

# **Sunflower**

## **Oilseed Non-Oilseed**

**2000 South Dakota Hybrid Performance Trials**



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# Sunflower

## 2000 South Dakota Hybrid Performance Trials Oilseed and Non-Oilseed

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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 a hybrid may or may not be the best yielder at all locations but that it does rank 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 table. This 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 Pukwana test (Table 5) could be repeated in 2001 exactly as it was in 2000, the yield ranking of a hybrid that yielded 2634 lbs/A and one that yielded 2244 lbs/A might change places since their yield difference (390 lbs/A) is less than the indicated yield LSD value of 434 lbs/A. There was no statistical difference in yield between the two hybrids when grown under the conditions that existed at Pukwana in 2000.

However, if the test were repeated under similar conditions, we would expect the hybrid that yielded 2634 lbs/A at Pukwana in 2000 to produce more than a hy-

brid that yielded 2121 lbs/A, since their yield difference (513 lbs/A) is greater than the indicated yield LSD value (434 lbs/A).

The coefficient of variability (C.V.) listed at the bottom of each data table 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 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 also may 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 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. Seed must then 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 using a minimum of four 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. 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.

## **2000 Trial Procedures**

### **Locations and Hybrids**

Oilseed hybrid sunflower trials were planted at four locations in South Dakota (Highmore, the Dakota Lakes Research Station near Pierre, Frankfort, and Pukwana). Entries in the oilseed sunflower trials included both traditional oil hybrids and NuSun (mid-oleic) hybrids. Non-oilseed (confection) sunflower trials were conducted at Dakota Lakes, Highmore, 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 report are results from the NuSun Sunflower Show Field at Gettysburg. This Show Field was one of three plots sponsored by the National Sunflower Association (NSA) in North and South Dakota. The Gettysburg plot was planted and harvested by Joel Lampert of Dakota Crop Services. Yield results, oil and oleic acid levels, and other data from the plots were compiled by USDA Scientist Dr. Jerry Miller.

### **Climatic Conditions**

The 2000 growing season began with short to adequate topsoil and subsoil moisture. A summary of 2000 climatic conditions near the sunflower test sites is presented in Table 1. Temperatures were above normal in May but normal to below normal in June through September at all locations. Most of the state received a killing frost on September 24. The 2000 growing season was generally dry, with all stations receiving below to much-below-normal precipitation in June through September.

### **Experimental Methods**

Plots at all locations consisted of two rows, 24 feet long, spaced 30 inches apart. 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.

All plots were overseeded and thinned. Stands were poor at Highmore due to a high incidence of downy mildew. Where excess plants were present, oilseed plots at Highmore were thinned to a plant population of approximately 17,000 plants/acre, and non-oilseed plots were thinned to approximately 16,000 plants/acre. Plants systemically infected with downy mildew were preferentially removed during thinning. Stands were variable at Dakota Lakes. Oilseed plots with excess plants were thinned to approximately 18,000 plants/acre at Frankfort and Dakota Lakes, and 17,000 plants/acre at Pukwana. Non-oil plots at Dakota Lakes and Pukwana were thinned to 16,000 plants/acre.

The Dakota Lakes trial was seeded no-till. Frankfort was tilled in the fall, then planted no-till in the spring. All other trials were planted with conventional tillage practices. Spartan and Prowl herbicides were applied for weed control at Dakota Lakes. Spartan was also applied at Frankfort. All other locations had either Sonalan or Treflan applied.

Flowering was recorded at Frankfort 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 greatest at Highmore and Dakota Lakes, ranging from 0% to 56%. Lodging was fairly low at Frankfort and Pukwana. Percent of standing plants systemically infected with downy mildew was recorded at Highmore prior to harvest.

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 val-

ues for NuSun hybrids were adjusted according to the formula: (original NMR % \* 0.953)+0.7148=true NuSun oil %. Oil yield was calculated by multiplying seed yield by oil percent.

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.

The NuSun Show Field at Gettysburg was planted on June 6. Each NSA NuSun plot consisted of four rows, 90 feet long, replicated three times, with a check hybrid planted between each company's hybrids. There were also USDA research plots planted at the same location. These plots consisted of four rows, 30 feet long, replicated three times. All rows were harvested. Randomly-selected heads in each hybrid were bagged prior to pollination for evaluation of fatty acid composition.

### Results

Data from each SDSU location are contained in Tables 3-6 and 8-10. Results from Highmore are not included because high C.V.'s at that location (due to downy

mildew disease, lodging, and moisture stress) precluded valid hybrid comparisons. Hybrids in each table are sorted according to 2000 seed yield. The highest average seed yield across oilseed hybrids was 2023 lbs/A at Pukwana and the lowest was 1847 lbs/A at Frankfort. Non-oilseed hybrid seed yields were also highest at Pukwana (1423 lbs/A). Non-oil hybrids at Dakota Lakes averaged 1365 lbs/A seed yield.

Tables 11 and 12 contain results from the NuSun Show Field plots at Gettysburg. The average yield of all 54 hybrids in the NSA trial was 2353 lbs/A (Table 11). The 47 hybrids in the USDA trial averaged 2176 lbs/A seed yield (Table 12). In both the NSA and USDA plots, the top ten NuSun hybrids out-yielded the average of the five traditional hybrids included in the trial.

This report may be accessed on the internet at [http://www.abs.sdstate.edu/abs/PDF/EC909\\_2000.pdf](http://www.abs.sdstate.edu/abs/PDF/EC909_2000.pdf)

***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.***

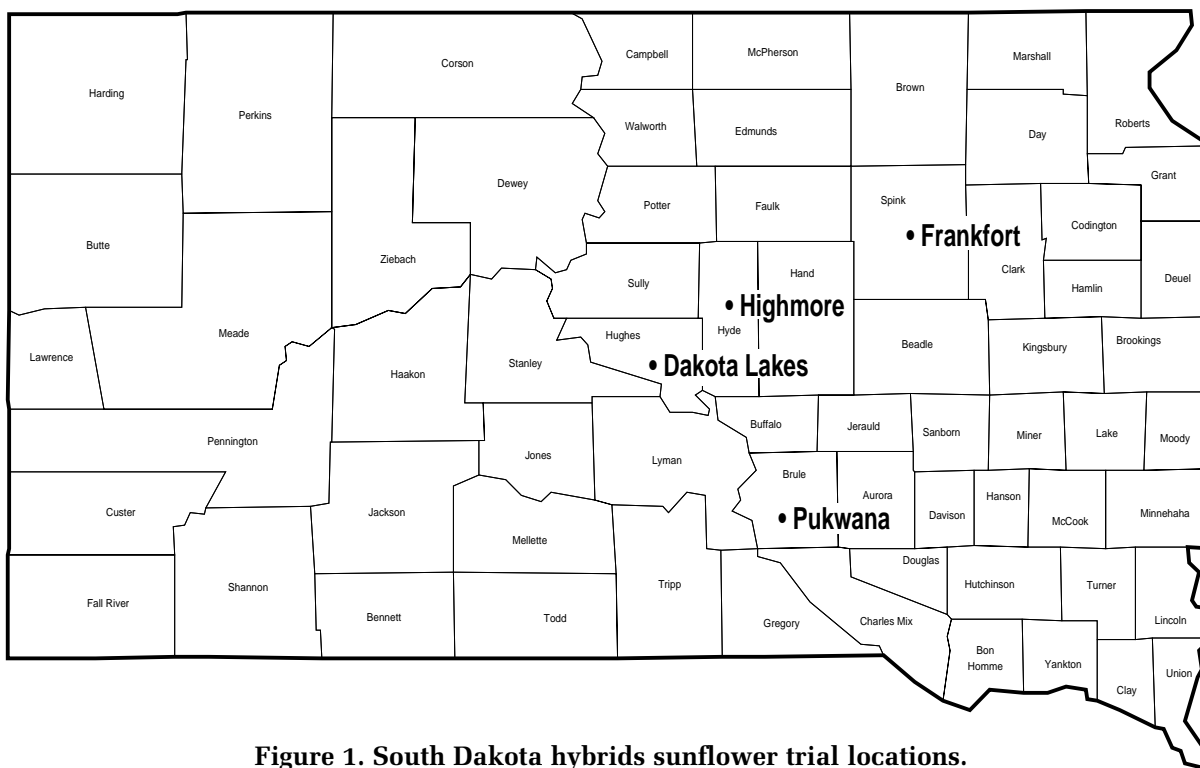


Figure 1. South Dakota hybrids sunflower trial locations.

