SDSU Extension

agronomy

South Dakota Agricultural Experiment Station Research at SDSU

OCTOBER 2018

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

2018 South Dakota Spring Wheat Variety Trial Results Regional Summaries

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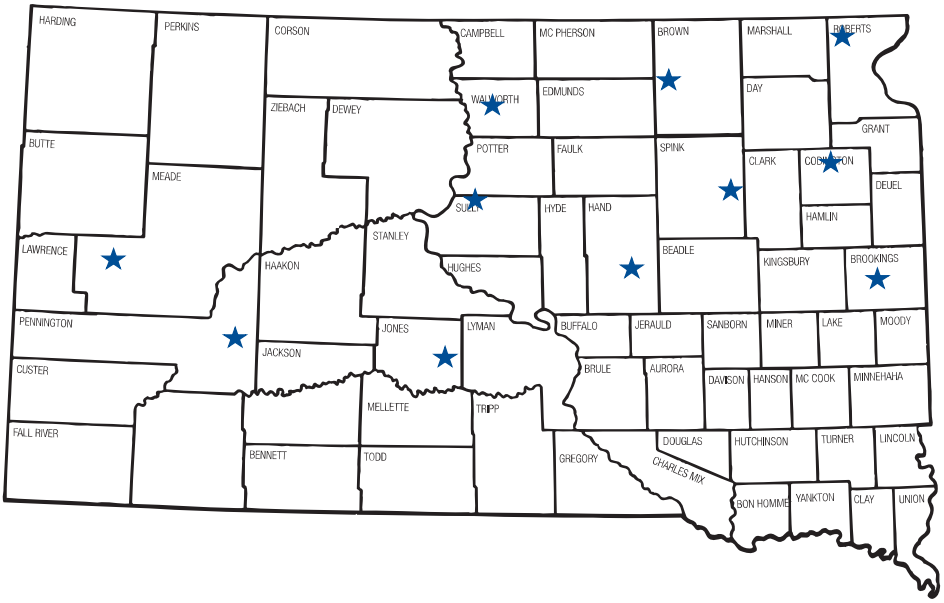

Eastern trial locations: Claire City, Doland, South Shore, and Volga

Central trial locations: Aberdeen, Agar, Miller, and Selby

Western trial locations: Draper, Sturgis, and Wall

Individual trial location results can be accessed online at:
http://igrow.org/agronomy/wheat/spring-wheat-variety-trial-results/

Publication: 03-3031-2018

2018 South Dakota Spring Wheat Performance Trial Highlights

Jonathan Kleinjan | SDSU Extension Crop Production Associate

The 2018 spring wheat growing season in South Dakota was characterized by a relatively late onset of spring planting followed by variable heat and precipitation patterns throughout the state. In general, yields in the northeast part of the state were affected by drought conditions and areas south of US Highway 12 were negatively impacted by heat during flowering and grain fill. No widespread disease pressure was noted, however Fusarium Head Blight (scab) was observed at some of the trial locations, most notably in Volga. In most cases, disease pressure was not enough to cause significant yield losses. Harvest progressed rapidly and produced below-average to average yields in most areas of the state. It is interesting to note that the latest planted trial location, South Shore (planted on May 14th), had some of the highest yields observed statewide in 2018.

