

EC 909
Revised
Annually

Sunflower

2003 South Dakota Hybrid Performance Trials

**Oilseed
Confection**

List of Tables

Table		Page
1	Climate summary	4
2	Oilseed hybrid list and test sites	5
3	Ipswich oilseed trial	6
4	Miller oilseed trial	7
5	Pukwana oilseed trial	8
6	Oilseed trial results averaged over locations	9
7	Confection hybrid list and test sites	10
8	Miller confection trial	10
9	Pukwana confection trial	11
10	Confection trial results averaged over locations	11
11	Onida NSA NuSun trial	12
12	Selby NSA NuSun trial	13
13	Onida NSA confection trial	14
14	Selby NSA confection trial	14

Available electronically on the internet

<http://agbiopubs.sdstate.edu/articles/EC909-03.pdf>



Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the USDA. Larry Tidemann, Director of Extension, Associate Dean, College of Agriculture & Biological Sciences, South Dakota State University, Brookings. Educational programs and materials offered without regard for race, color, creed, religion, national origin, ancestry, citizenship, age, gender, sexual orientation, disability, or Vietnam Era Veteran status.

EC909: PDF December 2003

Sunflower

2003 South Dakota Hybrid Performance Trials Oilseed and Confection

*Kathleen Grady, oilseed breeder and Extension specialist
Lee Gilbertson, senior ag research technician
SDSU Plant Science Department*

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 a hybrid may or may not be the best yielder at all locations but that 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 way to indicate 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 Miller oilseed test (Table 4) could be repeated in 2004 exactly as it was in 2003, the yield ranking of a hybrid that yielded 2420 lb/A and one that yielded 2049 lb/A might change places since their yield difference (371 lb/A) is less than the indicated yield LSD value of 411 lb/A. Within the accuracy level of the equipment used, there was no statistical difference in yield between the two hybrids when grown under the conditions that existed at Miller in 2003.

In contrast, a hybrid that yielded 1970 lb/A at Miller

in 2003 would likely be lower yielding than one that yielded 2420 lb/A if the two hybrids were grown again under similar conditions, because the difference between them in 2003 ($2420 - 1970 = 450$ lb/A) exceeded the LSD value (411 lb/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 below 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 hybrids, select the one with the highest oil content. The oilseed 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,” 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 oleic levels. Consistency of oleic levels for particular hybrids will be an important trait to evaluate, as data become available.

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 sunflowers at moisture contents as high as 20-25% 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 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 two or more races of rust. Consult the seed company for information on the reaction of a particular hybrid to these and other diseases that may pose a risk in your growing area.

2003 Trials

Locations and Hybrids

Oilseed hybrid sunflower trials were planted at four locations in South Dakota (Miller, the Dakota Lakes Research Station near Pierre, Ipswich, and Pukwana). Entries in the oilseed sunflower trials included traditional oil hybrids and NuSun (mid-oleic) hybrids. Non-oilseed (confection) sunflower trials were conducted at Dakota Lakes, Miller, and Pukwana. Trial sites are indicated on the map in Figure 1. Lists of hybrids planted at each site appear in Tables 2 and 7.

Also included in this publication are the results of the National Sunflower Association (NSA) NuSun and confection hybrid sunflower trials conducted at Onida and Selby (Tables 11-14). These trials were planted and harvested by Custom Crop Services, Ellendale, N.D. SDSU personnel took notes on the plots during the growing season.

Climatic Conditions

The 2003 growing season was generally dry. At the end of May (when the sunflower test sites were planted), approximately 25% of the state was short to very short in topsoil moisture and 35% was short or very short in subsoil moisture, respectively (South Dakota Ag Statistics Service). A summary of 2003 climatic conditions near the sunflower test sites is presented in Table 1. All stations received below-normal precipitation for most of the growing season. Temperatures were below normal in May and June but above normal in July and August. Most of the state received a killing frost during the first week of October.

Experimental Methods

Plots at all locations consisted of four rows 24 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).

All plots were overseeded and thinned. Oilseed plots at Miller, Ipswich, and Pukwana were thinned to a plant population of approximately 18,000 plants/acre. Oilseed plots at Dakota Lakes were thinned to approximately 17,000 plants/acre. Confection plots at all locations were thinned to 16,000 plants/acre. Stands were fair to good at all locations except the fourth replication at Ipswich, where compacted soil resulted in poor stand establishment. Data from this replication were excluded from all statistical analyses.

The Dakota Lakes trial was seeded no-till. All other trials were planted with conventional tillage practices. Spartan and Prowl herbicides were applied for weed control at Dakota Lakes. Sonalan or Treflan was applied at all other locations.

Flowering was recorded at Miller as the number of days from planting to 50% ray petals extended. Plant height and lodging notes were taken at all locations immediately before harvest. Lodging was severe in the oilseed trial at Pukwana, resulting in a high C.V. for yield data, which are therefore not reported. Plots at Dakota Lakes were excessively damaged by drought and birds and were not harvested.

Plots were harvested with a Gleaner Model K combine fitted with a two-row all row crop header. All oilseed trial seed yields were adjusted to a 10% moisture basis. Oil content was determined by NMR analysis of oven-dry samples and converted to 10% moisture. Oil values for NuSun hybrids were adjusted for oleic acid content.

Seed from the non-oilseed trials was dried before weighing. A one-pint subsample of seed from each plot 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, and weighing the 20 dehulled kernels.

Results

Data from each location and combined over locations are contained in Tables 3-6 (oilseed) and 8-10 (confection). The yield of 51 oilseed hybrids grown at Ipswich averaged 2074 lb/A. Fifty-one hybrids grown

at Miller averaged 1878 lb/A. Yields from the Pukwana oilseed trial are not reported because the C.V. was too high for reliable hybrid comparisons. Confection seed yields averaged 1639 lb/A at Miller and 1761 lb/A at Pukwana. In the tables that follow, hybrids are listed according to 2003 seed yields.

Results from the NSA NuSun and confection trials are presented in Tables 11-14. Average yield over all hybrids at Onida was 1745 lb/A in the NuSun trial (Table 11) and 2020 lb/A in the confection trial (Table 13). Oilseed hybrids at Selby averaged 1451 lb/A seed yield (Table 12), while confection hybrids averaged 1676 lb/A (Table 14).

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.

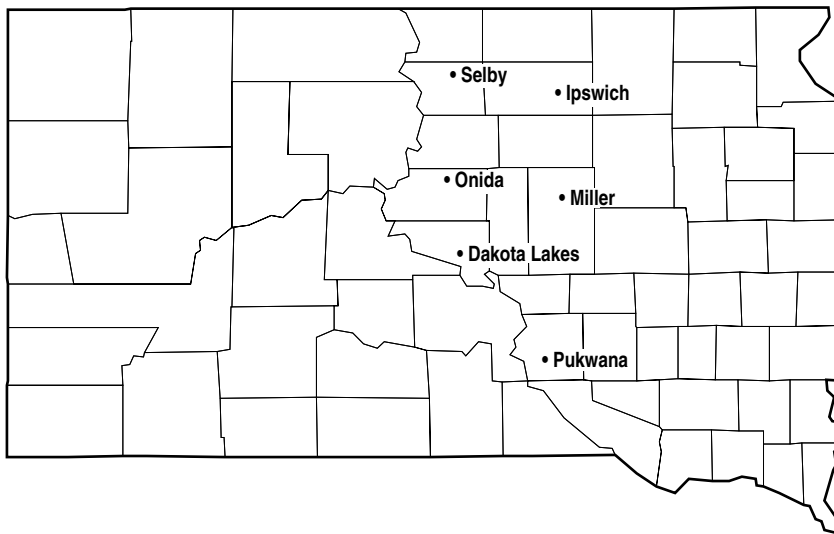


Figure 1. 2003 South Dakota sunflower test sites.