**Table 1. Climate summary for 2000 South Dakota sunflower test sites.**

Month	Temperature		Depart. from Normal		Precipitation	
	Ave. Max.	Ave. Min.	Max. Temp.	Min. Temp.	Total	Depart.
<b><u>Highmore*</u></b>						
May	74.4	46.3	2.4	2.5	3.56	0.79
June	80.8	50.9	-1.0	-2.7	2.26	-0.93
July	88.4	59.3	-0.9	-0.3	2.17	-0.84
August	87.8	58.9	0.0	1.5	1.30	-1.02
September	NA	NA	NA	NA	0.03	-1.62
<b><u>Dakota Lakes*</u></b>						
May	74.1	46.6	3.2	1.0	1.90	-0.97
June	81.2	53.2	-0.3	-2.6	1.67	-1.85
July	NA	NA	NA	NA	NA	NA
August	NA	NA	NA	NA	NA	NA
September	72.2	42.8	-4.0	-5.7	0.05	-1.51
<b><u>Redfield (Frankfort)*</u></b>						
May	71.9	44.9	1.6	1.3	1.31	-1.58
June	77.7	51.3	-2.3	-2.5	0.56	-2.61
July	83.7	58.1	-3.4	-1.3	0.24	-2.43
August	81.6	55.6	-3.4	-0.8	1.58	-0.60
September	77.0	41.6	2.8	-5.8	0.63	-1.14
<b><u>Academy (Pukwana)*</u></b>						
May	72.4	45.7	0.3	0.5	3.43	-0.10
June	79.2	51.6	-2.9	-3.5	2.39	-1.19
July	89.1	60.8	-0.3	-0.1	0.98	-1.96
August	86.5	58.1	-0.7	0.7	0.84	-1.21
September	81.0	46.5	4.0	-0.7	0.27	-1.82

\* The data in this table are for sites as close to the actual test plot sites as available, however, temperature and/or precipitation at the actual test plot sites may have differed from the values shown above.

**Table 2. Hybrids and test sites for the 2000 South Dakota oilseed hybrid sunflower trial.**

Sunflower Brand-Hybrid	Hybrid Type	Frankfort	Highmore	Dakota Lakes	Pukwana
Croplan Genetics CL322 NS	NuSun		X	X	
Croplan Genetics CL345 NS	NuSun	X	X	X	
Croplan Genetics CL380 NS	NuSun	X	X	X	X
Croplan Genetics CL385 NS	NuSun	X	X	X	X
Croplan Genetics CL803	Trad.	X	X	X	
Croplan Genetics CL821	Trad.	X			
Dekalb DK3868	Trad.	X	X	X	X
Dekalb DK3872NS	NuSun	X	X	X	X
Dekalb DK3875	Trad.	X	X	X	X
Dekalb DK3900	Trad.	X	X	X	X
Dekalb DKF29-90	Trad.	X	X	X	X
Dekalb DKF29-99NS	NuSun	X	X	X	X
Dekalb DKF31-01NS	NuSun	X	X	X	X
Dekalb DKF36-40NS	NuSun	X	X	X	X
Dekalb EX9910NS	NuSun	X	X	X	X
Dekalb EX9915NS	NuSun	X	X	X	X
Dekalb EX9917NS	NuSun	X	X	X	X
Dekalb EX9918NS	NuSun	X	X	X	X
Interstate Garst IS 4340	Trad.	X	X	X	X
Interstate Seed 971136 NS	NuSun	X		X	
Interstate Seed IS 4049	Trad.	X	X	X	X
Interstate Seed IS 5030	Trad.	X	X	X	X
Interstate Seed IS 6039	Trad.	X	X	X	X
Interstate Seed IS 6767	Trad.	X	X	X	X
Interstate Seed IS Hysun 450	NuSun	X	X	X	X
Interstate Seed IS Hysun 530	NuSun	X	X	X	X
Interstate Seed IS X15045	Trad.	X	X	X	X
Interstate Seed IS X33204	Trad.	X		X	
Interstate Seed IS X41978	Trad.	X	X	X	
Interstate Seed IS X74018	Trad.	X	X	X	
Interstate Seed IS X74066	Trad.	X	X	X	
Interstate Seed IS X74091	Trad.	X	X	X	
Interstate Seed IS X84021	Trad.	X	X	X	
Interstate Seed ST 2102	Trad.	X		X	
Interstate Seed ST 2109	Trad.	X	X	X	
Interstate Seed ST 2129	Trad.	X	X	X	
Kaystar 9404	Trad.	X	X	X	X
Kaystar 9501	Trad.	X	X	X	X
Legend Seeds LSF142N	NuSun	X	X	X	X
Mycogen Seeds 8242 NS	NuSun	X			
Mycogen Seeds 8372	Trad.	X	X	X	X
Mycogen Seeds 8377 NS	NuSun	X	X	X	X
Mycogen Seeds 8488 NS	NuSun	X	X	X	X
Mycogen Seeds Cavalry	Trad.	X	X	X	X
Mycogen Seeds X80454	NuSun			X	X

Table 2 (continued).

Sunflower Brand-Hybrid	Hybrid Type	Frankfort	Highmore	Dakota Lakes	Pukwana
Mycogen Seeds X80458	NuSun			X	X
Nidera S.A. DN 1704	Trad.	X	X		
Nidera S.A. DN 2015	Trad.	X	X		
Novartis NK Brand 278	Trad.	X	X	X	X
Novartis NK Brand NX16755	NuSun	X	X	X	X
Novartis NK Brand NX16756	NuSun	X	X	X	X
Novartis NK Brand NX30002	NuSun	X	X	X	X
Novartis NK Brand T46-R9	Trad.	X	X	X	X
Pioneer hybrid 63A70	Trad.	X	X	X	X
Pioneer hybrid 63A81	Trad.	X	X	X	X
Pioneer hybrid 63M80	NuSun	X	X	X	X
Pioneer hybrid 63M91	NuSun	X	X	X	X
Proseed EX9605(NS)	NuSun	X	X	X	X
Proseed 9103	NuSun	X	X	X	X
Proseed 9123	NuSun	X	X	X	X
Proseed 9405	NuSun	X	X	X	X
Proseed 9612	Trad.	X	X	X	X
Proseed 9911	Trad.	X	X	X	X
Proseed EX9155(NS)	NuSun	X	X	X	X
Seeds 2000 Bronco	NuSun	X	X	X	X
Seeds 2000 Maverick	NuSun	X	X	X	X
Seeds 2000 Mustang	NuSun	X	X		
Seeds 2000 Ranger	NuSun	X	X		
Seeds 2000 X476	NuSun	X	X	X	X
Triumph Seed 545A	Trad.				X
Triumph Seed 652	NuSun			X	X
USDA 894 (check)	Trad.	X	X	X	X
cmsHA412/RHA373 (check)	Trad.				X
border	Trad.	X			
Total hybrids		68	63	65	54

