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Sunflower: 2004 South Dakota Hybrid Performance Trials

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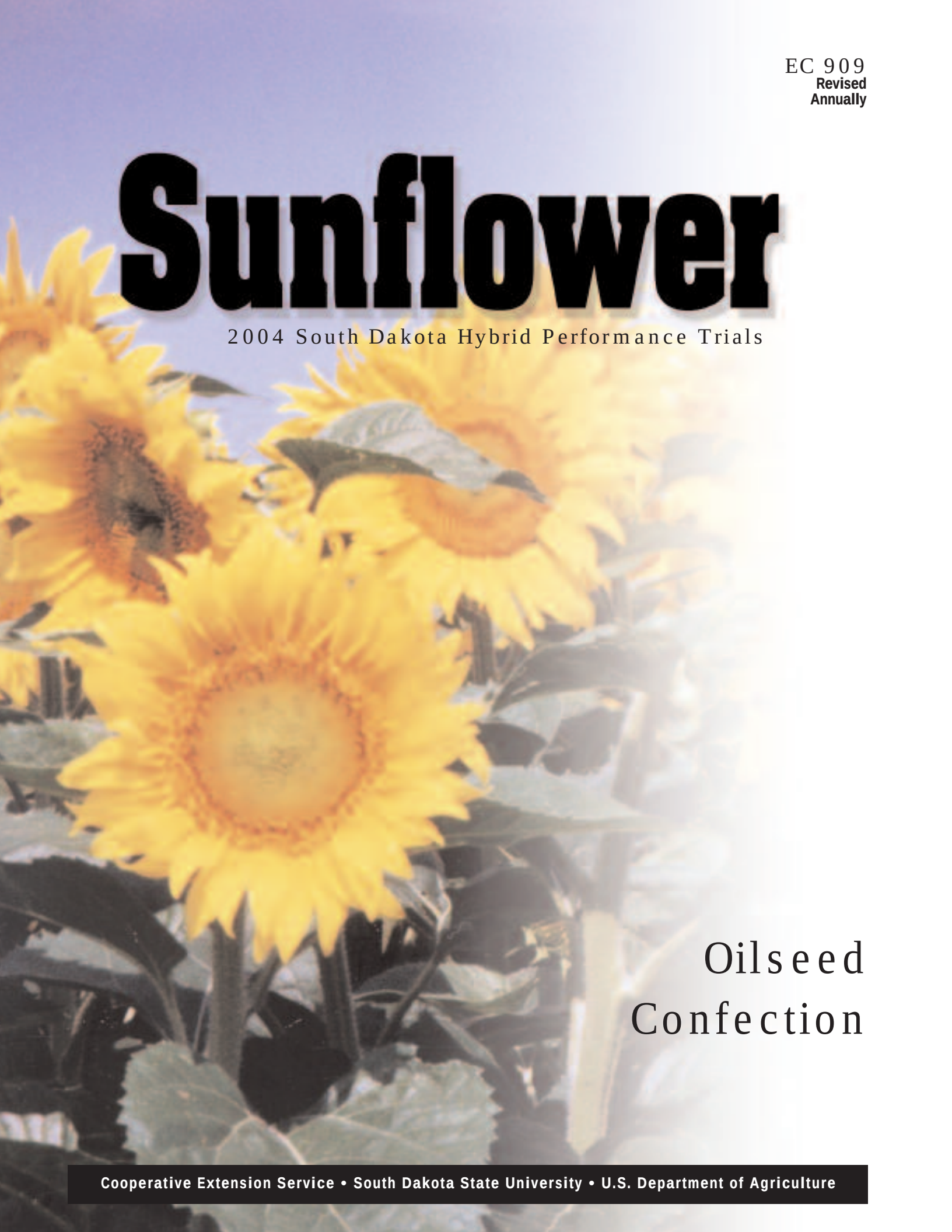
Sunflower

2004 South Dakota Hybrid Performance Trials



Oilseed
Confection

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Sunflower

2004 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 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 6) could be repeated in 2005 exactly as it was in 2004, the yield ranking of a hybrid that yielded 2,806 lb/A and one that yielded 2,583 lb/A might change places since their yield difference (223 lb/A) is less than the indicated yield LSD value of 441 lb/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 Miller in 2004. In contrast, a hybrid that yielded 2,316 lb/A at Miller in 2004 would likely be lower yielding than one that yielded 2,806 lb/A if the two hybrids were grown again under similar conditions, because the difference between them in 2004 (2806 – 2316 = 490 lb/A) exceeded the LSD value (441 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 and is 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 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 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 more than early hybrids.

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

Moisture Content

Harvesting sunflower at moisture contents as high as 20–25% may reduce bird damage and seed shattering loss during harvest. 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 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.

2004 Trial Procedures

Locations and Hybrids

Oilseed hybrid sunflower trials were planted at four locations in South Dakota (Ipswich, Kennebec, Miller, and Onida). Entries in the oilseed sunflower trials included traditional oil hybrids (linoleic) and NuSun (mid-oleic) hybrids. Non-oilseed (confection) sunflower trials were conducted at Kennebec, Miller, and Onida. Trial sites are indicated in Figure 1. Lists of hybrids planted at each site appear in Tables 2 and 3.

Climatic Conditions

A summary of 2004 climatic conditions near the sunflower test sites is presented in Table 1. The 2004 growing season (June–August) was cooler than normal at all locations. Moisture at planting was adequate for stand establishment. Precipitation was near to above normal in May, June, and September at all sites. Kennebec and Ipswich were drier than normal in August, but Miller and Onida were wetter than average. Most of the state received a killing frost during the first week of October, although lighter frosts in August and September damaged leaf tissue.

Experimental Methods

Plots at all locations consisted of four rows 23 or 24 feet long and spaced 30 inches apart. The center two rows of each plot were harvested. The plot layout was 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 (Crop Science 34: 62–66).

All plots were overseeded and thinned. Oilseed plots were thinned to a plant population of approximately 18,000 plants/acre. Confection plots at all locations were thinned to 16,000 plants/acre. Stands were fair to good at all locations except the first replication at Ipswich, where most of two ranges of the test was drowned out, and the first replication at Kennebec, where stands were poor for unknown reasons. Data from the first replication at both Ipswich and Kennebec were excluded from all statistical analyses.

Some individual hybrids had poor stands at all locations due to dormant seed. Some of the hybrids entered in the trials had seed that was pre-treated with Cruiser insecticide, while some were not. There was no major flea-beetle damage at any of the test sites.

The Kennebec and Onida trials were seeded no-till. Miller and Ipswich were planted with conventional tillage practices. Spartan herbicide was applied for weed control at Kennebec and Onida. Sonalan or Treflan were applied at all other locations.

Flowering was recorded at Onida as the number of days from planting to 50% ray petals extended. Maturity at Onida was recorded as the number of days from planting to physiological maturity (backs of heads yellow and bracts turning brown). Plant height and lodging notes were taken at all locations immediately before harvest. Lodging was light to moderate at Kennebec, Miller, and Ipswich, and moderate to severe at Onida. Plots at Ipswich and Kennebec had moderate bird damage.

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 sub-sample 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 4-8 (oilseed) and 9-12 (confection). The yield of 60 oilseed hybrids grown at Ipswich and Onida averaged 1,274 and 1,743 lb/A, respectively. Fifty-six hybrids grown at Kennebec averaged 1,615 lb/A, while 54 hybrids yielded an average of 2,151 lb/A at Miller. Confection seed yields averaged 1,599 lb/A at Kennebec, 1,843 lb/A at Miller, and 1,705 lb/A at Onida. In the tables that follow, hybrids are listed alphabetically according to 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.

