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Sunflower: 2010 South Dakota Hybrid Performance Trials

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Recommended Citation

Grady, Kathleen; Nleya, Thandiwe; Rickertson, John; and Gilbertson, Lee, "Sunflower: 2010 South Dakota Hybrid Performance Trials" (2010). *Extension Circulars*. Paper 476.
http://openprairie.sdstate.edu/extension_circ/476

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EC 909
Revised
Annually

SUNFLOWER

2010 South Dakota Hybrid Performance Trials

OILSEED

CONFECTION

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SUNFLOWER

2010 South Dakota Hybrid Performance Trials Oilseed and Confection

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Sunflower production is greatly affected by choice of hybrid. When selecting a hybrid, carefully consider characteristics such as seed yield potential, oil content, oil composition, maturity, stalk strength, and disease resistance. Choose hybrids with characteristics that best suit your needs and production practices.

Yield

Evaluate as much performance information as possible when selecting a hybrid. Give more weight to information from trials close to home and look at relative performance over many locations and years. Performance averaged over many tests is called “yield stability.”

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, 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.

For example, if the Presho oilseed test (table 7) could be repeated in 2011 exactly as it was in 2010, the yield ranking of a hybrid that yielded 2203 lbs/A and one that yielded 2034 lbs/A might change places, since their yield difference (169 lbs/A) is less than the indicated yield LSD value of 239 lbs/A. Within the accuracy level of the experiment, there was no statistical

difference in yield between the two hybrids when grown under the conditions that existed at Presho in 2010. In contrast, a hybrid that yielded 1913 lbs/A at Presho in 2010 would likely be lower yielding than one that yielded 2203 lbs/A if the two hybrids were grown again under similar conditions, because the difference between them in 2010 ($2203 - 1913 = 290$ lbs/A) exceeded the LSD value of 239 lbs/A.

The coefficient of variability (C.V.) listed at the bottom of each data column is a relative measure of the amount of variation recorded for a particular trait expressed as a percentage of the mean for that trait. Generally, trials with low C.V. rates are more reliable for making hybrid choices than trials with higher C.V. rates. Trials with C.V. rates not exceeding 15–20% may be considered reliable.

Look at as many trials as possible. It is unlikely that environmental conditions of any particular test will be repeated in any future year.

Oil Content and Composition

Among similar-yielding oilseed hybrids, select the one with the highest oil content. The oilseed-crushing market pays a premium for over 40% oil (at 10% moisture) and discounts for less than 40% oil.

Oil type may also be important. Hybrids are available with “traditional” (linoleic), high-oleic, and mid-oleic (NuSun) oil composition. Markets may pay a premium based on the composition of the oil produced by a particular hybrid. Some companies offer guarantees for NuSun or high oleic levels. Consistency of oleic levels for particular hybrids is an important trait to consider.

Maturity

Full-season hybrids generally yield higher than early hybrids.

Maturity is especially important if planting is delayed. Often, with delayed planting, only an early hybrid will mature and exhibit its full yield potential. Yield, oil content, and test weight are often reduced when a hybrid is damaged by frost before it is fully mature. An earlier hybrid will likely be drier at harvest than a later hybrid, thus reducing drying costs. To spread risk and workload, consider planting several hybrids with different maturity dates.

Moisture Content

Harvesting sunflower at moisture contents as high as 20–25% may reduce bird damage and seed shattering loss during harvest. However, seed must be dried to 9.5% or less for storage.

Disease Resistance

The most economical and effective means of sunflower disease and insect control is the planting of resistant or tolerant hybrids and a minimum of 4 years rotation between successive sunflower crops.

Most sunflower hybrids in the United States have resistance to Verticillium wilt, races 1 and 2 of downy mildew and to two or more races of rust. Some hybrids may also exhibit tolerance to sclerotinia head rot, Phomopsis, or sunflower midge. Clearfield® and ExpressSun™ hybrids are resistant to Beyond® and Express® herbicides, respectively. Consult the seed company for information on the reaction of a particular hybrid to the aforementioned and other pests that may pose risks in your growing area.

Other Factors

Consider your contracting and marketing opportunities when selecting hybrids. Some hybrids may fit more than one market. For example, many oilseed hybrids may be equally suitable for crushing, hulling, or birdfeed.

2010 Trial Procedures

Locations and Hybrids

Oilseed hybrid sunflower trials were planted at four locations in South Dakota (Bison, Eureka, Onida, and Presho). Entries in the oilseed sunflower trials included traditional linoleic oil hybrids, NuSun (mid-oleic) hybrids, and high-oleic hybrids. A non-oilseed (confection) sunflower trial was conducted at Onida. Test locations are indicated on the map in figure 1. Trial sites for each of the hybrids tested in 2010 appear in tables 2 and 3.

Climate

A summary of climate conditions near the sunflower test sites is presented in table 1. The 2010 growing season began with above-normal precipitation and below-normal temperatures in May at all locations except Presho, which had near normal May rainfall. June was drier than normal at Bison and Eureka but wetter than normal at Onida and Presho. Eureka remained drier and warmer than normal through August, but was cooler and wetter than the 30-yr average in September. Bison had above-average rainfall July through September. Onida had below-normal precipitation in July and August but was cooler and wetter in September. Presho was wetter than normal in July, but drier than usual August through October. October was warmer and drier than normal at all sites, which facilitated crop drydown even though the first killing frost (<24°F) did not occur until October 28, which was later than normal for all locations.

Experimental Methods

Plots at all locations consisted of four rows 30-feet long, spaced 30-inches apart. The center two rows of each plot were harvested. The plot layout was in a randomized complete block design with four replications at each location. The experiments were randomized for a nearest neighbors statistical analysis, which removes effects of field trends (see Crop Science 34:62–66).

Seed of most of the hybrids entered in the trials was pre-treated with Cruiser insecticide and at least one fungicide. All trials were seeded no-till. The previous crop at Eureka was corn; at Bison, Presho, and Onida, it was wheat. Plots were over-seeded and thinned to a plant population of approximately 17,000 plants/acre. Stands were spotty at Eureka, so stand counts were made prior to harvest. Initial stands were good at Presho, Bison, and Onida, but Presho had a fair number of seedlings systemically infected with downy mildew. These plants were preferentially removed at thinning.

Flowering was recorded at Onida as the number of days from planting to 50% ray petals extended. Days from planting to physiological maturity (rated visually) was also recorded at Onida. Plant height and lodging notes were taken at all locations immediately before harvest. Lodging was low at Bison and Presho for most hybrids. Onida and Eureka had extensive lodging in some plots, and Eureka also had considerable neck breakage due to high winds. The combination of poor stands, lodging, and neck breakage made the yield data at Eureka highly variable, so only

entries with adequate stands and relatively low levels of lodging and neck breakage were included in the yield analysis. Confection plot yields at Onida were also variable due to lodging and seed shatter, so no yield data are reported.

Plots at Onida and Presho were harvested with a Kincaid Massey Ferguson plot combine fitted with sunflower pans and a HarvestMaster HM400 Classic GrainGage weigh system. Plots at Eureka were harvested with the USDA-ARS sunflower research unit's Kincaid 8XP plot combine fitted with a custom 2-row sunflower header and an HM800 high-capacity GrainGage weigh system. Plots at Bison were harvested with a Wintersteiger Delta plot combine fitted with a HarvestMaster GrainGauge. Seed yields were adjusted to a 10% moisture basis. Oil content was determined by NMR analysis, using a Bruker minispec. Oil values for NuSun and high oleic hybrids were adjusted for oleic acid content. Hulling quality was measured at Onida on selected hybrids by passing a one-pint seed sample over 14/64 and 13/64 round-hole screens.