**Table 3. Results of the 2000 oilseed hybrid sunflower trial grown at Frankfort, SD.**

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A)			2000	Oil	Test	Harv.	Plant	Flwr	Lodgng
		2000	1999	Mean	Oil	Yield	Wt.	Moist.	Height		
		Frnkf	Miller		%	lbs/A	lb/bu	%	cm	days	%
Proseed 9612	Trad.	2597	2702	2650	38.4	986	29.6	13.1	153	70	3
Kaystar 9404	Trad.	2439	2846	2642	39.8	971	28.6	12.9	143	70	8
Interstate Seed IS X41978	Trad.	2423	2887	2655	39.7	956	26.6	12.8	149	70	5
Mycogen Seeds Cavalry	Trad.	2420	--	--	41.2	998	30.0	12.8	161	72	4
Croplan Genetics CL380 NS	NuSun	2368	2543	2456	39.3	932	30.8	13.0	147	69	12
Interstate Seed IS X15045	Trad.	2319	2634	2477	40.8	948	29.9	13.4	129	69	6
Seeds 2000 X476	NuSun	2302	--	--	39.0	900	28.8	13.2	138	71	4
Pioneer hybrid 63M80	NuSun	2295	3138	2717	40.1	920	29.9	12.7	140	69	9
Dekalb DK3900	Trad.	2284	3001	2642	40.7	929	30.2	13.5	136	72	6
Interstate Seed IS 4049	Trad.	2256	2578	2417	40.8	918	29.4	12.2	151	71	8
Mycogen Seeds 8488 NS	NuSun	2237	--	--	39.7	884	29.7	12.7	143	68	3
Interstate Seed IS X74066	Trad.	2208	--	--	40.9	897	28.7	13.5	149	72	6
Interstate Seed IS X74091	Trad.	2192	--	--	40.1	878	28.7	13.1	144	70	5
Nidera S.A. DN 2015	Trad.	2122	--	--	39.8	846	29.0	13.9	158	70	2
Croplan Genetics CL821	Trad.	2117	--	--	39.3	834	28.2	13.6	140	70	9
Novartis NK Brand 278	Trad.	2102	2561	2331	41.1	865	29.6	13.8	155	69	4
Interstate Seed 971136 NS	NuSun	2064	--	--	38.8	799	27.6	12.6	151	70	15
Seeds 2000 Ranger	NuSun	2062	--	--	38.5	797	29.1	12.1	137	67	8
Nidera S.A. DN 1704	Trad.	2052	--	--	40.1	823	28.5	13.0	177	72	12
Kaystar 9501	Trad.	2043	3172	2608	38.9	799	29.0	12.2	160	70	6
Mycogen Seeds 8372	Trad.	2039	--	--	40.2	818	29.8	12.7	143	67	10
Interstate Seed IS 6767	Trad.	2013	1973	1993	40.9	823	29.2	13.1	153	70	7
Proseed 9911	Trad.	2006	--	--	39.7	797	26.9	12.2	147	70	5
Dekalb DKF29-90	Trad.	1976	--	--	41.5	827	28.2	12.5	140	68	7
Interstate Seed IS X84021	Trad.	1962	--	--	39.5	774	30.3	12.9	145	72	9
Proseed 9123	NuSun	1957	2566	2262	38.5	753	25.8	13.3	149	70	12
Proseed 9405	NuSun	1949	2441	2195	40.2	782	28.7	12.9	147	71	9
Novartis NK Brand T46-R9	Trad.	1939	--	--	39.5	766	30.2	13.0	142	68	7
Seeds 2000 Maverick	NuSun	1939	2045	1992	38.8	755	26.9	12.9	135	68	11
Pioneer hybrid 63M91	NuSun	1935	2603	2269	40.1	774	29.0	12.8	157	68	6
Pioneer hybrid 63A81	Trad.	1888	1923	1905	40.9	777	28.4	12.2	145	70	0
Interstate Seed IS 6039	Trad.	1882	2509	2195	40.1	761	27.6	12.4	145	67	8
Novartis NK Brand NX30002	NuSun	1877	--	--	39.3	734	28.9	12.6	139	68	3
Novartis NK Brand NX16755	NuSun	1850	--	--	39.2	721	27.5	13.4	147	70	1
Seeds 2000 Mustang	NuSun	1845	2157	2001	39.6	729	30.0	13.7	143	67	8
Seeds 2000 Bronco	NuSun	1834	2614	2224	39.2	715	28.3	13.2	144	72	9
Proseed EX9605(NS)	NuSun	1803	--	--	40.2	724	28.9	11.7	135	70	5
Interstate Seed ST 2109	Trad.	1794	2410	2102	40.7	732	30.6	12.5	139	67	8
Croplan Genetics CL345 NS	NuSun	1792	--	--	39.3	706	30.3	12.2	138	68	2
Dekalb DK3872NS	NuSun	1789	2345	2067	40.0	718	27.6	12.3	152	71	15
Pioneer hybrid 63A70	Trad.	1767	2670	2219	41.9	741	28.0	12.3	142	68	4
Mycogen Seeds 8377 NS	NuSun	1733	--	--	39.1	678	27.9	12.5	144	67	2
Dekalb DK3868	Trad.	1714	2693	2204	40.5	692	29.2	12.6	127	70	7
Dekalb DKF29-99NS	NuSun	1709	--	--	39.1	669	29.6	12.6	147	67	8

**Table 3 (continued).**

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A)			2000 Oil	Oil Yield	Test Wt.	Harv. Moist.	Plant		Lodgng
		2000	1999	Mean					Height	Flwr	
		Frnkf	Miller		%	lbs/A	lb/bu	%	cm	days	%
Dekalb DK3875	Trad.	1663	3074	2369	39.7	657	28.2	12.8	135	70	12
Croplan Genetics CL385 NS	NuSun	1661	2487	2074	39.0	651	27.1	13.4	148	71	8
Interstate Seed IS X33204	Trad.	1657	--	--	39.9	660	27.1	13.2	152	70	8
Interstate Seed IS Hysun 450	NuSun	1653	2267	1960	38.5	630	28.4	13.3	140	72	6
Mycogen Seeds 8242 NS	NuSun	1632	--	--	39.4	644	29.1	12.8	139	66	7
Interstate Seed IS 5030	Trad.	1630	2069	1850	39.5	644	27.9	11.1	137	68	6
Dekalb DKF36-40NS	NuSun	1601	--	--	39.7	639	27.9	13.5	153	67	10
Dekalb EX9915NS	NuSun	1563	--	--	38.8	600	28.5	13.0	139	71	14
Interstate Garst IS 4340	Trad.	1561	--	--	40.4	637	28.7	16.3	154	72	4
Novartis NK Brand NX16756	NuSun	1553	--	--	38.3	590	27.9	12.5	142	70	9
Dekalb EX9910NS	NuSun	1547	--	--	38.8	604	30.0	12.2	137	65	3
Interstate Seed IS Hysun 530	NuSun	1541	2198	1869	38.7	597	28.6	12.9	136	67	9
Proseed EX9155(NS)	NuSun	1540	--	--	40.2	618	27.0	12.6	141	70	9
Interstate Seed ST 2102	Trad.	1522	--	--	39.5	598	28.9	12.6	136	68	12
Interstate Seed ST 2129	Trad.	1517	--	--	40.5	617	28.5	13.1	157	70	12
Dekalb EX9918NS	NuSun	1494	--	--	38.2	571	29.5	13.6	145	66	4
Proseed 9103	NuSun	1418	1978	1698	38.8	549	26.4	12.6	150	71	12
Dekalb DKF31-01NS	NuSun	1339	--	--	38.2	506	28.8	12.8	154	68	14
USDA 894 (check)	Trad.	1320	2421	1870	40.3	531	27.6	13.1	154	69	15
Dekalb EX9917NS	NuSun	1271	--	--	38.7	491	28.9	13.1	149	67	5
Croplan Genetics CL803	Trad.	1269	2257	1763	41.1	520	28.2	12.5	136	67	5
Legend Seeds LSF142N	NuSun	1253	--	--	38.9	485	27.0	12.4	142	71	13
Interstate Seed IS X74018	Trad.	1155	--	--	39.9	460	28.9	12.7	137	67	11
Grand Mean		1847	2417	2132	39.7	734	28.6	12.9	145	69	8
LSD 5%		442	409		1.1	179	2.1	1.2	12	1	6
C.V.		17.2	12.1		2.0	17.5	5.3	6.6	5.7	0.9	59.9

Planted May 19, 2000.