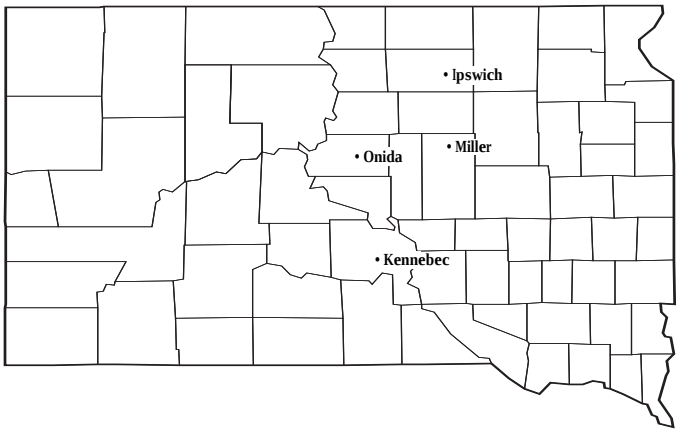

Figure 1. 2004 South Dakota sunflower trial locations.

Table 1. Climate summary for nearest weather stations to 2004 South Dakota sunflower test sites and departures from normal.

LOCATION-MONTH	2004 TEMPERATURE AVG MAX. °F	2004 TEMPERATURE AVG MIN. °F	2004 TEMPERATURE MEAN °F	TOTAL PRECIP IN.	DEPARTURE FROM NORMAL^ MAX TEMP °F	DEPARTURE FROM NORMAL^ MIN TEMP °F	DEPARTURE FROM NORMAL^ AVG TEMP °F	DEPARTURE FROM NORMAL^ PRECIP IN.
Kennebec*								
May	75.1	46.6	60.8	2.60	1.1	0.5	0.7	-0.4
June	79.2	51.6	65.4	4.52	-4.6	-4.4	-4.5	1.5
July	89.6	60.8	75.2	1.83	-1.2	-0.7	-1.0	-1.0
August	85.5	55.1	70.3	1.58	-4.1	-4.8	-4.5	-0.4
September	82.1	53.4	67.8	3.98	2.1	4.5	3.3	2.6
October	66.2	39.1	52.6	3.32	1.0	2.7	1.8	1.8
Ipswich*								
May	65.9	41.8	53.9	3.62	-3.9	0.5	-1.7	0.9
June	73.6	49.5	61.5	2.89	-4.9	-1.6	-3.3	-0.6
July	79.3	56.6	68.0	3.61	-5.4	0.5	-2.4	0.6
August	75.9	51.2	63.5	1.54	-7.1	-2.4	-4.8	-0.7
September	73.7	49.0	61.3	3.39	0.7	6.0	3.3	1.8
October	58.9	34.4	46.6	1.00	-0.6	3.1	1.2	-0.5
Miller*								
May	67.7	43.5	55.6	3.06	-0.7	-2.0	-1.4	-0.1
June	74.8	50.1	62.5	4.63	-3.4	-5.2	-4.3	1.7
July	82.2	58.9	70.5	5.19	-2.9	-1.7	-2.4	2.6
August	77.8	54.1	65.9	2.98	-5.9	-3.7	-4.9	1.0
September	77.6	51.9	64.8	4.46	3.5	4.4	4.0	2.7
October	60.4	37.5	49.0	3.80	-0.3	2.6	1.2	2.0
Onida 4 NW*								
May	71.2	44.3	57.7	3.70	0.8	0.0	0.3	0.9
June	75.6	49.5	62.6	3.22	-4.6	-4.1	-4.4	0.1
July	84.3	57.9	71.1	2.71	-3.3	-0.9	-2.1	0.0
August	79.6	53.5	66.5	3.50	-6.2	-3.5	-4.9	1.4
September	76.5	50.8	63.7	3.50	0.5	4.5	2.5	2.0
October	62.1	37.0	49.6	2.84	0.9	2.5	1.7	1.3

* 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 2004 observations to 30-yr averages (1971-2000) for each site.

Table 2. Hybrids tested in the 2004 South Dakota oilseed hybrid sunflower trials.

Brand	Hybrid	Type	Ipswich	Ken-nebec	Miller	Onida
Croplan Genetics	340	High Oleic	X			
Croplan Genetics	345	NuSun	X		X	X
Croplan Genetics	380	NuSun	X	X	X	
Croplan Genetics	385	NuSun	X	X	X	X
Croplan Genetics	3080 DMR	NuSun	X		X	
Croplan Genetics	544 CL	NuSun	X	X		
Dahlgren & Co.	4421	NuSun	X		X	X
Dekalb	DKF30-33NS	NuSun	X	X	X	X
Dekalb	DKF33-33NS	NuSun	X	X	X	X
Dekalb	DKF38-30NS	NuSun	X	X	X	X
Dekalb	DKF38-80CL	Trad.	X	X	X	X
Dekalb	EXP35-10NS	NuSun	X	X	X	X
Dekalb	MH4231	NuSun	X	X	X	X
Dekalb	MH4233	NuSun	X	X	X	X
Dekalb	MH4433	NuSun	X	X	X	X
DenBesten Seed	DB 764	Trad.		X	X	X
DenBesten Seed	DB 845NS	NuSun	X	X	X	X
DenBesten Seed	DB 848NS	NuSun	X	X	X	X
Fontanelle Hybrids	920NS	NuSun		X		X
Garst/Interstate	4049	Trad.	X	X	X	X
Garst/Interstate	4704NS (F10002)	NuSun	X	X	X	X
Garst/Interstate	F10016 NS	NuSun	X	X	X	X
Garst/Interstate	Hysun 424	NuSun	X	X	X	X
Garst/Interstate	Hysun 450	NuSun	X	X	X	X
Garst/Interstate	Hysun 454	NuSun	X	X	X	X
Garst/Interstate	Hysun 525	NuSun	X	X	X	X
Kaystar	8300	Trad.	X			
Kaystar	9404	Trad.	X	X	X	X
Kaystar	9501	Trad.		X	X	X
Kaystar	2020NS	NuSun		X		X
Kaystar	8330NS	NuSun	X			
Kaystar	XF4001	Trad.		X		X
Legend Seeds	LSF 119N	NuSun	X	X	X	X
Legend Seeds	LSF 121N	NuSun	X	X	X	X
Legend Seeds	LSF 126N	NuSun	X	X	X	X
Legend Seeds	LSF 142N	NuSun	X	X	X	X
Mycogen Seeds	8377NS	NuSun	X			X
Mycogen Seeds	8488NS	NuSun	X	X	X	X
Mycogen Seeds	8D310	NuSun	X	X	X	X
Mycogen Seeds	8N352	NuSun	X	X	X	X
Mycogen Seeds	8N421	NuSun	X	X	X	X
Mycogen Seeds	8N510	NuSun	X	X	X	X
Mycogen Seeds	SF187	Trad.	X	X	X	X
Pioneer	hybrid 63M80	NuSun	X	X	X	X
Pioneer	hybrid 63M91	NuSun	X	X	X	X
Producers Hybrids	EX10104	NuSun	X	X	X	X
Producers Hybrids	EX10204	NuSun	X	X	X	X
Producers Hybrids	SF7303	NuSun	X	X	X	X
Proseed	9405	NuSun	X	X	X	X
Proseed	9441	NuSun	X	X	X	X

Table 2. Hybrids tested in the 2004 South Dakota oilseed hybrid sunflower trials.

Brand	Hybrid	Type	Ipswich	Ken-nebec	Miller	Onida
Proseed	CL55-15	NuSun	X	X	X	X
Proseed	Exp 15	NuSun	X	X	X	X
Proseed	Exp T1	NuSun	X	X	X	X
Proseed	Exp T2	NuSun	X	X	X	X
Proseed	Exp T3	NuSun	X	X	X	X
Seeds 2000	Blazer	NuSun	X	X	X	X
Seeds 2000	Charger (X926)	NuSun (CL)	X	X	X	X
Seeds 2000	X978	NuSun (CL)	X	X	X	X
Triumph Seed	636	NuSun	X	X	X	X
Triumph Seed	645	NuSun	X	X	X	X
Triumph Seed	658	NuSun				X
Triumph Seed	665	NuSun				X
Triumph Seed	s667	NuSun	X	X		X
Triumph Seed	s675 (TRX2446)	NuSun	X	X	X	X
Triumph Seed	TRX4342CL	NuSun	X			
USDA	894 (check)	Trad.	X	X	X	X
USDA	cmsHA406/RHA373(chk)	Trad.	X			X
		Total hybrids	60	56	54	60

Table 3. Hybrids tested in the 2004 South Dakota confection hybrid sunflower trials.