Yields from the SDSU Extension CPT program averaged 50 bu/acre in eastern South Dakota (Claire City, Doland, South Shore, and Volga), ranging from 41 bu/acre at Doland to 69 bu/acre at South Shore. Varieties yielding in the top 1/3 of the eastern SD trials for 2018 were **LCS Trigger**, **Faller**, **HRS 3530**, **HRS 3419**, **WB9590**, **WB9563**, **SY Ingmar**, **WB9719**, **HRS 3504**, **SY Valda**, **LCS Cannon**, **Prosper**, and **Prevail**. Yields in central South Dakota (Aberdeen, Agar, Miller, and Selby) averaged 51 bu/acre, ranging from 33 bu/acre at Aberdeen to 71 bu/acre at Selby. Varieties yielding in the top 1/3 of the central SD trials for 2018 were **LCS Trigger**, **SY Valda**, **HRS 3504**, **WB9653**, **WB9719**, **HRS 3100**, **Prosper**, **MS Chevelle**, **HRS 3419**, **LCS Rebel**, **HRS 3888**, **Advance**, **SY Ingmar**, **Faller**, and **SY Rustler**. Western South Dakota trial locations (Draper, Sturgis, and Wall) averaged 41 bu/acre, ranging from 32 bu/acre at Draper to 46 bu/acre at Wall. Varieties yielding in the top 1/3 for 2018 in the western trial locations were **LCS Trigger**, **SY Valda**, **WB9653**, **HRS 3530**, **LCS Cannon**, **Shelly**, **Prosper**, **HRS 3504**, **RB07**, **WB9590**, **Faller**, **Surpass**, and **HRS 3888**. The protein content of the crop averaged 17.0%, 16.6%, and 14.4% in eastern, central, and western SD, respectively. Detailed trial results, including height and lodging notes for each location are available at: http://igrow.org/agronomy/wheat/spring-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 2018 tended to favor later-maturing varieties. 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 residue cover or heavy precipitation, and reduces the ability to detect true varietal differences.

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2018 South Dakota Spring Wheat Variety Trial Results Variety List

Table 1. List of spring wheat varieties tested in 2018 along with origin, agronomic, and grain quality characteristics.

Variety	Testing and Origin		Agronomic Characteristics			Grain Quality	
	Years tested in SD trials	Origin†-Year	Rel. Hdg.‡ (days)	Rel. Height‡ (inches)	2018 Lodging Score§	2018 Test Wt. (lb/bu)#	2018 Protein (%)#
Advance	5+	SD-11	6	-2	2.5	0.2	-0.7
Ambush	2	DG-17	3	-1	2.1	0.9	0.3
Bolles	5+	MN-15	7	-1	2.1	-1.6	1.8
Boost	5+	SD-exp	7	1	2.1	0.0	0.4
Brick	5+	SD-08	0	0	2.8	0.6	0.3
Faller	5+	ND-07	7	0	2.4	0.0	-0.9
Focus	5+	SD-15	0	1	2.3	0.7	0.7
Forefront	5+	SD-11	2	2	2.6	0.5	0.3
HRS 3100	3	CP-16	5	-2	1.6	-0.5	-0.5
HRS 3419	5+	CP-15	9	-2	1.6	-1.1	-0.9
HRS 3504	4	CP-15	5	-3	1.7	-0.6	-0.9
HRS 3530	4	CP-16	6	1	2.4	-1.0	0.0
HRS 3616	3	CP-17	5	-1	1.7	-0.6	0.7
HRS 3888	new	CP-18	4	-1	1.8	0.1	-0.2
Lang-MN	4	MN_17	7	1	2.0	0.6	0.4
LCS Cannon	new	LCS-18	0	-3	1.7	1.5	-0.1
LCS Rebel	2	LCS-17	3	0	2.6	1.1	0.5
LCS Trigger	4	LCS-15	10	0	1.6	0.4	-1.9
Linkert	5+	MN-13	4	-3	1.5	0.0	1.2
MN10201-4-A	new	MN-exp	5	-2	1.5	0.0	-0.3
MS Barracuda	new	MS-18	1	-4	2.0	-0.3	0.4
MS Camaro	2	MS-17	3	-4	1.8	-0.9	0.7
MS Chevelle	5+	MS-14	3	-3	2.5	0.0	-0.9
ND VitPro	3	ND-17	3	-2	2.3	0.1	0.5
Prevail	5+	SD-13	5	-1	2.0	0.3	-0.4
Prosper	5+	ND-11	7	1	2.6	-0.5	-0.9
RB07	5+	MN-07	5	0	2.4	-0.4	0.2
Select	5+	SD-09	2	-1	2.4	0.4	0.1
Shelly	3	MN-16	6	-3	1.8	-0.5	-0.8
Surpass	5+	SD-exp	2	-1	2.5	-0.3	0.2
SY Ingmar	3	SY-14	4	-1	1.5	1.4	0.5
SY Rustler	4	SY-16	2	-4	2.2	0.1	0.0
SY Valda	4	SY-15	3	-1	2.3	0.4	-0.4
WB9479	2	WB-18	4	-3	1.5	-0.5	1.2
WB9590	2	WB-18	4	-4	1.6	-0.6	0.7
WB9653	4	WB-15	5	-3	1.7	-1.0	-1.1
WB9719	2	WB-18	6	-2	1.8	1.1	-0.1

