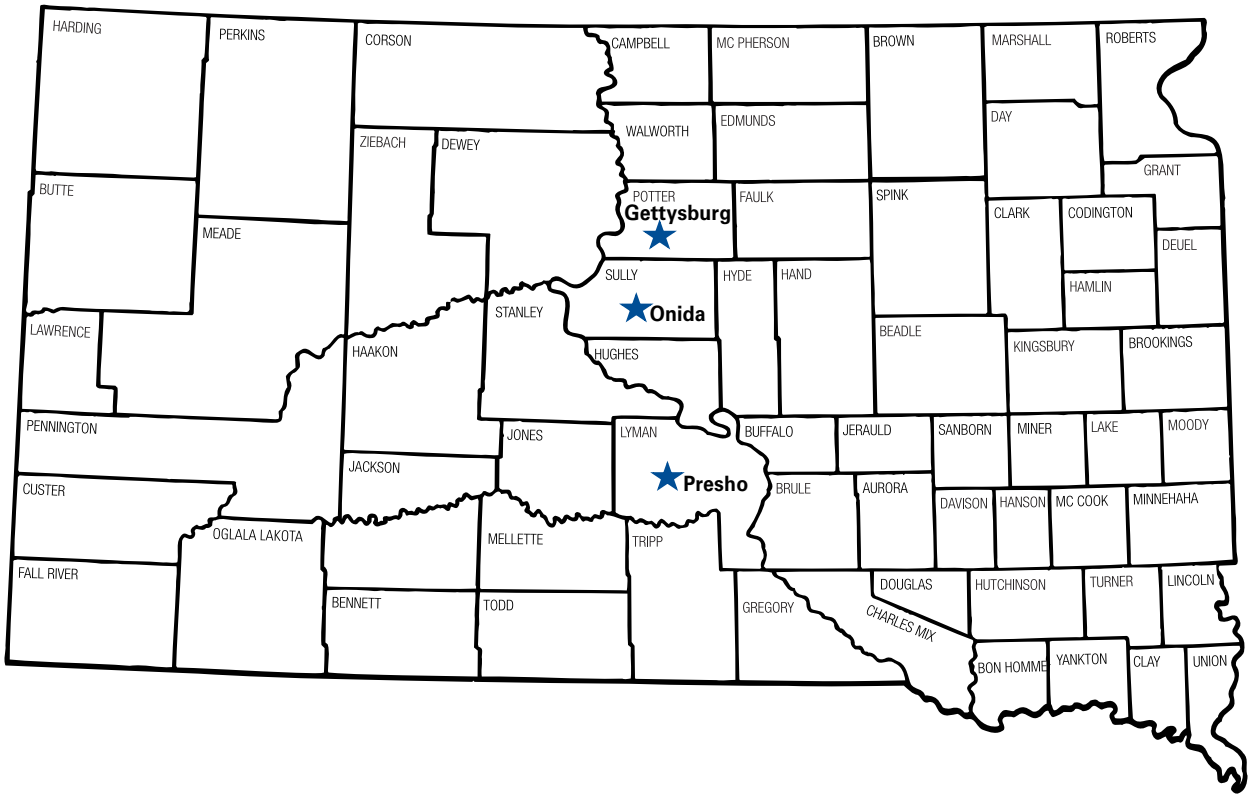
South Dakota State University
College of Agriculture, Food and Environmental Sciences

South Dakota State University Extension
South Dakota Agricultural Experiment Station at SDSU

2021 South Dakota Sunflower Variety Trial Results

Febina Mathew | SDSU Field Crop Pathologist and Associate Professor
Nathan Braun | Agricultural Research Manager



Locations: Onida, Gettysburg, Presho

Co-operator: Onida - Van Huse, Gettysburg - Nathaniel Williams, Presho - Dustin Smith

Individual trial location results can be accessed online at:
extension.sdstate.edu/south-dakota-sunflower-hybrid-performance-trials

S-0002-10

South Dakota State University Extension

2021 South Dakota Sunflower Variety Trial Highlights

The 2021 sunflower growing season in South Dakota began with a dry spring planting in June, followed by heat and drought conditions in most of the state until mid- to late-September. Harvest was on time (October), but due to the dry conditions, yields of the hybrids were slightly below average, when compared to their 2-year and 3-year averages.