Brand	Hybrid	Type	Ken-nebec	Miller	Onida
CHS Sunflower	04-EXP01	Confect.	X	X	X
CHS Sunflower	04-EXP02	Confect.	X	X	X
CHS Sunflower	RH 118	Confect.	X	X	X
Croplan Genetics	135	Confect.		X	
Dahlgren & Co.	9518	Confect.		X	X
Dahlgren & Co.	9530	Confect.		X	X
Garst/Interstate	8048	Confect.	X	X	X
Garst/Interstate	8089	Confect.	X	X	X
Mycogen Seeds	8C416	Confect.	X	X	X
Producers Hybrids	SF7203	Oilseed	X	X	X
Red River Commod.	RR 2214	Confect.			X
Red River Commod.	RR 2215	Confect.			X
Red River Commod.	RR 7015	Confect.			X
Seeds 2000	Grizzly	Confect.		X	X
Seeds 2000	X3670	Confect.		X	X
Sigco Sun Products	Goliath RT	Confect.	X	X	X
Sigco Sun Products	SS3638	Confect.		X	X
Sigco Sun Products	SS3938	Confect.		X	X
Triumph Seed	707CLS	Confect.		X	
Triumph Seed	757C	Confect.		X	
USDA	924 (check)	Confect.	X	X	X
	Total hybrids		9	18	18

Table 4. Oilseed sunflower hybrid yield trial, Ipswich, SD - 2004.

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A) 2004	2003	2-yr	Oil %	Plant Hght cm	Lodg %	Harv. Moist. %	Test Wt. lb/bu	Pop. 1000pl /A
Croplan Genetics 340	HO	1242	--	--	39.8	151	0	18.3	25.9	18.2
Croplan Genetics 345	NuSun	1473	2332	1903	42.6	165	0	14.3	29.0	18.2
Croplan Genetics 380	NuSun	1351	--	--	39.8	165	6	16.5	28.6	18.2
Croplan Genetics 385	NuSun	969	2396	1683	38.9	143	8	20.3	28.8	18.2
Croplan Genetics 3080 DMR	NuSun	1474	--	--	41.1	159	3	16.5	27.8	16.7
Croplan Genetics 544 CL	NuSun	1757	--	--	39.0	168	7	15.6	27.0	18.2
Dahlgren & Co. 4421	NuSun	1433	--	--	36.6	157	0	15.5	26.6	18.2
Dekalb DKF30-33NS	NuSun	1212	2238	1725	39.3	162	6	18.0	28.3	18.2
Dekalb DKF33-33NS	NuSun	920	2453	1686	39.4	154	3	16.4	26.8	18.2
Dekalb DKF38-30NS	NuSun	1356	2053	1704	40.2	156	3	16.6	26.5	18.2
Dekalb DKF38-80CL	Trad.	1360	2399	1879	40.1	151	0	15.8	26.7	18.2
Dekalb EXP35-10NS	NuSun	1102	--	--	39.1	159	0	17.7	27.3	18.2
Dekalb MH4231	NuSun	1410	--	--	40.2	161	0	14.7	28.3	18.2
Dekalb MH4233	NuSun	1523	--	--	40.8	153	1	17.0	27.4	18.2
Dekalb MH4433	NuSun	1106	--	--	39.0	155	20	22.2	26.8	18.2
DenBesten Seed DB 845NS	NuSun	1414	--	--	40.8	169	2	17.6	27.9	17.6
DenBesten Seed DB 848NS	NuSun	1799	--	--	39.9	161	4	14.9	27.1	18.2
Garst/Interstate 4049	Trad.	1348	2257	1803	41.3	171	5	15.7	28.5	18.2
Garst/Interstate 4704NS	NuSun	1160	--	--	37.5	141	0	17.9	25.6	18.2
Garst/Interstate F10016 NS	NuSun	875	--	--	39.6	138	0	21.3	26.5	18.2
Garst/Interstate Hysun 424	NuSun	887	--	--	39.0	158	10	21.5	25.3	18.2
Garst/Interstate Hysun 450	NuSun	1078	1630	1354	38.4	142	5	21.9	27.4	14.6
Garst/Interstate Hysun 454	NuSun	1304	--	--	39.3	167	3	18.7	28.4	18.2
Garst/Interstate Hysun 525	NuSun	1074	--	--	39.4	156	4	14.3	27.8	18.2
Kaystar 8300	Trad.	840	--	--	41.4	151	13	19.5	25.7	15.5
Kaystar 9404	Trad.	1239	--	--	39.6	165	5	13.4	27.2	18.2
Kaystar 8330NS	NuSun	963	2331	1647	38.9	141	0	18.8	26.6	16.7
Legend Seeds LSF 119N	NuSun	797	1803	1300	38.5	153	21	18.6	24.7	16.4
Legend Seeds LSF 121N	NuSun	1456	--	--	38.2	137	4	19.7	26.0	18.2
Legend Seeds LSF 126N	NuSun	1219	2212	1716	40.0	147	6	18.5	27.6	18.2
Legend Seeds LSF 142N	NuSun	1352	2156	1754	40.1	159	19	17.0	27.8	16.7
Mycogen Seeds 8377NS	NuSun	1630	2278	1954	40.6	153	4	18.3	27.7	18.2
Mycogen Seeds 8488NS	NuSun	1588	2004	1796	40.0	161	5	18.7	27.7	18.2
Mycogen Seeds 8D310	NuSun	1533	--	--	38.4	165	1	14.8	26.4	18.2
Mycogen Seeds 8N352	NuSun	1690	--	--	42.5	164	9	17.6	27.9	15.8
Mycogen Seeds 8N421	NuSun	1170	2278	1724	40.3	167	2	16.5	27.0	18.2
Mycogen Seeds 8N510	NuSun	1777	--	--	39.9	160	0	19.7	27.7	18.2
Mycogen Seeds SF187	Trad.	1277	1879	1578	39.9	142	2	16.3	27.7	18.2
Pioneer hybrid 63M80	NuSun	942	2224	1583	39.6	155	9	18.1	25.8	18.2
Pioneer hybrid 63M91	NuSun	1299	1747	1523	39.3	177	6	18.7	28.0	18.2
Producers Hybrids EX10104	NuSun	1043	--	--	39.2	172	13	17.0	28.1	16.7
Producers Hybrids EX10204	NuSun	1497	--	--	38.7	153	2	17.7	28.3	18.2
Producers Hybrids SF7303	NuSun	1527	--	--	39.2	138	0	20.8	27.0	15.5
Proseed 9405	NuSun	1372	1865	1619	40.8	153	6	21.1	25.7	18.2
Proseed 9441	NuSun	1048	2532	1790	39.3	149	0	19.0	26.3	15.5
Proseed CL55-15	NuSun	1454	1915	1684	39.0	144	5	16.7	28.0	14.6
Proseed Exp 15	NuSun	1220	1501	1361	40.2	157	16	17.2	26.8	18.2
Proseed Exp T1	NuSun	1351	--	--	40.9	145	6	19.9	24.3	18.2
Proseed Exp T2	NuSun	1030	--	--	40.1	161	42	21.4	25.1	18.2

Proseed Exp T3	NuSun	751	--	--	39.9	157	0	16.8	26.9	13.7
Seeds 2000 Blazer	NuSun	1465	2164	1814	40.8	159	0	16.9	26.4	18.2
Seeds 2000 Charger (X926)	NuSun	1099	1466	1283	39.7	165	3	14.7	25.9	18.2
Seeds 2000 X978	NuSun	1439	--	--	40.1	174	0	18.9	27.4	16.7
Triumph Seed 636	NuSun	997	--	--	40.1	147	48	21.8	24.9	18.2
Triumph Seed 645	NuSun	1382	--	--	41.7	162	18	18.6	26.9	18.2
Triumph Seed s667	NuSun	1418	2122	1770	41.1	123	10	19.6	27.0	15.5
Triumph Seed s675	NuSun	1413	--	--	40.6	108	11	18.8	26.3	18.2
Triumph Seed TRX4342CL	NuSun	1103	--	--	40.2	162	6	18.2	26.1	17.0
USDA 894 (check)	Trad.	1018	1555	1287	41.5	151	23	16.8	27.6	18.2
cmsHA406/RHA373 (chk)	Trad.	1395	1706	1550	40.7	155	19	19.8	27.2	15.3
Grand mean		1274	2074	1674	39.9	155	6	17.9	27.0	17.6
LSD 5%		391	592		1.3	13	11	2.5	2.0	ns
C.V.		19.0	17.6		2.0	5.4	109.6	8.7	4.5	10.3

Planted May 28, 2004. Harvested October 13, 2004.
Yield and oil % are reported at 10% moisture. Oil % is adjusted for oleic acid content.
Cooperator: Mark Volk, Ipswich, SD.