† AP, AgriPro; CP, Croplan; DG, Dyna-Gro Seed; LCS, Limagrain Cereal Seeds; MN, Minnesota; MS, Meridian Seeds, ND, North Dakota; SD, South Dakota; WB, WestBred; WY, Wyoming; and – (Year of Release).

‡ Difference in days to heading and height compared to Brick (2018 eastern sites - Julian date 170 and 31 inches).

§ Lodging score: 1, perfectly standing; to 5, completely flat (eastern and central locations).

Test weight (lbs/bu) and protein (%) as compared to trial averages (statewide).

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2018 South Dakota Spring Wheat Variety Trial Results Disease Ratings

Table 2. Spring wheat variety disease ratings.

Variety	Disease Ratings†						
	2017 Stripe Rust	Stem Rust	2018 Leaf Rust	2018 Tan Spot Race 1	2018 Tan Spot Race 5	2018 Bacterial Leaf Streak	2018 Fusarium Head Blight
Advance	MS	R-MR	S	S	S	MR-MS	MR
Ambush	S	-	R	MS	S	MR	MR-MS
Bolles	MS	-	R	S	MS	MR-MS	MS
Boost	S	-	MR-R	MR	MS	MR	MR-MS
Brick	MS-S	R	R	MS	MS	MS	MR
Faller	S	R	R	S	S	MR	MS
Focus	S	-	R	S	MS	MR	MR
Forefront	MS	R-MR	MS	S	MS	MR	MR
HRS 3100	S	-	R	R	R	MR-MS	MS
HRS 3419	R	*(R)*	R	R	R	MR	MS
HRS 3504	S	*(MR)*	R	R	R	MR	MS
HRS 3530	S	*(R)*	R	R	R	MR-MS	MR
HRS 3616	MS	-	R	MR	R	MS	MS
HRS 3888	-	-	R	MS	R	MR-MS	MR
Lang-MN	MS	*(R)*	R	MS	S	MR	MR
LCS Cannon	-	-	R	MR	MS	MS	MR
LCS Rebel	S	-	R	MS	MS	MR-MS	MS
LCS Trigger	MS	*(R)*	R	R	R	MR	MS
Linkert	MS	-	R	S	S	MS	MR-MS
MN10201-4-A	-	*(R)*	MR	S	S	MR-MS	MS
MS Barracuda	-	-	MS	MS	S	MS	MS
MS Camaro	S	*(R)*	MS	MS	MS	MS	MS
MS Chevelle	MR	*(MR)*	R	S	MS	MS	MR
ND VitPro	MS	*(MR)*	R	S	S	MS	MS
Prevail	MR	MR	MS-MR	S	S	MR	MR
Prosper	S	R	R	MS	S	MR-MS	MR
RB07	MR	MR	MS	S	MS	MS	MS
Select	S	R-MR	MR-R	S	S	MS	MR
Shelly	MR	-	R	S	S	MR	MS
Surpass	S	-	MS	S	MS	MR	MR
SY Ingmar	S	*(R)*	R	R	R	MR-MS	MR-MS
SY Rustler	MS	*(MR)*	R	R	R	MS	MR
SY Valda	S	*(R)*	R	MS	MR	MR	MR
WB9479	MS	*(R)*	MS	S	S	MR	MS
WB9590	S	*(R)*	MS	MS	S	MR	MR-MS
WB9653	S	*(MR)*	R	S	S	MR	MS
WB9719	S	*(R)*	R	MS	S	MR	MR-MS

