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Sunflower: 2007 South Dakota Hybrid Performance Trials

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EC 909
Revised
Annually

SUNFLOWER

2007 South Dakota Hybrid Performance Trials

**Oilseed
Confection**

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SUNFLOWER

2007 South Dakota Hybrid Performance Trials Oilseed and Confection

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

Yield

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

Good yield stability means that, while a hybrid may or may not be the best yielder at all locations, it ranks high in yielding potential at many locations. A hybrid that ranks in the upper 20% at all locations exhibits better yield stability than one that is the top yielder at two locations but ranks in the lower 40% at two other locations.

To determine if one hybrid is better than another for a given trait, use the least significant difference (LSD 5%) value at the bottom of each data column. The LSD 5% value is a statistical method of indicating if a trait like yield differs when comparing two hybrids. If two hybrids differ by more than the indicated LSD value for a given trait, they would most likely differ again when grown under similar conditions.

For example, if the Eureka oilseed test (Table 5) could be repeated in 2008 exactly as it was in 2007, the yield ranking of a hybrid that yielded 2942 lbs/A and one that yielded 2577 lbs/A might change places, since their yield difference (365 lbs/A) is less than the indicated yield LSD value of 416 lbs/A. Within the accuracy level of the experiment, there was no statistical

difference in yield between the two hybrids when grown under the conditions that existed at Eureka in 2007. In contrast, a hybrid that yielded 2421 lbs/A at Eureka in 2007 would likely be lower yielding than one that yielded 2942 lbs/A if the two hybrids were grown again under similar conditions, because the difference between them in 2007 ($2942 - 2421 = 521$ lbs/A) exceeded the LSD value of 416 lbs/A.

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

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

Oil Content and Composition

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

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

Maturity

Full-season hybrids generally yield higher than early hybrids.

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

Moisture Content

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

Disease Resistance

The most economical and effective means of sunflower

disease and insect control is the planting of resistant or tolerant hybrids and a minimum of four years rotation between successive sunflower crops.

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

Other Factors

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

2007 Trial Procedures

Locations and Hybrids

Oilseed hybrid sunflower trials were planted at four locations in South Dakota (Eureka, Presho, Miller, and Bison). An additional site at Onida was lost shortly after emergence due to deer and cutworm damage. Entries in the oilseed sunflower trials included traditional oil hybrids, NuSun (mid-oleic) hybrids, and high oleic hybrids. Non-oilseed (confection) sunflower trials were conducted at Miller. Trial sites are indicated on the map in Figure 1. Lists of hybrids planted at each site appear in Tables 2 and 3.

Climate

The 2007 growing season began with above-normal temperatures and precipitation in May and early June, which delayed sunflower planting in the major sunflower growing regions of South Dakota. A summary of climate conditions near the sunflower test sites is presented in Table 1. Temperatures were warmer than normal at all locations throughout the growing season, except for August, which was cooler. All locations had below normal precipitation in July but above normal precipitation in August. Eureka and Miller were also wetter than normal in June. Storms in August at Miller were accompanied by high winds that caused considerable lodging and leaning of plants in the sunflower plots. October was dry everywhere except Kennebec (Presho). The first killing frost did not occur until the last week of October at all sites.

Experimental Methods

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

Seed of all of the hybrids entered in the trials was pre-treated with Cruiser insecticide, and most were also treated with fungicide. Seed treatments used on individual hybrids are listed in Tables 2 and 3. All trials were seeded no-till. The previous crop at Eureka and Miller was corn, at Presho it was sorghum, and at Bison it was wheat. Spartan herbicide was applied for weed control at all locations. Plots were overseeded and thinned to a plant population of 17,400 plants/acre. Stands were good everywhere except Bison. The fourth replication at Bison was not harvested due to antelope damage, and stands were variable in the other three reps, especially the first. The fourth and first reps were therefore excluded from the statistical analyses and means. The first replication at Miller was also excluded due to excessive lodging and a wet spot.