Sunflower yields averaged 1,850 lbs/acre in Onida, 2,350 lbs/acre in Gettysburg, and 2,218 lbs/acre in Presho for oil types. Confection yield averaged 1,500 lbs/acre in Onida. The Hayes field location was abandoned due to very poor germination. About 70% of the plots in Lantry was compromised from deer feeding and the result from the variety trial at this location was not included into the report.

For yield, consider information from performance trials close to your production area. Performance averaged over many tests (locations and years) is called “yield stability”. A good yield stability means that, while a hybrid may or may not be the best yielder at all locations, it ranks high in yielding potential at many locations/years. A hybrid that ranks in the upper 20% at all locations exhibits better yield stability than one that is the top yielder at two locations but ranks in the lower 40% at two other locations.

To determine if one hybrid is better than another for a given trait in the tables that follow, use the least significant difference (LSD 5%) value at the bottom of each data column. The LSD 5% value is a statistical method of indicating if a trait, like yield, differs when comparing two hybrids. If two hybrids differ by more than the indicated LSD value for a given trait, they would most likely differ again when grown under similar conditions. It is unlikely that environmental conditions of any particular test will be repeated in any future year.

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 ≤ 20% is considered acceptable by sunflower market standards. 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.

South Dakota State University Extension

2021 South Dakota Sunflower Variety Trial Results

Table 1. Sunflower variety (oilseed) performance results (average of 4 replications) at Onida, SD.

Variety Information		Agronomic Performance						
Brand	Hybrid	Height (In)	Moisture (%)	Test Wt (lbs/bu)	Yield (lbs/ac@10%)	Oil (%)	2 Year Yield	Hulling
Pioneer	P64HE101	53	11.44	32.35	1933.39	43.63	2654.55	62.59
Pioneer	P64ME01	52	11.58	31.50	2060.92	43.90	2638.95	78.47
Proseed	E-50016 CL	48	9.78	30.90	1507.63	41.60	2195.19	-
Proseed	12G25CL	52	10.78	32.75	1978.78	43.53	2434.50	-
Proseed	E-31 CL	53	9.80	30.18	1599.24	45.25	2220.96	-
Proseed	E-91 E	58	10.45	32.60	3065.39	42.33	2575.93	-
Proseed	E-93 E	59	10.57	29.75	2004.70	42.95	1920.80	-
RAGT Semences	AC2101	53	10.01	29.43	1526.56	43.83	-	-
Dairyland Seed	D643HO	56	10.51	29.58	1959.31	44.50	-	-
Dairyland Seed	D683MO	51	10.48	32.13	1798.77	42.75	-	-
Dairyland Seed	D690MO	54	11.44	31.63	1559.16	43.03	-	-
CROPLAN by Winfield United	CP432E	49	10.52	31.30	1820.18	42.80	2200.14	-
CROPLAN by Winfield United	CP450E	51	11.17	30.38	1592.79	41.35	2337.00	-
CROPLAN by Winfield United	CP455E	51	11.43	31.90	1691.74	42.35	2566.88	63.93
CROPLAN by Winfield United	CP4909E	46	10.59	30.90	1614.84	43.98	2233.95	-
CROPLAN by Winfield United	CP5045CL	50	12.06	32.33	1717.02	43.00	-	-
CROPLAN by Winfield United	CP7919CL	56	11.87	30.63	2403.81	43.60	-	-
CROPLAN by Winfield United	CP4157E	52	10.06	31.18	2041.17	43.65	-	74.64
Dyna-Gro	H47HO11EX	51	12.10	32.33	1579.39	44.30	-	-
Dyna-Gro	H49HO19CL	52	11.48	32.00	1913.28	46.08	2507.97	-
Dyna-Gro	H49NS14CL	53	11.33	32.38	2370.87	43.68	2676.82	-
Dyna-Gro	XH81H52CP	55	11.22	33.08	1938.95	45.58	2327.66	-
Dyna-Gro	XH81N58EX	46	10.55	33.20	1308.77	42.98	-	-
Dyna-Gro	XH81H59EX	52	10.23	31.63	1426.15	45.98	-	-
Dyna-Gro	XH81H60EX	56	11.34	32.08	1493.34	41.35	-	-
Dyna-Gro	XH81N61EX	56	10.64	32.73	1469.06	43.75	-	-
Dyna-Gro	XH81N62EX	49	10.33	31.45	1286.33	41.05	-	-
Dyna-Gro	XH82H63EX	56	9.94	31.08	1589.91	40.20	-	-
AgVenture	AF3691HC	57	10.95	31.95	1959.71	40.35	-	-
AgVenture	AF2690HC	50	10.53	32.88	1731.22	44.10	-	-
AgVenture	AF4740MC	54	11.56	32.73	2328.51	43.50	2682.98	-
AgVenture	AF3679HE	51	10.68	32.00	1551.05	41.18	2308.36	-
AgVenture	AF3N692ES	54	11.31	30.65	1964.10	42.50	2475.25	-
AgVenture	AF3682HE	48	12.03	31.50	1619.25	42.40	-	-
Innvictis Seed Solutions	GS6601HC	55	11.06	31.90	2044.66	44.25	-	-
Innvictis Seed Solutions	GS6351HC	49	11.29	32.00	1657.41	44.40	-	-
Nuseed	Badger DMR	55	10.23	31.75	1759.99	43.35	1942.54	70.19
Nuseed	N5H493 CL	53	11.05	28.73	2417.16	41.90	-	-

