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## Sunflower: 2008 South Dakota Hybrid Performance Trials

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# SUNFLOWER

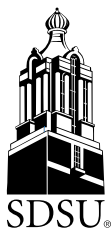
2008 South Dakota Hybrid Performance Trials

**Oilseed**  
**Confection**

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EC909-08: January 2009

# SUNFLOWER

## 2008 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. 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 Eureka oilseed test (table 6) could be repeated in 2009 exactly as it was in 2008, the yield ranking of a hybrid that yielded 2672 lbs/A and one that yielded 2486 lbs/A might change places since their yield difference (186 lbs/A) is less than the indicated yield LSD value of 358 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 Eureka in 2008. In contrast, a hybrid that yielded 2279 lbs/A at Eureka in 2008 would likely be lower yielding than one that yielded 2672 lbs/A if the two hybrids were grown again under similar conditions, because the difference between them in 2008 ( $2672 - 2279 = 393$  lbs/A) exceeded the LSD value of 358 lbs/A.

The coefficient of variability (CV) 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 CV rates are more reliable for making hybrid choices than trials with higher CV rates. Trials with CV rates not exceeding 15 to 20% may be considered reliable.

Look at as many trials as possible. It is unlikely that the 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 to 25% may reduce bird damage and seed shattering loss during harvest. 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 four years rotation between successive sunflower crops.

Most sunflower hybrids in the United States have resistance to Verticillium wilt, to 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, to Phomopsis, or to 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, for hulling, or for birdfeed.

# **2008 Trial Procedures**

## **Locations and Hybrids**

Oilseed hybrid sunflower trials were planted at five locations in South Dakota (Bison, Eureka, Miller, Onida, and Reliance). Entries in the oilseed sunflower trials included traditional linoleic oil hybrids, NuSun (mid-oleic) hybrids, and high oleic hybrids. Non-oilseed (confection) sunflower trials were conducted at Miller and Onida. Trial sites are indicated on the map in figure 1. Lists of hybrids planted at each site appear in tables 2 and 3

## **Climate**

The 2008 growing season began with below normal temperatures in May and June. May precipitation was below average at Eureka, Miller, and Onida, but above average at Bison and Reliance. Areas of western South Dakota that had been consistently dry over the last 5 to 7 years saw large improvements in soil moisture conditions. June precipitation was close to 2 inches above normal at most locations, which delayed sunflower planting in the major sunflower growing regions of South Dakota. A summary of climate conditions near the sunflower test sites is presented in table 1. Average temperatures were near normal in July through October at all locations except Reliance, which had cooler than normal temperatures in September and October. Moisture conditions varied across locations in July through October. Bison was drier than normal in July and September, but wetter than normal in August and October. Eureka started off dry in May but then was wetter than normal throughout the remainder of the growing

season. Miller had above average precipitation in June and July, but below average rainfall August through October. Onida had near or slightly above normal precipitation in July, September, and October, but below normal rainfall in August. Reliance was drier than normal in July and August, and wetter than normal in September and October. Winds behind a cold front in late October gusted to 50 to 60+ mph across the state, causing considerable seed shatter in the sunflower plots, especially in the confections. The first killing frost (<24°F) occurred on October 23 at Bison and on October 27 at the other test sites, 8 to 18 days later than normal.

## **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 neighbor statistical analysis, which removes the 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 most was also treated with fungicide. Seed treatments used on individual hybrids are listed in tables 2 and 3. All trials except Bison were seeded no-till. The previous crop at Eureka was barley, at Miller it was corn, at Reliance and Onida it was milo, and at Bison it was wheat. Spartan herbicide was applied for weed control at all locations.

Plots were overseeded and thinned to a plant population of approximately 17,400 plants/acre. Stands were good everywhere except Bison.

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 all locations for most hybrids. Some plots had a lot of heads broken off due to the high winds. These were counted as lodged plants. There was considerable seed shattering in the confections, particularly at Onida. The Onida confections were not harvested.

Plots at Onida, Miller, Eureka, and Reliance were harvested with a Gleaner Model K combine fitted with a two-row all row crop header. Plots at Bison were harvested with a Massey-Ferguson plot combine fitted with sunflower pans. Seed yields were adjusted to a 10% moisture basis. Oil content was determined by NMR analysis. 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 one-pint subsample of seed from each plot of the confection trials 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, dehulling them, and then weighing the 20 dehulled kernels.

## Results

Data from each location and combined over locations are contained in tables 4 through 11. Yields of oilseed hybrids were highest at Reliance, averaging 2383 lbs/acre over all hybrids tested, with an average oil content of 47.4%. The lowest yield and oil was measured at Bison, which averaged 1,727 lbs/acre and 42.4% oil. Confection seed yield averaged 1,360 lbs/acre at Miller. 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.**

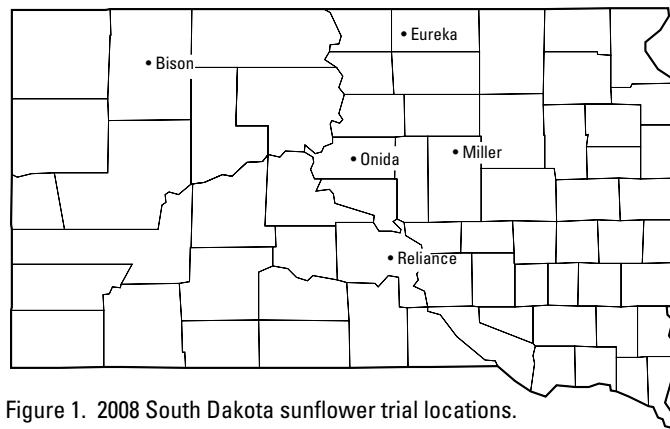


Figure 1. 2008 South Dakota sunflower trial locations.

**Table 1. Climate summary for nearest weather stations to 2008 South Dakota sunflower test sites and departures from normal.**

LOCATION-MONTH	2008 TEMPERATURE			TOTAL PRECIP IN.	DEPARTURE FROM NORMAL <sup>^</sup>			
	AVG MAX.	AVG MIN.	MEAN		MAX TEMP	MIN TEMP	AVG TEMP	PRECIP IN.
	-----°F-----				-----°F-----			
<b>Bison*</b>								
May	65	41	53	4.07	-5	-3	-4	1.35
June	74	50	62	4.91	-5	-3	-4	2.09
July	88	58	73	0.66	2	0	1	-1.61
August	87	58	72	2.47	1	1	1	1.00
September	75	46	60	0.63	0	-1	0	-0.57
October	60	35	47	2.55	-1	0	-1	1.09
<b>Eureka*</b>								
May	65	40	53	1.33	-4	-3	-4	-1.30
June	74	51	63	5.73	-4	-2	-3	2.56
July	85	59	72	3.68	0	1	1	0.90
August	83	58	70	2.73	-1	2	0	0.43
September	72	47	60	2.47	-1	2	0	1.04
October	58	35	47	2.64	-1	2	0	0.98
<b>Miller*</b>								
May	65	42	54	2.51	-3	-4	-3	-0.63
June	76	53	64	3.95	-2	-2	-3	1.05
July	84	60	72	4.61	-1	-1	-1	2.01
August	83	59	71	1.16	0	1	0	-0.85
September	74	46	60	1.43	0	-1	-1	-0.37
October	58	35	46	0.37	-3	0	-1	-1.40
<b>Onida*</b>								
May	66	41	53	2.00	-4	-3	-4	-0.85
June	76	52	64	5.02	-4	-2	-3	1.91
July	87	59	73	2.66	-1	0	0	-0.03
August	87	59	73	0.68	1	2	1	-1.46
September	75	47	61	1.89	-1	0	0	0.35
October	59	36	47	1.59	-3	2	-1	0.01
<b>Reliance*</b>								
May	69	42	55	4.30	-5	-4	-5	1.28
June	79	53	66	4.68	-5	-3	-4	1.70
July	90	62	76	2.07	-1	0	0	-0.71
August	88	59	74	0.98	-2	0	-1	-1.04
September	78	46	62	1.84	-2	-3	-3	0.41
October	63	35	49	2.52	-2	-1	-2	1.04

\* 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.

<sup>^</sup> Departures from normal were determined by comparing 2008 observations to 30-yr averages (1971–2000) for each site.