A 1-pint subsample of seed from each plot of the Onida confection trial was passed over 22/64, 20/64, and 18/64 round-hole screens to determine percent large seed. Nutmeat percent was

determined by weighing 20 whole seeds from each plot, dehulling, and weighing the 20 dehulled kernels.

Results

Data from each location and combined over locations are contained in tables 4–9. Yields of oilseed hybrids were highest at Presho, averaging 1792 lbs/acre over all hybrids tested, with an average oil content of 46.0%. The lowest overall yield was measured at Eureka, which averaged 1475 lbs/acre and 46.4% oil for hybrids with adequate stands and fairly low levels of lodging and neck breakage. Confection seed yields at Onida were too variable for publication, but other data collected appear in table 8. In the tables that follow, hybrids are listed alphabetically by brand.

Presentation of data in this report on the hybrids tested does not imply approval or endorsement by SDSU to the exclusion of other varieties that may be suitable. South Dakota State University approves the reproduction of any table in this publication only if no portion is deleted.

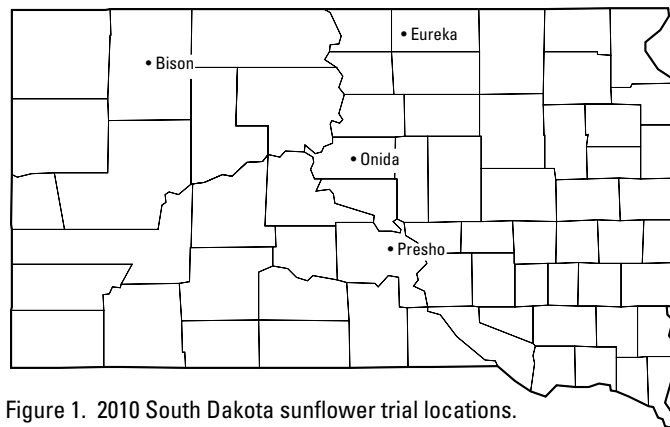


Figure 1. 2010 South Dakota sunflower trial locations.

Table 1. Climate summary for weather stations nearest to 2010 South Dakota sunflower test sites and departures from normal.

Location-Month	2010 Temperature			Total Precip (in.)	Departure from Normal ¹			Precip (in.)
	Avg Max.	Avg Min.	Mean		Max Temp	Min Temp	Avg Temp	
	----- (°F) -----				----- (°F) -----			
Bison*								
May	63.8	41.3	52.6	5.58	-5.7	-2.4	-4.0	2.86
June	75.8	52.5	64.2	2.18	-3.1	-0.5	-1.8	-0.64
July	86.0	57.5	71.8	2.90	0.0	-0.9	-0.4	0.63
August	86.8	58.3	72.6	2.70	0.6	1.4	1.0	1.23
September	74.4	46.1	60.2	2.81	-0.4	-0.4	-0.5	1.61
October	66.4	38.9	52.7	0.77	5.9	3.6	4.8	-0.69
Eureka*								
May	64.2	45.1	54.6	5.65	-5.6	1.5	-2.1	3.02
June	77.7	55.5	66.6	1.51	-0.5	2.6	1.0	-1.66
July	85.4	59.9	72.7	1.45	0.7	1.9	1.3	-1.33
August	87.3	59.8	73.5	0.12	3.5	3.6	3.5	-2.18
September	69.1	46.2	57.6	3.57	-4.2	0.8	-1.8	2.14
October	62.5	36.6	49.6	0.83	3.4	3.0	3.2	-0.83
Onida 4 NW*								
May	65.2	44.2	54.7	4.10	-5.2	-0.1	-2.7	1.25
June	77.2	55.7	66.5	3.87	-3.0	2.1	-0.4	0.76
July	86.4	60.0	73.2	1.97	-1.2	1.2	0.0	-0.72
August	89.2	60.9	75.1	0.73	3.4	3.9	3.7	-1.41
September	72.7	47.4	60.0	3.51	-3.3	1.1	-1.2	1.97
October	64.4	38.6	51.5	0.96	3.2	4.1	3.6	-0.62
Presho 7NW*								
May	68.7	44.8	56.7	3.22	-3.6	0.4	-1.7	-0.09
June	79.7	56.7	68.2	5.70	-2.5	2.9	0.2	2.19
July	88.2	62.0	75.1	3.83	-1.1	2.4	0.7	1.14
August	91.2	61.6	76.4	0.00	2.5	3.8	3.1	-2.28
September	75.9	47.4	61.7	0.00	-2.3	0.2	-1.0	-1.49
October	69.7	37.8	53.7	0.00	6.1	2.9	4.4	-1.51

*2010 climate observations are based on data from the High Plains Regional Climate Center, University of Nebraska, Lincoln. Observations are from sites as close to the actual test plot sites as available. Temperature and/or precipitation at the actual test plot sites may have differed from the values shown above.

¹Departures from normal were determined by comparing 2010 observations to 30-yr averages (1971 – 2000) for each site.

Table 2. Oilseed sunflower hybrids tested in South Dakota - 2010.

Company/ Brand	Hybrid	Hybrid Type ¹	Location			
			Bison	Eureka	Onida	Presho
Advanta	NutriSun HS03	HS,HO	X	X	X	X
Advanta US Inc	ADV590	NS		X	X	
Advanta US Inc	F51137NS,CL	NS,CL			X	
Advanta US Inc	F89057NS,SU	NS,Exp			X	
Croplan Genetics	306 DMR NS	NS,DM	X	X	X	X
Croplan Genetics	3080 DMR NS	NS,DM	X	X	X	X
Croplan Genetics	356A NS	NS	X	X	X	X
Croplan Genetics	378 DMR HO	HO,DM	X	X	X	X
Croplan Genetics	460 E NS	NS,Exp	X	X	X	X
Croplan Genetics	555 CL DMR NS	NS,CL,DM	X	X	X	X
Croplan Genetics	559 CL DMR NS	NS,CL,DM	X	X	X	X
Dahlgren & Co.	4421				X	
King Seed Inc.	SunKing 3909 NSCL	NS,CL	X	X	X	X
King Seed Inc.	SunKing 4404 NSCL	NS,CL	X	X	X	X
Mycogen Seeds	8D481	NS	X	X	X	X
Mycogen Seeds	8H288CLDM	HO,CL,DM		X	X	
Mycogen Seeds	8H449DM	HO,DM		X	X	X
Mycogen Seeds	8N270CLDM	NS,CL,DM		X	X	X
Mycogen Seeds	8N358CLDM	NS,CL,DM	X	X	X	X
Mycogen Seeds	8N421CLDM	NS,CL,DM		X	X	X
Mycogen Seeds	8N433DM	NS,DM		X	X	X
Mycogen Seeds	8N453DM	NS,DM	X	X	X	X
Mycogen Seeds	8N510	NS	X	X	X	X
Pannar Seed, Inc	PAN7813 NS	NS		X	X	X
Pannar Seed, Inc	PAN7924 NS	NS		X	X	X
Pannar Seed, Inc	PAN8560 NS/CL	NS,CL		X	X	X
Pannar Seed, Inc	PAN9501	Trad.		X	X	X
Pannar Seed, Inc	PEX7803	HO		X	X	X
Pannar Seed, Inc	PEX7904	HO		X	X	X
Pioneer Hi-Bred	Pioneer Brand 63ME70	NS,Exp	X	X	X	X
Pioneer Hi-Bred	Pioneer Brand 63N82	NS,Exp	X	X	X	X
Pioneer Hi-Bred	Pioneer Brand 64HE01	HO,Exp	X	X	X	X
ProSun	SK-4510	NS,CL	X	X	X	
ProSun	SK-4610	NS,CL	X	X	X	
ProSun	SK-4810	NS,CL	X	X	X	
ProSun	SK-4910	NS,CL	X	X	X	
Seeds 2000	Badger	ConOil,CL	X	X	X	
Seeds 2000	Blazer CL	NS,CL	X	X	X	
Seeds 2000	Firebird	NS,Exp	X	X	X	
Seeds 2000	Sierra	HO	X	X	X	
Seeds 2000	X9464	HO,CL	X	X	X	
Seeds 2000	X9866	NS,CL	X	X	X	