Planted: June 3, Harvested: November 2. Previous Crop: Corn, Tillage: Strip Till, Row Spacing: 30", Population: 22,000
† Yield or moisture 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 acceptable.

South Dakota State University Extension

2021 South Dakota Sunflower Variety Trial Results

Table 1. continued.

Variety Information		Agronomic Performance						
Brand	Hybrid	Height (In)	Moisture (%)	Test Wt (lbs/bu)	Yield (lbs/ac@10%)	Oil (%)	2 Year Yield	Hulling
Nuseed	NLKP74437	49	11.64	31.88	1729.65	42.10	-	-
Nuseed	N4H422 CL	54	11.85	31.50	2234.60	44.00	2579.01	-
Nuseed	N4H470 CLP	52	10.73	33.20	2983.33	44.33	2811.21	-
Nuseed	N4H521 CL	53	12.06	32.00	2014.51	41.88	2519.86	-
Nuseed	N4HM354	48	10.96	32.65	1938.12	44.33	2534.22	-
Nuseed	N4H302 E	54	9.57	31.30	2336.58	43.20	2472.14	-
Nuseed	Falcon	51	10.27	31.73	1872.45	45.68	2358.68	-
Nuseed	NLKE04002	52	10.66	32.53	1542.49	42.33	-	-
SunOpta	4415HOCLP	55	11.53	31.50	1529.04	46.13	2175.32	-
SunOpta	442CL	57	11.04	31.13	2347.74	47.20	2542.32	-
SunOpta	Exp725CL	53	11.14	29.13	2018.26	43.40	2602.61	-
USDA	Check	56	9.48	31.48	1127.76	45.38	1714.22	-
CHS	8D310CL	58	12.00	29.50	1739.03	38.00	2141.08	87.36
CHS	20-EXP05	58	11.98	28.25	1980.29	41.63	2352.04	82.62
P-Value		< 0.05	< 0.05	< 0.05	< 0.05	> 0.05	< 0.05	< 0.05
C.V.‡		6.59	4.53	3.37	17.35	7.46	17.96	8.01
LSD (0.05)†		4.85	0.69	1.48	454.20	4.51	423.38	10.59

Planted: June 3, Harvested: November 2. Previous Crop: Corn, Tillage: Strip Till, Row Spacing: 30", Population: 22,000
† Yield or moisture 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 acceptable.

South Dakota State University Extension

2021 South Dakota Sunflower Variety Trial Results

Table 2. Sunflower variety (oilseed) performance results (average of 4 replications) at Gettysburg, SD.