† Disease ratings: R, resistant; MR, moderately resistant; MS, moderately susceptible; S, susceptible;
note: Ratings are a combination of program ratings, field observations, and field and/or greenhouse nursery screenings.
Estimated rankings *(X)* based on information provided by the program that submitted the variety.

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2018 South Dakota Spring Wheat Variety Trial Results Eastern Summary

Table 3. 2016-2018 spring 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	2016 Yield (bu/a)	2017 Yield (bu/a)	2018			2-year Yield (bu/a)	3-year Yield (bu/a)
			Yield (bu/a)	Test Wt (lbs)	Protein %		
LCS Trigger	67.0	64.6	60.6	58.5	14.8	64.6	65.4
HRS 3419	61.9	59.1	54.1	57.4	16.0	57.7	59.1
SY Rustler	64.3	62.4	49.2	57.6	17.0	56.3	59.0
HRS 3504	63.3	60.8	52.4	57.2	16.2	56.4	58.7
Shelly	60.9	61.8	48.3	56.6	16.5	57.5	58.6
Prevail	64.0	60.5	50.9	58.3	16.1	55.5	58.3
SY Ingmar	61.9	58.2	53.1	59.4	17.0	56.5	58.3
WB9653	63.8	57.4	53.1	56.2	16.1	55.1	58.0
MS Chevelle	62.6	57.1	49.5	57.3	16.0	54.9	57.5
SY Valda	62.3	56.8	51.9	58.1	16.8	55.0	57.5
Surpass	63.2	58.1	47.8	56.7	17.3	52.9	56.3
HRS 3530	59.9	52.6	54.2	56.9	17.3	54.3	56.2
HRS 3616	57.5	59.4	50.2	56.8	17.8	55.5	56.2
HRS 3100	60.8	55.5	49.5	56.5	16.3	53.0	55.6
Forefront	59.7	57.1	47.8	57.9	17.1	53.4	55.5
Lang-MN	59.6	56.7	47.7	57.7	17.5	52.5	54.9
Select	60.7	53.0	46.1	56.6	17.2	51.6	54.6
Focus	60.3	54.4	47.5	58.4	17.6	51.7	54.6
Prosper	59.3	47.2	51.2	57.7	16.2	51.1	53.8
RB07	59.0	50.5	46.8	57.1	17.1	51.0	53.6
Faller	56.5	47.2	54.3	58.4	16.0	52.1	53.5
Brick	56.0	54.2	48.4	57.8	17.2	51.4	52.9
Advance	57.1	52.6	45.6	57.1	16.3	50.7	52.8
Bolles	54.7	51.6	46.9	55.7	19.1	50.6	52.0
Boost	55.4	51.5	47.8	58.0	17.0	49.4	51.4
Linkert	56.1	53.2	44.1	58.2	17.6	48.9	51.3
ND Vitpro	54.2	50.8	46.2	57.3	17.2	49.6	51.1
WB9590	-	56.2	53.1	56.3	17.7	55.9	-
WB9719	-	56.9	52.9	58.4	16.5	55.6	-
Ambush	-	56.7	49.0	58.3	17.4	53.9	-
WB9479	-	57.2	47.8	56.2	18.2	53.7	-
LCS Rebel	-	55.4	47.9	58.7	17.5	52.6	-
MS Camaro	-	52.7	43.4	56.5	17.4	48.7	-
LCS Cannon	-	-	51.4	58.6	17.1	-	-
HRS 3888	-	-	48.9	57.6	16.9	-	-
MN10201-4-A	-	-	48.8	57.4	16.6	-	-
MS Barracuda	-	-	48.5	56.0	17.5	-	-
Trial Average#	60.0	55.8	49.5	57.4	17.0	53.7	55.8
LSD(0.05)†	3.5	3.5	3.0	0.9	0.3	2.2	1.9
C.V.%‡	7.3	7.8	8.8	2.3	2.4	7.2	7.2

Trial averages may include values from experimental lines that are not reported.
† Value required (≥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.