Table 5. Oilseed sunflower hybrid yield trial, Kennebec, SD - 2004.

Sunflower Brand-Hybrid	Type	Seed Yield lbs/A	Oil %	Plant Hght cm	Lodg %	Harv. Moist. %	Test Wt. lb/bu	Pop. 1000pl /A
Croplan Genetics 380	NuSun	2016	39.2	163	4	12.2	28.4	18.2
Croplan Genetics 385	NuSun	1854	40.6	148	3	12.8	26.2	18.2
Croplan Genetics 544 CL	NuSun	1383	40.0	165	5	12.5	27.9	17.9
Dekalb DKF30-33NS	NuSun	1553	38.4	161	3	14.6	28.0	14.5
Dekalb DKF33-33NS	NuSun	1564	38.0	157	2	13.0	27.1	15.7
Dekalb DKF38-30NS	NuSun	1729	40.2	161	8	13.4	26.6	18.2
Dekalb DKF38-80CL	Trad.	1872	40.7	149	2	12.5	27.5	17.9
Dekalb EXP35-10NS	NuSun	1469	39.8	163	2	12.4	26.5	16.7
Dekalb MH4231	NuSun	1846	40.1	159	0	13.0	28.1	18.2
Dekalb MH4233	NuSun	1676	41.0	152	5	12.9	27.7	17.6
Dekalb MH4433	NuSun	1067	41.6	165	2	12.5	27.4	18.2
DenBesten Seed DB 764	Trad.	2114	39.7	166	3	12.8	27.3	18.2
DenBesten Seed DB 845NS	NuSun	1940	40.5	163	3	12.5	28.5	17.6
DenBesten Seed DB 848NS	NuSun	1408	41.7	169	0	12.2	26.9	17.0
Fontanelle 920NS	NuSun	1707	41.3	163	6	12.7	26.3	18.2
Garst/Interstate 4049	Trad.	2018	40.6	169	0	12.0	26.8	16.7
Garst/Interstate 4704NS	NuSun	1260	38.7	152	1	12.7	24.7	17.9
Garst/Interstate F10016 NS	NuSun	1433	39.4	134	2	12.8	26.4	15.4
Garst/Interstate Hysun 424	NuSun	1577	39.0	155	6	12.4	26.9	14.6
Garst/Interstate Hysun 450	NuSun	1695	38.9	147	1	12.9	26.9	14.5
Garst/Interstate Hysun 454	NuSun	1611	40.1	164	6	12.5	27.7	18.2
Garst/Interstate Hysun 525	NuSun	1707	38.7	151	3	12.6	27.3	16.7
Kaystar 9404	Trad.	1721	40.0	158	0	12.2	27.7	17.3
Kaystar 9501	Trad.	1930	39.0	170	3	12.6	27.9	18.2
Kaystar 2020NS	NuSun	1889	39.8	152	9	12.9	27.6	18.2
Kaystar XF4001	Trad.	1338	39.9	154	6	12.5	27.2	18.2
Legend Seeds LSF 119N	NuSun	1489	38.9	160	2	12.5	26.0	16.7
Legend Seeds LSF 121N	NuSun	825	39.8	150	2	12.1	27.4	18.2
Legend Seeds LSF 126N	NuSun	1580	37.6	160	0	12.4	27.7	16.7
Legend Seeds LSF 142N	NuSun	1611	39.5	144	8	12.9	25.5	16.0
Mycogen Seeds 8488NS	NuSun	2091	40.9	163	5	11.9	27.1	17.3
Mycogen Seeds 8D310	NuSun	1522	37.7	163	2	12.5	26.2	17.6
Mycogen Seeds 8N352	NuSun	1595	41.4	155	4	12.5	28.6	16.9
Mycogen Seeds 8N421	NuSun	2584	40.9	161	2	12.5	26.9	16.0
Mycogen Seeds 8N510	NuSun	2223	40.2	155	0	12.4	26.5	18.2
Mycogen Seeds SF187	Trad.	2015	40.3	145	4	12.6	28.4	18.2
Pioneer hybrid 63M80	NuSun	1659	40.1	162	1	12.7	26.7	17.9
Pioneer hybrid 63M91	NuSun	461	39.3	164	2	12.7	26.3	17.3
Producers Hybrids EX10104	NuSun	1764	38.9	161	5	12.5	26.8	17.3
Producers Hybrids EX10204	NuSun	1096	38.5	136	0	12.9	29.0	17.3
Producers Hybrids SF7303	NuSun	2041	39.5	147	5	12.7	26.2	17.9
Proseed 9405	NuSun	1464	39.9	150	1	13.1	25.6	16.9
Proseed 9441	NuSun	1633	40.3	171	1	12.7	28.2	16.9
Proseed CL55-15	NuSun	794	38.9	149	4	12.4	24.9	18.2
Proseed Exp 15	NuSun	1352	39.8	158	4	12.4	26.9	17.3
Proseed Exp T1	NuSun	1845	40.8	154	7	12.6	25.9	17.6
Proseed Exp T2	NuSun	1283	40.4	163	2	13.1	24.8	14.9
Proseed Exp T3	NuSun	1419	39.7	168	2	12.8	26.8	16.7
Seeds 2000 Blazer	NuSun	1506	39.7	150	5	12.7	27.6	15.2
Seeds 2000 Charger (X926)	NuSun	1642	38.5	165	2	12.6	27.0	18.2
Seeds 2000 X978	NuSun	1864	41.0	165	0	12.6	28.8	18.2
Triumph Seed 636	NuSun	1425	39.9	159	3	12.5	26.9	18.2
Triumph Seed 645	NuSun	1722	41.7	161	1	12.9	26.9	17.9
Triumph Seed s667	NuSun	1598	42.0	125	10	12.5	26.7	18.2
Triumph Seed s675	NuSun	1480	43.2	109	5	12.9	27.5	18.2
USDA 894 (check)	Trad.	1506	41.6	160	7	12.5	27.7	16.7
Grand mean		1615	40.0	156	3	12.7	27.1	17.3
LSD 5%		406	1.4	10	ns	0.8	1.6	ns
C.V.		12.5	2.1	4.7	118.5	4.0	3.7	10.7

Planted June 2, 2004. Harvested October 18, 2004.
Yield and oil % are reported at 10% moisture. Oil % is adjusted for oleic acid content.
Cooperator: Carl Brakke, Presho, SD.

Table 6. Oilseed sunflower hybrid yield trial, Miller, SD - 2004.