Table 1. Climate summary for nearest weather stations to 2003 South Dakota sunflower test sites and departures from normal.

LOCATION- MONTH	2003 TEMPERATURE			TOTAL PRECIP IN.	DEPARTURE FROM NORMAL [^]			
	AVG MAX.	AVG MIN.	MEAN		MAX TEMP	MIN TEMP	AVG TEMP	PRECIP IN.
	-----°F-----				-----°F-----			
<u>Pierre*</u>								
May	68.4	44.4	56.8	2.19	-3.0	-1.9	-2.1	-0.95
June	78.1	51.9	66.3	4.27	-3.3	-4.0	-2.4	0.78
July	90.0	59.8	75.7	1.18	0.8	-2.0	0.2	-1.57
August	90.9	61.3	76.4	0.35	2.9	1.2	2.3	-1.51
September	77.4	44.8	62.3	1.09	-0.1	-4.3	-0.9	-0.46
<u>Academy 2NE (Pukwana)*</u>								
May	67.9	43.6	55.8	3.32	-1.7	-1.9	-1.8	-0.46
June	78.2	52.9	65.6	3.45	-1.4	-2.3	-1.8	0.11
July	89.5	59.5	74.5	1.94	3.3	-1.2	1.0	-1.03
August	90.4	60.0	75.2	3.48	5.7	1.9	3.8	1.31
September	78.9	45.7	62.3	0.58	3.2	-1.9	0.6	-1.66
<u>Ipswich*</u>								
May	66.4	43.3	54.8	5.41	-3.4	2.0	-0.8	2.71
June	74.7	53.8	64.2	4.02	-3.8	2.7	-0.6	0.58
July	84.0	58.5	71.2	2.06	-0.7	2.4	0.8	-0.96
August	85.5	57.8	71.7	1.20	2.5	4.2	3.4	-1.02
September	72.8	44.2	58.5	0.90	-0.2	1.2	0.5	-0.74
<u>Miller*</u>								
May	67.7	44.8	56.3	2.26	-0.7	-0.7	-0.7	-0.88
June	76.7	53.8	65.2	3.32	-1.5	-1.5	-1.6	0.42
July	87.3	60.5	73.9	2.24	2.2	-0.1	1.0	-0.36
August	88.2	60.6	74.4	1.71	4.5	2.8	3.6	-0.30
September	75.3	45.9	60.6	1.21	1.2	-1.6	-0.2	-0.59
<u>Onida 4 NW*</u>								
May	67.0	43.7	55.4	4.47	-3.4	-0.6	-2.0	1.62
June	77.5	53.0	65.3	3.19	-2.7	-0.6	-1.6	0.08
July	89.7	59.3	74.5	2.68	2.1	0.5	1.3	-0.01
August	91.4	60.6	76.0	0.65	5.6	3.6	4.6	-1.49
September	77.4	45.3	61.4	1.34	1.4	-1.0	0.2	-0.20
<u>Selby*</u>								
May	65.4	43.6	54.5	3.07	-2.8	-0.3	-1.6	0.52
June	74.2	53.2	63.7	2.25	-3.1	-0.3	-1.7	-0.78
July	87.2	59.1	73.1	1.07	3.4	0.6	1.9	-1.47
August	88.8	60.0	74.4	0.57	6.1	3.5	4.8	-1.57
September	73.8	45.8	59.8	1.04	1.8	0.6	1.2	-0.26

* 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.

[^] Departures from normal were determined by comparing 2003 observations to 30-yr averages for each site.

Table 2. Hybrids and test sites for the 2003 South Dakota oilseed hybrid sunflower trials.

Sunflower Brand-Hybrid	Hybrid Type	Ipswich	Miller	Dakota* Lakes	Pukwana
Croplan CL308	NuSun	X	X		
Croplan CL345	NuSun	X	X		X
Croplan CL380	NuSun				X
Croplan CL385	NuSun	X	X		X
Croplan CL821	Trad.	X	X		
Dekalb DK3868	Trad.	X	X	X	X
Dekalb DK3875	Trad.	X	X	X	X
Dekalb DKF30-33NS	NuSun	X	X	X	X
Dekalb DKF33-33NS	NuSun	X	X	X	X
Dekalb EXP38-30NS	NuSun	X	X	X	X
Dekalb EXP3880CL	Trad.	X	X	X	X
Fontanelle 902 NS	NuSun			X	X
Interstate F10355	Trad.	X	X	X	
Interstate Hysun 450	NuSun	X	X	X	X
Interstate Hysun 521	NuSun	X	X	X	X
Interstate IS 4049	Trad.	X	X	X	X
Interstate IS 6039	Trad.	X	X	X	X
Interstate IS 6767	Trad.	X	X	X	X
Kaystar 2015NS	NuSun	X			
Kaystar 2020NS	NuSun		X	X	X
Kaystar 8303	Trad.	X			
Kaystar 8330NS	NuSun	X			
Kaystar X3002	Trad.		X	X	X
Kaystar 9411	Trad.	X	X		
Kaystar 9501	Trad.		X	X	X
Legend LSF117N	NuSun	X	X	X	X
Legend LSF119N	NuSun	X	X	X	X
Legend LSF126N	NuSun	X	X	X	X
Legend LSF142N	NuSun	X	X	X	X
Legend LX02	NuSun	X	X	X	X
Mycogen 8377NS	NuSun	X	X	X	X
Mycogen 8488NS	NuSun	X	X	X	X
Mycogen 8N327	NuSun	X	X	X	X
Mycogen 8N421	NuSun	X	X	X	X
Mycogen Cavalry	Trad.	X	X	X	X
Mycogen SF187	Trad.	X	X	X	X
Mycogen SF260	Trad.	X	X	X	X
Mycogen X89910	NuSun	X	X	X	X
Pioneer hybrid 63M52	NuSun	X	X	X	X
Pioneer hybrid 63M80	NuSun	X	X	X	X
Pioneer hybrid 63M91	NuSun	X	X	X	X
Pioneer hybrid EXP0301	NuSun	X	X	X	X
Pioneer hybrid EXP0302	NuSun	X	X	X	X
Proseed 9405	NuSun	X	X	X	X
Proseed 9441	NuSun	X	X	X	X
Proseed CL 55-15	NuSun	X	X	X	X
Proseed Ex 12	NuSun	X	X	X	X
Proseed Ex 14	NuSun	X	X	X	X
Proseed Ex 15	NuSun	X	X	X	X
Proseed Ex 39	NuSun	X	X	X	X
Seeds 2000 Blazer	NuSun	X	X		X
Seeds 2000 Bronco	NuSun		X		
Seeds 2000 Charger	NuSun	X	X		X
Seeds 2000 Ranger	NuSun	X	X		
Triumph 636	NuSun				X
Triumph 645	NuSun				X
Triumph 658	NuSun				X
Triumph 667	NuSun	X	X	X	X
USDA 894 (check)	Trad.	X	X	X	X
cmsHA406/RHA373(chk)	Trad.	X		X	X
Total Hybrids		51	51	44	51

* Plots at Dakota Lakes were not harvested due to excessive drought and bird damage.

Table 3. Oilseed sunflower hybrid yield trial, Ipswich, S.D., 2003.