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2018 South Dakota Spring Wheat Variety Trial Results Central Summary

Table 4. 2016-2018 spring 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	2016 Yield (bu/a)	2017 Yield (bu/a)	2018			2-year Yield (bu/a)	3-year Yield (bu/a)
			Yield (bu/a)	Test Wt (lbs)	Protein %		
LCS Trigger	67.1	48.0	60.1	58.5	14.5	57.1	61.0
WB9653	70.3	42.4	56.7	56.8	15.5	52.6	59.0
HRS 3504	68.2	44.2	56.9	57.4	15.5	53.6	58.9
SY Valda	69.2	41.5	57.9	58.4	16.0	52.8	58.7
SY Ingmar	67.0	43.0	52.6	58.8	16.8	50.9	56.7
MS Chevelle	69.2	39.0	54.2	58.2	15.7	49.6	56.6
Shelly	66.6	43.1	52.4	57.6	15.8	50.8	56.5
HRS 3530	65.3	42.3	52.3	57.5	16.6	50.4	56.0
HRS 3419	65.1	40.8	53.2	57.7	15.3	50.0	55.6
HRS 3100	66.1	38.0	55.0	57.3	16.0	49.5	55.4
Lang-MN	65.6	42.8	51.0	59.8	17.2	49.9	55.4
Advance	64.6	40.6	52.6	59.1	15.6	49.7	55.1
Prosper	63.6	37.9	54.5	57.4	15.6	49.3	54.6
Faller	63.5	39.5	52.6	57.2	15.6	49.2	54.5
Surpass	66.7	37.3	51.3	57.3	16.6	47.3	54.2
SY Rustler	66.2	36.4	52.4	58.1	16.4	47.5	54.2
HRS 3616	62.6	37.5	51.2	57.0	17.4	47.3	52.8
Prevail	63.8	33.4	52.3	59.3	16.0	45.9	52.2
Select	64.8	36.3	46.9	58.2	16.3	44.6	51.8
RB07	63.7	34.3	49.2	57.4	16.8	44.8	51.5
Forefront	58.8	39.1	48.4	58.7	16.7	46.8	51.2
Boost	60.5	35.1	49.3	58.0	17.0	45.2	50.5
Linkert	63.9	35.0	44.9	57.5	17.9	43.0	50.3
Brick	63.1	37.0	43.9	58.6	16.9	43.4	50.3
Bolles	59.3	35.6	46.7	56.3	18.8	44.1	49.6
Focus	61.8	29.9	48.5	59.2	17.0	42.2	49.1
ND Vitpro	59.2	31.0	47.4	58.4	17.2	42.1	48.1
WB9719	-	43.7	55.7	58.8	16.5	52.7	-
LCS Rebel	-	38.3	52.7	58.6	17.1	48.5	-
WB9590	-	35.3	51.4	57.2	17.6	46.5	-
Ambush	-	36.1	50.6	59.3	16.8	46.4	-
WB9479	-	34.4	50.1	58.0	17.9	45.3	-
MS Camaro	-	29.5	45.0	56.8	17.1	40.3	-
HRS 3888	-	-	52.6	58.1	16.5	-	-
MN10201-4-A	-	-	51.7	58.0	16.2	-	-
LCS Cannon	-	-	51.4	59.1	16.5	-	-
MS Barracuda	-	-	47.6	58.5	16.9	-	-
Trial Average#	64.6	38.1	51.0	58.0	16.6	15.8	52.7
LSD(0.05)†	1.9	2.7	3.9	1.3	0.4	3.3	2.9
C.V.%‡	4.3	8.9	6.7	2.9	2.4	7.4	5.9

Trial averages may include values from experimental lines that are not reported.
† Value required (≥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.