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A) 2004	2003	2-yr	Oil %	Plant Hght cm	Lodg %	Harv. Moist. %	Test Wt. lb/bu	Pop. 1000pl /A
Croplan Genetics 345	NuSun	2347	1815	2081	40.1	141	0	12.9	28.3	18.2
Croplan Genetics 380	NuSun	2233	--	--	40.6	140	5	13.5	31.3	18.2
Croplan Genetics 385	NuSun	2367	1676	2022	41.8	130	8	14.2	29.0	18.2
Croplan Genetics 3080 DMR	NuSun	2060	--	--	41.6	136	6	11.7	28.1	18.2
Dahlgren & Co. 4421	NuSun	2300	--	--	39.6	138	4	12.9	29.4	18.2
Dekalb DKF30-33NS	NuSun	2583	1725	2154	40.2	129	1	13.0	30.5	18.0
Dekalb DKF33-33NS	NuSun	2012	1717	1865	40.7	139	15	12.2	30.1	18.2
Dekalb DKF38-30NS	NuSun	2399	1812	2106	41.6	141	1	13.7	30.1	18.2
Dekalb DKF38-80CL	Trad.	2031	1794	1912	42.3	137	10	13.1	28.9	17.1
Dekalb EXP35-10NS	NuSun	1992	--	--	41.0	143	3	13.7	29.6	18.2
Dekalb MH4231	NuSun	2533	--	--	41.6	135	7	12.9	28.7	18.2
Dekalb MH4233	NuSun	2207	--	--	40.7	139	7	12.7	29.3	18.2
Dekalb MH4433	NuSun	1829	--	--	41.5	141	10	13.4	29.7	18.2
DenBesten Seed DB 764	Trad.	2120	--	--	40.5	142	5	12.5	29.2	18.2
DenBesten Seed DB 845NS	NuSun	2238	--	--	42.5	143	4	12.7	29.8	16.6
DenBesten Seed DB 848NS	NuSun	2385	--	--	41.0	142	2	14.0	29.1	18.2
Garst/Interstate 4049	Trad.	2207	1812	2010	43.5	139	4	12.7	28.4	18.2
Garst/Interstate 4704NS	NuSun	2241	--	--	39.8	129	6	13.5	29.9	18.2
Garst/Interstate F10016 NS	NuSun	2226	--	--	41.2	128	3	13.4	29.2	17.7
Garst/Interstate Hysun 424	NuSun	1910	--	--	41.2	137	8	13.6	28.8	18.2
Garst/Interstate Hysun 450	NuSun	2146	1983	2065	40.3	122	6	14.5	29.7	18.2
Garst/Interstate Hysun 454	NuSun	2477	--	--	41.1	141	5	14.6	27.7	17.5
Garst/Interstate Hysun 525	NuSun	2115	--	--	40.7	126	5	12.7	29.4	18.2
Kaystar 9404	Trad.	2372	--	--	40.4	144	7	12.7	28.1	18.2
Kaystar 9501	Trad.	2168	2115	2141	41.2	140	6	13.7	29.3	18.2
Legend Seeds LSF 119N	NuSun	1278	1796	1537	40.6	127	17	14.3	28.5	18.2
Legend Seeds LSF 121N	NuSun	2256	--	--	41.0	126	6	13.0	29.1	18.2
Legend Seeds LSF 126N	NuSun	2020	1915	1968	39.1	124	3	13.4	29.0	18.2
Legend Seeds LSF 142N	NuSun	2734	2037	2385	42.3	131	3	14.9	28.6	18.2
Mycogen Seeds 8488NS	NuSun	2316	1617	1967	42.3	137	5	13.6	30.3	18.2
Mycogen Seeds 8D310	NuSun	2435	--	--	40.8	144	4	12.2	28.1	18.2
Mycogen Seeds 8N352	NuSun	1855	--	--	40.1	129	5	12.7	29.7	18.2
Mycogen Seeds 8N421	NuSun	2241	2049	2145	41.3	136	4	13.0	29.0	18.2
Mycogen Seeds 8N510	NuSun	2806	--	--	40.5	129	2	13.7	29.5	18.2
Mycogen Seeds SF187	Trad.	2293	2052	2173	42.1	112	2	13.5	28.7	18.2
Pioneer hybrid 63M80	NuSun	2161	2213	2187	41.8	132	6	12.8	28.4	18.2
Pioneer hybrid 63M91	NuSun	2264	1893	2078	41.6	138	6	13.7	29.2	18.2
Producers Hybrids EX10104	NuSun	1982	--	--	40.1	130	4	13.7	28.1	18.2
Producers Hybrids EX10204	NuSun	2194	--	--	40.3	121	8	13.5	30.4	17.7
Producers Hybrids SF7303	NuSun	2245	--	--	41.8	119	4	15.1	28.6	16.8
Proseed 9405	NuSun	2117	1819	1968	41.1	123	8	13.9	28.9	18.2
Proseed 9441	NuSun	1765	2229	1997	40.6	129	8	14.4	27.9	12.7
Proseed CL55-15	NuSun	1476	1562	1519	41.0	119	6	13.0	28.1	15.9
Proseed Exp 15	NuSun	2023	1563	1793	40.5	136	14	12.8	28.1	18.2
Proseed Exp T1	NuSun	2015	--	--	42.3	126	29	16.0	27.9	18.2
Proseed Exp T2	NuSun	1918	--	--	42.2	137	19	14.6	26.5	17.7
Proseed Exp T3	NuSun	1343	--	--	40.8	135	14	14.2	27.9	9.5
Seeds 2000 Blazer	NuSun	2338	1745	2042	41.4	117	5	13.0	28.3	18.2
Seeds 2000 Charger (X926)	NuSun	1895	1956	1925	40.5	140	5	12.9	28.9	18.2
Seeds 2000 X978	NuSun	2099	--	--	41.2	140	11	14.9	29.5	18.2
Triumph Seed 636	NuSun	1958	--	--	41.2	144	7	14.0	26.4	17.7
Triumph Seed 645	NuSun	2239	--	--	42.5	133	8	14.4	28.2	18.2
Triumph Seed s675	NuSun	2535	--	--	42.6	98	3	17.2	28.9	18.2
USDA 894 (check)	Trad.	1834	1387	1611	43.3	131	16	12.4	28.5	18.2
Grand mean		2151	1878	2015	41.2	133	7	13.5	28.9	17.8
LSD 5%		441	411		1.8	9	6	1.3	1.5	1.6
C.V.		14.7	15.7		3.1	5.1	62.7	7.0	3.7	6.5

Planted June 4, 2004. Harvested October 15, 2004.
Yield and oil % are reported at 10% moisture. Oil % is adjusted for oleic acid content.
Cooperator: Kelvin Grey, St. Lawrence, SD.

Table 7. Oilseed sunflower hybrid yield trial, Onida, SD - 2004.