Table 2. Oilseed sunflower hybrids tested in South Dakota - 2010. (Continued)

Company/ Brand	Hybrid	Hybrid Type ¹	Location			
			Bison	Eureka	Onida	Presho
Syngenta	3732 NS	NS	X	X	X	X
Syngenta	3845 HO	HO	X	X	X	X
Syngenta	3875 NS	NS	X	X	X	X
Syngenta	3980 NS/CL	NS,CL	X	X	X	X
Syngenta	4596 HO/DM	HO,DM	X	X	X	X
Syngenta	4651 NS/DM	NS,DM	X	X	X	X
Technology Crops	OL535	HO	X	X	X	X
Technology Crops	OL555	HO	X	X	X	X
Triumph Seed Co., Inc	845HO	HO		X	X	
Triumph Seed Co., Inc	s655	NS,SS	X	X	X	X
Triumph Seed Co., Inc	s668	NS,SS	X	X	X	X
Triumph Seed Co., Inc	s671	NS,SS	X	X		X
Triumph Seed Co., Inc	s674	NS,SS	X	X	X	X
Triumph Seed Co., Inc	s678	NS,SS	X	X	X	X
Triumph Seed Co., Inc	s870HCL	HO,CL,SS	X	X	X	X
Triumph Seed Co., Inc	s878	HO,SS		X	X	X
Triumph Seed Co., Inc	810HCLD	HO,DM,CL		X		
Triumph Seed Co., Inc	610CLD	NS,DM,CL		X		
Triumph Seed Co., Inc	s673	NS,SS	X	X	X	X
Triumph Seed Co., Inc	TRXs9422	NS,SS	X	X	X	X
USDA	894 (check)	Trad.	X	X	X	X

¹Type: HO = High Oleic, NS = NuSun, Trad = Traditional (linoleic), CL = Clearfield, Exp = ExpressSun, DM = Downy Mildew Resistant, SS = Short Stature, HS = High Stearic.

Table 3. Confection sunflower hybrids tested in South Dakota - 2010.

Company/ Brand	Hybrid	Hybrid Type¹	Onida
CHS	RH 400CL	Conf./CL	X
Croplan Genetics	179	Conf.	X
Dahlgren & Co.	9530	Conf.	X
Dahlgren & Co.	9592	Conf.	X
Dahlgren & Co.	9579	Conf.	X
Dahlgren & Co.	9569	Conf.	X
Dahlgren & Co.	9530CL	Conf.	X
Mycogen Seeds	8C451	Conf.	X
Red River Commodities	RRC 2215 CL	Conf./CL	X
Red River Commodities	RRC 2215	Conf.	X
Red River Commodities	RRC 2217	Conf.	X
Seeds 2000	Jaguar	Conf./CL	X
Seeds 2000	Panther II	Conf.	X
Triumph Seed Co., Inc	770CL	Conf./CL	X
USDA	924 (check)	Conf.	X

¹Type: Conf. = Confection, CL = Clearfield, Exp = ExpressSun,
DM = Downy Mildew Resistant, SS = Short Stature.

Table 4. 2010 - Sunflower - Oilseed - Bison, SD

Company/ Brand	Hybrid	Hybrid Type ¹	Seed Yield			Oil Content (%)	Plant Height (in)	Lodge (%)	Test Wt. (lb/bu)	Pop. x1000 (Pt/a)
			2010	2-yr Avg.	3-yr Avg.					
			------(lb/a)-----							
Advanta	NutriSun HS03	HS,HO	1322	--	--	41.6	61	3	31.7	16.1
Croplan Genetics	306 DMR NS	NS,DM	1703	1323	1505	46.2	62	1	28.5	16.2
Croplan Genetics	3080 DMR NS	NS,DM	1899	1464	1645	46.6	62	3	28.1	16.4
Croplan Genetics	356A NS	NS	2019	1464	--	45.5	59	0	32.0	16.4
Croplan Genetics	378 DMR HO	HO,DM	1579	--	--	42.7	67	3	27.7	17.1
Croplan Genetics	460 E NS	NS,Exp	1444	1041	--	48.1	65	3	30.0	17.1
Croplan Genetics	555 CL DMR NS	NS,CL,DM	1280	995	--	43.4	63	3	27.6	17.1
Croplan Genetics	559 CL DMR NS	NS,CL,DM	1573	--	--	47.2	67	1	29.6	14.5
King Seed Inc.	SunKing 3909 NSCL	NS,CL	1395	--	--	43.1	63	3	28.4	16.5
King Seed Inc.	SunKing 4404 NSCL	NS,CL	1686	1259	1588	42.8	64	1	29.0	17.5
Mycogen Seeds	8D481	NS	1836	--	--	43.8	67	0	29.0	16.7
Mycogen Seeds	8N358CLDM	NS,CL,DM	1502	1280	1480	46.8	64	2	30.4	16.8
Mycogen Seeds	8N453DM	NS,DM	2145	--	--	49.0	64	1	31.3	15.9
Mycogen Seeds	8N510	NS	1682	1474	1512	46.0	60	1	27.7	14.8
Pioneer Hi-Bred	Pioneer Brand 63ME70	NS,Exp	1640	--	--	44.9	62	1	25.3	16.4
Pioneer Hi-Bred	Pioneer Brand 63N82	NS,Exp	1613	1298	--	46.1	64	0	29.2	17.2
Pioneer Hi-Bred	Pioneer Brand 64HE01	HO,Exp	1637	--	--	45.3	59	2	30.5	15.6
ProSun	SK-4510	NS,CL	1549	--	--	43.1	62	2	29.4	17.3
ProSun	SK-4610	NS,CL	1904	--	--	45.4	64	0	31.8	16.3
ProSun	SK-4810	NS,CL	1868	--	--	43.5	59	1	30.2	16.4
ProSun	SK-4910	NS,CL	1691	--	--	43.0	64	0	29.8	15.2
Seeds 2000	Badger	ConOil,CL	1503	--	--	40.3	68	2	28.9	15.6
Seeds 2000	Blazer CL	NS,CL	1784	--	--	45.4	64	3	27.8	17.0
Seeds 2000	Firebird	NS,Exp	1751	--	--	45.1	61	0	29.0	16.9
Seeds 2000	Sierra	HO	1665	--	--	44.5	62	0	27.8	15.8
Seeds 2000	X9464	HO,CL	1101	--	--	44.5	65	3	28.9	16.7
Seeds 2000	X9866	NS,CL	1603	--	--	43.6	64	0	26.5	15.6
Syngenta	3732 NS	NS	1996	1408	--	46.0	59	0	31.9	17.6
Syngenta	3845 HO	HO	1899	1385	1578	47.4	59	2	29.7	16.6
Syngenta	3875 NS	NS	2115	1471	1651	44.7	57	4	30.0	15.9
Syngenta	3980 NS/CL	NS,CL	1937	1290	1415	43.8	68	0	28.7	16.1
Syngenta	4596 HO/DM	HO,DM	1492	--	--	44.2	68	5	28.1	17.9
Syngenta	4651 NS/DM	NS,DM	1719	--	--	44.6	69	1	28.1	15.4
Technology Crops	OL535	HO	1571	--	--	44.4	64	2	28.1	15.9
Technology Crops	OL555	HO	1792	--	--	44.0	65	4	26.9	16.5