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A)			Oil %	Plant Hght in.	Harv. Moist. %	Test		Final Plnt/A
		2003	2002	2-yr				Wght lbs/bu	Lodg %	
Croplan CL821	Trad.	2617	--	--	40.3	66	13.6	27.2	3	17900
Interstate F10355	Trad.	2546	--	--	41.1	67	15.6	29.1	3	16300
Mycogen X89910	NuSun	2537	--	--	37.6	66	11.1	29.2	0	18200
Proseed 9441	NuSun	2532	--	--	40.0	71	11.4	30.2	2	17600
Dekalb DKF33-33NS	NuSun	2453	1700	2077	38.1	61	13.9	29.1	3	17900
Croplan CL308	NuSun	2439	1711	2075	40.6	63	9.9	28.6	5	17600
Pioneer hybrid EXP0302	NuSun	2402	--	--	38.2	67	12.5	28.0	2	18200
Dekalb EXP3880CL	Trad.	2399	--	--	39.7	61	11.1	28.8	1	18200
Croplan CL385	NuSun	2396	1785	2091	39.5	60	14.5	28.6	2	16100
Dekalb DK3875	Trad.	2394	1998	2196	39.0	62	13.0	29.3	5	17300
Mycogen 8N421	NuSun	2334	1809	2072	40.5	68	11.8	28.4	6	17600
Croplan CL345	NuSun	2332	1818	2075	40.7	67	13.5	29.4	0	17600
Kaystar 8330NS	NuSun	2331	--	--	38.1	65	13.3	28.6	3	17600
Seeds 2000 Ranger	NuSun	2320	1176	1748	38.3	64	12.1	29.3	3	17900
Mycogen 8377NS	NuSun	2278	1781	2029	40.8	67	11.3	29.0	5	17300
Interstate IS 4049	Trad.	2257	1544	1900	40.4	72	12.5	28.6	4	17600
Dekalb DKF30-33NS	NuSun	2238	--	--	38.6	66	13.9	29.2	5	17900
Pioneer hybrid 63M80	NuSun	2224	1503	1863	40.3	64	12.0	28.5	2	16300
Legend LSF126N	NuSun	2212	--	--	38.3	65	11.3	29.0	5	17900
Proseed Ex 14	NuSun	2177	--	--	40.5	67	12.9	28.2	8	18200
Seeds 2000 Blazer	NuSun	2164	1696	1930	38.6	58	11.2	28.0	9	18200
Legend LSF142N	NuSun	2156	2018	2087	39.0	66	12.7	29.6	2	17700
Pioneer hybrid 63M52	NuSun	2144	1453	1799	39.0	65	11.8	27.9	8	17600
Proseed Ex 12	NuSun	2132	--	--	41.1	69	13.2	27.8	8	18200
Kaystar 9411	Trad.	2129	--	--	40.1	68	11.5	29.0	5	17700
Triumph 667	NuSun	2122	--	--	40.5	52	17.4	29.2	6	18200
Mycogen Cavalry	Trad.	2056	--	--	41.6	73	12.6	30.0	3	17900
Dekalb EXP38-30NS	NuSun	2053	--	--	40.3	66	14.2	30.1	2	18200
Mycogen 8N327	NuSun	2041	1559	1800	41.1	66	11.8	29.1	3	17600
Mycogen 8488NS	NuSun	2004	1574	1789	39.6	67	12.0	29.5	4	17600
Dekalb DK3868	Trad.	1971	1465	1718	40.5	65	13.0	30.0	9	16900
Interstate Hysun 521	NuSun	1937	1679	1808	38.0	62	13.9	28.7	4	17600
Pioneer hybrid EXP0301	NuSun	1929	--	--	39.5	61	12.2	28.1	4	17600
Legend LSF117N	NuSun	1926	--	--	37.8	60	12.4	28.5	3	18200
Proseed Ex 39	NuSun	1925	--	--	40.7	56	11.1	27.3	11	18200
Proseed CL 55-15	NuSun	1915	--	--	39.3	67	10.8	28.2	4	17900
Mycogen SF187	Trad.	1879	--	--	38.5	63	12.0	28.2	6	18200
Interstate IS 6039	Trad.	1877	1489	1683	40.5	65	12.1	29.1	9	18200
Proseed 9405	NuSun	1865	1836	1850	40.0	58	14.3	27.6	2	17300
Kaystar 2015NS	NuSun	1836	--	--	38.3	59	11.5	28.3	0	17900
Kaystar 8303	Trad.	1833	--	--	41.7	63	12.0	28.3	9	17900
Legend LSF119N	NuSun	1803	--	--	38.3	66	12.0	27.9	4	18200
Legend LX02	NuSun	1790	--	--	39.0	70	12.4	28.4	4	15200
Pioneer hybrid 63M91	NuSun	1747	1606	1677	40.2	72	10.7	29.3	10	18200
cmsHA406/RHA373(chk)	Trad.	1706	--	--	40.5	71	12.7	29.6	7	18200
Interstate IS 6767	Trad.	1682	1249	1466	40.4	65	10.8	30.7	10	18200
Interstate Hysun 450	NuSun	1630	1982	1806	38.6	63	14.3	28.1	0	17600
Mycogen SF260	Trad.	1587	1733	1660	40.1	63	12.0	27.9	4	17900
USDA 894 (check)	Trad.	1555	1276	1415	40.8	69	10.3	28.2	19	18200
Proseed Ex 15	NuSun	1501	--	--	40.3	69	11.8	28.0	11	17600
Seeds 2000 Charger	NuSun	1466	--	--	38.8	70	15.0	28.8	5	18200
Grand Mean		2074	1609	1841	39.7	65	12.5	28.7	5	17700
LSD 5%		592	346		1.6	5	2.6	1.7	5	ns
C.V.		17.6	15.4		2.4	4.6	12.8	3.6	67.6	5.1

Planted May 28, 2003. Harvested October 2, 2003.

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

Cooperator: Mark Volk, Ipswich, SD.

Table 4. Oilseed sunflower hybrid yield trial, Miller, S.D., 2003.