Harvested Oct. 7, 2000.

Design: Nearest neighbors in RCBD layout with 4 replications.

Seed yield, % oil, and oil yield are reported at 10% moisture.

**Table 4. Results of the 2000 oilseed hybrid sunflower trial grown at the Dakota Lakes Research Station, Pierre, SD.**

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A)			2000	Oil	Test	Harv.	Plant	Lodgng	Final
		2000	1999	Mean	Oil	Yield	Wt.	Moist.	Height		Pop.
					%	lbs/A	lb/bu	%	cm	%	plnt/A
Mycogen Seeds X80458	NuSun	2592	--	--	40.2	1048	28.4	15.8	144	0	18232
Kaystar 9501	Trad.	2528	1478	2003	41.1	1037	30.4	12.3	168	15	17683
Mycogen Seeds Cavalry	Trad.	2509	--	--	44.2	1094	30.7	12.5	163	5	17803
Dekalb DK3875	Trad.	2414	1546	1980	41.6	1007	30.2	14.1	147	16	18602
Pioneer hybrid 63A70	Trad.	2391	1188	1790	45.0	1073	30.0	10.9	154	7	18128
Proseed 9911	Trad.	2390	--	--	42.3	1003	30.3	11.9	161	9	18044
Dekalb DK3900	Trad.	2379	1679	2029	42.3	1005	29.6	17.7	150	11	18490
Novartis NK Brand T46-R9	Trad.	2362	--	--	41.3	975	29.5	15.9	151	10	16853
Interstate Garst IS 4340	Trad.	2352	--	--	42.9	1011	29.6	15.6	151	4	17374
Interstate Seed IS X15045	Trad.	2345	--	--	43.0	1007	28.2	17.4	132	1	17191
Interstate Seed IS 4049	Trad.	2326	1639	1983	42.5	983	29.6	11.6	153	12	18244
Interstate Seed IS X84021	Trad.	2316	--	--	42.0	977	29.2	12.9	151	15	17857
Interstate Seed IS X33204	Trad.	2237	--	--	44.1	984	29.2	12.1	156	14	17457
Interstate Seed ST 2102	Trad.	2216	--	--	43.0	961	29.6	14.4	138	11	18229
Proseed 9612	Trad.	2151	1308	1730	39.9	855	30.9	16.7	163	17	17972
Interstate Seed IS X74066	Trad.	2135	--	--	43.3	921	27.6	13.4	144	11	17107
Interstate Seed IS 6039	Trad.	2126	1149	1637	42.9	912	31.1	13.5	142	13	16785
Pioneer hybrid 63M80	NuSun	2114	1637	1876	42.5	900	28.8	14.8	160	10	17848
Novartis NK Brand NX30002	NuSun	2114	--	--	41.1	869	29.9	10.8	139	6	17783
Interstate Seed ST 2129	Trad.	2112	--	--	42.8	895	30.6	12.5	156	13	15917
Seeds 2000 X476	NuSun	2077	--	--	41.2	856	27.8	14.9	140	13	15387
Kaystar 9404	Trad.	2067	1731	1899	40.3	834	29.0	14.9	150	10	16180
Interstate Seed IS X41978	Trad.	2048	1884	1966	40.5	828	27.7	16.3	165	16	17116
Mycogen Seeds 8372	Trad.	2026	--	--	43.4	882	29.6	11.0	146	7	18132
Mycogen Seeds 8488 NS	NuSun	1996	--	--	41.8	832	29.2	15.0	164	13	17529
Interstate Seed IS X74018	Trad.	1985	--	--	42.6	838	29.9	11.3	141	7	16893
Dekalb DK3868	Trad.	1976	1319	1648	43.2	850	29.7	11.7	137	15	16703
Mycogen Seeds 8377 NS	NuSun	1962	--	--	42.3	833	29.4	13.8	151	8	16943
Seeds 2000 Bronco	NuSun	1942	1357	1650	41.2	799	28.5	17.8	146	0	18184
Croplan Genetics CL345 NS	NuSun	1914	1134	1524	41.9	801	28.6	16.0	152	5	17729
Croplan Genetics CL385 NS	NuSun	1911	958	1435	41.8	799	28.8	11.8	145	3	18095
Novartis NK Brand NX16755	NuSun	1908	--	--	40.9	739	29.7	12.1	158	11	16356
Interstate Seed IS Hysun 450	NuSun	1907	1272	1590	41.4	790	28.2	12.2	150	6	16290
Mycogen Seeds X80454	NuSun	1901	--	--	41.9	798	29.1	13.2	143	9	14375
Interstate Seed 971136 NS	NuSun	1878	--	--	42.0	790	29.4	11.7	155	16	16538
Pioneer hybrid 63M91	NuSun	1874	1192	1533	42.3	788	30.4	12.0	161	14	15657
Dekalb EX9917NS	NuSun	1868	--	--	41.4	773	29.7	13.8	156	15	16733
Interstate Seed ST 2109	Trad.	1862	--	--	42.9	801	28.9	13.0	150	7	18139
Dekalb DKF29-90	Trad.	1860	--	--	44.0	819	29.8	10.6	143	18	14044
Dekalb DK3872NS	NuSun	1840	1462	1651	41.6	766	28.9	12.0	157	10	17952
Dekalb EX9910NS	NuSun	1827	--	--	40.7	742	30.1	11.0	145	6	16223
Interstate Seed IS X74091	Trad.	1813	--	--	43.7	797	28.7	13.8	147	17	17233
Croplan Genetics CL380 NS	NuSun	1790	1197	1494	41.1	740	30.3	13.5	161	6	18124
Interstate Seed IS 6767	Trad.	1788	1282	1535	42.7	763	29.6	14.0	148	15	18281

**Table 4 (continued).**

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A)			2000	Oil	Test	Harv.	Plant	Lodgng	Final Pop.
		2000	1999	Mean	Oil	Yield	Wt.	Moist.	Height		
					%	lbs/A	lb/bu	%	cm	%	plnt/A
Pioneer hybrid 63A81	Trad.	1728	1298	1513	42.0	724	27.3	12.5	153	8	17188
Seeds 2000 Maverick	NuSun	1718	1335	1526	41.6	721	29.0	10.6	155	9	15335
Dekalb EX9915NS	NuSun	1709	--	--	42.1	725	30.4	10.9	151	28	15374
Novartis NK Brand 278	Trad.	1706	1247	1477	43.1	738	28.5	12.4	150	10	16462
Proseed 9405	NuSun	1704	1266	1485	41.6	712	28.0	17.2	146	15	17927
Triumph Seed 652	NuSun	1665	--	--	40.3	667	27.9	15.2	166	12	15671
Proseed EX9605(NS)	NuSun	1657	--	--	42.1	699	29.0	11.6	150	17	18823
Proseed 9103	NuSun	1656	1028	1342	41.8	711	28.7	11.8	156	15	16975
Proseed 9123	NuSun	1641	1545	1593	41.1	673	27.6	15.6	153	3	15244
Dekalb DKF29-99NS	NuSun	1625	--	--	42.3	688	29.0	11.3	146	15	16167
Croplan Genetics CL803	Trad.	1620	1465	1542	43.5	699	28.9	11.7	138	17	17068
Legend Seeds LSF142N	NuSun	1568	--	--	42.0	659	28.3	12.7	146	10	16985
Interstate Seed IS Hysun 530	NuSun	1558	1068	1313	41.1	641	28.4	11.8	146	16	15297
Novartis NK Brand NX16756	NuSun	1557	--	--	41.6	645	29.7	13.4	161	14	17476
Dekalb EX9918NS	NuSun	1493	--	--	41.2	621	29.2	14.8	154	9	17532
Dekalb DKF36-40NS	NuSun	1441	--	--	40.6	577	28.7	16.1	167	25	12468
Interstate Seed IS 5030	Trad.	1440	1479	1459	43.9	638	28.8	11.9	144	5	15469
Proseed EX9155(NS)	NuSun	1285	--	--	41.7	537	27.5	10.1	147	29	17697
USDA 894 (check)	Trad.	1279	1492	1386	41.4	531	28.2	10.8	154	12	17400
Dekalb DKF31-01NS	NuSun	1266	--	--	40.4	510	29.6	10.7	145	56	14270
Croplan Genetics CL322 NS	NuSun	1233	1255	1244	41.5	512	28.5	10.2	147	10	15629
Grand Mean		1918	1277	1598	42.0	806	29.2	13.2	151	12	16937
LSD 5%		452	373		1.1	191	1.5	3.4	10	9	2428
C.V.		16.9	20.9		1.8	17.0	3.7	18.7	4.6	52.8	10.3