Table 4. 2010 - Sunflower - Oilseed - Bison, SD (Continued)

Company/ Brand	Hybrid	Hybrid Type ¹	Seed Yield			Oil Content (%)	Plant Height (in)	Lodge (%)	Test Wt. (lb/bu)	Pop. x1000 (Pt/a)
			2010	2-yr Avg.	3-yr Avg.					
			------(lb/a)-----							
Triumph Seed Co.	s655	NS,SS	1731	1321	--	46.4	38	0	31.4	16.7
Triumph Seed Co.	s668	NS,SS	2401	--	--	45.5	48	0	29.0	15.1
Triumph Seed Co.	s671	NS,SS	2405	1795	1856	45.4	46	0	28.7	15.9
Triumph Seed Co.	s674	NS,SS	2086	1694	--	46.5	44	0	28.5	14.9
Triumph Seed Co.	s678	NS,SS	2405	1745	1758	46.2	57	0	29.1	15.1
Triumph Seed Co.	s870HCL	HO,CL,SS	2038	--	--	44.4	44	0	28.3	14.2
Triumph Seed Co.	s673	NS,SS	2125	--	--	42.1	54	0	28.9	15.5
Triumph Seed Co.	TRXs9422	NS,SS	2076	1402	--	47.3	45	0	29.0	15.8
USDA	USDA 894 (check)	Trad.	1351	985	1021	46.5	59	0	31.2	15.6
Grand Mean			1762	1373	1546	44.9	60	1	29.1	16.2
LSD 5%			348	235	229	2.0	4	3	1.8	1.7
C.V. %			14.1	16.1	17.5	3.3	4.8	149	4.4	7.7

¹Type: HO = High Oleic, NS = NuSun, Trad = Traditional (linoleic), CL = Clearfield, Ex = ExpressSun, DM = Downy Mildew Resistant, SS = Short Stature, HS = High Stearic.

Yield is reported at harvest moisture.

Planted June 10, 2010. Harvested Nov. 1, 2010. Previous crop = wheat.

Table 5. 2010 - Sunflower - Oilseed - Eureka, SD

Company/ Brand	Hybrid	Hybrid Type ¹	Seed Yield ²			Oil Content (%)	Plant Height (in)	Lodge (%)	Neck ³ Break (%)	Harv. Moist. (%)	Test Wt. (lb/bu)	Pop. x1000 (Plt/a)
			2010	2-yr Avg.	3-yr Avg.							
			----- (lb/a) -----									
Advanta	NutriSun HS03	HS,HO	--	--	--	40.6	43	17	0	9.0	29.6	19.2
Advanta US Inc	ADV590	NS	--	--	--	45.5	46	23	7	9.1	26.7	15.5
Croplan Genetics	306 DMR NS	NS	1292	1541	1728	47.2	48	3	1	9.0	28.7	20.7
Croplan Genetics	3080 DMR NS	NS	1424	1925	1894	49.4	48	1	1	7.2	28.1	19.1
Croplan Genetics	356A NS	NS	1457	2114	--	46.4	46	8	2	9.8	30.6	16.7
Croplan Genetics	378 DMR HO	HO	--	--	--	45.6	60	37	7	9.7	28.8	11.4
Croplan Genetics	460 E NS	NS,Exp	--	--	--	47.8	52	9	31	7.4	27.9	20.9
Croplan Genetics	555 CL DMR NS	NS,CL	--	--	--	45.6	53	33	2	7.5	26.5	17.8
Croplan Genetics	559 CL DMR NS	NS,CL	--	--	--	48.5	46	4	12	8.9	29.5	17.6
King Seed Inc.	SunKing 3909 NSCL	NS,CL	--	--	--	46.9	46	2	19	7.9	29.8	19.3
King Seed Inc.	SunKing 4404 NSCL	NS,CL	--	--	--	43.5	49	19	2	8.3	29.0	18.0
Mycogen Seeds	8D481	NS	--	--	--	43.9	55	21	7	7.7	29.9	19.2
Mycogen Seeds	8H288CLDM	HO,CL	--	--	--	49.7	49	18	0	7.1	29.4	13.1
Mycogen Seeds	8H449DM	HO	--	--	--	48.0	51	51	4	7.6	30.7	13.6
Mycogen Seeds	8N270CLDM	NS,CL	1186	--	--	47.6	57	1	1	6.6	30.8	19.2
Mycogen Seeds	8N358CLDM	NS,CL	1302	1714	1827	48.4	52	8	2	8.5	29.4	19.4
Mycogen Seeds	8N421CLDM	NS,CL	--	--	--	46.6	54	5	13	8.7	29.1	19.0
Mycogen Seeds	8N433DM	NS	--	--	--	49.7	53	13	8	8.4	27.8	20.1
Mycogen Seeds	8N453DM	NS	--	--	--	50.7	48	43	2	8.7	30.6	19.0
Mycogen Seeds	8N510	NS	--	--	--	44.0	52	24	2	7.8	27.6	13.9
Pannar Seed, Inc	PAN7813 NS	NS	--	--	--	47.5	50	25	6	11.5	29.0	14.8
Pannar Seed, Inc	PAN7924 NS	NS	--	--	--	45.6	49	17	22	9.8	28.4	17.4
Pannar Seed, Inc	PAN8560 NS/CL	NS,CL	1133	--	--	43.5	56	9	0	9.2	28.0	20.7
Pannar Seed, Inc	PAN9501	Trad.	1279	--	--	43.9	55	3	5	9.1	30.7	21.1
Pannar Seed, Inc	PEX7803	HO	--	--	--	47.9	44	9	2	11.4	29.9	12.8
Pannar Seed, Inc	PEX7904	HO	--	--	--	45.4	52	3	4	13.3	28.1	10.3
Pioneer Hi-Bred	Pioneer Brand 63ME70	NS,Exp	--	--	--	47.5	50	23	2	7.6	27.0	18.5
Pioneer Hi-Bred	Pioneer Brand 63N82	NS,Exp	1368	1767	--	47.9	53	5	2	9.4	30.2	20.1
Pioneer Hi-Bred	Pioneer Brand 64HE01	HO,Exp	1181	--	--	47.7	53	6	2	7.8	31.4	21.0
ProSun	SK-4510	NS,CL	--	--	--	43.7	44	0	21	9.2	30.0	13.3
ProSun	SK-4610	NS,CL	--	--	--	45.5	44	6	3	9.0	30.8	18.4
ProSun	SK-4810	NS,CL	1613	--	--	45.2	48	2	2	11.1	29.2	18.1
ProSun	SK-4910	NS,CL	1139	--	--	43.8	50	8	1	9.0	27.7	18.9
Seeds 2000	Badger	ConOil,CL	--	--	--	39.3	46	8	0	7.4	27.7	11.9
Seeds 2000	Blazer CL	NS,CL	--	--	--	47.4	48	33	1	9.9	28.7	16.7
Seeds 2000	Firebird	NS,Exp	1704	1991	2086	44.7	42	9	0	12.6	26.9	18.2
Seeds 2000	Sierra	HO	--	--	--	43.1	45	15	8	10.9	26.2	17.1
Seeds 2000	X9464	HO,CL	--	--	--	43.9	51	3	27	10.2	28.8	15.1
Seeds 2000	X9866	NS,CL	--	--	--	46.1	60	15	5	9.8	28.2	16.7
Syngenta	3732 NS	NS	1652	2079	--	48.3	50	6	1	10.9	31.8	18.8

