12.9	62.6	57.4	12.9	53.5	58.2	13.2
Overland	57.4	55.8	12.4	56.8	56.5	12.8	52.7	57.9	12.9
LCS Mint	57.5	55.7	11.1	59.7	56.8	12.0	52.5	58.3	12.4
Avery	55.4	55.4	12.0	57.3	56.3	12.0	52.4	57.8	12.2
Oahe	59.5	57.0	12.9	58.8	57.5	13.0	51.8	58.6	13.2
WB-Grainfield	58.3	55.9	12.8	57.8	56.3	12.8	51.4	57.7	13.2
SY 517 CL2	52.6	57.5	13.4	57.6	58.1	13.2	50.7	59.1	13.5
Wesley	52.7	53.8	13.6	55.0	55.1	13.5	50.5	56.5	13.8
Thompson	54.5	57.1	13.2	55.3	57.6	13.2	50.3	58.5	13.4
Lyman	49.2	55.2	13.9	56.4	56.7	13.6	50.2	57.7	13.9
Langin	51.0	54.2	12.4	50.8	55.2	12.6	48.5	57.0	12.7
SY Sunrise	51.8	54.2	12.7	55.1	55.6	12.7	48.0	57.4	13.2
Expedition	49.6	54.2	12.9	52.6	55.8	13.0	47.6	57.4	13.2
Alice	44.6	54.4	12.6	50.8	55.7	12.9	45.7	57.0	13.4
WB4462	63.7	56.1	13.3	62.5	56.3	13.2	-	-	-
LCS Chrome	50.8	55.9	13.9	55.3	57.1	13.7	-	-	-
NHH144913-3	55.7	53.1	13.3	55.3	54.2	13.4	-	-	-
SY Wolverine	61.3	52.1	13.2	-	-	-	-	-	-
WB4595	55.9	57.0	12.2	-	-	-	-	-	-
NW13493	52.9	56.2	13.0	-	-	-	-	-	-
Canvas	52.4	53.8	12.8	-	-	-	-	-	-
Trial Average#	57.7	55.5	12.8	58.7	56.5	12.9	52.3	57.7	13.1
LSD(0.05)†	4.0	1.4	0.8	2.7	1.0	0.4	2.5	0.7	0.4
C.V.%‡	9.9	3.5	8.3	9.7	3.5	7.0	12.2	2.9	7.2

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.