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A)			Oil %	Days to Flower	Plant Hght in.	Harv. Moist. %	Test		Final Pop. Plnt/A
		2003	2002	2-yr					Wght lbs/bu	Lodg %	
Dekalb DK3875	Trad.	2420	1100	1760	39.2	71	64	12.9	27.5	4	18200
Mycogen SF260	Trad.	2251	1121	1686	40.3	70	61	10.4	26.9	4	18200
Proseed 9441	NuSun	2229	--	--	39.0	72	67	11.8	27.0	7	18200
Pioneer hybrid 63M80	NuSun	2213	1199	1706	39.8	69	62	12.3	27.7	10	18200
Kaystar X3002	Trad.	2173	--	--	38.6	72	67	15.0	27.6	11	18200
Kaystar 9501	Trad.	2115	1871	1993	38.8	73	69	13.6	28.9	7	18200
Kaystar 9411	Trad.	2097	--	--	40.3	69	63	12.4	28.0	9	17100
Mycogen SF187	Trad.	2052	1606	1829	37.7	70	62	8.7	26.4	6	18200
Mycogen 8377NS	NuSun	2049	1509	1779	39.4	68	64	11.6	27.8	8	18200
Mycogen 8N421	NuSun	2049	1099	1574	39.2	70	64	11.5	25.6	9	18200
Mycogen Cavalry	Trad.	2049	--	--	41.0	73	68	14.4	28.1	9	18200
Legend LSF142N	NuSun	2037	1750	1893	38.1	73	63	10.9	26.7	6	18200
Interstate Hysun 450	NuSun	1983	1695	1839	40.6	74	63	14.6	27.5	5	18200
Interstate IS 6039	Trad.	1976	705	1341	41.1	67	64	10.6	27.7	18	18200
Dekalb DK3868	Trad.	1970	1240	1605	40.8	69	60	13.6	26.6	4	18200
Seeds 2000 Bronco	NuSun	1961	1353	1657	41.5	73	63	15.4	27.2	5	18200
Seeds 2000 Charger	NuSun	1956	--	--	38.7	70	64	14.1	27.3	11	18200
Croplan CL821	Trad.	1940	--	--	39.2	70	65	12.3	25.0	10	18200
Legend LSF117N	NuSun	1939	--	--	38.7	67	61	13.0	26.7	4	18200
Interstate Hysun 521	NuSun	1932	1447	1690	38.6	67	62	12.7	27.6	11	18200
Interstate IS 6767	Trad.	1928	1098	1513	41.3	68	63	13.2	27.7	10	18200
Mycogen 8N327	NuSun	1927	1877	1902	40.4	68	63	11.3	26.8	12	18200
Legend LSF126N	NuSun	1915	954	1435	37.8	71	64	13.8	26.8	6	18200
Triumph 667	NuSun	1903	--	--	41.6	73	49	15.4	27.8	3	18200
Pioneer hybrid 63M91	NuSun	1893	918	1405	39.0	69	64	10.9	28.0	9	18200
Proseed Ex 14	NuSun	1857	--	--	38.6	71	65	11.4	25.9	11	18200
Pioneer hybrid EXP0302	NuSun	1835	--	--	37.9	70	65	12.6	26.6	9	18200
Pioneer hybrid 63M52	NuSun	1831	875	1353	38.5	69	63	13.8	26.8	12	18200
Proseed 9405	NuSun	1819	1344	1581	39.8	70	64	16.8	26.6	3	18200
Mycogen X89910	NuSun	1817	--	--	38.2	68	62	13.9	25.7	9	18200
Croplan CL345	NuSun	1815	1533	1674	38.8	68	64	11.9	26.7	12	18200
Dekalb EXP38-30NS	NuSun	1812	--	--	38.5	72	65	13.2	26.6	4	17600
Interstate IS 4049	Trad.	1812	1297	1555	40.0	71	64	12.3	25.2	11	18200
Proseed Ex 39	NuSun	1807	--	--	39.9	69	59	11.3	25.6	11	18200
Legend LSF119N	NuSun	1796	--	--	38.8	69	63	13.2	27.0	15	18200
Dekalb EXP3880CL	Trad.	1794	--	--	39.3	70	59	11.3	26.5	7	18200
Seeds 2000 Ranger	NuSun	1772	1383	1577	39.8	68	59	12.0	26.1	16	18200
Pioneer hybrid EXP0301	NuSun	1761	--	--	39.1	69	61	12.5	25.7	16	18200
Seeds 2000 Blazer	NuSun	1745	1213	1479	39.7	71	60	13.1	25.7	1	18200
Croplan CL308	NuSun	1736	1324	1530	40.4	69	63	11.4	26.7	13	18200
Dekalb DKF30-33NS	NuSun	1725	--	--	39.4	68	63	11.7	27.0	0	18200
Dekalb DKF33-33NS	NuSun	1717	1573	1645	39.0	67	62	11.6	26.7	11	18200
Kaystar 2020NS	NuSun	1715	1575	1645	40.8	74	61	14.4	27.9	7	18200
Croplan CL385	NuSun	1676	1319	1498	38.9	73	61	14.7	27.0	14	18200
Interstate F10355	Trad.	1648	--	--	40.0	72	64	12.8	26.6	8	18200
Legend LX02	NuSun	1636	--	--	39.3	73	65	12.9	26.7	16	18200
Mycogen 8488NS	NuSun	1617	1290	1454	39.6	70	63	14.0	26.5	4	18200
Proseed Ex 12	NuSun	1588	--	--	40.1	71	67	13.2	26.9	23	18200
Proseed Ex 15	NuSun	1563	--	--	39.6	68	65	10.5	26.2	22	18200
Proseed CL 55-15	NuSun	1562	--	--	37.5	71	62	10.6	26.4	8	18200
USDA 894 (check)	Trad.	1387	1099	1243	39.4	69	64	11.7	25.5	34	18200
Grand Mean		1878	1285	1582	39.4	70	63	12.7	26.8	10	18200
LSD 5%		411	392		1.8	1	3	3.1	1.4	8	ns
C.V.		15.7	18.8		3.2	1.2	3.2	17.5	3.8	55.5	2.0

Planted May 29, 2003. Harvested September 25, 2003.

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

Cooperator: Kelvin Grey, St. Lawrence, SD.

Table 5. Oilseed sunflower hybrid yield trial, Pukwana, S.D., 2003.

Sunflower Brand-Hybrid	Type	Seed Yield		Oil	Plant Hght	Harv. Moist.	Test		Final Pop.
		2003*	2002				Wght	Lodg	
		lbs/A		%	in.	%	lbs/bu	%	Plnt/A
Croplan CL345	NuSun	--	--	41.8	56	14.0	30.7	39	18200
Croplan CL380	NuSun	--	1047	42.6	55	18.2	30.7	33	18200
Croplan CL385	NuSun	--	1523	41.2	51	13.7	30.7	22	18200
Dekalb DK3868	Trad.	--	878	43.5	49	12.3	29.0	46	17100
Dekalb DK3875	Trad.	--	1724	42.5	53	10.8	32.0	32	18200
Dekalb DKF30-33NS	NuSun	--	--	40.2	55	14.5	30.4	28	18200
Dekalb DKF33-33NS	NuSun	--	981	39.6	52	14.8	26.1	28	18200
Dekalb EXP38-30NS	NuSun	--	--	41.7	57	15.0	31.4	22	18200
Dekalb EXP3880CL	Trad.	--	--	41.6	47	12.7	26.2	40	18200
Fontanelle 902 NS	NuSun	--	--	42.2	54	19.6	28.2	41	18200
Interstate Hysun 450	NuSun	--	1259	41.8	52	13.8	29.9	25	18200
Interstate Hysun 521	NuSun	--	1072	39.6	50	14.9	31.7	29	17300
Interstate IS 4049	Trad.	--	1058	41.8	58	14.7	27.5	39	18200
Interstate IS 6039	Trad.	--	804	42.7	53	11.2	25.1	59	18200
Interstate IS 6767	Trad.	--	888	43.1	53	16.7	28.7	32	16700
Kaystar 2020NS	NuSun	--	--	41.6	52	14.0	31.0	26	17700
Kaystar X3002	Trad.	--	--	41.7	62	17.9	34.6	28	18200
Kaystar 9501	Trad.	--	1065	41.8	62	17.2	29.0	32	18200
Legend LSF117N	NuSun	--	--	40.9	52	13.7	32.1	30	18200
Legend LSF119N	NuSun	--	--	39.8	57	14.5	28.1	39	17300
Legend LSF126N	NuSun	--	--	40.3	52	14.4	29.1	43	18200
Legend LSF142N	NuSun	--	1052	41.8	51	15.0	31.3	28	18200
Legend LX02	NuSun	--	--	41.5	54	12.6	30.1	44	18200
Mycogen 8377NS	NuSun	--	--	42.0	58	13.4	30.3	17	18200
Mycogen 8488NS	NuSun	--	1353	41.3	59	14.9	28.3	41	18200
Mycogen 8N327	NuSun	--	1049	42.5	54	12.4	28.0	42	18200
Mycogen 8N421	NuSun	--	1948	41.5	57	14.6	29.5	21	18200
Mycogen Cavalry	Trad.	--	1199	42.5	61	16.4	30.7	12	18200
Mycogen SF187	Trad.	--	1824	42.3	49	13.5	30.8	24	18200
Mycogen SF260	Trad.	--	1228	41.1	49	11.8	34.4	15	18200
Mycogen X89910	NuSun	--	--	40.2	56	14.9	29.7	24	18200
Pioneer hybrid 63M52	NuSun	--	983	40.4	52	15.9	29.4	49	18200
Pioneer hybrid 63M80	NuSun	--	889	43.3	56	15.9	27.5	41	18200
Pioneer hybrid 63M91	NuSun	--	825	42.5	59	13.2	26.3	32	14500
Pioneer hybrid EXP0301	NuSun	--	--	41.4	52	11.7	29.8	42	18200
Pioneer hybrid EXP0302	NuSun	--	--	40.0	54	15.3	28.0	32	18200
Proseed 9405	NuSun	--	912	40.9	55	17.9	29.3	30	18200
Proseed 9441	NuSun	--	--	42.3	59	13.3	29.1	35	18200
Proseed CL 55-15	NuSun	--	--	40.5	51	13.3	29.1	42	18200
Proseed Ex 12	NuSun	--	--	42.0	55	15.2	31.2	50	18200
Proseed Ex 14	NuSun	--	--	41.5	56	13.5	31.7	45	18200
Proseed Ex 15	NuSun	--	--	42.7	57	16.4	25.8	49	18200
Proseed Ex 39	NuSun	--	--	42.3	49	11.8	29.9	35	16700
Seeds 2000 Blazer	NuSun	--	938	41.8	49	15.0	32.9	30	18200
Seeds 2000 Charger	NuSun	--	--	41.3	57	15.5	24.3	31	18200
Triumph 636	NuSun	--	--	41.5	56	19.2	28.1	40	18200
Triumph 645	NuSun	--	--	41.2	57	18.6	28.6	37	18200
Triumph 658	NuSun	--	1348	43.0	55	16.3	26.3	36	18200
Triumph 667	NuSun	--	--	41.6	50	17.3	29.3	23	17000
USDA 894 (check)	Trad.	--	695	42.8	56	15.6	31.7	33	17700
cmsHA406/RHA373(chk)	Trad.	--	--	43.9	55	11.1	28.6	46	18200
Grand Mean			1095	41.7	54	14.7	29.5	34	18000
LSD 5%			331	1.7	5	3.7	3.6	16	ns
C.V.			18.6	2.9	6.3	17.9	8.7	33.1	6.1