**Table 2. Hybrids tested in the 2008 South Dakota oilseed hybrid sunflower trials.**

<b>Brand</b>	<b>Hybrid</b>	<b>Hybrid Type<sup>1</sup></b>	<b>Seed<sup>2</sup> Treatmnt</b>	<b>Bison</b>	<b>Eureka</b>	<b>Miller</b>	<b>Onida</b>	<b>Reliance</b>
Advanta Pacific LLC	F30008NS,CL	NS/CL	CMAX	X		X	X	X
Advanta Pacific LLC	F30294NS,Rust	NS	CMAX		X	X		
Advanta Pacific LLC	F51132NS,CL	NS/CL	CMAX			X		
Advanta Pacific LLC	F51137NS,CL	NS/CL	CMAX		X	X	X	
Advanta Pacific LLC	F51139NS,DM,CL	NS/CL	CMAX		X	X	X	
Croplan Genetics	CG 306 DMR NS	NS		X	X	X	X	X
Croplan Genetics	CG 3080 DMR NS	NS		X	X	X	X	X
Croplan Genetics	CG 325 DMR NS	NS		X	X	X	X	X
Croplan Genetics	CG 356 NS	NS		X	X	X	X	X
Croplan Genetics	CG 369 DMR NS	NS		X	X	X	X	X
Croplan Genetics	CG 378 DMR NS	NS		X	X	X	X	X
Croplan Genetics	CG 528 CL NS	NS/CL		X	X	X	X	X
Croplan Genetics	CG 551 CL NS	NS/CL		X	X	X	X	X
Croplan Genetics	CG 564 CL NS	NS		X	X	X	X	X
Dahlgren & Co.	4421	NS	CR			X	X	
Dahlgren & Co.	4455	NS	CR			X	X	
Dahlgren & Co.	4370NS	NS	CR			X	X	
Dahlgren & Co.	4500CL	NS/CL	CR			X	X	
Dekalb	DKF 29-30	NS	CMAX	X	X	X	X	X
Dekalb	DKF 34-33	NS	CMAX	X	X	X	X	X
Dekalb	DKF 34-80CL	NS/CL	CMAX	X	X	X	X	X
Dekalb	DKF 37-31	NS	CMAX	X	X	X	X	X
Dekalb	DKF 38-45	NS	CMAX	X	X	X	X	X
Dekalb	DKF 3875	Trad.	CMAX	X	X	X	X	X
Dekalb	DKF 39-80CL	NS/CL	CMAX	X	X	X	X	X
Dekalb	IS 7120	HO	CMAX	X	X	X	X	X
Garst Seed Co.	4651NS	NS	CR	X	X		X	X
Garst Seed Co.	NX43489	NS	CR	X	X		X	X
Garst Seed Co.	NX44166	HO	CR	X	X		X	X
King Seed Inc.	SunKing 4404 NSCL	NS/CL	CR	X	X	X	X	X
King Seed Inc.	SunKing 4505	Trad.	CR	X	X	X	X	X
Legend Seeds	LSF 318NCL	NS/CL			X	X	X	X
Monsanto	MH6640	NS	CMAX	X	X	X	X	X
Monsanto	MH6643	NS	CMAX	X	X	X	X	X
Monsanto	MH7632	NS	CMAX	X	X	X	X	X
Monsanto	MH7633	NS	CMAX	X	X	X	X	X
Mycogen Seeds	8D481	NS	CMAX	X	X	X	X	X
Mycogen Seeds	8H449DM	HO	CMAX	X	X	X	X	X
Mycogen Seeds	8N187	NS	CMAX	X	X	X	X	X
Mycogen Seeds	8N270	NS	CMAX	X	X	X	X	X
Mycogen Seeds	8N358CL	NS/CL	CMAX	X	X	X	X	X
Mycogen Seeds	8N453DM	NS	CMAX	X	X	X	X	X
Mycogen Seeds	8N510	NS	CMAX	X	X	X	X	X
Pannar	Pan 7813	NS		X	X	X	X	X
Pannar	Pan 7924	NS		X	X	X	X	X
Pannar	Pan 7986	NS		X	X	X	X	X
Pannar	Pan 9501	Trad.		X	X	X	X	X
Pioneer Hi-Bred	Pioneer Brand 63M91	NS				X	X	X



**Table 2 (cont.).**

<b>Brand</b>	<b>Hybrid</b>	<b>Hybrid Type<sup>1</sup></b>	<b>Seed<sup>2</sup> Treatmnt</b>	<b>Bison</b>	<b>Eureka</b>	<b>Miller</b>	<b>Onida</b>	<b>Reliance</b>
Pioneer Hi-Bred	Pioneer Brand 63N82	NS/SU				X	X	X
Pioneer Hi-Bred	Pioneer Brand 64H41	HO				X	X	X
Seeds 2000	Barracuda CL-NS	NS/CL	CMAX		X	X	X	X
Seeds 2000	Blazer CL-NS	NS/CL	CMAX		X	X	X	X
Seeds 2000	Firebird-Expsun-NS	NS/SU	CMAX		X	X	X	X
Seeds 2000	Sierra HO	HO	CMAX		X	X	X	X
Technology Crops Int'l	Olimax	HO			X			
Technology Crops Int'l	Olex	HO			X			
Triumph Seed Co.	660CL	NS/CL				X		X
Triumph Seed Co.	845HO	HO			X		X	
Triumph Seed Co.	R859HOCL	HO/CL			X	X		
Triumph Seed Co.	s672	NS				X		
Triumph Seed Co.	s675	NS			X	X	X	X
Triumph Seed Co.	s678	NS		X	X	X	X	X
Triumph Seed Co.	630CL	NS/CL				X	X	
Triumph Seed Co.	TRXs5423	NS				X		
Triumph Seed Co.	TRXs7322	NS			X	X	X	X
Triumph Seed Co.	s671	NS		X	X	X	X	X
Triumph Seed Co.	s880CL	HO/CL			X	X	X	X
Triumph Seed Co.	s878	HO			X	X	X	X
Triumph Seed Co.	TRX7435HO	HO			X	X		
Triumph Seed Co.	TRXs8325	NS					X	
USDA	USDA 894 (check)	Trad.		X	X	X	X	X
USDA	cms HA412/RHA 377(chk)	Trad.		X			X	
USDA	Hyb. 894 (check)	Trad.		X	X	X	X	X
USDA	cmsHA412/RHA409(chk)	Trad.		X	X	X	X	X
	Total hybrids			42	57	64	63	54

<sup>1</sup>NS = NuSun, HO = High oleic, Trad. = Traditional linoleic, CL = Clearfield, SU = Express-resistant.

<sup>2</sup>CR = Cruiser, CDM = Cruiser DM Pak, CMAX = CruiserMaxx Sunflower.

**Table 3. Hybrids tested in the 2008 South Dakota confection hybrid sunflower trials.**

Brand	Hybrid	Herb. Resist.	Seed* Treatmnt	Miller	Onida
CHS	07EXP02		Yes	X	X
CHS	08EXP01 <sup>1</sup>		Yes	X	X
CHS	Royal Hyb. RH1121		Yes	X	X
Croplan Genetics	CG 135			X	X
Croplan Genetics	CG 139			X	X
Dahlgren & Co.	9530		CR	X	X
Dahlgren & Co.	9531		CR	X	X
Dahlgren & Co.	9592		CR	X	X
Dahlgren & Co.	95EXPCL	CL	CR	X	X
Monsanto	IS 8048		CMAX	X	X
Mycogen Seeds	8C451		CMAX	X	X
Red River Commodities	2215		CDM	X	X
Red River Commodities	2216		CDM	X	X
Red River Commodities	2419		CDM	X	X
Seeds 2000	Jaguar-CL	CL	CMAX	X	X
Seeds 2000	Panther II		CMAX	X	X
SunOpta Sunflower	SS38A		CDM	X	X
Triumph Seed Co.	747C			X	
Triumph Seed Co.	777C			X	
USDA	Hybrid 924 (check)			X	X
Total				20	18

\* CR = Cruiser, CDM = Cruiser DM Pak, CMAX = CruiserMaxx Sunflower.

<sup>1</sup>CHS 08EXP01 was mistakenly entered in the confection trials instead of the oil trials. Performance information for this hybrid is footnoted at the bottom of the Miller oilseed table.