Flowering was recorded at Miller as the number of days from planting to 50% ray petals extended. Days from planting to physiological maturity (rated visually) was also recorded at Miller. Plant height and lodging notes were taken at all locations

immediately before harvest. Lodging was negligible at Eureka and Presho and very low at Bison. Miller had many lodged and leaning plants due to wind damage. There were significant differences in lodging among hybrids, ranging from 0% to 54% lodged plants. Percent incidence of sclerotinia head rot was recorded at Eureka.

Plots at Miller, Eureka, and Presho were harvested with a Gleaner Model K combine fitted with a two-row all row crop header, and seed yields were adjusted to a 10% moisture basis. Plots at Bison were harvested with a Massey-Ferguson plot combine fitted with sunflower pans. Yields at Bison were not adjusted for moisture content because of a malfunctioning moisture blade on the combine. Oil content was determined by NMR analysis. Oil values for NuSun and high oleic hybrids were adjusted for oleic acid content. Hulling quality was measured at Miller on selected hybrids by passing a one-pint seed sample over 14/64 and 13/64 round-hole screens.

A one-pint sub-sample of seed from each plot of the confection trials was passed over 22/64, 20/64, and 18/64 round-hole screens to determine percent large seed. Nutmeat percent was determined by weighing 20 whole seeds, dehulling, and weighing the 20 dehulled kernels.

Results

Data from each location and combined over locations are contained in Tables 4–9. Yields of oilseed hybrids were highest at Eureka, averaging 2065 lbs/acre over all hybrids tested, with an average oil content of 46.7%. The lowest yield and oil was measured at Bison, which averaged 1385 lbs/acre and 40.9% oil. Confection seed yields averaged 1460 lbs/acre at Miller. In the tables that follow, hybrids are listed alphabetically by brand.

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

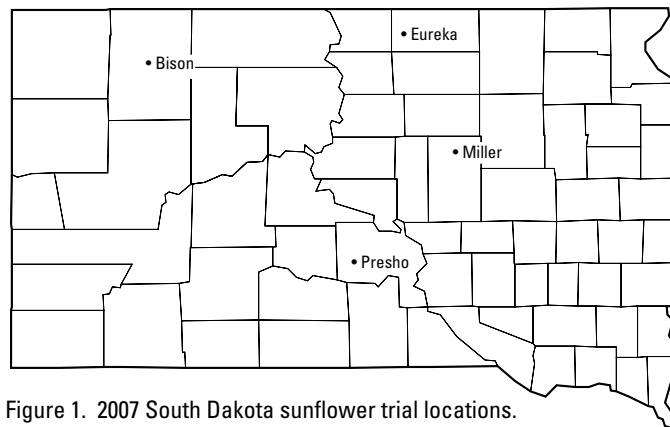


Figure 1. 2007 South Dakota sunflower trial locations.

Table 1. Climate summary for nearest weather stations to 2007 South Dakota sunflower test sites and departures from normal.