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2018 South Dakota Spring Wheat Variety Trial Results Western Summary

Table 5. 2016-2018 spring 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	2016 Yield (bu/a)	2017 Yield (bu/a)	2018			2-year Yield (bu/a)	3-year Yield (bu/a)
			Yield (bu/a)	Test Wt (lbs)	Protein %		
SY Valda	47.1	31.7	48.4	56.4	13.9	40.0	42.4
WB9653	44.0	31.8	47.4	55.5	13.0	39.6	41.2
Surpass	43.3	35.4	42.5	56.6	14.7	38.9	40.5
LCS Trigger	43.7	27.1	49.2	55.6	12.8	38.2	40.0
Select	40.6	36.3	42.2	58.1	14.6	39.3	39.8
HRS 3530	41.9	29.9	47.3	54.3	13.9	38.6	39.7
Prevail	43.7	32.5	41.7	54.8	14.5	37.1	39.2
Shelly	43.9	27.1	45.4	55.8	13.2	36.3	38.8
HRS 3100	41.5	34.4	39.7	56.2	14.2	37.1	38.7
HRS 3504	41.8	29.7	43.9	55.3	13.3	36.8	38.4
Lang-MN	42.1	30.3	40.7	55.8	14.3	35.5	37.7
SY Rustler	42.2	31.4	39.6	56.2	14.3	35.5	37.6
Prosper	39.8	27.7	45.1	55.0	13.3	36.4	37.4
Brick	40.3	31.7	39.4	57.0	14.8	35.5	37.2
Advance	39.5	30.8	41.1	56.1	13.9	35.9	37.1
RB07	41.6	25.9	43.6	55.8	14.6	34.7	37.0
Focus	39.4	30.8	40.4	56.1	15.4	35.6	37.0
MS Chevelle	40.0	29.9	38.8	56.0	13.6	34.4	36.3
Faller	39.3	26.7	42.8	56.0	13.4	34.7	36.2
ND Vitpro	40.1	28.4	39.8	56.2	15.0	34.1	36.1
HRS 3616	37.6	29.4	39.7	56.0	14.8	34.6	35.6
Linkert	38.8	29.4	37.5	55.8	15.9	33.5	35.3
SY Ingmar	38.4	29.2	38.3	57.7	15.7	33.8	35.2
Forefront	32.7	34.3	37.4	56.3	15.0	35.8	34.9
Boost	34.4	27.0	36.4	55.4	14.9	31.7	32.5
HRS 3419	33.9	26.9	31.9	53.2	13.9	29.4	30.8
Bolles	32.8	24.0	35.8	54.8	15.6	29.9	30.7
WB9719	-	34.4	41.3	57.5	14.6	37.9	-
WB9590	-	31.6	42.9	56.3	14.6	37.2	-
LCS Rebel	-	32.4	41.5	57.6	14.9	36.9	-
Ambush	-	29.5	36.8	56.6	14.7	33.2	-
WB9479	-	26.8	39.2	55.7	15.3	33.0	-
MS Camaro	-	27.3	35.1	55.8	15.6	31.2	-
LCS Cannon	-	-	46.0	58.4	14.0	-	-
MN10201-4-A	-	-	43.8	56.1	14.1	-	-
HRS 3888	-	-	42.4	56.3	13.8	-	-
MS Barracuda	-	-	39.3	56.2	14.6	-	-
Trial Average#	40.1	30.1	40.7	56.1	14.4	35.5	36.7
LSD(0.05)†	3.8	3.5	3.5	1.5	0.4	3.7	2.5
C.V.%‡	9.5	14.6	10.8	3.2	3.2	12.4	11.4

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† Value required (≥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.