**Table 4. Oilseed sunflower hybrid trial, Bison, SD - 2008.**

Brand	Hybrid	Type <sup>1</sup>	Seed Yield (lbs/A)			Oil %	Plant		Harv. Moist. %	Test Wt. lb/bu	Pop. 1000 pl/A
			2008	2007	2-yr Avg.		Hght cm	Lodg %			
Advanta Pacific LLC	F30008NS,CL	NS/CL	1858	--	--	39.8	156	0.0	15.1	25.7	15.0
Croplan Genetics	CG 306 DMR NS	NS	1868	--	--	42.6	145	1.6	14.0	27.6	11.8
Croplan Genetics	CG 3080 DMR NS	NS	2006	--	--	47.2	136	0.0	10.0	27.5	15.3
Croplan Genetics	CG 325 DMR NS	NS	1448	--	--	42.4	138	0.0	10.2	26.9	11.0
Croplan Genetics	CG 356 NS	NS	1931	--	--	43.1	144	0.0	16.6	28.4	13.7
Croplan Genetics	CG 369 DMR NS	NS	1512	--	--	42.6	156	0.6	15.4	26.6	10.6
Croplan Genetics	CG 378 DMR NS	NS	1878	--	--	41.1	152	0.0	15.3	25.8	10.4
Croplan Genetics	CG 528 CL NS	NS/CL	1912	--	--	42.7	146	0.8	11.5	28.1	13.2
Croplan Genetics	CG 551 CL NS	NS/CL	1317	--	--	40.3	157	0.0	14.5	24.8	12.1
Croplan Genetics	CG 564 CL NS	NS	1531	--	--	41.0	148	7.6	23.2	27.2	11.1
Dekalb	DKF 29-30	NS	1059	1235	1147	43.6	139	0.0	7.1	29.0	12.7
Dekalb	DKF 34-33	NS	1577	850	1213	42.9	136	4.3	13.8	26.8	8.5
Dekalb	DKF 34-80CL	NS/CL	1630	1345	1487	42.6	140	0.0	11.2	26.6	11.8
Dekalb	DKF 37-31	NS	1256	1411	1333	44.7	134	0.0	14.9	28.7	10.0
Dekalb	DKF 38-45	NS	1963	1865	1914	45.5	146	0.0	7.8	28.2	14.4
Dekalb	DKF 3875	Trad.	2012	1679	1845	42.8	145	0.0	13.5	29.7	12.5
Dekalb	DKF 39-80CL	NS/CL	1666	--	--	38.9	169	0.0	14.3	25.4	10.2
Dekalb	IS 7120	HO	1671	1255	1463	43.1	133	0.0	11.7	27.2	12.2
Garst Seed Co.	4651NS	NS	1846	--	--	40.7	161	2.0	15.8	25.9	10.1
Garst Seed Co.	NX43489	NS	1799	--	--	42.2	148	0.0	12.7	29.7	12.5
Garst Seed Co.	NX44166	HO	1790	--	--	43.4	152	1.1	14.6	29.9	10.6
King Seed Inc.	SunKing 4404 NSCL	NS/CL	2246	--	--	37.8	153	0.4	16.3	26.1	15.2
King Seed Inc.	SunKing 4505	Trad.	1754	--	--	44.4	161	0.7	9.9	28.6	10.8
Monsanto	MH6640	NS	1604	--	--	44.0	140	2.1	13.6	29.7	11.0
Monsanto	MH6643	NS	1414	--	--	44.5	143	0.0	11.7	27.6	10.9
Monsanto	MH7632	NS	2008	--	--	43.3	141	0.0	14.9	28.9	14.0
Monsanto	MH7633	NS	1550	--	--	40.5	150	2.9	15.1	28.3	9.2
Mycogen Seeds	8D481	NS	1803	--	--	39.9	146	0.0	13.1	30.5	10.5
Mycogen Seeds	8H449DM	HO	2129	1273	1701	45.6	142	3.0	20.2	27.7	12.7
Mycogen Seeds	8N187	NS	1811	--	--	39.3	119	0.7	17.9	27.0	12.1
Mycogen Seeds	8N270	NS	1722	1454	1588	40.8	123	0.0	11.4	27.9	13.7
Mycogen Seeds	8N358CL	NS/CL	1881	666	1273	43.7	141	0.0	15.6	27.2	13.5
Mycogen Seeds	8N453DM	NS	1766	1815	1790	46.9	137	0.0	18.9	27.4	13.4
Mycogen Seeds	8N510	NS	1587	1630	1609	41.2	140	0.0	17.6	27.3	11.6
Pannar	Pan 7813	NS	1844	2008	1926	41.2	146	0.9	21.0	27.6	10.7
Pannar	Pan 7924	NS	1820	1704	1762	38.7	159	4.1	23.8	24.9	10.5
Pannar	Pan 7986	NS	1911	--	--	40.2	154	0.5	15.0	28.5	15.1
Pannar	Pan 9501	Trad.	1680	1525	1602	38.4	158	1.2	14.0	27.5	14.8
Triumph Seed Co.	s678	NS	1783	1650	1717	42.7	140	0.0	21.4	26.3	14.7
Triumph Seed Co.	s671	NS	1978	--	--	43.5	118	0.0	21.2	26.7	15.9
USDA	USDA 894 (check)	Trad.	1094	867	980	44.0	141	0.0	16.7	26.8	10.9
USDA	cms HA412/RHA 377(chk)	Trad.	1610	--	--	48.2	145	2.1	12.7	27.7	12.8
Grand Mean			1727	1385	1550	42.4	145	0.9	14.9	27.5	12.2
LSD 5%			484	574	395	1.7	12	ns	3.4	2.3	ns
C.V.			20.0	20.4	19.9	2.9	6.1	298	16.3	5.9	25.6

<sup>1</sup>NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield, DM=downy mildew resistant, SU=Express-resistant.

Planted June 16, 2008.

Yield is reported at 10% moisture. Oil % is adjusted for oleic acid content.