| LOCATION-MONTH | 2007 TEMPERATURE | | | TOTAL PRECIP IN. | DEPARTURE FROM NORMAL [^] | | | |
|-----------------|------------------|----------|------|------------------|------------------------------------|----------|----------|------------|
| | AVG MAX. | AVG MIN. | MEAN | | MAX TEMP | MIN TEMP | AVG TEMP | PRECIP IN. |
| | -----°F----- | | | | -----°F----- | | | |
| Bison* | | | | | | | | |
| May | 72 | 45 | 58 | 6.73 | 3 | 1 | 1 | 4.01 |
| June | 81 | 55 | 68 | 2.24 | 2 | 2 | 2 | -0.58 |
| July | 94 | 63 | 79 | 0.94 | 8 | 5 | 7 | -1.33 |
| August | 86 | 59 | 73 | 2.03 | 0 | 2 | 1 | 0.56 |
| September | 79 | 48 | 64 | 0.17 | 5 | 1 | 3 | -1.03 |
| October | 63 | 37 | 50 | 0.44 | 2 | 2 | 2 | -1.02 |
| Eureka* | | | | | | | | |
| May | 74 | 47 | 60 | 5.77 | 4 | 3 | 3 | 3.14 |
| June | 79 | 57 | 68 | 9.16 | 1 | 4 | 2 | 5.99 |
| July | 87 | 62 | 75 | 1.11 | 2 | 4 | 4 | -1.67 |
| August | 81 | 57 | 69 | 3.14 | -3 | 1 | -1 | 0.84 |
| September | 77 | 47 | 62 | 1.34 | 3 | 2 | 2 | -0.09 |
| October | 61 | 37 | 49 | 0.76 | 2 | 3 | 3 | -0.90 |
| Miller* | | | | | | | | |
| May | 72 | 48 | 60 | 5.51 | 4 | 3 | 3 | 2.37 |
| June | 79 | 56 | 68 | 3.29 | 1 | 1 | 1 | 0.39 |
| July | 89 | 62 | 75 | 0.21 | 4 | 1 | 2 | -2.39 |
| August | 81 | 59 | 70 | 8.55 | -3 | 1 | -1 | 6.54 |
| September | 75 | 49 | 62 | 2.44 | 1 | 2 | 2 | 0.64 |
| October | 63 | 38 | 50 | 0.66 | 2 | 3 | 3 | -1.11 |
| Kenebec* | | | | | | | | |
| May | 78 | 51 | 65 | 4.72 | 4 | 5 | 5 | 1.70 |
| June | 84 | 58 | 71 | 2.50 | 0 | 2 | 1 | -0.48 |
| July | 94 | 65 | 80 | 0.12 | 3 | 4 | 4 | -2.66 |
| August | 87 | 64 | 75 | 3.80 | -3 | 4 | 0 | 1.78 |
| September | 83 | 52 | 68 | 0.80 | 3 | 3 | 3 | -0.63 |
| October | 68 | 38 | 53 | 3.92 | 3 | 2 | 2 | 2.44 |

* 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 2007 observations to 30-yr averages (1971–2000) for each site.

Table 2. Hybrids tested in the 2007 South Dakota oilseed hybrid sunflower trials.