* High C.V. 2003 yield results will not be published.

Planted May 27, 2003. Harvested September 23, 2003.

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

Cooperator: Mark and Tim Pazour, Pukwana, SD.

Table 6. Oilseed sunflower hybrid yield trial, averaged over Ipswich and Miller, S.D., 2003.

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A)				Oil %	Plant Hght in.	Harv. Moist. %	Test		Final Pop. plnt/A
		2003	2002	2-yr					Wght lbs/bu	Lodg %	
Dekalb DK3875	Trad.	2410	1607	2009	39.0	63	12.9	28.3	5	17800	
Proseed 9441	NuSun	2360	--	--	39.4	69	11.5	28.4	4	17900	
Croplan CL821	Trad.	2232	--	--	39.6	66	12.8	26.0	7	18100	
Pioneer hybrid 63M80	NuSun	2219	1197	1708	40.0	63	12.1	28.1	7	17400	
Mycogen 8N421	NuSun	2173	1619	1896	39.7	66	11.6	26.8	7	17900	
Mycogen 8377NS	NuSun	2149	--	--	40.0	65	11.4	28.3	7	17800	
Mycogen X89910	NuSun	2127	--	--	37.9	64	12.7	27.2	5	18200	
Kaystar 9411	Trad.	2112	--	--	40.2	65	11.9	28.5	7	17300	
Legend LSF142N	NuSun	2089	1607	1848	38.4	64	11.6	27.9	4	18000	
Pioneer hybrid EXP0302	NuSun	2080	--	--	38.0	66	12.5	27.2	6	18200	
Dekalb EXP3880CL	Trad.	2054	--	--	39.4	60	11.2	27.5	4	18200	
Mycogen Cavalry	Trad.	2053	--	--	41.1	70	13.6	28.9	7	18100	
Legend LSF126N	NuSun	2044	--	--	38.0	64	12.7	27.8	6	18100	
Croplan CL308	NuSun	2039	--	--	40.4	63	10.7	27.5	10	17900	
Croplan CL345	NuSun	2038	--	--	39.6	66	12.5	27.9	6	17900	
Interstate F10355	Trad.	2034	--	--	40.4	65	13.9	27.7	6	17400	
Dekalb DKF33-33NS	NuSun	2034	1418	1726	38.5	62	12.5	27.8	7	18100	
Seeds 2000 Ranger	NuSun	2008	--	--	39.1	61	12.0	27.5	10	18100	
Interstate IS 4049	Trad.	2004	1299	1652	40.1	67	12.4	26.7	8	17900	
Triumph 667	NuSun	1998	--	--	41.1	50	16.2	28.5	4	18200	
Proseed Ex 14	NuSun	1996	--	--	39.4	66	12.0	26.9	10	18200	
Croplan CL385	NuSun	1987	1542	1764	39.1	61	14.5	27.7	9	17300	
Mycogen SF187	Trad.	1979	--	--	38.0	62	10.1	27.2	6	18200	
Mycogen 8N327	NuSun	1977	1495	1736	40.6	64	11.4	27.8	8	17900	
Dekalb DK3868	Trad.	1972	1194	1583	40.6	62	13.3	28.1	6	17700	
Mycogen SF260	Trad.	1968	1361	1664	40.1	62	11.0	27.3	4	18100	
Pioneer hybrid 63M52	NuSun	1966	1104	1535	38.7	64	12.9	27.2	10	17900	
Dekalb DKF30-33NS	NuSun	1946	--	--	39.0	64	12.6	27.9	2	18100	
Interstate Hysun 521	NuSun	1936	1399	1668	38.3	62	13.2	28.1	8	17900	
Interstate IS 6039	Trad.	1935	999	1467	40.8	64	11.2	28.3	14	18200	
Legend LSF117N	NuSun	1935	--	--	38.2	60	12.6	27.5	4	18200	
Seeds 2000 Blazer	NuSun	1926	1282	1604	39.2	59	12.2	26.7	4	18200	
Dekalb EXP38-30NS	NuSun	1917	--	--	39.2	65	13.6	28.1	3	17800	
Proseed Ex 39	NuSun	1859	--	--	40.2	57	11.1	26.3	11	18200	
Proseed 9405	NuSun	1840	1364	1602	39.8	61	15.6	27.0	3	17800	
Pioneer hybrid EXP0301	NuSun	1834	--	--	39.2	61	12.3	26.7	11	17900	
Interstate Hysun 450	NuSun	1833	1646	1739	39.7	63	14.4	27.8	3	17900	
Pioneer hybrid 63M91	NuSun	1832	1117	1474	39.4	67	10.7	28.6	9	18200	
Interstate IS 6767	Trad.	1824	1079	1451	40.8	64	12.1	29.0	10	18200	
Proseed Ex 12	NuSun	1823	--	--	40.5	68	13.1	27.3	16	18200	
Legend LSF119N	NuSun	1801	--	--	38.5	65	12.6	27.4	11	18200	
Mycogen 8488NS	NuSun	1784	1406	1595	39.5	65	13.1	27.8	4	17900	
Seeds 2000 Charger	NuSun	1748	--	--	38.7	66	14.4	27.9	9	18200	
Proseed CL 55-15	NuSun	1715	--	--	38.2	64	10.6	27.2	6	18100	
Legend LX02	NuSun	1703	--	--	39.1	67	12.6	27.5	11	16900	
Proseed Ex 15	NuSun	1538	--	--	39.8	67	11.0	27.0	17	17900	
USDA 894 (check)	Trad.	1461	1023	1242	39.9	66	11.0	26.7	28	18200	
Grand Mean		1964	1316	1640	39.5	64	12.4	27.6	8	18000	
LSD 5%		364	360		1.2	3	2.1	1.1	6	ns	
C.V.		17.6	16.8		2.9	4.2	16.0	3.7	68.7	3.8	

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

^ 2002 yields were averaged over Ipswich, Miller, and Pukwana.