**Table 5. Oilseed sunflower hybrid trial, Miller, SD - 2008.**

Brand	Hybrid	Type <sup>1</sup>	Seed Yield (lbs/A)			Oil %	Plant		Harv. Moist. %	Test Wt. lb/bu	Pop. 1000 pl/A
			2008	2007	2-yr Avg.		Hght cm	Lodg %			
Advanta Pacific LLC	F30008NS,CL	NS/CL	1859	--	--	45.9	184	3.3	13.0	30.9	17.4
Advanta Pacific LLC	F30294NS,Rust	NS	1904	--	--	46.6	169	2.1	14.2	31.1	17.4
Advanta Pacific LLC	F51132NS,CL	NS/CL	1796	--	--	48.2	171	2.9	13.3	30.5	17.4
Advanta Pacific LLC	F51137NS,CL	NS/CL	1587	--	--	47.4	160	0.8	13.5	31.0	17.4
Advanta Pacific LLC	F51139NS,DM,CL	NS/CL	1766	--	--	47.0	170	0.4	13.1	32.1	17.4
Croplan Genetics	CG 306 DMR NS	NS	1826	--	--	47.8	166	0.0	12.7	31.8	17.4
Croplan Genetics	CG 3080 DMR NS	NS	2028	--	--	49.8	164	2.1	12.5	30.9	17.4
Croplan Genetics	CG 325 DMR NS	NS	2041	--	--	48.3	173	0.8	13.1	31.4	17.4
Croplan Genetics	CG 356 NS	NS	2584	--	--	47.3	164	2.5	15.3	33.3	17.4
Croplan Genetics	CG 369 DMR NS	NS	2349	--	--	47.8	181	3.3	14.6	30.9	17.4
Croplan Genetics	CG 378 DMR NS	NS	2108	--	--	47.1	185	7.5	14.1	32.0	17.4
Croplan Genetics	CG 528 CL NS	NS/CL	1929	--	--	47.2	172	1.4	12.1	32.6	17.0
Croplan Genetics	CG 551 CL NS	NS/CL	2069	--	--	48.1	183	0.0	13.9	29.9	17.4
Croplan Genetics	CG 564 CL NS	NS	1948	--	--	49.2	182	1.7	14.3	32.2	17.4
Dahlgren & Co.	4421	NS	1937	2024	1981	45.4	173	2.9	12.5	30.4	17.4
Dahlgren & Co.	4455	NS	2060	1884	1972	46.2	173	3.3	12.5	31.5	17.4
Dahlgren & Co.	4370NS	NS	1895	--	--	47.2	163	0.5	12.9	32.2	17.0
Dahlgren & Co.	4500CL	NS/CL	2051	--	--	47.6	174	2.1	12.9	31.4	17.4
Dekalb	DKF 29-30	NS	2033	1234	1633	48.2	165	1.3	12.3	31.7	17.0
Dekalb	DKF 34-33	NS	2339	1190	1764	49.5	168	0.8	13.3	33.1	17.4
Dekalb	DKF 34-80CL	NS/CL	1534	1142	1338	48.1	168	3.5	12.8	32.7	16.7
Dekalb	DKF 37-31	NS	2346	2200	2273	48.9	168	2.1	13.9	32.9	17.4
Dekalb	DKF 38-45	NS	2460	1758	2109	49.2	174	2.1	13.5	31.8	17.4
Dekalb	DKF 3875	Trad.	2650	1841	2246	49.3	171	1.7	13.6	33.0	16.8
Dekalb	DKF 39-80CL	NS/CL	1646	--	--	45.8	186	5.8	12.8	31.4	17.4
Dekalb	IS 7120	HO	1615	2164	1890	47.6	158	1.9	12.8	31.3	17.0
King Seed Inc.	SunKing 4404 NSCL	NS/CL	2126	2272	2199	47.0	180	6.7	13.7	31.0	17.4
King Seed Inc.	SunKing 4505	Trad.	1833	1670	1751	48.7	184	1.7	12.2	31.2	17.4
Legend Seeds	LSF 318NCL	NS/CL	1551	--	--	46.0	160	1.3	12.6	32.4	17.4
Monsanto	MH6640	NS	2494	--	--	50.0	162	0.0	14.0	32.2	17.4
Monsanto	MH6643	NS	1881	--	--	48.3	167	2.9	13.0	31.6	17.4
Monsanto	MH7632	NS	2699	--	--	48.7	172	0.0	13.7	32.3	17.4
Monsanto	MH7633	NS	2483	--	--	47.2	172	2.5	13.1	31.8	17.4
Mycogen Seeds	8D481	NS	1981	--	--	45.7	172	2.9	13.0	31.2	17.4
Mycogen Seeds	8H449DM	HO	2556	2030	2293	50.5	182	2.9	15.6	32.4	17.4
Mycogen Seeds	8N187	NS	1424	--	--	45.8	162	4.2	12.7	30.5	17.4
Mycogen Seeds	8N270	NS	1779	--	--	48.2	157	0.4	12.9	31.3	17.4
Mycogen Seeds	8N358CL	NS/CL	1866	1869	1868	48.9	170	1.7	13.8	31.4	17.4
Mycogen Seeds	8N453DM	NS	2176	1855	2015	50.5	180	3.3	14.2	31.9	17.4
Mycogen Seeds	8N510	NS	2117	2205	2161	46.8	166	2.9	13.6	31.3	17.4
Pannar	Pan 7813	NS	2403	2686	2544	47.8	171	2.2	15.3	32.6	16.8
Pannar	Pan 7924	NS	2302	2217	2259	46.3	168	3.8	15.1	30.8	17.4
Pannar	Pan 7986	NS	1916	--	--	46.2	175	2.9	13.8	31.3	17.4
Pannar	Pan 9501	Trad.	1937	2027	1982	47.6	178	2.1	14.2	31.4	17.4
Pioneer Hi-Bred	Pioneer Brand 63M91	NS	1725	--	--	48.8	180	2.1	12.6	31.1	17.4
Pioneer Hi-Bred	Pioneer Brand 63N82	NS/SU	2194	--	--	48.0	164	0.4	14.1	32.6	17.2
Pioneer Hi-Bred	Pioneer Brand 64H41	HO	1717	--	--	47.0	193	3.3	14.2	32.6	17.4
Seeds 2000	Barracuda CL-NS	NS/CL	1910	1337	1623	46.6	176	0.8	15.4	31.3	17.4
Seeds 2000	Blazer CL-NS	NS/CL	2059	1994	2027	48.3	189	4.2	15.7	30.4	17.4

**Table 5 (continued).**

Brand	Hybrid	Type <sup>1</sup>	Seed Yield (lbs/A)			Oil %	Plant		Harv. Moist. %	Test Wt. lb/bu	Pop. 1000 pl/A
			2008	2007	2-yr Avg.		Hght cm	Lodg %			
Seeds 2000	Firebird-Expsun-NS	NS/SU	2342	2265	2303	47.3	166	1.7	16.3	31.6	17.4
Seeds 2000	Sierra HO	HO	2028	2076	2052	46.4	178	2.1	13.5	29.2	17.4
Triumph Seed Co.	660CL	NS/CL	2195	2215	2205	47.8	175	1.7	14.8	31.8	17.4
Triumph Seed Co.	R859HOCL	HO/CL	2511	2089	2300	47.0	184	1.3	14.1	31.4	17.4
Triumph Seed Co.	s672	NS	2523	--	--	49.6	113	0.0	16.0	31.2	17.4
Triumph Seed Co.	s675	NS	2672	2323	2498	49.4	102	0.0	16.5	30.8	17.4
Triumph Seed Co.	s678	NS	2439	2443	2441	48.8	144	0.0	15.9	32.4	17.4
Triumph Seed Co.	630CL	NS/CL	1741	--	--	47.7	172	5.4	12.7	30.4	17.4
Triumph Seed Co.	TRXs5423	NS	1789	2343	2066	49.4	104	0.0	13.6	31.2	17.4
Triumph Seed Co.	TRXs7322	NS	2026	--	--	49.8	117	0.0	15.3	31.1	17.4
Triumph Seed Co.	s671	NS	2080	2345	2213	48.9	136	0.0	15.5	31.4	17.4
Triumph Seed Co.	s880CL	HO/CL	2280	2714	2497	48.0	98	0.4	14.0	31.0	17.4
Triumph Seed Co.	s878	HO	2372	2059	2215	48.9	149	0.8	16.3	32.4	17.4
Triumph Seed Co.	TRX7435HO	HO	1981	--	--	49.4	175	1.7	13.6	30.2	17.4
USDA	USDA 894 (check)	Trad.	1489	1606	1548	51.3	154	2.7	13.2	31.8	16.3
(CHS	08EXP01**		1543	--	--	39.8	181	5	--	24.0	16.5)
Grand Mean			2062	1879	2062	48.0	166	2.0	13.8	31.5	17.3
LSD 5%			402	502	317	1.2	9	3.5	0.9	1.4	0.5
C.V.			14.0	16.6	14.6	1.8	3.7	124.2	4.6	3.1	2.1

\*\*CHS 08EXP01 was mistakenly entered into the confection trial. The data presented are from that trial and are not included in the oilseed trial statistics.

<sup>1</sup>NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield, DM=downy mildew resistant, SU=Express-resistant.

Planted June 10, 2008. Harvested October 31, 2008.

Yield is reported at 10% moisture. Oil % is adjusted for oleic acid content.