| Brand | Hybrid | Hybrid Type | Herb. Resist. | Seed* Treatment | Bison | Eureka | Miller | Presho |
|----------------------|-------------------|-------------|---------------|-----------------|-------|--------|--------|--------|
| Advanta Pacific, LLC | AP534 NS/CL | NS | CL | CMAX | | X | | |
| Advanta Pacific, LLC | AP561 NS | NS | | CMAX | | X | | |
| Advanta Pacific, LLC | F41269 DM3 | NS | | CMAX | | | | |
| Advanta Pacific, LLC | F51132NS/CL/DM | NS | CL | CMAX | | X | | |
| Advanta Pacific, LLC | F51311 NS/DM | NS | | CMAX | | X | | |
| Dahlgren & Co. | 4421ND | NS | | CDM | | | X | |
| Dahlgren & Co. | EX4370 | Trad. | | CDM | | | X | |
| Dahlgren & Co. | EX4377NS | NS | | CDM | | | X | |
| Dahlgren & Co. | EX4455NS | NS | | CDM | | | X | |
| Dekalb | DKF29-30 | NS/DM | | CMAX | X | X | X | X |
| Dekalb | DKF34-33 | NS/DM | | CMAX | X | X | X | X |
| Dekalb | DKF34-80CL | NS/DM | CL | CMAX | X | X | X | X |
| Dekalb | DKF37-31 | NS | | CMAX | X | X | X | X |
| Dekalb | DKF38-45 | NS | | CMAX | X | X | X | X |
| Dekalb | DKF38-75 | Trad. | | CMAX | X | X | X | X |
| Garst Seed | XF06NS16 | NS | | CR | X | X | X | X |
| Garst Seed | XF07NC82 | NS | CL | CR | X | X | X | X |
| Garst Seed | XF07NS75 | NS | | CR | X | X | X | X |
| Garst Seed | XF07NC68 | | | CR | X | X | X | X |
| Interstate Seed | IS4668 NS/CL | NS/CL | CL | CMAX | X | X | X | X |
| Interstate Seed | IS5770 NS | NS | | CMAX | X | X | X | X |
| Interstate Seed | IS5880 NS/CL | NS/CL | CL | CMAX | X | X | X | X |
| Interstate Seed | IS6131 NS/DM | NS/DM | | CMAX | X | X | X | X |
| Interstate Seed | IS7120 HO/DM | HO/DM | | CMAX | X | X | X | X |
| King Seed Inc. | SunKing 4404NS/CL | NS | CL | CDM | | X | X | X |
| King Seed Inc. | SunKing 4500NS | NS | | CDM | | X | X | X |
| King Seed Inc. | SunKing 4505 | Trad. | | CDM | | X | X | X |
| Legend Seeds | LSF 121N | NS | | CDM | | X | X | X |
| Legend Seeds | LSF 142N | NS | | CDM | | X | X | X |
| Legend Seeds | LSF 223NCL | NS | CL | CDM | | X | X | X |
| Monsanto | MH6641 | NS/DM | | CMAX | X | X | X | X |
| Mycogen Seeds | 8D480 | NS | | CMAX | | X | X | |
| Mycogen Seeds | 8H350DM | HO | | CMAX | | X | | |
| Mycogen Seeds | 8H449DM | HO | | CMAX | X | X | X | X |
| Mycogen Seeds | 8N270 | NS | | CMAX | X | X | | |
| Mycogen Seeds | 8N358CL | NS | CL | CMAX | X | X | X | X |
| Mycogen Seeds | 8N386CL | NS | CL | CMAX | X | X | X | X |
| Mycogen Seeds | 8N453DM | NS | | CMAX | X | X | X | X |
| Mycogen Seeds | 8N510 | NS | | CMAX | X | X | X | X |
| Pannar Seed Inc. | PANNAR 8330NS | NS | | CDM | X | X | X | X |
| Pannar Seed Inc. | PANNAR 7813NS | NS | | CDM | X | X | X | X |
| Pannar Seed Inc. | PANNAR 7924NS | NS | | CDM | X | X | X | X |
| Pannar Seed Inc. | PANNAR 9501 | Trad. | | CDM | X | X | X | X |
| Pannar Seed Inc. | PANNAR EX2453NS | NS | | CDM | X | X | X | X |
| Pannar Seed Inc. | PANNAR 9501DM | NS | | CDM | X | X | X | X |
| Producers Hybrids | SF7105NS | NS | | CR | | X | X | X |
| Producers Hybrids | SF7203 | Trad. | | CR | | X | X | X |
| Producers Hybrids | SF7303 | NS | | CR | | X | X | X |
| Proseed | Proseed 6004 | NS | | CDM | X | X | X | X |
| Proseed | Proseed 6294 | NS | CL | CDM | X | X | X | X |
| Proseed | Proseed 6481 | NS | | CDM | X | X | X | X |
| Proseed | Proseed E-3 | NS | | CDM | X | X | X | X |
| Proseed | Proseed E-4 | NS | | CDM | X | X | X | X |

Table 2 (cont.).