Variety Information		Agronomic Performance						
Brand	Hybrid	Height (In)	Moisture (%)	Test Wt (lbs/bu)	Yield (lbs/ac@10%)	Oil (%)	2 Year Yield	3 Year Yield
Pioneer	P64HE101	59	10.62	31.50	1889.49	40.80	2497.58	2235.95
Pioneer	P64ME01	60	10.26	31.63	1666.75	41.80	2292.23	2330.26
Proseed	E-50016 CL	58	9.45	30.75	2341.59	44.08	2110.58	-
Proseed	12G25CL	60	10.12	31.88	2937.13	44.20	2618.84	-
Proseed	E-31 CL	60	9.14	30.13	1498.05	41.50	2414.10	1794.46
Proseed	E-91 E	68	10.00	32.38	1838.99	42.83	2268.50	1937.21
Proseed	E-93 E	62	10.46	28.75	1783.31	41.43	2489.62	-
CROPLAN by Winfield United	CP432E	59	8.98	31.88	1824.82	39.10	2080.14	1983.28
CROPLAN by Winfield United	CP450E	58	9.91	31.50	1977.50	42.33	2172.58	1827.17
CROPLAN by Winfield United	CP455E	60	9.81	31.38	1983.46	41.38	2500.57	2148.50
CROPLAN by Winfield United	CP4909E	56	8.70	33.00	1825.00	44.08	2432.76	2189.66
CROPLAN by Winfield United	CP5045CL	61	11.11	31.88	3017.81	43.83	-	-
CROPLAN by Winfield United	CP7919CL	64	11.11	32.00	2047.67	44.63	-	-
CROPLAN by Winfield United	CP4157E	60	9.27	32.25	1953.69	45.95	-	-
S&W Seed	SF440 HO/CL	59	10.35	32.30	1671.31	41.98	2632.97	-
S&W Seed	SW1H63CL	60	9.12	32.25	2224.64	43.63	-	-
S&W Seed	SW1H81CLP	60	10.02	24.13	1643.15	43.98	-	-
S&W Seed	NSW21460	66	11.38	31.50	2131.24	39.48	-	-
Dyna-Gro	H47HO11EX	63	10.43	32.63	1816.14	43.33	-	-
Dyna-Gro	H49HO19CL	67	10.42	31.88	2406.41	42.48	-	-
Dyna-Gro	H49NS14CL	59	10.60	34.25	2488.65	44.55	2484.02	2146.06
Dyna-Gro	XH81H52CP	60	10.46	31.75	1996.80	45.35	2615.43	-
Dyna-Gro	XH81H60EX	65	10.35	32.25	2302.14	42.58	-	-
Dyna-Gro	XH81N62EX	64	9.66	33.00	1526.49	41.15	-	-
Dyna-Gro	XH82H63EX	61	9.31	30.38	2018.09	42.48	-	-
AgVenture	AF3691HC	68	10.72	31.44	2544.27	44.65	-	-
AgVenture	AF2690HC	59	9.90	33.75	2224.60	46.15	-	-
AgVenture	AF4740MC	61	11.15	31.94	2456.07	42.58	2861.47	2604.01
AgVenture	AF3679HE	61	9.31	32.50	2100.40	42.15	2303.13	2148.01
AgVenture	AF3N692ES	63	9.59	30.38	1856.14	43.15	2574.37	2482.11
AgVenture	AF3682HE	61	10.23	31.75	1925.53	41.70	-	-
Innvictis Seed Solutions	GS6601HC	59	10.65	31.25	2332.51	41.73	-	
Innvictis Seed Solutions	GS6351HC	60	10.25	31.25	2097.61	41.25	-	-
Nuseed	Badger DMR	61	8.93	31.75	2139.33	40.45	2414.00	1944.95
Nuseed	N5H493 CL	59	9.86	30.13	2534.68	42.08	-	-
Nuseed	NLKP74437	58	10.55	30.63	2089.58	38.60	-	-
Nuseed	N4H422 CL	65	10.80	31.38	2584.54	45.15	2636.72	-
Nuseed	N4H470 CLP	60	10.36	32.25	2204.96	45.90	-	2125.22

Planted: June 3, Harvested: November 2. Previous Crop: Corn, Tillage: Strip Till, Row Spacing: 30", Population: 22,000
† Yield or moisture 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 acceptable.

South Dakota State University Extension

2021 South Dakota Sunflower Variety Trial Results

Table 2. continued.