**Table 6. Oilseed sunflower hybrid trial, Eureka, SD - 2008.**

Brand	Hybrid	Type <sup>1</sup>	Seed Yield (lbs/A)			Oil %	Plant		Harv. Moist. %	Test Wt. lb/bu	Pop. 1000 pl/A
			2008	2007	2-yr Avg.		Hght cm	Lodg %			
Advanta Pacific LLC	F30294NS,Rust	NS	1648	--	--	44.6	181	4	17.8	30.7	17.4
Advanta Pacific LLC	F51137NS,CL	NS/CL	1598	--	--	45.9	175	0	16.6	32.8	17.4
Advanta Pacific LLC	F51139NS,DM,CL	NS/CL	1519	--	--	45.5	185	4	17.0	31.7	17.4
Croplan Genetics	CG 306 DMR NS	NS	2103	--	--	46.9	177	2	16.6	30.2	17.4
Croplan Genetics	CG 3080 DMR NS	NS	1832	--	--	47.2	177	6	16.3	30.7	17.4
Croplan Genetics	CG 325 DMR NS	NS	2261	--	--	46.4	175	3	17.8	30.6	17.4
Croplan Genetics	CG 356 NS	NS	2672	--	--	45.5	176	3	17.6	32.4	17.4
Croplan Genetics	CG 369 DMR NS	NS	2036	--	--	46.0	185	5	16.7	31.1	17.4
Croplan Genetics	CG 378 DMR NS	NS	1838	--	--	45.0	181	7	17.8	30.4	17.4
Croplan Genetics	CG 528 CL NS	NS/CL	1526	--	--	44.8	179	3	16.4	32.5	17.4
Croplan Genetics	CG 551 CL NS	NS/CL	1791	--	--	45.8	194	2	17.2	30.9	17.4
Croplan Genetics	CG 564 CL NS	NS	1912	--	--	47.0	181	2	17.5	31.0	17.4
Dekalb	DKF 29-30	NS	1897	1941	1919	46.4	181	4	15.9	32.4	17.4
Dekalb	DKF 34-33	NS	2136	2277	2207	46.8	185	5	16.3	32.3	17.4
Dekalb	DKF 34-80CL	NS/CL	1786	1764	1775	45.2	177	3	17.0	31.8	17.4
Dekalb	DKF 37-31	NS	2426	2138	2282	45.2	170	2	17.0	31.5	17.4
Dekalb	DKF 38-45	NS	2404	2577	2490	47.5	170	3	16.6	33.3	17.0
Dekalb	DKF 3875	Trad.	2084	2365	2225	47.4	178	5	16.3	31.2	16.3
Dekalb	DKF 39-80CL	NS/CL	1881	--	--	44.5	197	7	16.4	31.6	17.4
Dekalb	IS 7120	HO	1876	2254	2065	47.9	172	3	17.5	31.4	17.4
Garst Seed Co.	4651NS	NS	1830	--	--	44.4	190	8	17.5	29.8	17.4
Garst Seed Co.	NX43489	NS	1754	--	--	45.2	185	11	17.2	31.5	16.5
Garst Seed Co.	NX44166	HO	1869	--	--	45.6	177	7	17.0	32.7	17.4
King Seed Inc.	SunKing 4404 NSCL	NS/CL	2149	2082	2116	44.2	187	6	17.4	30.1	16.8
King Seed Inc.	SunKing 4505	Trad.	1821	1758	1790	47.3	202	5	16.7	30.4	17.4
Legend Seeds	LSF 318NCL	NS/CL	1544	--	--	44.6	165	3	16.2	31.5	17.4
Monsanto	MH6640	NS	2353	--	--	45.8	172	5	17.1	32.7	17.4
Monsanto	MH6643	NS	1767	--	--	46.0	170	5	17.4	30.9	17.4
Monsanto	MH7632	NS	2486	--	--	45.7	173	2	17.5	32.7	17.4
Monsanto	MH7633	NS	2268	--	--	46.4	183	6	16.3	31.8	17.4
Mycogen Seeds	8D481	NS	2344	--	--	44.0	184	4	16.7	31.4	17.4
Mycogen Seeds	8H449DM	HO	2086	2565	2326	46.9	191	6	17.4	31.4	17.4
Mycogen Seeds	8N187	NS	1784	--	--	45.5	169	4	16.4	31.4	17.4
Mycogen Seeds	8N270	NS	2030	2143	2087	45.9	167	2	16.4	30.9	17.4
Mycogen Seeds	8N358CL	NS/CL	2054	2544	2299	46.2	182	4	17.1	30.7	17.4
Mycogen Seeds	8N453DM	NS	2371	2055	2213	47.1	186	4	17.3	32.3	17.4
Mycogen Seeds	8N510	NS	2210	2942	2576	44.9	176	2	17.4	29.6	17.4
Pannar	Pan 7813	NS	2032	2340	2186	45.1	178	3	18.2	30.9	17.4
Pannar	Pan 7924	NS	1790	2381	2085	45.1	186	12	17.7	31.0	17.4
Pannar	Pan 7986	NS	2221	--	--	43.6	186	9	18.2	32.8	17.0
Pannar	Pan 9501	Trad.	1795	2518	2157	43.8	199	8	17.1	33.3	17.4
Technology Crops Int'l	Olimax	HO	1722	--	--	46.7	189	5	16.7	29.6	17.4
Technology Crops Int'l	Olex	HO	1340	--	--	44.9	188	9	17.1	30.2	17.4
Seeds 2000	Barracuda CL-NS	NS/CL	1928	2170	2049	45.3	185	1	18.3	32.0	17.4
Seeds 2000	Blazer CL-NS	NS/CL	1947	1985	1966	45.5	193	14	17.9	30.6	17.4
Seeds 2000	Firebird-Expsun-NS	NS/SU	2276	2750	2513	44.6	169	0	18.1	30.5	17.4
Seeds 2000	Sierra HO	HO	1808	2215	2011	44.9	178	17	16.2	29.9	17.4
Triumph Seed Co.	845HO	HO	2053	--	--	46.2	182	7	17.9	29.8	17.4



**Table 6 (continued).**

Brand	Hybrid	Type <sup>1</sup>	Seed Yield (lbs/A)			Oil %	Plant		Harv. Moist. %	Test Wt. lb/bu	Pop. 1000 pl/A
			2008	2007	2-yr Avg.		Hght cm	Lodg %			
Triumph Seed Co.	R859HOCL	HO/CL	1942	--	--	45.3	185	3	17.1	31.1	17.4
Triumph Seed Co.	s675	NS	1948	2186	2067	47.1	100	0	17.4	29.9	17.4
Triumph Seed Co.	s678	NS	2279	2047	2163	48.0	139	2	17.0	32.1	17.4
Triumph Seed Co.	TRXs7322	NS	2256	--	--	46.2	100	0	17.2	31.4	17.4
Triumph Seed Co.	s671	NS	2185	--	--	47.3	124	0	17.2	31.0	17.4
Triumph Seed Co.	s880CL	HO/CL	2332	2132	2232	46.3	104	0	18.1	29.8	17.4
Triumph Seed Co.	s878	HO	2297	--	--	46.3	150	2	17.5	30.9	17.4
Triumph Seed Co.	TRX7435HO	HO	2027	--	--	46.3	184	5	17.5	29.8	17.4
USDA	USDA 894 (check)	Trad.	1654	1638	1646	48.4	156	5	15.9	31.7	17.4
Grand Mean			2003	2065	2146	45.9	170	4	17.1	31.2	17.3
LSD 5%			358	416	273	1.6	10	6	0.8	1.4	ns
C.V.			12.8	14.4	13.4	2.5	4.0	100	3.3	3.1	3.6

<sup>1</sup>NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield, DM=downy mildew resistant, SU=Express-resistant. Replanted on June 17, 2008 after being hailed out. Harvested November 24, 2008. Yield and oil % are reported at 10% moisture. Oil % is adjusted for oleic acid content.