| Brand | Hybrid | Hybrid Type | Herb. Resist. | Seed* Treatmnt | Bison | Eureka | Miller | Presho |
|--------------|--------------------------|--------------------|----------------------|-----------------------|--------------|---------------|---------------|---------------|
| Proseed | Proseed E-5 | NS | | CDM | X | X | X | X |
| Proseed | Proseed E-85 | HO | | CDM | | X | | X |
| Proseed | Proseed EE-1 | NS | | CDM | X | X | X | X |
| Proseed | Proseed EE-2 | NS | | CDM | X | X | X | X |
| Seeds 2000 | Barracuda | NS | CL | CDM | | X | X | X |
| Seeds 2000 | Blazer | NS | | CDM | | X | X | X |
| Seeds 2000 | Sierra | HO | | CDM | | X | X | X |
| Seeds 2000 | Firebird NS-SU | NS | SU | CDM | | X | X | X |
| Triumph Seed | 645 | NS | | CDM | | X | | |
| Triumph Seed | 660CL | NS | CL | CDM | | | X | X |
| Triumph Seed | 845HO | HO | | CDM | | | X | |
| Triumph Seed | R859HOCL | HO | CL | CDM | | | X | |
| Triumph Seed | s672 | NS | | CDM | | X | | |
| Triumph Seed | s675 | NS | | CDM | X | X | X | X |
| Triumph Seed | s678 | NS | | CDM | X | X | X | X |
| Triumph Seed | TRX7434HOCL | HO | CL | CDM | | | X | X |
| Triumph Seed | TRX7442 | NS | | CDM | | X | | |
| Triumph Seed | R664 | NS | | CDM | | | X | |
| Triumph Seed | R657 | NS | | CDM | | | X | |
| Triumph Seed | TRX7449 | NS | | CDM | | | X | X |
| Triumph Seed | TRXs5423 | NS | | CDM | | | X | |
| Triumph Seed | TRXs7424 | NS | | CDM | | | X | |
| Triumph Seed | TRXs7425HOCL | HO | CL | CDM | | X | X | X |
| Triumph Seed | TRXs7426HO | HO | | CDM | | | X | X |
| USDA | Hyb. 894 (check) | Trad. | | | X | X | X | X |
| USDA | cmsHA412/ RHA409(chk) | Trad. | | | X | X | X | X |

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

Table 3. Hybrids tested in the 2007 South Dakota confection hybrid sunflower trials.

| Brand | Hybrid | Seed* Treatmnt | Miller |
|-----------------------|---------------|---------------------------|---------------|
| CHS Inc. | 06EXP02 | | X |
| CHS Inc. | 07EXP01 | | X |
| CHS Inc. | RH1121 | | X |
| CHS Inc. | RH1122 | | X |
| Dahlgren & Co. | 9519 | CDM | X |
| Dahlgren & Co. | 9530 | CDM | X |
| Dahlgren & Co. | 9569 | CDM | X |
| Dahlgren & Co. | 9579 | CDM | X |
| Dahlgren & Co. | 9583CL | CL | X |
| Mycogen Seeds | 8C482 | CMAX | X |
| Red River Commodities | 2215 | CDM | X |
| Red River Commodities | 2216 | CDM | X |
| Red River Commodities | EX41 | CDM | X |
| Seeds 2000 | Panther | | X |
| SunOpta Sunflower | SS38A | Maxim/Dyn/Apron | X |
| Triumph Seed | 777C | | X |
| Triumph Seed | TRX7352C | | X |
| USDA | 924 (check) | | X |

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

Table 4. Oilseed sunflower hybrid trial - Bison, SD 2007.