Table 7. Hybrids and test sites for the 2003 South Dakota confection hybrid sunflower trials.

Sunflower Brand-Hybrid	Dak.* Lakes	Miller	Puk-wana
Dahlgren D-9518	X		
Dahlgren D-9525	X		
Dahlgren D-9530	X		
Harvest States RH118	X	X	X
Harvest States RH318	X	X	X
Interstate 8048	X	X	X
Seeds 2000 Grizzly		X	
Seeds 2000 X3987		X	
Sigco Sun Products Goliath RT		X	X
Sigco Sun Products Rustler		X	X
Triumph 757C		X	
USDA 924 (check)	X	X	X
Total Hybrids	7	9	6

* Dakota Lakes was not harvested due to excessive drought and bird damage.

Table 8. Confection hybrid sunflower yield trial, Miller, S.D., 2003.

Sunflower Brand-Hybrid	Seed Yield (lbs/A)			Days to Flower	Plant Hght cm	Test Wght lb/bu	Lodg %	Final Pop. plnt/A	% Seed Over Screen			Nut-meat %
	2003	2002	2-yr						22/64	20/64	18/64	
Sigco Sun Products Rustler	2085	--	--	69	181	25.5	7	16000	43	70	88	53
Harvest States RH118	1874	1588	1731	73	188	24.7	1	15600	38	66	87	51
Seeds 2000 Grizzly	1801	1383	1592	73	182	25.2	1	16000	38	69	86	52
Interstate 8048	1728	1285	1507	67	177	25.9	2	16000	34	62	84	56
Triumph 757C	1651	--	--	71	177	22.6	8	15800	64	79	88	52
Sigco Sun Products Goliath RT	1523	1257	1390	74	181	23.8	1	16000	45	73	85	50
USDA 924 (check)	1520	1598	1559	69	178	25.2	4	16000	21	46	75	56
Seeds 2000 X3987	1451	1571	1511	74	198	24.3	3	16000	38	70	90	52
Harvest States RH318	1120	--	--	67	175	24.0	14	15400	54	76	88	53
Grand Mean	1639	1324	1481	71	182	24.6	5	15900	42	68	86	53
LSD 5%	ns	367		2	13	1.7	5	ns	9	7	5	ns
C.V.	15.9	19.3		1.7	5.0	4.8	80.9	2.4	15.0	7.4	4.0	5.3

Planted May 29, 2003. Harvested September 26, 2003.

Table 9. Confection hybrid sunflower yield trial, Pukwana, S.D., 2003.

Sunflower Brand-Hybrid	Seed Yield (lbs/A)			Plant Hght	Test Wght	Lodg	Final Pop.	% Seed Over Screen			Nut- meat
	2003	2002	2-yr					22/64	20/64	18/64	
				cm	lbs/bu	%	plnt/A				%
Harvest States RH118	2181	1368	1774	178	26.6	6	16000	35	68	84	53
USDA 924 (check)	1977	1307	1642	171	25.6	7	15000	36	67	85	54
Sigco Sun Products Goliath RT	1799	948	1374	166	24.9	6	15600	54	78	90	51
Interstate 8048	1670	550	1110	164	26.1	7	16000	43	67	82	56
Sigco Sun Products Rustler	1630	--	--	159	25.2	10	15000	36	69	87	54
Harvest States RH318	1311	--	--	165	24.9	18	16000	45	73	89	55
Grand Mean	1761	1112	1436	167	25.5	9	15600	42	70	86	54
LSD 5%	439	249		ns	ns	ns	ns	ns	ns	ns	ns
C.V.	16.4	14.8		6.0	5.8	65.6	6.6	26.9	10.9	5.5	5.3

Planted May 27, 2003. Harvested September 24, 2003.

Table 10. Confection hybrid sunflower yield trial averaged over Miller and Pukwana, S.D., 2003.

Sunflower Brand-Hybrid	Seed Yield (lbs/A)			Plant Hght	Test Wght	Lodg	Final Pop.	% Seed Over Screen			Nut- meat
	2003	2002	2-yr					22/64	20/64	18/64	
				cm	lbs/bu	%	plnt/A				%
Harvest States RH118	2026	1492	1759	183	25.6	3	15800	36	67	85	52
Sigco Sun Products Rustler	1856	--	--	170	25.3	9	15500	39	69	88	53
USDA 924 (check)	1747	1467	1607	175	25.4	6	15500	29	57	80	55
Interstate 8048	1698	932	1315	170	26.0	5	16000	39	64	83	56
Sigco Sun Products Goliath RT	1660	1117	1388	174	24.4	4	15800	49	76	87	50
Harvest States RH318	1214	--	--	170	24.4	16	15700	49	75	88	54
Grand Mean	1700	1274	1487	174	25.2	7	15700	40	68	85	53
LSD 5%	597	424		10	1.4	1	1.2	18	15	9	3
C.V.	15.1	18.3		5.5	5.1	72.7	5.0	22.5	11.2	4.8	5.7

Table 11. NuSun hybrid sunflower yield trial, Onida, S.D., 2003.