Variety Information		Agronomic Performance						
Brand	Hybrid	Height (In)	Moisture (%)	Test Wt (lbs/bu)	Yield (lbs/ac@10%)	Oil (%)	2 Year Yield	3 Year Yield
Nuseed	N4H521 CL	64	11.53	30.63	2833.70	43.30	2793.89	2646.44
Nuseed	N4HM354	62	10.23	31.88	2702.82	41.63	2574.86	2356.29
Nuseed	N4H302 E	61	9.27	31.50	1616.33	44.25	2341.46	2187.84
Nuseed	Falcon	58	8.85	32.63	1840.17	44.30	2618.06	2487.22
Nuseed	NLKE04002	64	9.28	32.13	1866.67	43.33	-	-
USDA	Check	64	9.96	30.58	2095.57	41.13	2557.38	2278.77
CHS	8D310CL	64	10.91	31.38	2566.47	40.08	2324.45	-
CHS	20-EXP05	68	11.23	29.50	2135.87	40.93	2237.16	-
P-Value		< 0.05	< 0.05	< 0.05	< 0.05	> 0.05	> 0.05	< 0.05
C.V.‡		6.78	6.70	7.79	19.91	7.99	18.58	21.26
LSD (0.05)†		5.82	0.95	3.43	591.05	4.77	482.06	436.8

Planted: June 3, Harvested: November 2. Previous Crop: Corn, Tillage: Strip Till, Row Spacing: 30", Population: 22,000
† Yield or moisture 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 acceptable.

South Dakota State University Extension

2021 South Dakota Sunflower Variety Trial Results

Table 3. Sunflower variety (oilseed) performance results (average of 4 replications) at Presho, SD.

Variety Information		Agronomic Performance						
Brand	Hybrid	Height (In)	Moisture (%)	Test Wt (lbs/bu)	Yield (lbs/ac@10%)	Oil (%)	2 Year Yield	3 Year Yield
Pioneer	P64HE101	62	11.25	30.50	2604.90	40.23	2775.73	2507.74
Pioneer	P64ME01	60	10.92	30.88	2154.58	38.73	2187.51	2194.92
Proseed	E-50016 CL	43	8.59	31.20	2485.21	39.68	2554.78	-
Proseed	12G25CL	58	8.84	32.25	3170.84	42.65	2467.70	-
Proseed	E-31 CL	61	8.85	29.63	1850.27	41.58	1835.37	1741.71
Proseed	E-91 E	62	9.39	33.33	1218.96	42.03	1381.06	1403.02
Proseed	E-93 E	63	10.13	29.25	1718.28	39.85	1808.49	-
RAGT Semences	AC2101	56	9.01	29.88	1895.05	35.98	-	-
CROPLAN by Winfield United	CP432E	55	8.85	31.75	1928.69	40.00	2095.46	1763.80
CROPLAN by Winfield United	CP450E	55	9.83	31.00	1528.60	37.38	2031.08	1794.99
CROPLAN by Winfield United	CP455E	54	10.82	32.00	2336.07	41.25	2144.05	1948.51
CROPLAN by Winfield United	CP4909E	53	11.06	32.13	2370.21	38.55	1902.30	1863.18
CROPLAN by Winfield United	CP5045CL	58	10.61	31.75	3466.86	43.45	-	-
CROPLAN by Winfield United	CP7919CL	56	9.25	30.75	2603.44	38.20	-	-
CROPLAN by Winfield United	CP4157E	53	8.58	31.78	2033.55	43.55	-	-
S&W Seed	SF440 HO/CL	56	12.49	30.25	1579.86	40.85	1809.45	-
S&W Seed	SW1H63CL	57	9.50	30.75	1406.02	41.50	-	-
S&W Seed	SW1H81CLP	54	8.78	31.25	1574.30	39.80	-	-
S&W Seed	NSW21460	61	10.97	31.75	2050.12	40.50	-	-
Dyna-Gro	H49HO19CL	56	10.03	31.13	2476.83	43.23	-	-
Dyna-Gro	H49NS14CL	57	11.69	31.13	2557.27	40.15	2490.74	2243.13
Dyna-Gro	XH81H52CP	59	10.16	31.25	1808.80	39.50	1755.34	-
AgVenture	AF3691HC	62	10.32	31.25	2653.98	39.75	-	-
AgVenture	AF2690HC	54	8.75	32.00	2670.14	41.25	-	-
AgVenture	AF4740MC	55	10.53	31.63	2439.32	40.75	2201.29	2158.03
AgVenture	AF3679HE	54	9.18	31.75	1669.60	40.98	2028.84	1855.95
AgVenture	AF3N692ES	58	10.11	31.00	1593.36	40.60	1921.38	1973.66
AgVenture	AF3682HE	56	11.43	31.00	2251.01	44.25	-	-
Innvictis Seed Solutions	GS6601HC	56	10.99	31.13	2642.24	37.93	-	-
Innvictis Seed Solutions	GS6351HC	60	11.11	31.25	1923.01	40.68	-	-
Nuseed	Badger DMR	58	8.63	30.00	2096.16	38.10	2112.68	1813.21
Nuseed	N5H493 CL	57	9.43	30.38	2563.08	35.63	-	-
Nuseed	N4H422 CL	58	11.34	30.63	2923.58	40.75	2442.18	-
Nuseed	N4H470 CLP	55	9.64	31.88	3036.17	43.48	2325.81	2212.72
Nuseed	N4H521 CL	58	10.15	30.75	2504.12	39.85	2411.76	2295.05
Nuseed	N4HM354	53	7.99	31.50	1758.18	40.58	1543.64	1691.61