**Table 7. Oilseed sunflower hybrid trial, Onida, SD - 2008.**

Brand	Hybrid	Type <sup>1</sup>	Seed			Plant			Harv. Moist. %	Test Wt. lb/bu	Pop. 1000 p/A	Hulling Quality
			Yield lbs/A	Oil %	Days to Flwr	Hght cm	Lodg %	Mat.				
Advanta Pacific LLC	F30008NS,CL	NS/CL	1831	41.9	65	113	177	14.6	13.0	29.8	17.4	
Advanta Pacific LLC	F51137NS,CL	NS/CL	1495	42.9	64	106	157	2.1	11.9	29.8	17.4	
Advanta Pacific LLC	F51139NS,DM,CL	NS/CL	1625	45.1	63	106	168	2.1	12.7	29.8	17.4	
Croplan Genetics	CG 306 DMR NS	NS	1809	45.2	61	105	152	0.4	12.9	29.5	17.4	
Croplan Genetics	CG 3080 DMR NS	NS	1603	46.2	60	106	158	2.9	12.5	30.0	17.4	
Croplan Genetics	CG 325 DMR NS	NS	1845	44.7	62	101	171	1.3	12.3	29.3	17.4	
Croplan Genetics	CG 356 NS	NS	2176	44.7	63	104	161	2.1	13.7	30.3	17.4	
Croplan Genetics	CG 369 DMR NS	NS	1859	45.6	64	106	167	2.1	12.3	29.7	17.4	
Croplan Genetics	CG 378 DMR NS	NS	1400	44.4	63	99	178	10.4	13.3	28.8	17.4	
Croplan Genetics	CG 528 CL NS	NS/CL	1409	43.8	60	104	172	2.5	12.1	29.9	17.4	
Croplan Genetics	CG 551 CL NS	NS/CL	1510	44.2	64	103	170	2.1	12.9	29.6	17.4	
Croplan Genetics	CG 564 CL NS	NS	1706	45.3	66	107	172	0.8	13.2	30.3	17.4	
Dahlgren & Co.	4421	NS	1722	42.1	61	97	168	1.3	12.3	28.8	17.4	
Dahlgren & Co.	4455	NS	1991	42.0	64	102	165	2.1	13.0	29.4	17.4	
Dahlgren & Co.	4370NS	NS	1737	44.3	59	97	153	3.0	11.2	29.8	16.5	
Dahlgren & Co.	4500CL	NS/CL	1674	45.9	64	101	167	2.9	12.2	30.2	17.4	
Dekalb	DKF 29-30	NS	1684	44.9	60	95	165	1.3	12.2	30.3	17.4	
Dekalb	DKF 34-33	NS	1718	45.8	63	97	163	4.4	12.7	30.5	16.1	
Dekalb	DKF 34-80CL	NS/CL	1910	45.5	62	97	167	0.0	12.3	29.7	17.4	
Dekalb	DKF 37-31	NS	2002	43.7	63	101	167	1.3	12.9	29.6	17.4	
Dekalb	DKF 38-45	NS	1916	44.9	63	102	168	2.1	12.0	29.1	17.4	
Dekalb	DKF 3875	Trad.	2020	47.0	64	104	167	9.2	13.0	29.8	17.4	
Dekalb	DKF 39-80CL	NS/CL	1216	42.2	64	105	186	25.0	12.8	29.3	13.9	Excel
Dekalb	IS 7120	HO	1722	45.4	61	106	150	0.4	12.6	29.7	17.4	
Garst Seed Co.	4651NS	NS	1291	45.3	63	104	177	9.6	13.2	28.9	16.3	
Garst Seed Co.	NX43489	NS	1359	45.3	64	104	169	10.5	13.3	29.6	15.9	
Garst Seed Co.	NX44166	HO	1861	44.5	63	106	174	2.9	12.5	30.9	17.4	
King Seed Inc.	SunKing 4404 NSCL	NS/CL	1554	43.4	65	104	180	18.3	12.8	30.8	16.5	
King Seed Inc.	SunKing 4505	Trad.	1606	47.4	66	99	176	2.1	12.0	29.8	17.4	Excel
Legend Seeds	LSF 318NCL	NS/CL	1483	43.7	61	99	148	5.0	11.3	29.8	17.4	Excel
Monsanto	MH6640	NS	1617	45.3	62	107	159	2.5	12.8	30.5	17.4	
Monsanto	MH6643	NS	1611	44.2	61	104	157	0.7	13.2	28.9	15.7	
Monsanto	MH7632	NS	1907	45.8	65	104	164	0.4	13.5	31.2	17.4	
Monsanto	MH7633	NS	1853	45.3	65	112	170	30.0	12.4	30.8	17.4	
Mycogen Seeds	8D481	NS	2091	42.8	65	95	174	1.3	13.7	29.7	17.4	Excel
Mycogen Seeds	8H449DM	HO	1967	46.8	65	104	170	2.1	13.2	30.5	16.3	
Mycogen Seeds	8N187	NS	1619	44.1	62	104	151	1.3	12.4	29.6	17.4	Good
Mycogen Seeds	8N270	NS	1572	43.4	58	102	148	4.6	11.5	29.9	17.4	Good
Mycogen Seeds	8N358CL	NS/CL	1631	45.3	63	97	165	3.8	13.3	29.0	17.4	
Mycogen Seeds	8N453DM	NS	1973	48.3	63	104	167	1.3	13.4	31.3	17.4	
Mycogen Seeds	8N510	NS	2075	45.3	64	103	171	6.7	13.0	30.0	17.4	Excel
Pannar	Pan 7813	NS	1665	44.8	64	112	150	0.8	13.7	30.0	17.4	
Pannar	Pan 7924	NS	2113	44.7	64	106	167	5.8	13.8	29.3	17.4	
Pannar	Pan 7986	NS	1955	42.3	65	115	169	0.8	13.4	30.3	17.4	
Pannar	Pan 9501	Trad.	1609	42.9	66	110	171	7.9	12.8	29.6	17.4	
Pioneer Hi-Bred	Pioneer Brand 63M91	NS	1524	46.1	60	99	176	4.2	12.7	30.4	17.4	
Pioneer Hi-Bred	Pioneer Brand 63N82	NS/SU	1793	44.1	62	99	161	0.0	13.1	29.6	17.4	Excel
Pioneer Hi-Bred	Pioneer Brand 64H41	HO	1653	42.8	64	99	170	5.4	12.9	30.9	17.4	

**Table 7 (continued).**

Brand	Hybrid	Type <sup>1</sup>	Seed			Plant			Harv. Moist. %	Test Wt. lb/bu	Pop. 1000 pl/A	Hulling Quality
			Yield lbs/A	Oil %	Days to Flwr	Mat.	Hght cm	Lodg %				
Seeds 2000	Barracuda CL-NS	NS/CL	1972	45.3	66	104	169	1.7	13.7	30.6	17.4	
Seeds 2000	Blazer CL-NS	NS/CL	1701	44.3	67	102	175	6.3	13.6	30.9	17.4	
Seeds 2000	Firebird-Expsun-NS	NS/SU	2072	43.7	67	104	160	0.8	13.4	28.6	17.4	
Seeds 2000	Sierra HO	HO	1588	43.2	68	115	165	1.3	13.1	27.9	17.4	
Triumph Seed Co.	845HO	HO	2163	46.2	64	104	160	1.3	13.4	29.0	17.4	
Triumph Seed Co.	s675	NS	1956	46.3	68	105	113	0.0	13.7	29.9	17.4	
Triumph Seed Co.	s678	NS	1985	46.1	67	115	141	1.3	13.5	29.6	17.4	
Triumph Seed Co.	630CL	NS/CL	1796	43.3	64	102	170	7.5	12.8	29.2	17.4	
Triumph Seed Co.	TRXs7322	NS	2101	46.2	66	113	116	0.0	12.7	30.3	17.4	
Triumph Seed Co.	s671	NS	1711	45.6	66	111	136	0.4	13.4	29.8	17.4	
Triumph Seed Co.	s880CL	HO/CL	1663	44.9	68	111	102	0.0	13.2	28.3	17.4	
Triumph Seed Co.	s878	HO	1758	46.9	66	115	143	2.1	12.1	31.2	17.4	
Triumph Seed Co.	TRXs8325	NS	1721	46.5	66	101	132	1.3	14.0	29.1	17.4	
USDA (check)	USDA 894	Trad.	1693	47.0	62	100	152	2.9	12.0	30.2	17.4	
USDA (check)	cms HA412/RHA 377	Trad.	1397	48.3	60	97	159	12.1	12.5	30.2	17.4	
Grand Mean			1750	44.8	64		161	4.2	12.8	29.8	17.2	
LSD 5%			389	1.4	1		9	8.4	1.0	1.3	1.4	
C.V.			16.0	2.2	1.0		3.9	143.9	5.3	3.1	5.7	

<sup>1</sup>NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield, DM=downy mildew resistant, SU=Express-resistant. Planted June 12, 2008. Harvested November 2, 2008.

Yield is reported at 10% moisture. Oil % is adjusted for oleic acid content.

Hulling quality: Excel = >65% of seed passes over a 14/64 screen; Good = >75% of seed passes over a 13/64 screen.