Sunflower		Seed Yield (lbs/A)			Oil	Days to		Plant Hght	Lodg	Harv. Moist.	Test Wt.	Pop. 1000pl	Hulling Quality
Brand-Hybrid	Type	2004	2003	2-yr	%	Flwr	Mat.	cm	%	%	lb/bu	/A	Test
Croplan Genetics 345	NuSun	1947	1761	1854	41.6	69	112	161	0	16.8	26.7	18.2	NT
Croplan Genetics 385	NuSun	1959	1720	1840	41.6	77	121	149	3	19.3	25.9	18.2	NT
Dahlgren & Co. 4421	NuSun	2141	--	--	39.1	72	111	164	7	17.0	26.0	18.2	Excel.
Dekalb DKF30-33NS	NuSun	1624	1695	1659	40.4	72	117	157	8	17.0	25.8	18.2	Excel.
Dekalb DKF33-33NS	NuSun	1579	1390	1485	40.1	69	114	153	15	17.1	26.2	18.2	Excel.
Dekalb DKF38-30NS	NuSun	1927	2018	1972	40.4	76	120	157	20	19.7	26.4	18.2	Excel.
Dekalb DKF38-80CL	Trad.	1699	--	--	40.5	72	114	141	18	16.8	25.6	17.3	Excel.
Dekalb EXP35-10NS	NuSun	1545	--	--	40.8	72	118	155	0	17.6	26.0	18.2	Excel.
Dekalb MH4231	NuSun	1777	--	--	41.9	72	118	159	2	18.2	26.0	17.7	Excel.
Dekalb MH4233	NuSun	1808	--	--	42.7	71	118	158	0	17.9	25.7	18.2	Excel.
Dekalb MH4433	NuSun	1545	--	--	40.9	76	119	165	4	17.9	26.6	18.2	Excel.
DenBesten Seed DB 764	Trad.	1766	--	--	39.8	75	120	162	18	17.3	26.2	18.2	NT
DenBesten Seed DB 845NS	NuSun	2083	--	--	40.8	71	115	162	4	17.6	26.9	17.1	NT
DenBesten Seed DB 848NS	NuSun	2016	--	--	40.5	75	118	163	0	18.0	26.0	18.2	NT
Fontanelle 920NS	NuSun	1481	--	--	41.9	74	120	149	56	17.6	24.1	18.2	NT
Garst/Interstate 4049	Trad.	2037	--	--	42.2	74	116	167	7	17.0	25.0	18.2	NT
Garst/Interstate 4704NS	NuSun	1553	--	--	39.4	70	115	153	12	17.7	24.7	18.2	NT
Garst/Interstate F10016 NS	NuSun	1962	1776	1869	41.0	71	108	141	2	17.3	27.3	17.1	NT
Garst/Interstate Hysun 424	NuSun	2070	1628	1849	41.2	76	115	159	6	17.7	26.5	17.5	NT
Garst/Interstate Hysun 450	NuSun	2045	2006	2025	40.9	77	121	155	6	18.9	26.1	18.2	NT
Garst/Interstate Hysun 454	NuSun	1608		--	41.1	72	115	162	7	17.4	25.6	18.2	NT
Garst/Interstate Hysun 525	NuSun	2070	1299	1685	39.5	75	116	152	10	17.8	25.8	18.2	NT
Kaystar 9404	Trad.	1626	--	--	40.5	70	115	153	10	17.6	25.6	17.7	NT
Kaystar 9501	Trad.	2261	--	--	40.1	76	119	169	7	18.0	25.6	18.2	NT
Kaystar 2020NS	NuSun	1896	--	--	40.5	76	120	146	0	18.6	25.6	18.2	NT
Kaystar XF4001	Trad.	1553	--	--	41.0	73	118	153	26	17.3	26.3	18.2	NT
Legend Seeds LSF 119N	NuSun	1022	1782	1402	39.8	73	113	161	44	17.1	25.1	18.2	Excel.
Legend Seeds LSF 121N	NuSun	1473	--	--	39.8	72	115	151	15	16.9	25.5	17.3	NT
Legend Seeds LSF 126N	NuSun	1637	1334	1485	40.1	74	115	154	10	17.6	26.2	18.2	Excel.
Legend Seeds LSF 142N	NuSun	2265	1730	1997	41.1	77	119	157	8	18.0	25.8	18.2	NT
Mycogen Seeds 8377NS	NuSun	1827	2031	1929	41.5	70	113	165	5	16.8	26.2	18.2	NT
Mycogen Seeds 8488NS	NuSun	1985	1884	1934	40.9	74	122	163	2	17.8	25.8	18.2	NT
Mycogen Seeds 8D310	NuSun	1833	--	--	38.4	72	112	161	3	16.9	25.9	18.2	Excel.
Mycogen Seeds 8N352	NuSun	1797	--	--	42.4	73	123	159	16	17.9	26.0	18.2	NT
Mycogen Seeds 8N421	NuSun	2221	1826	2023	41.6	74	121	163	3	17.6	27.9	18.2	NT
Mycogen Seeds 8N510	NuSun	2082	--	--	40.2	77	122	162	9	18.4	25.6	18.0	NT
Mycogen Seeds SF187	Trad.	1983	2134	2058	39.9	73	113	157	9	17.9	25.2	18.2	Excel.
Pioneer hybrid 63M80	NuSun	1503	1827	1665	42.3	70	113	163	11	17.1	25.2	18.2	NT
Pioneer hybrid 63M91	NuSun	2220	1895	2057	41.0	69	113	167	10	17.2	26.8	18.2	NT
Producers Hybrids EX10104	NuSun	1372	--	--	39.6	73	117	160	15	18.0	25.4	18.2	NT
Producers Hybrids EX10204	NuSun	1919	--	--	40.7	68	114	153	19	17.5	26.7	18.2	NT
Producers Hybrids SF7303	NuSun	1978	--	--	41.1	77	119	148	3	19.9	26.2	18.2	NT
Proseed 9405	NuSun	1579	1917	1748	41.4	73	116	160	3	18.3	25.2	17.1	NT
Proseed 9441	NuSun	825	1780	1303	40.3	74	116	137	47	17.7	24.5	13.6	NT
Proseed CL55-15	NuSun	1250	1627	1439	39.6	72	112	135	51	18.3	24.9	18.2	NT
Proseed Exp 15	NuSun	1280	1610	1445	40.5	70	109	156	29	16.8	25.4	16.9	Excel.
Proseed Exp T1	NuSun	1393	--	--	41.1	72	118	152	43	17.8	24.2	18.2	Excel.
Proseed Exp T2	NuSun	1255	--	--	42.2	76	122	147	31	18.2	24.1	17.1	Excel.
Proseed Exp T3	NuSun	1303	--	--	40.6	74	114	139	23	18.5	25.5	14.5	Excel.
Seeds 2000 Blazer	NuSun	1965	1514	1740	41.6	73	117	151	14	18.8	26.0	17.5	NT
Seeds 2000 Charger	NuSun	1562	1719	1640	39.9	73	116	160	8	18.1	25.4	18.2	NT
Seeds 2000 X978	NuSun	1626	--	--	40.8	76	119	163	29	18.4	26.4	18.2	NT
Triumph Seed 636	NuSun	1561	1908	1735	41.4	73	119	157	23	17.3	24.8	18.2	Excel.
Triumph Seed 645	NuSun	2020	1903	1962	41.1	74	120	155	13	18.6	24.6	18.2	Excel.
Triumph Seed 658	NuSun	1820	1821	1820	41.1	74	118	156	41	19.1	25.5	18.2	Excel.
Triumph Seed 665	NuSun	1413	1757	1585	40.6	76	117	156	29	17.7	25.2	18.2	NT
Triumph Seed s667	NuSun	1942	2171	2056	43.0	77	123	124	0	17.8	25.6	17.5	NT
Triumph Seed s675	NuSun	1899	--	--	41.0	79	124	112	0	17.6	24.0	18.2	NT
USDA 894 (check)	Trad.	1392	--	--	42.2	74	117	152	35	17.5	26.3	17.1	NT
cmsHA406/RHA373 (chk)	Trad.	1779	--	--	42.7	75	117	163	4	19.3	25.7	18.2	NT
Grand mean		1743	1745	1744	40.9	73	117	155	14	17.8	25.7	17.9	
LSD 5%		464	301		1.4	1	3	10	13	1.1	1.3	1.3	
C.V.		19.1	10.6		2.4	1.3	1.7	4.7	65.2	4.3	3.7	5.1	

Planted June 4, 2004. Harvested October 25, 2004.

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

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.

Cooperator: Van and Chris Huse, Onida, SD.

Table 8. Oilseed sunflower hybrid yield trial averaged over four locations - 2004.