Planted May 31, 2000.

Harvested Sept. 27, 2000.

Design: Nearest neighbors in RCBD layout with 4 replications.

Seed yield, % oil, and oil yield are reported at 10% moisture.

**Table 5. Results of the 2000 oilseed hybrid sunflower trial grown at Pukwana, SD.**

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A)			2000	Oil	Test	Harv.	Plant	Lodgng
		2000	1999	Mean	Oil	Yield	Wt.	Moist.	Height	
					%	lbs/A	lb/bu	%	cm	%
Kaystar 9501	Trad.	2634	3668	3151	39.3	1036	28.9	9.8	153	4
Proseed 9612	Trad.	2595	3523	3059	39.8	1036	29.3	9.4	138	2
Interstate Seed IS X15045	Trad.	2476	--	--	41.7	1032	27.3	10.0	116	4
Mycogen Seeds Cavalry	Trad.	2436	--	--	42.8	1043	28.9	8.1	151	3
Dekalb DK3900	Trad.	2387	2485	2436	42.1	1010	28.5	10.9	132	8
Pioneer hybrid 63A81	Trad.	2342	--	--	41.5	979	26.7	7.8	138	2
Novartis NK Brand T46-R9	Trad.	2340	--	--	40.6	958	28.6	9.9	144	4
Mycogen Seeds 8377 NS	NuSun	2322	--	--	41.7	971	28.4	8.9	133	2
Pioneer hybrid 63A70	Trad.	2244	--	--	43.7	975	27.8	8.9	135	2
Dekalb EX9917NS	NuSun	2243	--	--	40.7	915	29.5	9.8	146	4
Pioneer hybrid 63M91	NuSun	2205	--	--	40.5	899	29.1	9.6	149	0
Seeds 2000 Bronco	NuSun	2190	--	--	40.0	877	28.8	9.1	127	2
Triumph Seed 545A	Trad.	2187	2736	2462	44.4	969	28.2	8.2	134	4
Dekalb DKF36-40NS	NuSun	2174	--	--	39.8	867	28.5	8.6	155	7
Proseed 9405	NuSun	2151	2413	2282	41.4	888	27.1	10.8	136	2
Novartis NK Brand NX16756	NuSun	2143	--	--	40.1	861	28.4	9.5	140	5
Dekalb DK3875	Trad.	2142	3175	2659	40.9	879	28.7	9.5	132	0
Dekalb EX9910NS	NuSun	2133	--	--	40.3	857	28.0	7.6	131	3
Interstate Seed IS 5030	Trad.	2126	--	--	42.7	915	26.6	7.9	135	1
Interstate Seed IS 6039	Trad.	2121	--	--	42.8	914	29.2	8.2	136	5
Kaystar 9404	Trad.	2121	2620	2371	41.0	868	27.6	8.4	131	7
Interstate Seed IS 4049	Trad.	2110	--	--	42.3	893	29.1	8.8	139	4
Proseed 9911	Trad.	2110	--	--	41.9	885	28.3	8.3	148	3
Mycogen Seeds X80458	NuSun	2085	--	--	39.8	830	28.0	10.3	143	0
Mycogen Seeds 8372	Trad.	2075	--	--	43.0	896	28.6	7.9	131	6
Dekalb DKF29-99NS	NuSun	2063	--	--	42.5	873	28.1	8.4	135	9
Triumph Seed 652	NuSun	2044	--	--	39.2	805	28.1	10.2	137	6
Interstate Seed IS 6767	Trad.	2043	--	--	42.7	872	28.6	8.3	137	5
Dekalb DK3868	Trad.	1995	2153	2074	42.6	851	28.5	7.9	132	6
Proseed EX9605(NS)	NuSun	1979	--	--	41.4	823	27.1	8.4	140	6
Mycogen Seeds 8488 NS	NuSun	1960	--	--	41.6	818	28.8	8.7	144	1
Interstate Seed IS Hysun 450	NuSun	1957	--	--	40.2	785	27.6	8.6	130	2
Croplan Genetics CL380 NS	NuSun	1952	--	--	41.3	808	27.6	8.3	137	4
Dekalb DK3872NS	NuSun	1948	2069	2008	40.8	802	28.5	7.6	146	8
Seeds 2000 X476	NuSun	1937	--	--	40.4	786	27.9	8.7	124	7
cmsHA412/RHA373 (check)	Trad.	1935	--	--	41.8	808	27.7	9.2	137	12
Dekalb DKF29-90	Trad.	1927	--	--	43.7	844	29.2	7.2	137	4
Interstate Garst IS 4340	Trad.	1917	--	--	41.0	787	29.6	9.2	132	2
Novartis NK Brand NX16755	NuSun	1917	--	--	41.2	791	28.3	8.3	131	8
Proseed 9123	NuSun	1889	2485	2187	40.8	764	27.5	10.7	140	2
Mycogen Seeds X80454	NuSun	1867	--	--	40.0	744	29.0	8.8	126	6
Croplan Genetics CL385 NS	NuSun	1802	--	--	41.4	744	27.4	9.0	130	4
USDA 894 (check)	Trad.	1802	2240	2021	40.6	736	28.7	9.2	133	2
Novartis NK Brand 278	Trad.	1796	2450	2123	43.0	779	28.0	11.0	130	6

**Table 5 (continued).**

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A)			2000	Oil	Test	Harv.	Plant	Lodgng
		2000	1999	Mean	Oil	Yield	Wt.	Moist.	Height	
					%	lbs/A	lb/bu	%	cm	%
Interstate Seed IS Hysun 530	NuSun	1762	--	--	41.0	725	27.2	7.6	135	9
Dekalb EX9915NS	NuSun	1751	--	--	40.5	714	27.8	8.6	141	7
Pioneer hybrid 63M80	NuSun	1725	--	--	41.1	712	27.5	9.4	135	8
Seeds 2000 Maverick	NuSun	1724	--	--	40.2	691	27.1	7.5	128	7
Novartis NK Brand NX30002	NuSun	1713	--	--	40.6	696	28.9	9.2	128	8
Proseed 9103	NuSun	1647	2023	1835	40.2	664	27.5	7.9	138	7
Proseed EX9155(NS)	NuSun	1587	--	--	41.7	665	27.2	8.0	135	7
Dekalb EX9918NS	NuSun	1574	--	--	40.7	649	28.2	8.1	126	1
Dekalb DKF31-01NS	NuSun	1477	--	--	40.1	590	28.0	7.7	146	9
Legend Seeds LSF142N	NuSun	1432	--	--	40.1	569	28.4	8.5	122	8
Grand Mean		2023	2449	2236	41.2	836	28.2	8.8	136	5
LSD 5%		434	524		1.2	186	1.3	1.3	9	6
C.V.		15.4	15.3		2.1	15.9	3.2	10.4	5.0	98.1

Planted May 30, 2000.