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A)			Oil %	Days to		Test Wght lb/bu	Head Diam. in.	Plant Hght in.	Harv. Moist. %	Final Stand %	Hulling Quality Test
		2003	2002	2-yr		Flwr	Mat.						
Triumph 667	NuSun	2171	--	--	40.4	69	104	27.3	7.3	49	10.0	100	NT
Mycogen SF187	Trad.	2134	--	--	37.3	68	101	27.5	7.0	55	10.2	100	NT
Mycogen 8377NS	NuSun	2031	3101	2566	37.3	65	101	27.4	5.7	61	10.4	100	NT
Monsanto EXP38-30NS	NuSun	2018	--	--	39.8	68	103	27.7	6.6	62	9.5	92	Excel.
Interstate Hysun 450	NuSun	2006	3234	2620	38.4	71	103	27.3	5.4	61	9.7	100	NT
Interstate HyOleic 120	HO	1948	--	--	39.1	65	102	27.8	7.0	67	9.3	85	NT
Legend LX02	NuSun	1946	--	--	39.6	72	104	27.8	6.1	58	10.0	93	NT
Mycogen SF260	Trad.	1920	3088	2504	39.1	68	100	26.9	7.2	52	9.5	87	NT
Proseed 9405	NuSun	1917	3248	2582	36.6	69	103	25.9	5.9	60	10.6	100	NT
Triumph 636	NuSun	1908	3582	2745	40.9	69	101	24.2	6.3	66	9.7	88	Excel.
Proseed Ex 12	NuSun	1908	--	--	38.0	69	102	27.1	6.9	59	10.0	95	NT
Triumph 645	NuSun	1903	--	--	40.5	69	102	26.8	4.9	65	10.4	100	Excel.
Interstate F10024HO	HO	1897	--	--	35.6	67	100	27.8	5.9	52	9.4	88	NT
Pioneer 63M91	NuSun	1895	2682	2288	37.5	66	100	28.8	6.6	64	9.4	100	NT
Mycogen 8488NS	NuSun	1884	3177	2530	38.9	67	101	26.9	6.4	63	8.1	100	NT
IntegraSeeds INT 536NS	NuSun	1863	3126	2494	37.3	63	101	27.9	5.5	56	9.7	100	NT
Croplan 380	NuSun	1833	2975	2404	39.1	68	103	29.0	6.0	64	9.5	100	NT
Pioneer 63M80	NuSun	1827	3262	2544	36.8	66	102	28.6	6.8	65	10.4	85	NT
Mycogen 8N421	NuSun	1826	3302	2564	39.0	69	105	27.6	6.1	66	8.9	88	NT
Triumph 658	NuSun	1821	3779	2800	39.1	68	100	25.2	6.6	63	10.1	100	Excel.
Pioneer 63M52	NuSun	1810	2665	2238	37.5	66	99	26.3	6.5	58	9.4	98	NT
Proseed Ex 39	NuSun	1802	--	--	37.5	67	101	26.0	6.4	48	9.8	100	NT
IntegraSeeds INT 550NS	NuSun	1793	2797	2295	38.3	70	102	26.9	7.3	57	10.2	97	NT
Legend LSF119N	NuSun	1782	--	--	37.2	67	101	26.7	5.9	62	10.1	97	Excel.
Proseed 9441	NuSun	1780	--	--	39.0	70	103	26.8	6.4	60	10.2	97	NT
Interstate F10016NS	NuSun	1776	--	--	36.1	67	102	27.1	6.2	54	10.4	100	NT
Croplan 345	NuSun	1761	3300	2531	38.5	65	98	26.9	5.6	67	9.6	95	NT
Triumph 665	NuSun	1757	--	--	38.2	69	102	27.5	6.5	59	10.4	100	NT
Seeds 2000 Ranger	NuSun	1756	2982	2369	37.3	68	103	26.7	7.1	58	10.3	90	NT
Interstate Hysun 521	NuSun	1740	3408	2574	36.2	64	100	26.2	5.6	55	9.9	100	NT
Legend LSF142N	NuSun	1730	2893	2311	38.6	71	104	27.6	6.3	54	10.9	68	NT
Croplan 385	NuSun	1720	2814	2267	38.8	71	104	28.1	6.3	52	10.5	92	NT
Seeds 2000 Charger	NuSun	1719	--	--	36.5	69	105	26.6	5.8	64	10.8	100	NT
Red River Comm RR 2011	NuSun	1719	3728	2723	37.1	68	100	25.8	6.3	65	9.2	85	Excel.
Monsanto DKF30-33NS	NuSun	1695	--	--	36.8	66	102	26.7	5.4	66	10.2	100	Excel.
IntegraSeeds INT 552NS	NuSun	1694	--	--	38.4	71	103	27.6	5.7	63	10.0	95	NT
Mycogen X89910	NuSun	1692	--	--	34.6	66	100	25.7	6.8	64	9.8	100	Excel.
Proseed Ex 14	NuSun	1663	--	--	37.4	68	102	27.3	5.5	62	9.6	95	NT
Seeds 2000 Bronco	NuSun	1644	3420	2532	39.4	71	104	27.6	6.1	54	10.6	100	NT
Triumph TRX 2241	NuSun	1631	--	--	37.0	68	100	26.8	6.5	59	9.7	100	NT
Interstate Hysun 424	NuSun	1628	--	--	38.9	70	102	28.3	5.7	58	9.9	100	NT
Proseed CL 55-15	NuSun	1627	--	--	36.2	69	101	25.9	8.7	60	9.6	100	Excel.
Legend LSF117N	NuSun	1626	--	--	38.1	67	102	26.9	5.0	56	10.6	100	NT
Proseed Ex 15	NuSun	1610	--	--	39.4	67	101	25.9	5.5	55	9.7	100	Excel.
Triumph TRX 3321	NuSun	1547	--	--	38.7	70	104	27.6	6.1	46	9.9	92	Excel.
Pioneer EXP0302	NuSun	1519	--	--	35.9	66	100	27.6	6.0	58	9.9	100	NT
Red River Comm RR 2010	NuSun	1515	3375	2445	35.5	67	98	25.3	5.3	60	9.3	100	Excel.
Seeds 2000 Blazer	NuSun	1514	2792	2153	38.9	69	103	27.3	6.4	56	10.1	93	NT
Pioneer EXP0301	NuSun	1501	--	--	36.8	65	101	27.1	5.6	53	10.1	100	NT
Mycogen 8N327	NuSun	1462	3020	2241	39.5	67	102	27.9	5.7	56	9.2	93	NT
Interstate F10022HO	HO	1457	--	--	35.4	65	99	27.4	5.3	55	9.6	95	NT
Monsanto DKF33-33NS	NuSun	1390	2678	2034	35.5	65	98	26.4	5.4	62	10.0	100	Excel.
Legend LSF126N	NuSun	1334	2755	2044	37.8	69	100	26.9	4.5	53	10.4	100	Excel.
Interstate Hysun 525	NuSun	1299	--	--	37.3	68	100	27.0	5.5	54	10.2	88	Excel.
Grand mean		1745	3042	2394	37.9	68	102	27.0	6.1	59	9.9	96	
LSD 5%		301	547		4.0	4	6	2.6	ns	9	ns	ns	
C.V.		10.6	11.1		3.7	2.2	2.1	3.4	17.9	5.4	7.9	10.4	

Planted June 7, 2003.

Hulling quality test: NT = not tested, Excel.= ≥65% of seed passes over a 14/64 screen, Good = ≥75% of seed passes over a 13/64 screen.

Table 12. NuSun hybrid sunflower yield trial, Selby, S.D., 2003.