Sunflower Brand-Hybrid	Type	Seed Yield (lbs/A) 2004 -4-	2003 -2-	2-yr -6-	Oil %	Plant Hght cm	Lodg %	Harv. Moist. %	Test Wt. lb/bu	Pop. 1000pl /A
Croplan Genetics 385	NuSun	1787	1987	1854	40.7	143	5	16.7	27.5	18.2
Dekalb DKF30-33NS	NuSun	1743	1946	1811	39.6	152	4	15.7	28.2	17.2
Dekalb DKF33-33NS	NuSun	1519	2034	1690	39.6	151	9	14.7	27.6	17.6
Dekalb DKF38-30NS	NuSun	1852	1917	1874	40.6	154	8	15.9	27.4	18.2
Dekalb DKF38-80CL	Trad.	1740	2054	1845	40.9	144	7	14.6	27.2	17.6
Dekalb EXP35-10NS	NuSun	1527	--	--	40.2	155	0	15.4	27.4	17.8
Dekalb MH4231	NuSun	1891	--	--	41.0	154	2	14.7	27.8	18.1
Dekalb MH4233	NuSun	1803	--	--	41.3	150	3	15.1	27.5	18.1
Dekalb MH4433	NuSun	1387	--	--	40.8	157	9	16.5	27.6	18.2
DenBesten Seed DB 845NS	NuSun	1919	--	--	41.2	159	3	15.1	28.3	17.2
DenBesten Seed DB 848NS	NuSun	1902	--	--	40.8	159	1	14.8	27.3	17.9
Garst/Interstate 4049	Trad.	1903	2004	1937	41.9	162	3	14.4	27.2	17.8
Garst/Interstate 4704NS (F10002)	NuSun	1554	--	--	38.9	144	4	15.5	26.2	18.1
Garst/Interstate F10016 NS	NuSun	1624	--	--	40.3	135	1	16.2	27.4	17.1
Garst/Interstate Hysun 424	NuSun	1611	--	--	40.1	152	8	16.3	26.9	17.1
Garst/Interstate Hysun 450	NuSun	1741	1833	1772	39.6	141	4	17.1	27.5	16.4
Garst/Interstate Hysun 454	NuSun	1750	--	--	40.4	159	5	15.8	27.4	18.0
Garst/Interstate Hysun 525	NuSun	1741	--	--	39.6	146	6	14.4	27.6	17.8
Kaystar 9404	Trad.	1740	--	--	40.1	155	5	14.0	27.2	17.9
Legend Seeds LSF 119N	NuSun	1147	1801	1365	39.5	150	21	15.6	26.1	17.4
Legend Seeds LSF 121N	NuSun	1502	--	--	39.7	141	7	15.4	27.0	18.0
Legend Seeds LSF 126N	NuSun	1614	2044	1757	39.2	146	5	15.5	27.6	17.8
Legend Seeds LSF 142N	NuSun	1990	2089	2023	40.8	148	9	15.7	26.9	17.3
Mycogen Seeds 8488NS	NuSun	1995	1784	1925	41.0	156	4	15.5	27.7	18.0
Mycogen Seeds 8D310	NuSun	1831	--	--	38.8	158	2	14.1	26.7	18.1
Mycogen Seeds 8N352	NuSun	1734	--	--	41.6	152	9	15.2	28.1	17.3
Mycogen Seeds 8N421	NuSun	2054	2173	2093	41.0	157	3	14.9	27.7	17.7
Mycogen Seeds 8N510	NuSun	2222	--	--	40.2	151	2	16.1	27.3	18.2
Mycogen Seeds SF187	Trad.	1892	--	--	40.6	139	4	15.1	27.5	18.2
Pioneer Hi-Bred hybrid 63M80	NuSun	1566	2219	1784	41.0	153	7	15.2	26.5	18.1
Pioneer Hi-Bred hybrid 63M91	NuSun	1561	1832	1651	40.3	162	6	15.6	27.6	18.0
Producers Hybrids EX10104	NuSun	1540	--	--	39.5	156	9	15.3	27.1	17.6
Producers Hybrids EX10204	NuSun	1676	--	--	39.6	141	7	15.4	28.6	17.9
Producers Hybrids SF7303	NuSun	1948	--	--	40.4	138	3	17.1	27.0	17.1
Proseed 9405	NuSun	1633	1840	1702	40.8	146	4	16.6	26.4	17.6
Proseed 9441	NuSun	1318	2360	1665	40.1	147	13	16.0	26.7	14.7
Proseed CL55-15	NuSun	1244	1715	1401	39.6	137	16	15.1	26.5	16.7
Proseed Exp 15	NuSun	1469	--	--	40.3	152	16	14.8	26.8	17.7
Proseed Exp T1	NuSun	1651	--	--	41.3	144	21	16.6	25.6	18.1
Proseed Exp T2	NuSun	1371	--	--	41.2	152	23	16.8	25.1	17.0
Proseed Exp T3	NuSun	1204	--	--	40.3	150	8	15.6	26.8	13.6
Seeds 2000 Blazer	NuSun	1819	1926	1854	40.9	144	6	15.4	27.1	17.3
Seeds 2000 Charger (X926)	NuSun	1549	1748	1615	39.7	157	4	14.6	26.8	18.2
Seeds 2000 X978	NuSun	1757	--	--	40.8	160	10	16.2	28.0	17.8
Triumph Seed 636	NuSun	1485	--	--	40.7	152	21	16.4	25.8	18.1
Triumph Seed 645	NuSun	1841	--	--	41.8	153	10	16.1	26.7	18.1
Triumph Seed s675 (TRX2446)	NuSun	1832	--	--	41.9	107	5	16.6	26.7	18.2
USDA 894 (check)	Trad.	1437	1461	1445	42.2	148	20	14.8	27.5	17.6
Grand mean		1680	1964	1774	40.4	149	8	15.5	27.1	17.6
LSD 5%		350	364		0.9	8	11	1.6	1.0	1.3
C.V.		14.9	17.6		1.6	4.0	103.8	7.4	2.7	5.4

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

Table 9. Confection hybrid sunflower trial, Kennebec, SD - 2004.

Sunflower Brand-Hybrid	Seed Yield (lbs/A) 2004 Kenn	2003 Pukw	2-yr	Plant Height cm	Lodging %	Test Wt. lb/bu	Pop. 1000pl /A	% Seed Over Screen 22/64	20/64	18/64	Nut-meat %
CHS Sunflower 04-EXP01	1455	--	--	174	4	23.4	12.3	49.2	68.9	79.6	48.9
CHS Sunflower 04-EXP02	1813	--	--	165	6	25.9	13.9	67.4	83.7	92.9	49.5
CHS Sunflower RH 118	1839	2181	2010	177	0	25.8	15.4	55.4	74.3	86.3	50.3
Garst/Interstate 8048	1368	1670	1519	171	0	27.6	14.8	45.7	64.2	76.2	51.2
Garst/Interstate 8089	1587	--	--	170	1	27.2	11.6	34.4	56.3	73.4	49.3
Mycogen Seeds 8C416	1539	--	--	171	3	25.1	13.0	51.4	73.3	82.6	52.9
Producers Hybrids SF7203**	1882	--	--	178	1	28.9	15.0	--	--	--	--
Sigco Sun Prod. Goliath RT	1381	1799	1590	165	3	25.3	15.5	49.8	71.5	83.9	50.4
USDA 924 (check)	1522	1977	1750	173	2	26.2	15.5	28.1	50.7	70.1	54.5
Grand mean	1599	1761	1680	172	2	26.2	14.1	45.6	65.9	78.7	50.9
LSD 5%	353	439		8	ns	2.5	ns	18.8	16.3	16.0	ns
C.V.	14.7	16.4		3.1	140.6	6.6	18.1	27.9	16.8	13.8	5.0

Planted June 2, 2004. Harvested October 20, 2004.
**Producers Hybrids SF7203 is an oilseed hybrid that was mistakenly entered into the confection trial.

Table 10. Confection hybrid sunflower trial, Miller, SD - 2004.

Sunflower Brand-Hybrid	Seed Yield (lbs/A) 2004	2003	2-yr	Lodging %	Test Wt. lb/bu	% Seed Over Screen 22/64	20/64	18/64	Nut-meat %
CHS Sunflower 04-EXP01	1836	--	--	6	23.8	56.1	78.8	89.3	50.5
CHS Sunflower 04-EXP02	1634	--	--	16	23.5	74.1	85.3	89.3	53.0
CHS Sunflower RH 118	2035	1874	1954	0	25.8	40.1	76.5	89.7	50.2
Croplan Genetics 135	1466	--	--	24	22.7	67.8	80.5	88.8	49.5
Dahlgren & Co. 9518	1813	--	--	3	23.2	57.7	82.1	93.3	52.9
Dahlgren & Co. 9530	2055	--	--	4	22.4	64.8	81.7	90.8	51.0
Garst/Interstate 8048	1960	1728	1844	3	24.2	58.2	77.2	88.2	51.1
Garst/Interstate 8089	2476	--	--	10	23.5	57.9	83.5	90.7	49.7
Mycogen Seeds 8C416	1658	--	--	13	21.8	56.1	76.3	87.6	51.0
Producers Hybrids SF7203**	2169	--	--	5	29.5	--	--	--	--
Seeds 2000 Grizzly	2031	1801	1916	4	23.4	54.0	75.0	88.3	49.3
Seeds 2000 X3670	1531	--	--	11	20.9	75.2	82.2	89.2	48.6
Sigco Sun Prod. Goliath RT	1901	1523	1712	0	23.9	66.0	79.4	89.5	49.7
Sigco Sun Prod. SS3638	1827	--	--	20	23.5	56.6	79.8	87.7	50.4
Sigco Sun Prod. SS3938	1992	--	--	0	23.7	61.2	83.4	93.3	47.8
Triumph Seed 707CLS	1785	--	--	15	21.2	61.5	77.4	87.6	50.3
Triumph Seed 757C	1365	1651	1508	39	22.7	71.0	80.6	90.5	50.7
USDA 924 (check)	1648	1520	1584	8	23.8	30.1	65.3	85.6	55.8
Grand mean	1843	1639	1741	10	23.5	57.0	76.1	86.1	50.7
LSD 5%	464	ns		10	2.1	12.0	8.4	6.8	3.0
C.V.	17.7	15.9		71.3	6.3	14.7	7.8	5.5	4.2

Planted June 4, 2004. Harvested October 18, 2004.
**Producers Hybrids SF7203 is an oilseed hybrid that was mistakenly entered into the confection trial.