Harvested Oct. 9, 2000.

Design: Nearest neighbors in RCBD layout with 4 replications.

Seed yield, % oil, and oil yield are reported at 10% moisture.

**Table 6. Results of the 2000 oilseed hybrid sunflower trial, averaged over Dakota Lakes, Frankfort, and Pukwana.**

Sunflower Brand-Hybrid	Type	Seed Yield lbs/A	Oil %	Oil Yield lbs/A	Test Wt. lb/bu	Harv. Moist. %	Plant Height cm	Lodgng %
Mycogen Seeds Cavalry	Trad.	2458	42.7	1046	29.9	11.2	158	4
Proseed 9612	Trad.	2451	39.3	960	30.0	13.1	151	7
Kaystar 9501	Trad.	2405	39.8	958	29.5	11.5	160	8
Interstate Seed IS X15045	Trad.	2383	41.8	997	28.5	13.6	126	4
Dekalb DK3900	Trad.	2353	41.7	982	29.5	14.1	139	8
Interstate Seed IS 4049	Trad.	2234	41.8	933	29.4	10.9	147	8
Novartis NK Brand T46-R9	Trad.	2217	40.5	900	29.5	13.0	146	7
Kaystar 9404	Trad.	2212	40.3	892	28.4	12.1	141	8
Proseed 9911	Trad.	2172	41.3	896	28.5	10.8	152	5
Pioneer hybrid 63A70	Trad.	2137	43.5	931	28.6	10.7	144	4
Seeds 2000 X476	NuSun	2108	40.2	848	28.2	12.3	134	8
Dekalb DK3875	Trad.	2076	40.7	848	29.1	12.2	138	9
Mycogen Seeds 8488 NS	NuSun	2067	41.0	846	29.3	12.2	150	5
Mycogen Seeds 8372	Trad.	2050	42.2	866	29.4	10.6	140	7
Pioneer hybrid 63M80	NuSun	2048	41.2	845	28.8	12.3	145	9
Interstate Seed IS 6039	Trad.	2046	41.9	863	29.4	11.4	141	8
Croplan Genetics CL380 NS	NuSun	2040	40.5	828	29.6	11.6	148	7
Mycogen Seeds 8377 NS	NuSun	2009	41.0	828	28.6	11.8	143	4
Pioneer hybrid 63M91	NuSun	2008	41.0	821	29.6	11.5	156	5
Seeds 2000 Bronco	NuSun	1992	40.1	798	28.6	13.4	139	3
Pioneer hybrid 63A81	Trad.	1989	41.5	828	27.5	10.9	145	3
Interstate Seed IS 6767	Trad.	1951	42.1	820	29.2	11.8	146	9
Interstate Garst IS 4340	Trad.	1946	41.4	812	29.4	13.7	146	3
Proseed 9405	NuSun	1938	41.1	795	28.0	13.7	143	9
Dekalb DKF29-90	Trad.	1924	43.0	831	29.1	10.1	140	10
Novartis NK Brand NX30002	NuSun	1904	40.3	767	29.3	10.9	135	6
Dekalb DK3868	Trad.	1898	42.1	798	29.1	10.8	132	9
Novartis NK Brand NX16755	NuSun	1894	40.4	751	28.5	11.3	145	7
Novartis NK Brand 278	Trad.	1871	42.4	795	28.7	12.4	145	7
Dekalb DK3872NS	NuSun	1862	40.8	763	28.4	10.7	152	11
Interstate Seed IS Hysun 450	NuSun	1842	40.0	736	28.1	11.4	140	5
Dekalb EX9910NS	NuSun	1839	39.9	735	29.4	10.3	138	4
Proseed 9123	NuSun	1832	40.1	731	27.0	13.2	147	6
Proseed EX9605(NS)	NuSun	1816	41.2	750	28.4	10.6	142	10
Dekalb DKF29-99NS	NuSun	1802	41.3	744	28.9	10.8	142	10
Dekalb EX9917NS	NuSun	1797	40.2	727	29.4	12.3	150	8
Seeds 2000 Maverick	NuSun	1797	40.2	723	27.7	10.4	139	9
Croplan Genetics CL385 NS	NuSun	1794	40.7	732	27.8	11.5	141	5
Novartis NK Brand NX16756	NuSun	1754	40.0	700	28.7	11.9	148	9
Dekalb DKF36-40NS	NuSun	1742	40.0	695	28.4	12.8	159	14
Interstate Seed IS 5030	Trad.	1735	42.0	733	27.8	10.3	139	4
Dekalb EX9915NS	NuSun	1677	40.5	681	29.0	10.8	144	16
Interstate Seed IS Hysun 530	NuSun	1623	40.2	656	28.1	10.8	139	11
Proseed 9103	NuSun	1577	40.3	642	27.6	10.8	148	11

**Table 6 (continued).**

Sunflower Brand-Hybrid	Type	Seed Yield	Oil	Oil Yield	Test Wt.	Harv. Moist.	Plant Height	Lodgng
		lbs/A	%	lbs/A	lb/bu	%	cm	%
Dekalb EX9918NS	NuSun	1523	40.0	614	29.0	12.2	142	5
Proseed EX9155(NS)	NuSun	1474	41.2	608	27.3	10.3	141	15
USDA 894 (check)	Trad.	1470	40.7	600	28.2	11.1	147	9
Legend Seeds LSF142N	NuSun	1421	40.3	572	28.0	11.3	136	10
Dekalb DKF31-01NS	NuSun	1364	39.5	537	28.9	10.5	148	27
Grand Mean		1929	40.9	791	28.7	11.6	144	8
LSD 5%		342	0.8	142	1.2	1.8	8	8
C.V.		17.4	2.1	17.7	4.4	14.7	5.5	71.4

Seed yield, % oil, and oil yield are reported at 10% moisture.

**Table 7. Hybrids and test sites for the 2000 South Dakota non-oilseed hybrid sunflower trial.**

Sunflower Brand-Hybrid	Dakota Lakes	Highmore	Pukwana
Agway Inc. EXP-001	X	X	X
Agway Inc. EXP-002	X		X
Agway Inc. EXP-991	X		X
Agway Inc. RH 3703	X	X	X
Agway Inc. RH 3733	X	X	X
Interstate IS 8048	X	X	X
Interstate IS X89008	X	X	X
Proseed 9802	X	X	X
USDA 924 (check)	X	X	X
Seeds 2000 Bigfoot		X	X
Seeds 2000 X3985		X	X
Sigco Sun Products EXP-3228	X		X
Sigco Sun Products EXP-3993	X		X
Sigco Sun Products SS38A	X		
Sigco Sun Products SS-62	X		X
Sigco Sun Products SSX-61 ex	X		
Triumph Seed 765C		X	X
Triumph Seed 766CRT			X
USDA 924 (check)	X	X	X
Total hybrids	15	11	17