Planted: June 2, Harvested: October 19. Previous Crop: Corn, Tillage: Strip Till, Row Spacing: 30", Population: 22,000
† Yield or moisture 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 acceptable.

South Dakota State University Extension

2021 South Dakota Sunflower Variety Trial Results

Table 3. continued.

Variety Information		Agronomic Performance						
Brand	Hybrid	Height (In)	Moisture (%)	Test Wt (lbs/bu)	Yield (lbs/ac@10%)	Oil (%)	2 Year Yield	3 Year Yield
Nuseed	N4H302 E	58	9.26	31.25	1930.72	38.60	1514.23	1500.25
Nuseed	Falcon	54	8.96	31.75	1993.10	40.43	2022.66	2028.78
SunOpta	4415HOCLP	65	10.10	29.25	2574.56	39.00	2134.63	1934.33
SunOpta	4425CL	61	9.36	30.35	1886.08	39.70	2214.21	2027.30
SunOpta	Exp725CL	62	10.51	30.00	2720.29	36.18	2029.59	1814.02
USDA	Check	54	8.44	31.25	2173.17	41.48	1857.69	1640.93
CHS	8D310CL	63	9.88	29.38	2283.71	35.95	2337.88	-
CHS	20-EXP05	65	9.91	28.38	2504.42	38.80	2267.22	-
P-Value		> 0.05	< 0.05	< 0.05	< 0.05	> 0.05	< 0.05	< 0.05
C.V.‡		10.50	14.33	2.93	18.55	10.92	23.74	23.65
LSD (0.05)†		8.41	1.99	1.27	668.61	6.12	565.41	397.31

Planted: June 2, Harvested: October 19. Previous Crop: Corn, Tillage: Strip Till, Row Spacing: 30", Population: 22,000
† Yield or moisture 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 acceptable.

South Dakota State University Extension

2021 South Dakota Sunflower Variety Trial Results

Table 4. Sunflower variety (non-oils) performance results (average of 4 replications) at Onida, SD.

Variety Information		Agronomic Performance			
Brand	Hybrid	Height (In)	Moisture (%)	Test Wt (lbs/bu)	Yield (lbs/ac@10%)
AgroTech Research	ATRSF01	51	13.01	18.00	1631.97
AgroTech Research	ATRSF02	56	13.34	16.67	2359.96
AgroTech Research	ATRSF03	48	12.47	19.67	889.99
Nuseed	NL377CL	51	11.15	19.67	1415.35
SunOpta	3590	52	12.72	22.33	941.78
SunOpta	5591	46	11.70	20.00	1456.47
SunOpta	9583	49	11.13	19.33	1934.53
CHS	RH609CLP	49	10.99	21.00	1669.28
CHS	20-EXP03	46	13.32	16.33	1607.10
CHS	21-EXP01	47	11.54	18.00	1432.77
USDA	Check	48	11.57	22.33	1178.71
	P-Value	> 0.05	> 0.05	> 0.05	< 0.05
	C.V.‡	10.39	8.04	13.84	18.41
	LSD (0.05)†	7.40	1.68	4.53	484.64

Planted: June 3, Harvested: November 2. Previous Crop: Corn, Tillage: Strip Till, Row Spacing: 30", Population: 22,000
† Yield or moisture 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 acceptable.