Table 11. Confection hybrid sunflower trial, Onida, SD - 2004.

Sunflower	Seed Yield (lbs/A)			Plant Height	Days to		Lodg-ing	Test Wt.	Pop. 1000pl	% Seed Over Screen			Nut-meat
Brand-Hybrid	2004	2003	2-yr	cm	Flwr	Mat.	%	lb/bu	/A	22/64	20/64	18/64	%
CHS Sunflower 04-EXP01	1531	--	--	175	69	111	16	22.6	15.9	70.3	87.7	95.7	48.2
CHS Sunflower 04-EXP02	1499	--	--	165	73	120	15	23.3	15.7	68.1	85.6	93.4	45.9
CHS Sunflower RH 118	1614	--	--	171	77	119	6	24.3	15.9	61.8	85.6	94.8	44.6
Dahlgren & Co. 9518	2047	--	--	173	77	121	7	23.5	15.9	73.8	86.9	94.4	45.4
Dahlgren & Co. 9530	2088	--	--	163	76	115	5	23.2	15.0	64.3	83.1	89.9	48.1
Garst/Interstate 8048	1385	1899	1642	168	68	115	10	24.6	15.7	61.8	83.2	92.0	48.2
Garst/Interstate 8089	1685	--	--	176	76	124	16	25.2	15.0	55.7	79.9	88.4	52.7
Mycogen Seeds 8C416	1727	--	--	170	75	118	13	24.5	15.5	56.9	84.5	93.0	47.9
Producers Hybrids SF7203**	2061	--	--	172	74	117	9	26.2	15.9	--	--	--	--
Red River Commod RR 2214	1743	--	--	170	75	121	3	24.3	14.7	59.4	77.3	90.8	49.3
Red River Commod RR 2215	1544	2034	1789	170	77	119	10	21.2	15.9	63.6	88.9	91.6	44.9
Red River Commod RR 7015	1338	2142	1740	176	77	119	18	21.5	15.3	52.1	71.4	90.1	48.0
Seeds 2000 Grizzly	2167	2145	2156	174	78	124	2	23.6	15.9	63.1	85.4	95.3	47.4
Seeds 2000 X3670	1377	--	--	157	73	125	13	23.8	15.9	77.2	94.4	93.7	46.6
Sigco Sun Prod. Goliath RT	1593	--	--	166	77	125	4	22.4	14.1	59.1	79.2	90.4	44.5
Sigco Sun Prod. SS3638	1782	--	--	171	75	121	12	21.7	15.3	67.0	86.1	91.7	46.2
Sigco Sun Prod. SS3938	2009	--	--	165	70	112	5	23.9	15.5	55.1	78.1	90.6	52.4
USDA 924 (check)	1508	--	--	174	72	111	10	24.3	15.3	35.8	56.8	80.8	49.8
Grand mean	1705	2020	1863	170	74	119	10	23.6	15.5	59.9	80.1	89.5	47.6
LSD 5%	416	ns		8	1	4	6	2.6	ns	15.4	12.3	11.9	ns
C.V.	17.1	8.1		3.3	1.4	2.2	46.6	7.8	6.8	18.1	10.8	9.3	9.3

Planted June 4, 2004. Harvested November 2, 2004.
**Producers Hybrids SF7203 is an oilseed hybrid that was mistakenly entered into the confection trial.

Table 12. Confection hybrid sunflower trial averaged over Miller, Kennebec, and Onida - 2004.

Sunflower	Seed Yield (lbs/A)			Plant Height	Lodg-ing	Test Wt.	Pop. 1000pl	% Seed Over Screen			Nut-meat
	2004	2003	2-yr								
Brand-Hybrid	-3-	-2-	-5-	cm	%	lb/bu	/A	22/64	20/64	18/64	%
CHS Sunflower 04-EXP01	1595	--	--	175	8	23.3	14.1	58.4	78.4	88.2	49.2
CHS Sunflower 04-EXP02	1640	--	--	165	12	24.3	14.8	69.7	84.8	91.8	49.5
CHS Sunflower RH 118	1813	2026	1898	174	1	25.3	15.6	52.3	78.7	90.3	48.3
Garst/Interstate 8048	1558	1698	1614	170	4	25.5	15.3	55.1	74.8	85.4	50.2
Garst/Interstate 8089	1915	--	--	173	9	25.3	13.3	49.2	73.1	84.1	50.5
Mycogen Seeds 8C416	1624	--	--	170	9	23.8	14.3	54.7	78.0	87.7	50.6
Producers Hybrids SF7203**	2019	--	--	175	4	28.2	15.4	--	--	--	--
Sigco Sun Prod. Goliath RT	1626	1660	1640	166	1	23.9	14.8	58.2	76.6	87.9	48.2
USDA 924 (check)	1552	1747	1630	174	6	24.8	15.4	31.2	57.5	78.8	53.4
Grand mean	1705	1700	1703	171	6	25.0	14.8	50.6	71.4	82.6	50.0
LSD 5%	ns	597		6	6	1.9	ns	12.4	13.3	13.3	ns
C.V.	13.9	15.1		3.4	87.6	6.6	13.5	20.5	13.5	10.8	8.2

**Producers Hybrids SF7203 is an oilseed hybrid that was mistakenly entered into the confection trial.

Table 13. Fatty acid percentages for oilseed sunflower, Onida, SD - 2004.

Sunflower Brand-Hybrid	Type	Fatty Acids (%)			
		Oleic	Linoleic	Palmitic	Stearic
Dekalb DKF30-33NS	NuSun	51.8	37.2	4.52	4.10
Dekalb DKF33-33NS	NuSun	63.6	25.4	4.12	4.28
Dekalb DKF38-30NS	NuSun	77.8	12.6	3.56	3.64
Dekalb EXP35-10NS	NuSun	81.5	7.9	3.46	4.17
Dekalb MH4231	NuSun	34.8	53.4	5.27	4.09
Dekalb MH4233	NuSun	32.8	55.1	5.34	4.18
Dekalb MH4433	NuSun	60.4	28.6	4.45	4.16
Legend Seeds LSF 119N	NuSun	71.6	18.2	4.13	3.73
Legend Seeds LSF 121N	NuSun	47.4	38.8	5.29	4.66
Legend Seeds LSF 126N	NuSun	58.0	31.0	4.94	3.58
Legend Seeds LSF 142N	NuSun	59.8	26.6	4.09	6.44
Mycogen Seeds 8377NS	NuSun	59.0	30.3	4.50	3.02
Mycogen Seeds 8488NS	NuSun	61.3	28.2	4.48	3.88
Mycogen Seeds 8D310	NuSun	72.7	18.8	3.77	2.61
Mycogen Seeds 8N352	NuSun	67.0	23.0	4.25	3.66
Mycogen Seeds 8N421	NuSun	60.7	29.2	4.34	3.65
Mycogen Seeds 8N510	NuSun	62.1	27.0	4.31	3.50
Triumph Seed 636	NuSun	68.2	22.0	3.92	3.84
Triumph Seed 645	NuSun	69.6	20.4	3.58	3.99
Triumph Seed 658	NuSun	67.0	23.0	3.82	3.88
Triumph Seed 665	NuSun	67.0	23.2	4.18	3.17
Triumph Seed 667	NuSun	64.2	26.2	4.82	2.78
Triumph Seed s675	NuSun	64.0	26.2	4.30	3.37