**Table 8. Oilseed sunflower hybrid trial, Reliance, SD - 2008.**

Brand	Hybrid	Type <sup>1</sup>	Seed Yield (lbs/A)			Oil %	Plant Hght cm	Lodg %	Harv. Moist. %	Test Wt. lb/bu	Pop. 1000 pl/A
			2008	2007	Avg.						
Advanta Pacific LLC	F30008NS,CL	NS/CL	2180	--	--	45.5	177	3	12.7	30.4	17.4
Croplan Genetics	CG 306 DMR NS	NS	2345	--	--	48.1	154	2	11.2	31.5	17.4
Croplan Genetics	CG 3080 DMR NS	NS	2374	--	--	48.5	156	3	11.3	31.0	17.4
Croplan Genetics	CG 325 DMR NS	NS	2467	--	--	47.0	167	2	11.6	30.6	17.4
Croplan Genetics	CG 356 NS	NS	2731	--	--	47.7	166	1	12.8	32.7	17.4
Croplan Genetics	CG 369 DMR NS	NS	1957	--	--	46.7	170	2	12.1	30.3	17.4
Croplan Genetics	CG 378 DMR NS	NS	2111	--	--	47.7	167	5	12.9	31.7	17.4
Croplan Genetics	CG 528 CL NS	NS/CL	1909	--	--	46.8	166	1	11.5	31.7	17.4
Croplan Genetics	CG 551 CL NS	NS/CL	2232	--	--	45.7	171	1	12.2	30.8	17.4
Croplan Genetics	CG 564 CL NS	NS	1981	--	--	47.3	171	0	12.8	32.9	17.4
Dekalb	DKF 29-30	NS	2034	1738	1885.855	48.4	166	3	11.5	32.4	17.4
Dekalb	DKF 34-33	NS	2504	1413	1958.78	48.9	166	3	12.0	32.1	17.4
Dekalb	DKF 34-80CL	NS/CL	2426	1716	2070.9	46.7	163	3	11.9	31.3	17.4
Dekalb	DKF 37-31	NS	3080	1899	2489.31	47.6	166	4	11.6	32.4	16.3
Dekalb	DKF 38-45	NS	2614	2117	2365.205	47.9	156	2	11.8	30.7	17.4
Dekalb	DKF 3875	Trad.	2927	2334	2630.79	48.0	173	6	12.3	31.3	16.3
Dekalb	DKF 39-80CL	NS/CL	2274	--	--	46.8	195	3	12.1	30.7	17.4
Dekalb	IS 7120	HO	2522	1818	2170.26	48.1	148	1	11.6	30.7	17.4
Garst Seed Co.	4651NS	NS	2104	--	--	47.5	163	3	12.9	30.7	14.2
Garst Seed Co.	NX43489	NS	2224	--	--	46.5	168	8	12.1	32.9	17.4
Garst Seed Co.	NX44166	HO	2371	--	--	47.3	177	3	12.0	33.1	17.4
King Seed Inc.	SunKing 4404 NSCL	NS/CL	2386	2257	2321.295	46.0	175	1	11.8	31.0	17.4
King Seed Inc.	SunKing 4505	Trad.	2034	1890	1961.985	48.8	178	5	11.8	32.1	17.4
Legend Seeds	LSF 318NCL	NS/CL	2175	--	--	46.5	151	4	11.4	30.1	17.4
Monsanto	MH6640	NS	2695	--	--	48.1	166	3	12.6	32.4	17.4
Monsanto	MH6643	NS	2384	--	--	47.5	161	1	12.5	31.7	17.4
Monsanto	MH7632	NS	2827	--	--	49.1	160	3	12.3	32.3	17.4
Monsanto	MH7633	NS	2402	--	--	46.8	179	3	12.0	31.4	17.4
Mycogen Seeds	8D481	NS	2502	--	--	45.4	164	0	12.1	31.0	17.4
Mycogen Seeds	8H449DM	HO	2224	1811	2017.53	48.7	175	2	13.1	31.5	17.4
Mycogen Seeds	8N187	NS	2374	--	--	46.6	154	1	11.6	30.8	17.4
Mycogen Seeds	8N270	NS	1891	--	--	46.0	141	0	12.0	31.8	16.3
Mycogen Seeds	8N358CL	NS/CL	2194	2005	2099.48	48.3	165	2	10.6	30.9	17.4
Mycogen Seeds	8N453DM	NS	2562	1962	2262.135	49.4	169	3	13.1	32.3	17.4
Mycogen Seeds	8N510	NS	2887	2315	2600.575	46.8	165	2	12.1	30.9	16.3
Pannar	Pan 7813	NS	2443	2080	2261.3	47.6	160	2	13.2	31.6	17.4
Pannar	Pan 7924	NS	2535	1952	2243.805	46.4	172	0	12.6	31.4	17.4
Pannar	Pan 7986	NS	2481	--	--	45.1	174	1	13.3	32.3	16.3
Pannar	Pan 9501	Trad.	1989	1753	1870.93	45.0	183	1	12.2	31.5	17.4
Pioneer Hi-Bred	Pioneer Brand 63M91	NS	2197	--	--	48.3	177	3	12.2	32.8	17.4
Pioneer Hi-Bred	Pioneer Brand 63N82	NS/SU	2575	--	--	46.4	164	3	12.8	31.9	17.4
Pioneer Hi-Bred	Pioneer Brand 64H41	HO	2258	--	--	46.3	176	1	13.8	32.2	17.4
Seeds 2000	Barracuda CL-NS	NS/CL	2093	1832	1962.345	47.5	166	1	13.4	32.8	17.4
Seeds 2000	Blazer CL-NS	NS/CL	1912	2109	2010.64	47.1	179	4	12.8	30.5	17.4
Seeds 2000	Firebird-Expsun-NS	NS/SU	2545	2026	2285.43	47.1	153	0	13.8	29.9	17.4
Seeds 2000	Sierra HO	HO	2434	1992	2213	45.8	170	7	11.9	30.4	17.4
Triumph Seed Co.	660CL	NS/CL	2108	1750	1929.06	47.2	164	2	13.0	31.9	17.4
Triumph Seed Co.	s675	NS	2642	1537	2089.515	49.3	115	0	14.0	31.8	17.4
Triumph Seed Co.	s678	NS	2585	1777	2181.04	49.0	134	0	14.2	32.1	17.4
Triumph Seed Co.	TRXs7322	NS	3091	--	--	48.0	102	0	13.1	32.5	17.4
Triumph Seed Co.	s671	NS	2640	--	--	48.3	128	0	14.0	31.5	17.4
Triumph Seed Co.	s880CL	HO/CL	2958	1922	2439.79	47.9	94	0	12.9	30.5	17.4
Triumph Seed Co.	s878	HO	2594	1996	2295.21	48.3	133	0	13.9	32.1	17.4
USDA	USDA 894 (check)	Trad.	1722	1997	1859.395	47.7	141	2	12.4	31.0	15.5
Grand Mean			2383	1847	2172	47.4	161	2	12.4	31.5	17.2
LSD 5%			388	361	264	1.5	9	3	0.8	1.2	1.1
C.V.			11.7	14.0	12.0	2.2	4.2	109.9	4.7	2.7	4.5

<sup>1</sup>NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield, DM=downy mildew resistant, SU=Express-resistant. Planted June 11, 2008. Harvested Oct. 30, 2008.

Yield is reported at 10% moisture. Oil % is adjusted for oleic acid content.