Table 5. 2010 - Sunflower - Oilseed - Eureka, SD (Continued)

Company/ Brand	Hybrid	Hybrid Type ¹	Seed Yield ²			Oil Content (%)	Plant Height (in)	Lodge (%)	Neck ³ Break (%)	Harv. Moist. (%)	Test Wt. (lb/bu)	Pop. x1000 (Plt/a)
			2010	2-yr Avg.	3-yr Avg.							
			-----lb/a-----									
Syngenta	3845 HO	HO	--	--	--	49.2	54	29	4	7.3	31.1	17.1
Syngenta	3875 NS	NS	--	--	--	47.5	58	56	0	7.1	30.8	14.6
Syngenta	3980 NS/CL	NS,CL	1169	1696	1758	44.1	54	13	0	9.5	28.6	19.3
Syngenta	4596 HO/DM	HO	--	--	--	45.1	56	35	11	9.6	28.0	14.8
Syngenta	4651 NS/DM	NS	--	--	--	44.6	58	20	0	9.5	29.0	18.3
Technology Crops	OL535	HO	--	--	--	46.2	61	50	1	7.0	26.7	18.3
Technology Crops	OL555	HO	--	--	--	47.7	56	29	0	8.0	28.0	13.5
Triumph Seed Co.	845HO	HO	--	--	--	48.1	58	12	5	11.7	26.5	16.9
Triumph Seed Co.	s655	NS,SS	1705	2071	2133	46.3	35	7	0	10.3	28.8	19.5
Triumph Seed Co.	s668	NS,SS	1750	--	--	45.9	37	2	0	17.4	28.2	17.0
Triumph Seed Co.	s671	NS,SS	--	--	--	46.1	39	1	1	11.2	28.2	13.2
Triumph Seed Co.	s674	NS,SS	1975	2437	--	46.8	38	3	0	13.2	28.5	16.0
Triumph Seed Co.	s678	NS,SS	1624	2209	2233	46.8	39	2	1	13.3	28.4	14.4
Triumph Seed Co.	s870HCL	HO,CL,SS	--	--	--	46.7	39	3	0	11.3	27.7	10.2
Triumph Seed Co.	s878	HO,SS	1623	2162	2207	49.0	39	10	1	12.0	27.7	15.9
Triumph Seed Co.	810HCLD	HO,CL	1043	--	--	47.8	52	6	5	8.5	28.2	15.4
Triumph Seed Co.	610CLD	NS,CL	--	--	--	47.2	50	10	7	8.0	27.6	17.5
Triumph Seed Co.	s673	NS,SS	2230	--	--	45.5	42	0	0	15.0	27.4	19.0
Triumph Seed Co.	TRXs9422	NS,SS	1866	2118	--	47.5	32	4	0	12.9	29.1	16.5
USDA	USDA 894 (check)	Trad.	1207	1725	1701	49.8	43	8	2	9.3	30.2	15.0
Grand Mean			1475	1968	1952	46.4	49	14	5	9.6	28.8	16.9
LSD 5%			409	353	263	2.3		22	8	1.9	1.4	6.1
C.V. %			19.6	18.2	16.8	3.5		114	128	14.3	3.6	25.7

¹Type: HO = High Oleic, NS = NuSun, Trad = Traditional (linoleic), CL = Clearfield, Ex = ExpressSun, DM = Downy Mildew Resistant, SS = Short Stature, HS = High Saturated Fat.

²Yield is reported only for hybrids with adequate stands and relatively low levels of lodging and neck breakage.

³Neck break is the percentage of standing plants with heads completely broken off at the neck.

Yield is reported at 10% moisture.

Planted June 16, 2010. Harvested Nov. 8–9, 2010. Previous crop = corn.