**Table 8. Results of the 2000 non-oil sunflower hybrid trial grown at the Dakota Lakes Research Station, Pierre, SD.**

Sunflower Brand-Hybrid	Seed Yield	Plant Height	Test Weight	Lodgng %	% Over Screen			Nut- meat %
					22/64	20/64	18/64	
Interstate IS X89008	1717	167	25.7	9	20	50	77	62.3
Sigco Sun Products SS-62	1672	153	25.6	4	20	44	70	58.3
USDA 924 (check)	1626	165	25.5	10	20	58	83	60.0
Sigco Sun Products EXP-3228	1554	158	26.3	7	21	53	73	58.3
Proseed 9802	1543	171	25.5	13	23	48	74	61.4
Agway Inc. RH 3703	1511	166	25.4	5	33	63	81	57.2
Agway Inc. RH 3733	1405	174	24.9	1	34	67	86	56.6
Sigco Sun Products EXP-3993	1395	189	24.6	6	36	62	81	54.4
Interstate IS 8048	1392	161	25.0	5	47	77	91	55.5
Sigco Sun Products SS38A	1253	169	25.9	1	18	49	76	61.0
Sigco Sun Products SSX-61 ex	1193	180	24.9	6	21	52	74	58.3
Agway Inc. EXP-002	1115	188	25.6	2	22	58	82	56.7
Agway Inc. EXP-991	1105	166	26.3	3	40	65	80	59.2
USDA 924 (check)	1071	167	26.2	5	19	46	70	59.9
Agway Inc. EXP-001	919	163	25.3	0	36	63	87	57.8
Grand Mean	1365	169	25.5	5	27	57	79	58.5
LSD 5%	384	12	ns	6	17	16	ns	3.4
C.V.	19.7	5.0	4.1	84.4	44.3	19.9	12.7	4.1

Planted May 31, 2000.

Harvested Sept. 28, 2000.

Design: Nearest neighbors in RCBD layout with 4 replications.

**Table 9. Results for the 2000 non-oil sunflower hybrid trial grown at Pukwana, SD.**

Sunflower Brand-Hybrid	Seed Yield (lbs/A)			Plant Height (cm)	Test Weight lb/bu	Lodgng %	% Over Screen			Nut- meat %
	2000	1999	Mean				22/64	20/64	18/64	
Agway Inc. RH 3703	1737	2000	1869	143	23.5	3	23	50	76	55.2
Seeds 2000 Bigfoot	1709	1790	1749	141	22.7	3	16	46	78	60.8
Interstate IS X89008	1589	--	--	141	22.8	5	19	49	79	57.7
Triumph Seed 765C	1511	1846	1679	142	21.9	2	27	62	84	55.4
Triumph Seed 766CRT	1487	1856	1672	148	22.6	2	20	52	79	58.3
USDA 924 (check)	1486	1904	1695	142	22.2	2	18	44	79	58.3
Proseed 9802	1469	1746	1608	150	23.7	6	14	37	69	60.6
Agway Inc. EXP-991	1424	--	--	142	23.8	6	14	41	74	56.6
Seeds 2000 X3985	1401	--	--	145	21.7	4	24	54	84	54.9
Interstate IS 8048	1385	--	--	142	23.4	1	29	62	85	52.8
Agway Inc. EXP-002	1350	--	--	152	23.5	0	17	41	71	56.5
USDA 924 (check)	1349	1904	1627	149	22.8	1	9	36	70	61.3
Sigco Sun Products EXP-3228	1339	--	--	141	23.0	4	20	49	74	58.4
Agway Inc. RH 3733	1300	1960	1630	143	23.5	1	12	37	70	58.8
Agway Inc. EXP-001	1233	--	--	144	23.0	2	27	57	79	54.9
Sigco Sun Products EXP-3993	1219	--	--	170	23.2	4	24	52	78	55.1
Sigco Sun Products SS-62	1197	--	--	147	23.4	2	14	44	75	55.3
Grand Mean	1423	1816	1619	146	23.0	3	19	48	77	57.1
LSD 5%	ns	ns		9	ns	ns	11	12	7	3.3
C.V.	16.6	16.6		4.6	5.8	101.3	40.3	17.6	6.5	4.1

Planted May 30, 2000.

Harvested Oct. 10, 2000.

Design: Nearest neighbors in RCBD layout with 4 replications.

**Table 10. Results of the 2000 non-oil sunflower hybrid trial averaged over Dakota Lakes and Pukwana.**

Sunflower Brand-Hybrid	Seed Yield	Plant Height	Test Weight	Lodgng %	% Over Screen			Nut- meat %
					22/64	20/64	18/64	
Interstate IS X89008	1664	154	24.3	7	20	49	77	60.0
Agway Inc. RH 3703	1635	154	24.4	4	28	56	78	56.2
Proseed 9802	1517	160	24.6	9	19	41	70	61.0
USDA 924 (check)	1499	157	24.2	6	15	46	75	60.6
Sigco Sun Products EXP-3228	1458	150	24.6	6	20	50	72	58.3
Sigco Sun Products SS-62	1446	150	24.5	3	17	43	72	56.8
Interstate IS 8048	1400	151	24.2	3	39	69	87	54.2
Agway Inc. RH 3733	1364	158	24.2	1	23	51	77	57.7
Sigco Sun Products EXP-3993	1318	179	23.9	5	30	56	78	54.7
USDA 924 (check)	1290	155	24.2	4	19	44	73	59.1
Agway Inc. EXP-991	1276	154	25.0	5	27	53	76	57.9
Agway Inc. EXP-002	1244	170	24.5	1	20	49	75	56.6
Agway Inc. EXP-001	1087	153	24.2	1	31	59	82	56.3
Grand Mean	1400	157	24.4	4	24	51	76	57.6
LSD 5%	ns	11	ns	ns	12	ns	ns	3.1
C.V.	19.1	4.9	4.8	106.9	43.3	21.6	12.4	4.6

**Table 11. NSA NuSun Show Field, Gettysburg, SD, 2000.**

COMPANY	HYBRID	YIELD LB/AC	YIELD RANK	OIL %	Oleic %	DAYS TO MAT	MOIST %
<b>NuSun Hybrids</b>							
Cargill Hybrid Seeds	SF 125NL	2298	34	46.7	60.37	M	7.2
Cargill Hybrid Seeds	SF 290NL	2758	1	46.2	59.75	ML	8.5
Croplan	CL 320	2423	20	45.8	57.37	ME	7.0
Croplan	CL 322	1981	54	47.0	65.31	E	7.0
Croplan	CL 345	2431	19	48.9	60.88	ML	7.2
Croplan	CL 380	2298	35	47.4	61.38	L	7.5
Croplan	CL 385	2408	21	46.9	67.83	ML	9.2
Dekalb Genetics	DK 3872 NS	2155	47	50.2	50.81	ML	7.1
Dekalb Genetics	EX 9915	2580	5	49.1	61.73	M	9.0
Dekalb Genetics	EX 9917	2238	39	47.7	75.10	ML	7.5
Dekalb Genetics	DKF 36-40	2076	51	45.3	61.25	ME	7.3
Dekalb Genetics	DKF 31-01	2146	49	47.8	58.01	M	6.9
Dekalb Genetics	DKF 29-99	2127	50	49.4	56.28	M	6.9
Integra Seed	541	2332	31	46.2	78.28	ML	8.9
Integra Seed	544	2433	18	44.2	73.17	M	8.1
Integra Seed	548	2348	28	47.9	47.24	L	9.0
Integra Seed	550	2565	7	45.6	69.17	ML	11.2
Interstate Payco	Hysun 530	2450	15	47.8	69.28	E	7.9
Interstate Payco	982727	2690	2	44.9	75.55	ML	9.7
Interstate Payco	Hysun 450	2676	3	44.5	67.57	L	10.2
Interstate Payco	97136	2344	30	48.7	65.94	M	9.8
Interstate Payco	982802	2479	11	46.2	71.13	M	8.2
Interstate Payco	90161	2381	24	46.6	57.85	M	8.3
Mycogen	NS 8488	2222	43	48.1	57.93	M	7.9
Mycogen	NS 8377	2251	37	49.7	72.11	ML	7.0
Mycogen	NS 80551	2245	38	48.3	70.89	ME	7.9
Mycogen	X 80356	2438	17	44.6	50.86	ME	7.3
Mycogen	X 80357	2367	27	48.8	63.33	L	7.1
Mycogen	X 80454	2647	4	48.4	55.19	L	8.3
Novartis Seeds	NX 16755	2051	53	47.2	47.33	M	7.8
Novartis Seeds	NX 16756	2225	42	46.4	37.88	M	8.2
Novartis Seeds	NX 30002	2282	36	45.5	59.58	ME	8.2
Pioneer Hi-Bred	63M80	2554	8	47.4	59.31	M	7.6
Pioneer Hi-Bred	63M91	2441	16	47.3	65.17	ME	7.9
Pioneer Hi-Bred	XF 4949	2347	29	47.9	86.92	ML	7.7
Pioneer Hi-Bred	XF 4950	2310	33	48.8	85.00	ML	7.7
Pioneer Hi-Bred	XF 4951	2393	23	47.9	79.63	M	7.7
Pioneer Hi-Bred	XF 3925	2236	40	48.0	63.31	ME	7.6
Proseed Inc	EX 9605	2394	22	47.5	62.83	ME	6.8
Proseed Inc	EX 9155	2376	25	47.1	69.37	M	7.1
Proseed Inc	9123	2229	41	48.7	40.83	L	7.9
Proseed Inc	9103	2198	45	47.2	71.11	M	6.4
Proseed Inc	EXC 9802	2065	52	39.6	62.47	ME	17.1
Seeds 2000	Bronco	2476	12	47.7	68.29	ML	10.0