Sunflower Brand-Hybrid	Type	Seed Yield lbs/A	Oil %	Days to		Test Wght lb/bu	Head Diam. in.	Plant Hght in.	Lodg %	Harv. Moist. %	Final Stand %
				Flwr	Mat.						
Mycogen SF187	Trad.	2561	40.4	66	101	28.9	9.0	46	3	8.4	100
Triumph 658	NuSun	2253	41.1	67	100	27.6	7.1	61	10	8.0	100
Mycogen 8377NS	NuSun	1901	41.0	63	97	29.8	6.0	58	9	8.0	100
Seeds 2000 Blazer	NuSun	1879	38.5	65	100	27.9	6.8	52	7	7.8	100
Croplan 345	NuSun	1871	41.3	63	96	30.6	6.0	60	15	7.6	100
Seeds 2000 Charger	NuSun	1818	37.9	66	102	28.4	6.5	62	7	8.4	100
Pioneer 63M80	NuSun	1803	39.5	65	98	28.0	6.6	58	7	8.3	100
Pioneer 63M52	NuSun	1778	42.0	64	99	27.6	7.2	55	6	7.8	100
Red River Comm RR 2010	NuSun	1767	37.0	65	99	27.6	6.3	61	4	7.8	100
Monsanto DKF30-33NS	NuSun	1726	38.8	64	101	29.4	5.7	58	7	8.4	100
Red River Comm RR 2011	NuSun	1718	39.4	66	102	28.8	6.7	63	2	7.5	100
Croplan 308	NuSun	1660	40.5	62	95	27.4	6.2	50	4	8.2	92
IntegraSeeds INT 552NS	NuSun	1606	39.4	68	100	28.1	5.3	54	9	8.2	100
Interstate F10024HO	HO	1603	40.6	66	98	30.3	6.1	51	15	8.0	100
Triumph 667	NuSun	1591	41.5	68	103	27.5	5.9	47	6	8.1	100
Interstate H10022HO	HO	1591	40.5	64	98	29.3	6.1	50	10	7.9	100
Pioneer 63M91	NuSun	1582	40.0	63	98	28.3	5.9	60	8	8.0	100
Triumph 636	NuSun	1579	41.8	66	102	27.5	7.0	57	9	8.2	100
Mycogen 8N327	NuSun	1558	41.3	62	97	28.7	5.5	54	10	8.1	100
Proseed 9405	NuSun	1547	39.3	67	101	27.3	5.3	58	5	8.8	100
Triumph TRX 3241	NuSun	1527	40.4	63	94	29.1	5.0	55	7	8.2	100
Seeds 2000 Ranger	NuSun	1521	38.3	63	98	27.7	5.9	54	6	8.2	100
Legend LSF142N	NuSun	1483	40.3	68	100	27.4	6.1	56	9	8.8	100
Croplan 385	NuSun	1481	38.6	68	100	27.5	6.2	54	3	7.9	100
Pioneer EXP0301	NuSun	1473	39.5	62	98	26.5	6.3	52	12	7.7	93
Mycogen X89910	NuSun	1471	39.7	63	98	28.3	5.4	58	3	8.2	100
IntegraSeeds INT 550NS	NuSun	1454	39.2	68	98	27.5	5.9	52	9	7.9	100
Croplan 380	NuSun	1453	40.4	66	100	27.8	5.7	60	7	8.0	100
Legend LSF117N	NuSun	1436	39.6	60	97	28.1	7.5	52	9	8.2	92
Proseed CI 55-15	NuSun	1428	35.3	67	98	25.6	7.4	58	4	7.9	100
Proseed Ex 12	NuSun	1428	38.4	65	98	27.4	6.9	60	7	7.6	100
Interstate Hysun 424	NuSun	1421	39.7	68	101	28.4	6.6	59	12	8.2	100
Monsanto EXP38-30NS	NuSun	1407	40.6	68	103	29.0	6.4	58	11	8.2	100
Nidera fn693	NuSun	1407	40.1	67	102	27.7	6.6	63	4	7.8	100
Proseed Ex 15	NuSun	1379	39.6	64	97	28.2	6.7	56	6	8.3	100
Interstate Hysun 521	NuSun	1342	39.5	61	95	28.3	5.7	53	7	7.7	100
Triumph 645	NuSun	1334	41.3	67	102	27.6	5.6	56	6	8.6	100
Proseed Ex 14	NuSun	1317	39.7	64	99	27.4	5.9	60	6	8.0	100
Legend LSF119N	NuSun	1268	40.2	65	98	28.5	6.1	58	18	7.8	100
Monsanto DKF33-33NS	NuSun	1217	38.4	62	95	27.6	5.5	55	11	7.8	95
IntegraSeeds INT 536NS	NuSun	1202	38.7	61	97	28.7	5.7	56	6	7.9	100
Proseed 9441	NuSun	1200	39.3	68	100	26.0	7.4	62	13	7.7	93
Interstate Hysun 450	NuSun	1165	39.0	69	100	26.8	6.3	51	13	7.9	100
Pioneer EXP0302	NuSun	1147	38.8	63	94	27.9	5.8	51	14	7.8	100
Mycogen 8488NS	NuSun	1125	44.4	66	100	27.8	5.6	54	12	8.5	100
Mycogen SF260	Trad.	1045	41.1	65	96	28.0	7.2	52	5	8.0	100
Proseed Ex 39	NuSun	1038	39.4	64	96	27.2	6.6	51	6	7.7	100
Interstate HyOleic 120	HO	972	41.2	63	98	29.5	5.1	63	7	8.1	100
Mycogen 8N421	NuSun	970	41.6	67	103	27.7	4.8	54	6	8.3	100
Interstate Hysun 525	NuSun	953	38.8	66	97	27.6	5.3	51	19	7.9	100
Legend LSF126N	NuSun	719	39.6	67	99	28.5	5.5	50	17	7.8	93
Legend LX02	NuSun	672	38.5	68	98	27.9	6.3	53	15	7.4	100
Grand mean		1451	39.8	65	99	28.0	6.2	56	8	8.0	99
LSD 5%		359	4.0	1	4	3.5	1.4	7	ns	0.5	ns
C.V.		15.3	3.5	1.2	2.7	4.4	13.7	8.0	74.6	3.8	4.2

Planted June 9, 2003.

Table 13. Confection hybrid sunflower yield trial, Onida, S.D., 2003.

Sunflower Brand-Hybrid	Seed Yield (lbs/A)			Test Wght lb/bu	Days to		Head Diam. in.	Plant Hght in.	Harv. Moist. %	% Over 20/64 Screen
	2003	2002	2-yr		Flwr	Mat.				
Seeds 2000 X3987	2226	3018	2622	24.3	71	107	6.5	67	10.4	53
Seeds 2000 Grizzley	2145	2680	2412	24.0	71	105	6.7	66	10.2	56
Red River Comm RR 7015	2142	--	--	21.9	70	106	7.3	66	10.6	70
Mycogen X91416	2134	2984	2559	23.1	70	102	7.0	71	10.9	64
Red River Comm RR 2215	2034	--	--	23.9	68	103	6.5	64	9.9	47
Red River Comm RR 2582	1978	3451	2715	24.1	66	101	6.6	65	9.8	47
Interstate 8048	1899	2522	2211	24.3	68	101	5.9	64	10.1	51
Red River Comm RR 2213	1851	2789	2320	24.1	67	99	5.7	64	9.9	45
Grand mean	2020	2916	2468	23.7	68	102	6.4	65	10.2	54
LSD 5%	ns	ns		ns	3	4	ns	ns	ns	ns
C.V.	8.1	16.4		4.2	2.7	2.4	9.1	11.4	4.6	24.2

Planted June 7, 2003.

Table 14. Confection hybrid sunflower yield trial, Selby, S.D., 2003.

Sunflower Brand-Hybrid	Seed Yield (lbs/A)			Test Wght lb/bu	Days to		Head Diam. in.	Plant Hght in.	Harv. Moist. %	% Over 20/64 Screen	Lodg %
	2003	2002	2-yr		Flwr	Mat.					
Red River Comm RR 2215	1911	--	--	24.9	66	102	7.5	73	8.6	67	3
Red River Comm RR 7015	1879	--	--	23.8	65	104	8.5	75	8.6	75	2
Interstate IS 8048	1637	--	--	25.9	63	101	6.6	72	8.7	60	1
Red River Comm RR 2213	1622	829	1226	26.0	66	99	7.0	75	8.8	66	2
Red River Comm RR 2582	1330	765	1048	25.9	66	99	6.6	72	8.4	45	4
Grand mean	1676	1043	1359	25.3	65	101	7.3	73	8.6	63	2
LSD 5%	ns	300		1.5	2	ns	1.0	ns	ns	16	ns
C.V.	16.6	16.4		3.4	1.6	1.7	7.3	5.6	3.8	14.1	79.0

Planted June 9, 2003.