Table 6. 2010 Sunflower - Oilseed - Onida, SD

Company/ Brand	Hybrid	Hybrid Type ¹	Seed Yield			Oil Con- tent (%)	Days to Flwr	Mat.	Plant Height (in)	Lodge (%)	Harv. Moist. (%)	Test Wt. (lb/bu)	Pop. x1000 (Plt/a)	Hulling ² Screen Test
			2010	2-yr Avg.	3-yr Avg.									
			----- (lb/a)	----- (lb/a)	----- (lb/a)									
Advanta	NutriSun HS03	HS,HO	1232	--	--	38.3	62	95	74	24	7.6	28.0	17.3	NT
Advanta US Inc	ADV590	NS	1189	--	--	41.6	60	90	75	21	7.1	25.2	17.6	NT
Advanta US Inc	F51137NS,CL	NS,CL	1014	--	--	42.9	64	95	70	30	8.4	28.8	17.7	NT
Advanta US Inc	F89057NS,SU	NS,Exp	931	--	--	43.2	65	97	76	18	8.5	29.5	17.4	NT
Croplan Genetics	306 DMR NS	NS,DM	1531	1863	1845	45.0	61	95	65	19	7.9	28.6	17.6	NT
Croplan Genetics	3080 DMR NS	NS,DM	1587	1943	1829	46.2	60	94	63	23	7.6	28.0	17.7	NT
Croplan Genetics	356A NS	NS	2187	2207	--	46.2	63	97	67	11	8.9	30.9	17.8	NT
Croplan Genetics	378 DMR HO	HO,DM	1646	--	--	44.3	62	96	72	21	8.7	28.5	18.2	NT
Croplan Genetics	460 E NS	NS,Exp	1182	1743	--	48.0	65	98	73	31	7.8	28.2	17.5	NT
Croplan Genetics	555 CL DMR NS	NS,CL,DM	1432	1681	--	43.9	64	96	78	28	7.6	28.9	18.0	NT
Croplan Genetics	559 CL DMR NS	NS,CL,DM	1878	--	--	45.5	65	98	76	16	8.1	29.2	16.4	NT
Dahlgren & Co.	4421		1523	--	--	38.9	60	91	74	26	7.5	26.8	17.3	NT
King Seed Inc.	SunKing 3909 NSCL	NS,CL	1117	--	--	42.3	61	91	69	30	7.7	27.9	17.7	Excel
King Seed Inc.	SunKing 4404 NSCL	NS,CL	1314	1630	1605	41.4	var.	var.	var.	32	8.5	29.5	18.0	Excel
Mycogen Seeds	8D481	NS	1982	2011	2038	42.1	63	98	71	14	7.9	30.7	17.0	NT
Mycogen Seeds	8H288CLDM	HO,CL,DM	1481	1845	--	45.4	58	95	69	27	8.0	29.6	17.8	NT
Mycogen Seeds	8H449DM	HO,DM	1815	1921	1936	50.1	63	98	70	14	8.4	32.8	17.4	NT
Mycogen Seeds	8N270CLDM	NS,CL,DM	1444	--	--	41.4	58	91	69	26	7.8	31.2	17.7	NT
Mycogen Seeds	8N358CLDM	NS,CL,DM	1699	1812	1752	46.8	61	96	76	18	7.9	29.3	17.8	NT
Mycogen Seeds	8N421CLDM	NS,CL,DM	1672	--	--	46.4	63	97	71	11	8.4	30.4	17.5	NT
Mycogen Seeds	8N433DM	NS,DM	1538	1833	--	48.9	63	96	72	40	7.9	29.8	17.8	NT
Mycogen Seeds	8N453DM	NS,DM	1874	2012	1999	50.1	62	96	73	16	8.4	30.2	17.2	NT
Mycogen Seeds	8N510	NS	1793	2033	2047	44.1	64	97	68	25	7.9	28.2	17.8	NT
Pannar Seed, Inc	PAN7813 NS	NS	1594	1885	1812	44.9	64	96	67	16	8.3	29.1	17.8	NT
Pannar Seed, Inc	PAN7924 NS	NS	1685	1959	2010	43.7	64	97	71	20	8.0	28.5	17.8	NT
Pannar Seed, Inc	PAN8560 NS/CL	NS,CL	1362	--	--	40.9	var.	var.	var.	19	8.2	28.4	17.5	NT
Pannar Seed, Inc	PAN9501	Trad.	1531	--	--	42.5	64	99	74	19	8.2	32.5	16.9	NT
Pannar Seed, Inc	PEX7803	HO	1876	2074	--	45.0	63	96	67	10	8.0	27.4	17.6	NT
Pannar Seed, Inc	PEX7904	HO	1764	1977	--	45.4	63	96	71	18	8.2	27.7	17.6	NT
Pioneer Hi-Bred	Pioneer Brand 63ME70	NS,Exp	1439	--	--	43.1	63	95	72	32	7.5	27.4	17.1	Excel
Pioneer Hi-Bred	Pioneer Brand 63N82	NS,Exp	1892	2224	2080	45.5	63	96	69	7	7.9	31.5	17.3	Good
Pioneer Hi-Bred	Pioneer Brand 64HE01	HO,Exp	1413	--	--	44.8	61	97	76	25	9.3	31.1	17.0	Good
ProSun	SK-4510	NS,CL	1492	--	--	41.5	63	96	68	12	7.9	27.8	16.3	Excel
ProSun	SK-4610	NS,CL	997	--	--	43.7	64	97	75	39	8.4	31.8	17.3	Fail
ProSun	SK-4810	NS,CL	1061	--	--	43.2	64	95	65	16	8.0	26.1	17.2	Excel

Table 6. 2010 Sunflower - Oilseed - Onida, SD (Continued)

Company/ Brand	Hybrid	Hybrid Type ¹	Seed Yield			Oil Con- tent (%)	Days to Flwr	Mat.	Plant Height (in)	Lodge (%)	Harv. Moist. (%)	Test Wt. (lb/bu)	Pop. x1000 (Plt/a)	Hulling ² Screen Test
			2010	2-yr Avg.	3-yr Avg.									
ProSun	SK-4910	NS,CL	1322	--	--	41.0	66	var.	var.	25	8.6	30.3	17.6	Excel
Seeds 2000	Badger	ConOil,CL	1043	1642	--	36.8	63	94	81	27	7.8	27.0	18.3	NT
Seeds 2000	Blazer CL	NS,CL	1304	1706	1704	44.8	65	98	76	17	8.4	27.4	17.9	NT
Seeds 2000	Firebird	NS,Exp	1711	1800	1890	43.1	66	98	68	13	8.3	27.2	17.3	NT
Seeds 2000	Sierra	HO	1385	1627	1614	43.1	66	102	70	15	8.4	26.8	17.5	NT
Seeds 2000	X9464	HO,CL	1267	--	--	42.2	66	100	81	12	8.1	26.5	17.9	NT
Seeds 2000	X9866	NS,CL	1191	--	--	42.9	64	97	75	24	8.1	27.2	17.7	NT
Syngenta	3732 NS	NS	1919	2083	--	45.7	64	96	71	24	8.5	29.7	17.2	NT
Syngenta	3845 HO	HO	2071	1985	1962	45.9	62	95	68	20	7.6	29.0	17.6	NT
Syngenta	3875 NS	NS	2065	2141	2101	43.4	64	97	77	20	7.8	28.1	17.9	NT
Syngenta	3980 NS/CL	NS,CL	1373	1668	1517	42.8	66	var.	var.	23	8.3	28.3	17.3	NT
Syngenta	4596 HO/DM	HO,DM	1447	--	--	44.1	63	96	78	22	9.1	28.4	16.6	NT
Syngenta	4651 NS/DM	NS,DM	1091	--	--	43.6	63	97	74	23	8.6	29.7	17.2	NT
Technology Crops	OL535	HO	1378	--	--	41.7	63	94	76	20	7.6	26.1	17.7	NT
Technology Crops	OL555	HO	1691	--	--	43.5	63	96	77	21	7.4	28.7	17.8	NT
Triumph Seed Co.	845HO	HO	1325	1827	1939	48.9	63	96	70	13	8.2	27.5	17.6	NT
Triumph Seed Co.	s655	NS,SS	1708	1822	--	47.1	64	98	42	7	7.7	29.4	16.7	NT
Triumph Seed Co.	s668	NS,SS	2164	2293	2102	48.8	65	105	50	4	9.1	29.9	20.2	NT
Triumph Seed Co.	s674	NS,SS	1872	1803	--	50.9	68	105	52	5	8.1	28.8	16.5	NT
Triumph Seed Co.	s678	NS,SS	1871	1961	1969	48.8	66	103	59	14	9.0	29.6	18.4	NT
Triumph Seed Co.	s870HCL	HO,CL,SS	1902	--	--	48.4	66	101	53	10	7.9	28.4	16.4	NT
Triumph Seed Co.	s878	HO,SS	1499	1887	1844	48.9	65	101	63	14	9.0	29.3	17.9	NT
Triumph Seed Co.	s673	NS,SS	1625	--	--	46.9	67	102	55	18	8.1	28.9	20.0	NT
Triumph Seed Co.	TRXs9422	NS,SS	1815	1895	--	49.6	68	105	48	9	8.2	29.8	17.9	NT
USDA	USDA 894 (check)	Trad.	1279	1631	1652	45.3	61	92	62	25	7.3	28.4	16.2	NT
Grand Mean			1541	1895	1875	44.6	63	97	70	20	8.1	28.8	17.6	
LSD 5%			284	249	210	1.6	1	2	5	11	0.5	1.6	ns	
C.V. %			13.2	13.3	14.0	2.6	1.1	1.2	3.8	40.0	4.1	3.9	6.6	

¹Type: HO = High Oleic, NS = NuSun, Trad = Traditional (linoleic), CL = Clearfield, Exp = ExpressSun, DM = Downy Mildew Resistant, SS = Short Stature, HS = High Stearic.