**Table 11 (continued).**

COMPANY	HYBRID	YIELD LB/AC	YIELD RANK	OIL %	Oleic %	DAYS TO MAT	MOIST %
Seeds 2000	Mavrick	2203	44	48.7	70.89	ME	7.6
Seeds 2000	Mustang	2151	48	48.6	68.85	ME	6.9
Seeds 2000	Ranger	2325	32	48.2	67.47	ME	7.4
Seeds 2000	X 476	2469	13	48.6	64.38	ML	8.7
Seeds 2000	X 696	2370	26	45.2	63.47	ML	8.7
<b>Traditional Hybrids</b>							
Cargill Hybrid Seeds	C 187	2513	10	46.7	21.11	M	7.0
Dekalb Genetics	3790	2192	46	50.1	23.97	M	6.9
Interstate Payco	IS 4049	2569	6	49.0	19.45	ML	7.1
Mycogen Seeds	MY 8372	2521	9	52.3	23.70	ML	6.7
Pioneer HI-Bred	P 63A81	2465	14	48.6	20.01	M	6.8
	EXP MEAN	2353					8.1
	C.V. %	10					18.0
	LSD 5%	386					2.3

Planted June 6, 2000.

Trial was sponsored by the National Sunflower Association. Planted and harvested by Dakota Crop Services. Data compiled by Dr. Jerry Miller, USDA-ARS.

**Table 12. USDA NuSun hybrid sunflower yield trial, Gettysburg, SD, 2000.**

COMPANY	HYBRID	YIELD LB/AC	YIELD RANK	OIL %	% Oleic	DAYS		MOIST %
						TO FLW	HT. IN.	
<b>NuSun Hybrids</b>								
Agripro	Hysun 530	1602	46	48.6	60.13	65	64	6.2
Cargill Hybrid Seeds	SF 125NL	1819	40	48.8	61.12	66	72	4.1
Cargill Hybrid Seeds	SF 290NL	2317	13	49.6	59.78	68	64	5.6
Croplan	CL 322	2054	31	48.6	69.07	66	63	5.6
Croplan	CL 345	2118	29	49.9	62.84	66	73	5.4
Croplan	CL 380	2453	7	48.5	51.53	67	72	6.5
Croplan	CL 385	2788	3	48.2	61.93	72	66	7.7
Dekalb Genetics	DKF 29-99 NS	1900	38	50.2	58.67	66	64	5.2
Dekalb Genetics	DKF 31-01 NS	2416	8	47.7	55.65	66	69	6.3
Dekalb Genetics	DKF 36-40 NS	2199	24	46.9	55.65	67	68	5.6
Dekalb Genetics	DKE 9910 NS	1719	43	47.0	60.84	64	67	4.4
Dekalb Genetics	DKE 9915 NS	1946	35	48.8	70.28	68	69	5.4
Dekalb Genetics	DKE 9917 NS	2190	25	48.5	56.49	65	72	5.6
Dekalb Genetics	DKE 9918 NS	2290	15	49.5	48.18	64	71	6.0
Integra Seed	Int 550	2251	20	47.5	65.65	71	66	7.6
Interstate Payco	Hysun 450	2716	4	47.1	61.30	71	65	7.6
Interstate Payco	982790 NS	1810	41	49.2	67.83	68	64	5.3
Interstate Payco	971136 NS	2969	2	47.9	61.99	68	69	7.4
Interstate Payco	982802 NS	1906	37	48.5	61.85	69	64	5.0
Legend Seeds	LSF 142 N	2509	6	47.6	65.69	71	66	7.3
Mycogen	8377 NS	2263	18	50.0	58.63	66	73	5.8
Mycogen	8488 NS	2281	16	49.1	55.58	67	71	6.8
Novartis Seeds	NX 16755	2263	19	48.6	34.69	68	67	7.0
Novartis Seeds	NX 16756	2344	12	47.6	43.04	67	70	6.0
Novartis Seeds	NX 30002	2375	10	49.3	69.10	66	65	5.8
Pioneer Hi-Bred	63M80	1991	33	50.4	61.13	67	65	5.3
Pioneer Hi-Bred	63M91	1746	42	49.1	51.08	66	70	4.6
Pioneer Hi-Bred	XF 3925	1891	39	49.3	62.23	68	65	5.2
Proseed Inc	9103	1592	47	49.2	75.95	69	70	5.0
Proseed Inc	9123	2416	9	48.6	51.68	68	69	6.8
Proseed Inc	9405	2371	11	50.4	70.43	67	68	6.4
Proseed Inc	9155	2208	22	48.5	74.43	68	64	6.7
Proseed Inc	9620	1674	44	46.0	64.94	66	65	4.7
Seeds 2000	Mustang	1991	34	48.1	68.66	65	67	5.6
Seeds 2000	Mavrick	2236	21	47.3	75.67	66	68	6.6
Seeds 2000	Bronco	3177	1	47.2	66.84	70	66	7.5
Seeds 2000	Ranger	2149	27	48.5	57.87	65	64	5.1
Seeds 2000	X 476	2281	17	49.4	60.33	70	62	7.1
Triumph Seed Co.	652	2561	5	46.9	53.52	69	72	7.1
Triumph Seed Co.	TRX 9443	2127	28	50.5	57.39	70	71	5.7
Triumph Seed Co.	TRX 0342	2109	30	50.1	69.63	69	71	4.6
Triumph Seed Co.	TRX 0448	1928	36	51.1	59.85	69	72	5.3

**Table 12 (continued).**

COMPANY	HYBRID	YIELD LB/AC	YIELD RANK	OIL %	% Oleic	DAYS		MOIST %
						TO FLW	HT. IN.	
<b>Traditional Hybrids</b>								
Pioneer Hi-Bred	63A81	1647	45	50.2	19.95	69	64	4.6
Interstate Payco	4049	2308	14	49.4	20.57	68	70	5.9
Dekalb Genetics	3790	2000	32	50.6	25.55	66	64	5.1
Cargill Hybrid Seeds	SF 187	2186	26	48.2	20.94	69	60	6.2
Mycogen Seeds	8372	2203	23	51.9	23.65	67	66	6.2
	EXP MEAN	2176		48.7		68	67	5.9
	C.V. %	17		2.2		1	3	20.2
	LSD 5%	609		1.8		2	4	1.9

Planted May , 2000. Harvested October , 2000.

Yield is reported at 10% moisture.

Oil % adjusted for oleic acid content and determined on a 10% moisture basis.