**Table 9. Oilseed sunflower hybrid trial averaged over 5 South Dakota locations - 2008.**

Brand	Hybrid	Type <sup>1</sup>	Seed		Plant		Harv.	Test	Pop.
			Yield lbs/A	Oil %	Hght cm	Lodg %	Moist. %	Wt. lb/bu	1000 pl/A
Croplan Genetics	CG 306 DMR NS	NS	1990	46.1	159	1	13.5	30.1	16.3
Croplan Genetics	CG 3080 DMR NS	NS	1969	47.8	158	3	12.5	30.0	17.0
Croplan Genetics	CG 325 DMR NS	NS	2012	45.8	165	1	13.0	29.8	16.1
Croplan Genetics	CG 356 NS	NS	2419	45.7	162	2	15.2	31.4	16.7
Croplan Genetics	CG 369 DMR NS	NS	1942	45.8	172	3	14.2	29.7	16.0
Croplan Genetics	CG 378 DMR NS	NS	1867	45.1	173	6	14.7	29.7	16.0
Croplan Genetics	CG 528 CL NS	NS/CL	1737	45.0	167	2	12.7	30.9	16.5
Croplan Genetics	CG 551 CL NS	NS/CL	1784	44.8	175	1	14.2	29.2	16.4
Croplan Genetics	CG 564 CL NS	NS	1815	46.0	171	2	16.2	30.7	16.1
Dekalb	DKF 29-30	NS	1741	46.3	163	2	11.8	31.2	16.4
Dekalb	DKF 34-33	NS	2055	46.8	163	3	13.6	30.9	15.4
Dekalb	DKF 34-80CL	NS/CL	1857	45.6	163	2	13.1	30.4	16.1
Dekalb	DKF 37-31	NS	2222	46.0	161	2	14.0	31.0	15.7
Dekalb	DKF 38-45	NS	2271	47.0	163	2	12.3	30.6	16.7
Dekalb	DKF 3875	Trad.	2339	46.9	167	4	13.8	31.0	15.9
Dekalb	DKF 39-80CL	NS/CL	1737	43.6	187	8	13.7	29.7	15.3
Dekalb	IS 7120	HO	1881	46.4	152	1	13.2	30.0	16.3
King Seed Inc.	SunKing 4404 NSCL	NS/CL	2092	43.7	175	6	14.4	29.8	16.7
King Seed Inc.	SunKing 4505	Trad.	1810	47.3	180	3	12.5	30.4	16.1
Monsanto	MH6640	NS	2153	46.6	160	3	14.0	31.5	16.1
Monsanto	MH6643	NS	1811	46.1	160	2	13.6	30.1	15.8
Monsanto	MH7632	NS	2385	46.5	162	1	14.4	31.5	16.7
Monsanto	MH7633	NS	2111	45.3	171	9	13.8	30.8	15.8
Mycogen Seeds	8D481	NS	2144	43.6	168	2	13.7	30.7	16.0
Mycogen Seeds	8H449DM	HO	2192	47.7	172	3	15.9	30.7	16.3
Mycogen Seeds	8N187	NS	1803	44.3	151	2	14.2	29.8	16.4
Mycogen Seeds	8N270	NS	1799	44.9	147	1	12.8	30.4	16.5
Mycogen Seeds	8N358CL	NS/CL	1925	46.5	165	2	14.1	29.8	16.6
Mycogen Seeds	8N453DM	NS	2170	48.4	168	2	15.4	31.0	16.6
Mycogen Seeds	8N510	NS	2175	45.0	164	3	14.8	29.8	16.0
Pannar	Pan 7813	NS	2077	45.3	161	2	16.3	30.5	15.9
Pannar	Pan 7924	NS	2112	44.3	170	5	16.6	29.5	16.0
Pannar	Pan 7986	NS	2096	43.5	171	3	14.7	31.0	16.6
Pannar	Pan 9501	Trad.	1802	43.5	178	4	14.1	30.7	16.9
Triumph Seed Co.	s671	NS	2119	46.7	128	0	16.3	30.1	17.1
Triumph Seed Co.	s678	NS	2214	46.9	140	1	16.4	30.5	16.9
USDA	894 (check)	Trad.	1530	47.7	149	3	14.0	30.3	15.5
Average			2002	45.7	164	3	14.1	30.4	16.3
LSD			181	0.7	4	2	0.8	0.7	1.0
C.V.			14.5	2.3	4.3	143	8.6	3.6	9.3

<sup>1</sup>NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield, DM=downy mildew resistant, SU=Express-resistant.

**Table 10. Confection hybrid sunflower trial - Onida, SD 2008.**

Brand	Hybrid	Type*	Days to		Plant	Lodg	Pop.
			Flwr	Mat.	Hght		
					cm	%	1000 pl/A
CHS	07EXP02	Conf.	64	103	179	4	14.7
CHS	Royal Hyb. RH1121	Conf.	67	104	182	13	17.4
Croplan Genetics	CG 135	Conf.	58	90	165	10	16.3
Croplan Genetics	CG 139	Conf.	60	96	168	4	13.5
Dahlgren & Co.	9530	Conf.	65	104	182	9	17.4
Dahlgren & Co.	9531	Conf.	67	104	184	7	17.4
Dahlgren & Co.	9592	Conf.	66	104	180	3	17.4
Dahlgren & Co.	95EXPCL	Conf/CL	72	108	193	4	17.4
Monsanto	IS 8048	Conf.	61	100	172	1	17.4
Mycogen Seeds	8C451	Conf.	66	101	175	4	17.4
Red River Commodities	2215	Conf.	65	102	191	4	17.4
Red River Commodities	2216	Conf.	67	104	187	8	17.4
Red River Commodities	2419	Conf.	67	106	175	5	17.4
Seeds 2000	Jaguar-CL	Conf/CL	61	101	164	4	16.8
Seeds 2000	Panther II	Conf.	62	102	175	11	17.4
SunOpta Sunflower	SS38A	Conf.	62	94	175	3	17.4
USDA	Hybrid 924 (check)	Conf.	62	98	178	41	15.2
Grand Mean			64		177	9	16.6
LSD 5%			2		9	12	ns
C.V.			1.8		3.8	96.7	12.7

\* Conf.=Confection, CL=Clearfield.

Planted June 12, 2008. Not harvested due to excessive seed shatter.



**Table 11. Confection hybrid sunflower trial - Miller, SD 2008.**

Brand	Hybrid	Type*	Seed Yield (lbs/A)			Plant Hght cm	Lodging %	Test Wt. lb/bu	Pop. 1000 pl/A	% Over Screen			Nut-meat %
			2008	2007	2-yr					22/64	20/64	18/64	
CHS	07EXP02	Conf.	1251	--	--	194	6	22.2	16.6	45	73	87	49
CHS	Royal Hyb. RH1121	Conf.	1296	1501	1398.545	192	4	24.4	13.5	57	76	88	51
Croplan Genetics	CG 135	Conf.	1266	--	--	174	13	24.0	16.5	48	70	85	52
Croplan Genetics	CG 139	Conf.	1308	--	--	172	7	23.2	14.4	59	79	90	51
Dahlgren & Co.	9530	Conf.	1405	1882	1643.56	193	5	25.3	16.6	52	71	86	49
Dahlgren & Co.	9531	Conf.	1117	--	--	200	4	23.6	17.4	55	77	89	50
Dahlgren & Co.	9592	Conf.	1076	--	--	189	7	23.7	17.0	49	73	86	49
Dahlgren & Co.	95EXPCL	Conf/CL	1602	--	--	209	3	23.2	14.6	63	81	90	41
Monsanto	IS 8048	Conf.	1283	--	--	177	3	26.2	16.5	48	68	82	51
Mycogen Seeds	8C451	Conf.	1214	--	--	192	3	22.2	17.4	52	76	88	50
Red River Commodities	2215	Conf.	1363	1659	1511.15	195	3	25.7	16.3	53	75	88	62
Red River Commodities	2216	Conf.	1136	1779	1457.19	209	2	22.5	17.4	48	74	90	51
Red River Commodities	2419	Conf.	1993	--	--	186	4	23.4	14.8	63	82	90	46
Seeds 2000	Jaguar-CL	Conf/CL	1113	--	--	176	5	23.8	17.4	44	72	88	54
Seeds 2000	Panther II	Conf.	1543	--	--	181	9	24.6	15.9	59	80	91	51
SunOpta Sunflower	SS38A	Conf.	1826	1486	1656.01	178	5	24.9	17.4	42	66	82	56
Triumph Seed Co.	747C	Conf.	1367	--	--	180	8	20.9	14.6	47	75	87	51
Triumph Seed Co.	777C	Conf.	1456	1324	1390.15	200	6	23.9	17.4	48	71	84	48
USDA	Hybrid 924 (check)	Conf.	1048	1305	1176.79	189	13	24.7	16.3	37	56	74	52
Grand Mean			1360	1460	1462	188	6	23.8	16.2	51	73	86	51
LSD 5%			346	381	254	12	ns	ns	ns	ns	10	6	ns
C.V.			18.0	18.4	18.2	4.6	116.3	7.8	13.1	22.3	9.5	5.0	10.7

\* Conf.=Confection, CL=Clearfield.

Planted June 10, 2008. Harvested November 1, 2008.

**Table 12. Oilseed sunflower fatty acid profiles of selected hybrids - Onida, SD 2008.**

Sunflower			Palmitic	Stearic	Oleic	Linoleic
Brand	Hybrid	Type*	(%)	(%)	(%)	(%)
Dekalb	IS 7120	HO	3.2	3.4	86.5	4.7
Garst Seed Co.	4651NS	NS	4.7	4.2	59.1	29.5
Garst Seed Co.	NX43489	NS	4.7	4.3	54.5	34.2
Garst Seed Co.	NX44166	HO	3.4	3.8	86.2	4.0
Legend Seeds	LSF 318NCL	NS/CL	5.0	4.5	54.0	33.8
Pannar	Pan 7813	NS	4.6	4.3	53.5	35.7
Pannar	Pan 7924	NS	4.7	4.4	48.0	40.8
Pannar	Pan 7986	NS	3.1	5.4	77.6	11.6
Pioneer Hi-Bred	Pioneer Brand 64H41	HO	3.0	3.3	88.8	2.9

\* NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield.