²Hulling screen test: Excel = > 65% of seed passes over a 14/64 screen; Good = > 75% of seed passes over a 13/64 screen; NT = not tested. Yield is reported at 10% moisture.

Planted June 9, 2010. Harvested Oct. 30, 2010. Previous crop = wheat.

Table 7. 2010 - Sunflower - Oilseed - Presho, SD

Company/ Brand	Hybrid	Hybrid Type ¹	Seed Yield ²			Oil Content (%)	Plant Height (in)	Lodge (%)	Harv. Moist. (%)	Test Wt. (lb/bu)	Pop. x1000 (Pt/a)
			2010	2-yr Avg.	3-yr Avg.						
			-----lb/a-----								
Advanta	NutriSun HS03	HS,HO	1691	--	--	38.9	57	1	5.9	29.9	16.6
Croplan Genetics	306 DMR NS	NS,DM	1544	1930	2068	46.1	62	6	5.6	28.5	16.4
Croplan Genetics	3080 DMR NS	NS,DM	1628	1794	1988	48.3	53	9	5.3	28.0	14.5
Croplan Genetics	356A NS	NS	2034	2104	--	47.1	61	8	5.9	28.5	17.1
Croplan Genetics	378 DMR HO	HO,DM	1555	--	--	44.6	69	6	5.6	28.0	16.4
Croplan Genetics	460 E NS	NS,Exp	1684	1794	--	48.8	65	11	5.8	27.1	15.4
Croplan Genetics	555 CL DMR NS	NS,CL,DM	1993	2049	--	45.0	72	10	5.7	27.3	16.8
Croplan Genetics	559 CL DMR NS	NS,CL,DM	1913	--	--	46.2	69	12	5.8	27.6	16.8
King Seed Inc.	SunKing 3909 NSCL	NS,CL	1704	--	--	44.2	58	7	5.8	27.5	17.3
King Seed Inc.	SunKing 4404 NSCL	NS,CL	1599	1834	2018	42.3	62	7	5.5	27.9	17.1
Mycogen Seeds	8D481	NS	1978	2130	2254	41.2	68	6	5.6	30.3	17.0
Mycogen Seeds	8H449DM	HO,DM	1869	1969	2054	49.0	65	9	6.2	30.0	17.4
Mycogen Seeds	8N270CLDM	NS,CL,DM	1542	--	--	43.8	65	9	5.4	28.1	15.5
Mycogen Seeds	8N358CLDM	NS,CL,DM	1650	1832	1953	45.8	67	6	5.2	26.0	16.9
Mycogen Seeds	8N421CLDM	NS,CL,DM	1694	--	--	46.0	64	4	5.7	28.2	16.8
Mycogen Seeds	8N433DM	NS,DM	1990	2088	--	47.3	68	6	5.4	26.3	17.5
Mycogen Seeds	8N453DM	NS,DM	1694	1981	2174	50.0	67	10	5.2	30.0	16.7
Mycogen Seeds	8N510	NS	1934	2410	2569	45.2	62	4	5.3	28.7	17.5
Pannar Seed, Inc	PAN7813 NS	NS	1946	2303	2350	46.0	62	6	6.3	29.1	16.5
Pannar Seed, Inc	PAN7924 NS	NS	1989	2103	2247	44.5	64	5	6.2	28.1	15.4
Pannar Seed, Inc	PAN8560 NS/CL	NS,CL	1595	--	--	41.7	66	5	6.1	28.5	16.5
Pannar Seed, Inc	PAN9501	Trad.	2160	--	--	42.7	65	2	6.0	30.6	17.3
Pannar Seed, Inc	PEX7803	HO	1674	2098	--	47.2	56	2	5.8	29.4	15.4
Pannar Seed, Inc	PEX7904	HO	1861	1973	--	46.7	57	4	5.8	28.8	16.0
Pioneer Hi-Bred	Pioneer Brand 63ME70	NS,Exp	1920	--	--	45.7	65	5	5.4	25.9	15.6
Pioneer Hi-Bred	Pioneer Brand 63N82	NS,Exp	1574	1841	2086	45.2	65	4	5.4	30.6	17.0
Pioneer Hi-Bred	Pioneer Brand 64HE01	HO,Exp	1496	--	--	44.8	71	13	6.0	31.5	16.5
Syngenta	3732 NS	NS	1854	2140	--	46.8	63	7	5.4	30.2	17.4
Syngenta	3845 HO	HO	1622	1953	2173	47.2	61	10	5.3	27.2	15.6
Syngenta	3875 NS	NS	1867	1783	2164	45.7	64	2	5.8	28.5	16.7
Syngenta	3980 NS/CL	NS,CL	1639	1946	2056	43.5	68	6	5.6	28.4	15.7
Syngenta	4596 HO/DM	HO,DM	1661	--	--	45.6	69	12	5.5	27.6	15.6
Syngenta	4651 NS/DM	NS,DM	1738	--	--	43.0	67	5	5.6	28.0	15.2
Technology Crops	OL535	HO	1598	--	--	43.9	71	7	5.3	26.8	16.4
Technology Crops	OL555	HO	1504	--	--	45.7	67	7	5.4	26.9	17.8

Table 7. 2010 - Sunflower - Oilseed - Presho, SD (Continued)

Company/ Brand	Hybrid	Hybrid Type ¹	Seed Yield ²			Oil Content (%)	Plant Height (in)	Lodge (%)	Harv. Moist. (%)	Test Wt. (lb/bu)	Pop. x1000 (Pt/a)
			2010	2-yr Avg.	3-yr Avg.						
Triumph Seed Co.	s655	NS,SS	1949	2171	2478	47.3	43	3	5.8	28.8	17.4
Triumph Seed Co.	s668	NS,SS	2203	2412	--	47.5	41	1	6.9	29.8	17.4
Triumph Seed Co.	s671	NS,SS	1964	2123	2296	47.4	46	1	6.0	28.9	17.1
Triumph Seed Co.	s674	NS,SS	1973	1929	--	50.7	43	3	6.0	30.5	13.5
Triumph Seed Co.	s678	NS,SS	2118	2209	2335	49.7	52	6	6.1	31.3	15.4
Triumph Seed Co.	s870HCL	HO,CL,SS	2021	--	--	48.1	43	2	5.5	27.6	15.0
Triumph Seed Co.	s878	HO,SS	1769	2186	2322	47.8	50	4	6.6	28.6	13.6
Triumph Seed Co.	s673	NS,SS	2122	--	--	48.1	45	4	6.1	29.1	16.5
Triumph Seed Co.	TRXs9422	NS,SS	1853	2251	--	49.8	48	1	5.7	29.9	18.6
USDA	USDA 894 (check)	Trad.	1258	1575	1624	46.7	58	8	5.9	26.9	16.9
Grand Mean			1792	2031	2169	46.0	60	6	5.7	28.6	16.4
LSD 5%			239	261	216	1.4	5	6	0.6	1.6	ns
C.V. %			9.5	13.1	12.4	2.2	4.2	75.3	8.0	4.0	12.9

¹Type: HO = High Oleic, NS = NuSun, Trad = Traditional (linoleic), CL = Clearfield, Exp = ExpressSun, DM = Downy Mildew Resistant, SS = Short Stature, HS = High Stearic.

²The 2-yr yield average is from 2010 Presho and 2009 Reliance. The 3-yr yield average is from 2010 Presho and 2008 – 2009 Reliance. Yield is reported at 10% moisture.

Planted June 9, 2010. Harvested Oct. 22, 2010. Previous crop = winter wheat.

Table 8. 2010 - Sunflower - Confection Hybrid - Onida, SD

Company/ Brand	Hybrid	Hybrid Type ¹	Seed Yield* (lb/a)	Days to		Plant Height (inch)	Test Wt. (lb/bu)	Lodge (%)	Pop. x1000 (plt/a)	Seed Over Screen			Nut- meat (%)
				Flwr	Mat.					22/64	20/64	18/64	
				---(days)---					-----(-)-----				
CHS	RH 400CL	Conf./CL	*	61	92	67	20.5	15	17.4	46.5	80.8	94.3	47.7
Croplan Genetics	179	Conf.	*	66	103	73	21.8	11	17.4	41.5	74.3	87.7	46.6
Dahlgren & Co.	9530	Conf.	*	64	99	80	22.2	13	17.4	55.7	81.2	92.9	50.3
Dahlgren & Co.	9592	Conf.	*	64	97	73	21.3	18	17.4	53.5	82.4	93.8	53.4
Dahlgren & Co.	9579	Conf.	*	63	99	69	19.1	15	17.4	51.4	85.3	98.1	52.9
Dahlgren & Co.	9569	Conf.	*	64	98	74	21.4	11	17.4	47.9	75.0	89.9	45.5
Dahlgren & Co.	9530CL	Conf.	*	68	105	81	22.3	14	17.4	36.7	70.1	88.7	54.8
Mycogen Seeds	8C451	Conf.	*	65	98	78	19.9	23	17.4	61.7	86.3	93.2	48.5
Red River Commodities	RRC 2215 CL	Conf./CL	*	67	108	79	22.8	14	17.4	45.3	75.5	87.1	46.8
Red River Commodities	RRC 2215	Conf.	*	64	100	74	23.5	15	17.4	52.9	83.6	93.7	50.3
Red River Commodities	RRC 2217	Conf.	*	64	97	74	21.1	19	17.4	57.2	83.1	92.3	52.9
Seeds 2000	Jaguar	Conf./CL	*	60	93	63	19.0	15	17.4	61.6	89.4	98.0	46.1
Seeds 2000	Panther II	Conf.	*	62	95	72	21.4	20	17.4	62.2	85.2	91.9	48.5
Triumph Seed Co., Inc	770CL	Conf./CL	*	71	112	87	23.9	9	16.5	45.6	82.2	95.9	56.5
USDA	924 (check)	Conf.	*	64	95	85	27.1	31	17.4	8.1	14.8	30.5	70.1
Grand Mean				65	99	75	21.8	16	17.34	48.5	76.6	88.5	51.4
LSD 5%				1	2	5	2.0	8	0.7	12.9	7.7	6.7	5.7
C.V. %				0.7	1.3	2.9	6.3	33.5	2.8	18.6	7.0	5.3	7.8

¹Type: Conf. = Confection, CL = Clearfield, Exp = ExpressSun, DM = Downy Mildew Resistant, SS = Short Stature.

*Seed yields were too variable to report.

Planted June 9, 2010. Harvested October 30, 2010.

Table 9. 2010 - Sunflower - Oilseed - Averages across three locations (Bison, Onida, and Presho, SD).

Company/ Brand	Hybrid	Hybrid Type ¹	Seed Yield (lb/a)	Oil Content (%)	Plant Height (in)	Lodge (%)	Test Wt. (lb/bu)	Pop. x1000 (Pt/a)
Advanta	NutriSun HS03	HS,HO	1415	39.6	64	9	29.9	16.7
Croplan Genetics	306 DMR NS	NS,DM	1593	45.8	63	9	28.5	16.7
Croplan Genetics	3080 DMR NS	NS,DM	1705	47.0	59	12	28.0	16.2
Croplan Genetics	356A NS	NS	2080	46.3	62	7	30.5	17.1
Croplan Genetics	378 DMR HO	HO,DM	1594	43.9	70	10	28.1	17.2
Croplan Genetics	460 E NS	NS,Exp	1437	48.3	68	15	28.4	16.6
Croplan Genetics	555 CL DMR NS	NS,CL,DM	1568	44.1	71	14	27.9	17.3
Croplan Genetics	559 CL DMR NS	NS,CL,DM	1788	46.3	71	10	28.8	15.9
King Seed Inc.	SunKing 3909 NSCL	NS,CL	1405	43.2	63	13	27.9	17.1
King Seed Inc.	SunKing 4404 NSCL	NS,CL	1533	42.2	68	13	28.8	17.5
Mycogen Seeds	8D481	NS	1932	42.4	69	7	30.0	16.9
Mycogen Seeds	8N358CLDM	NS,CL,DM	1617	46.5	69	9	28.6	17.2
Mycogen Seeds	8N453DM	NS,DM	1904	49.7	68	9	30.5	16.6
Mycogen Seeds	8N510	NS	1803	45.1	63	10	28.2	16.7
Pioneer Hi-Bred	Pioneer Brand 63ME70	NS,Exp	1666	44.6	66	13	26.2	16.4
Pioneer Hi-Bred	Pioneer Brand 63N82	NS,Exp	1693	45.6	66	4	30.4	17.2
Pioneer Hi-Bred	Pioneer Brand 64HE01	HO,Exp	1515	44.9	69	13	31.0	16.4
Syngenta	3732 NS	NS	1923	46.2	65	10	30.6	17.4
Syngenta	3845 HO	HO	1864	46.8	63	11	28.6	16.6
Syngenta	3875 NS	NS	2016	44.6	66	9	28.9	16.8
Syngenta	3980 NS/CL	NS,CL	1650	43.4	71	10	28.4	16.4
Syngenta	4596 HO/DM	HO,DM	1534	44.7	72	13	28.0	16.7
Syngenta	4651 NS/DM	NS,DM	1516	43.7	70	10	28.6	15.9
Technology Crops	OL535	HO	1516	43.3	70	10	27.0	16.7
Technology Crops	OL555	HO	1662	44.4	70	10	27.5	17.4
Triumph Seed Co., Inc	s655	NS,SS	1796	46.9	41	3	29.9	16.9
Triumph Seed Co., Inc	s668	NS,SS	2256	47.3	46	1	29.6	17.6
Triumph Seed Co., Inc	s674	NS,SS	1977	49.4	46	3	29.3	15.0
Triumph Seed Co., Inc	s678	NS,SS	2131	48.2	56	7	30.0	16.3
Triumph Seed Co., Inc	s870HCL	HO,CL,SS	1987	47.0	46	4	28.1	15.2
Triumph Seed Co., Inc	s673	NS,SS	1958	45.7	51	8	29.0	17.3
Triumph Seed Co., Inc	TRXs9422	NS,SS	1915	48.9	47	3	29.6	17.4
USDA	USDA 894 (check)	Trad.	1296	46.2	60	11	28.8	16.3
Mean			1735	45.5	63	9	28.9	16.7
LSD 5%			169	1.0	3	4	0.9	1.3
C.V. %			12.1	2.7	4.3	59.2	4.1	9.4

¹Type: HO = High Oleic, NS = NuSun, Trad = Traditional (linoleic), CL = Clearfield, Exp = ExpressSun, DM = Downy Mildew Resistant, SS = Short Stature, HS = High Stearic.