| Brand | Hybrid | Type* | Seed Yield lbs/A | Oil % | Plant Hght cm | Lodg % | Test Wt. lb/bu | Pop. 1000 pl/A |
|------------------|----------------------|----------|------------------|-------|---------------|--------|----------------|----------------|
| Dekalb | DKF29-30 | NS/DM | 1235 | 42.5 | 120 | 10 | 23.9 | 13.2 |
| Dekalb | DKF34-33 | NS/DM | 850 | 43.2 | 119 | 0 | 29.1 | 10.8 |
| Dekalb | DKF34-80CL | NS/DM/CL | 1345 | 41.5 | 125 | 0 | 22.8 | 12.2 |
| Dekalb | DKF37-31 | NS | 1411 | 42.0 | 118 | 0 | 24.4 | 12.4 |
| Dekalb | DKF38-45 | NS | 1865 | 42.9 | 126 | 1 | 24.8 | 10.2 |
| Dekalb | DKF38-75 | Trad. | 1679 | 40.4 | 107 | 0 | 24.5 | 13.8 |
| Garst Seed | XF06NS16 | NS | 1096 | 38.8 | 122 | 0 | 19.8 | 15.3 |
| Garst Seed | XF07NC82 | NS/CL | 1319 | 39.0 | 128 | 11 | 24.7 | 14.7 |
| Garst Seed | XF07NS75 | NS | 1254 | 42.0 | 144 | 4 | 27.6 | 14.4 |
| Garst Seed | XF07NC68 | NS/CL | 2064 | 40.3 | 125 | 1 | 22.1 | 14.8 |
| Interstate Seed | IS4668 NS/CL | NS/CL | 1407 | 39.0 | 138 | 0 | 22.4 | 15.4 |
| Interstate Seed | IS5770 NS | NS | 1160 | 39.4 | 135 | 1 | 25.7 | 14.0 |
| Interstate Seed | IS5880 NS/CL | NS/CL | 928 | 39.1 | 133 | 2 | 20.3 | 13.8 |
| Interstate Seed | IS6131 NS/DM | NS/DM | 1323 | 44.6 | 118 | 0 | 27.2 | 10.5 |
| Interstate Seed | IS7120 HO/DM | HO/DM | 1255 | 41.9 | 126 | 0 | 22.9 | 12.9 |
| Monsanto | MH6641 | NS/DM | 2312 | 41.5 | 109 | 0 | 22.7 | 15.1 |
| Mycogen Seeds | 8H449DM | HO | 1273 | 46.1 | 133 | 0 | 24.8 | 12.8 |
| Mycogen Seeds | 8N270 | NS | 1454 | 40.3 | 105 | 1 | 23.9 | 15.1 |
| Mycogen Seeds | 8N358CL | NS/CL | 666 | 41.4 | 126 | 0 | 25.6 | 13.1 |
| Mycogen Seeds | 8N386CL | NS/CL | 1481 | 40.9 | 139 | 0 | 21.5 | 15.1 |
| Mycogen Seeds | 8N453DM | NS | 1815 | 44.5 | 132 | 1 | 24.8 | 14.4 |
| Mycogen Seeds | 8N510 | NS | 1630 | 40.3 | 122 | 0 | 22.2 | 16.0 |
| Pannar Seed Inc. | PANNAR 8330NS | NS | 1669 | 38.3 | 115 | 0 | 22.4 | 13.7 |
| Pannar Seed Inc. | PANNAR 7813NS | NS | 2008 | 38.7 | 134 | 0 | 20.9 | 11.3 |
| Pannar Seed Inc. | PANNAR 7924NS | NS | 1704 | 38.4 | 137 | 3 | 22.4 | 12.7 |
| Pannar Seed Inc. | PANNAR 9501 | Trad. | 1525 | 36.5 | 149 | 1 | 21.9 | 14.7 |
| Pannar Seed Inc. | PANNAR EX2453NS | NS | 1476 | 41.3 | 131 | 0 | 22.6 | 15.4 |
| Pannar Seed Inc. | PANNAR 9501DM | NS | 1085 | 37.6 | 143 | 0 | 24.1 | 16.1 |
| Proseed | Proseed 6004 | NS | 1030 | 40.1 | 148 | 0 | 27.6 | 15.9 |
| Proseed | Proseed 6294 | NS/CL | 1160 | 43.0 | 131 | 1 | 28.1 | 15.1 |
| Proseed | Proseed 6481 | NS | 1132 | 40.5 | 139 | 0 | 22.5 | 12.8 |
| Proseed | Proseed E-3 | NS | 1388 | 40.9 | 127 | 1 | 24.0 | 15.0 |
| Proseed | Proseed E-4 | NS | 919 | 42.4 | 135 | 2 | 24.1 | 10.9 |
| Proseed | Proseed E-5 | NS | 1393 | 37.8 | 138 | 1 | 20.9 | 14.9 |
| Proseed | Proseed EE-1 | NS | 1560 | 35.6 | 137 | 0 | 23.1 | 9.8 |
| Proseed | Proseed EE-2 | NS | 1413 | 34.8 | 148 | 3 | 25.1 | 13.8 |
| Triumph Seed | s675 | NS | 964 | 43.6 | 94 | 0 | 23.4 | 15.3 |
| Triumph Seed | s678 | NS | 1650 | 43.0 | 110 | 0 | 21.5 | 14.5 |
| USDA | Hyb. 894 (check) | Trad. | 867 | 42.4 | 127 | 0 | 25.4 | 13.1 |
| USDA | cmsHA412/RHA409(chk) | Trad. | 986 | 44.5 | 132 | 1 | 24.3 | 8.7 |
| | Grand mean | | 1385 | 40.9 | 126 | 1 | 23.6 | 13.5 |
| | LSD 5% | | 574 | 1.6 | 15 | 4 | 2.6 | 4.0 |
| | C.V. | | 20.4 | 2.4 | 7.1 | 161.8 | 6.7 | 14.7 |

* NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield, DM=downy mildew resistant, SU=Express-resistant.

Planted June 11, 2007.

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

Cooperator: Duane Shea, Bison, SD.

Table 5. (cont.).

| Brand | Hybrid | Type* | Seed Yield (lbs/A) | | | | Oil % | Plant Hght cm | Lodg % | Scler Hd Rot % | Harv. Moist. % | Test Wt. lb/bu | Pop. 1000 pl/A |
|--------------|----------------------|-------|--------------------|------|-----------|------|-------|---------------|--------|----------------|----------------|----------------|----------------|
| | | | 2007 | 2006 | 2-yr Avg. | | | | | | | | |
| Proseed | Proseed E-5 | NS | 2003 | -- | -- | 44.9 | 176 | 0 | 0.8 | 12.7 | 28.3 | 17.4 | |
| Proseed | Proseed E-85 | HO | 1985 | -- | -- | 46.3 | 174 | 0 | 0.0 | 11.7 | 27.2 | 17.4 | |
| Proseed | Proseed EE-1 | NS | 1947 | -- | -- | 44.2 | 175 | 0 | 1.7 | 11.1 | 28.7 | 17.4 | |
| Proseed | Proseed EE-2 | NS | 1889 | -- | -- | 43.5 | 171 | 0 | 1.3 | 10.8 | 29.7 | 17.4 | |
| Seeds 2000 | Barracuda | NS/CL | 2170 | 1124 | 1647 | 47.1 | 176 | 0 | 0.0 | 13.1 | 29.5 | 17.4 | |
| Seeds 2000 | Blazer | NS | 1985 | 1253 | 1619 | 48.8 | 157 | 0 | 0.4 | 13.6 | 29.1 | 17.4 | |
| Seeds 2000 | Sierra | HO | 2215 | 1022 | 1618 | 46.2 | 176 | 0 | 0.0 | 12.1 | 26.5 | 17.4 | |
| Seeds 2000 | Firebird NS-SU | NS/SU | 2750 | -- | -- | 46.1 | 149 | 0 | 0.0 | 13.2 | 28.7 | 17.4 | |
| Triumph Seed | 645 | NS | 2182 | 1616 | 1899 | 49.3 | 170 | 1 | 1.3 | 12.6 | 28.1 | 17.4 | |
| Triumph Seed | s672 | NS | 1668 | 1031 | 1350 | 48.0 | 110 | 0 | 3.8 | 12.5 | 28.5 | 17.4 | |
| Triumph Seed | s675 | NS | 2186 | 1324 | 1755 | 47.4 | 132 | 0 | 1.7 | 13.5 | 28.1 | 17.4 | |
| Triumph Seed | s678 | NS | 2047 | 1328 | 1687 | 47.9 | 135 | 0 | 0.8 | 13.3 | 29.1 | 17.4 | |
| Triumph Seed | TRX7442 | NS | 2692 | -- | -- | 46.5 | 171 | 0 | 0.8 | 11.9 | 27.7 | 17.4 | |
| Triumph Seed | TRXs7425HOCL | HO/CL | 2132 | -- | -- | 46.7 | 128 | 0 | 0.8 | 11.9 | 29.2 | 17.4 | |
| USDA | Hyb. 894 (check) | Trad. | 1638 | 977 | 1308 | 49.4 | 148 | 0 | 2.9 | 10.7 | 28.4 | 17.4 | |
| USDA | cmsHA412/RHA409(chk) | Trad. | 1724 | -- | -- | 49.8 | 172 | 0 | 3.3 | 10.6 | 28.5 | 17.4 | |
| | Grand mean | | 2065 | 1144 | 1605 | 46.7 | 165 | 0 | 1.1 | 12.0 | 28.9 | 17.4 | |
| | LSD 5% | | 416 | 299 | | 2.0 | 10 | ns | 2.0 | 0.9 | 1.2 | ns | |
| | C.V. | | 14.4 | 18.8 | | 3.1 | 4.3 | 399.6 | 127.8 | 5.4 | 3.0 | 2.8 | |

* NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield, DM=downy mildew resistant, SU=Express-resistant.

Planted June 5, 2007. Harvested November 1, 2007.

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

Table 6. (cont.).

| Brand | Hybrid | Type* | Seed Yield (lbs/A) | | | | Oil % | Days to Flwr | Days to Mat | Plant Hght cm | Lodg % | Harv. Moist. % | Test Wt. lb/bu | Hulling Quality Test |
|--------------|--------------------------|-------|--------------------|------|-----------|------|-------|--------------|-------------|---------------|--------|----------------|----------------|----------------------|
| | | | 2007 | 2006 | 2-yr Avg. | | | | | | | | | |
| Seeds 2000 | Barracuda | NS/CL | 1337 | 1483 | 1410 | 45.4 | 60 | 104 | 157 | 21 | 14.5 | 28.4 | | |
| Seeds 2000 | Blazer | NS | 1994 | 1821 | 1908 | 47.0 | 59 | 104 | 146 | 4 | 11.4 | 29.8 | | |
| Seeds 2000 | Sierra | HO | 2076 | 1667 | 1871 | 46.8 | 62 | 105 | 156 | 6 | 10.9 | 27.2 | | |
| Seeds 2000 | Firebird NS-SU | NS/SU | 2265 | -- | -- | 43.6 | 62 | 105 | 161 | 3 | 11.9 | 28.0 | | |
| Triumph Seed | 660CL | NS/CL | 2215 | 1893 | 2054 | 46.2 | 61 | 106 | 172 | 11 | 13.0 | 29.4 | | |
| Triumph Seed | 845HO | HO | 1707 | 1894 | 1800 | 47.7 | 61 | 107 | 163 | 24 | 11.5 | 26.1 | | |
| Triumph Seed | R859HOCL | HO/CL | 2089 | -- | -- | 47.3 | 62 | 110 | 167 | 4 | 11.0 | 28.8 | | |
| Triumph Seed | s675 | NS | 2323 | 2274 | 2299 | 47.5 | 64 | 113 | 119 | 0 | 11.9 | 28.9 | | |
| Triumph Seed | s678 | NS | 2443 | 2091 | 2267 | 49.3 | 63 | 108 | 137 | 0 | 11.3 | 29.4 | | |
| Triumph Seed | TRX7434HOCL | HO/CL | 2313 | -- | -- | 47.0 | 63 | 108 | 168 | 5 | 11.7 | 30.9 | | |
| Triumph Seed | R664 | NS | 1832 | -- | -- | 48.4 | 61 | 108 | 176 | 12 | 12.8 | 28.9 | | |
| Triumph Seed | R657 | NS | 1166 | -- | -- | 45.1 | 60 | 107 | 170 | 23 | 12.3 | 28.3 | | |
| Triumph Seed | TRX7449 | NS | 1927 | -- | -- | 46.8 | 63 | 108 | 162 | 7 | 12.8 | 28.2 | | |
| Triumph Seed | TRXs5423 | NS | 2343 | 1966 | 2155 | 46.4 | 61 | 104 | 102 | 0 | 10.0 | 28.2 | | |
| Triumph Seed | TRXs7424 | NS | 2345 | -- | -- | 47.5 | 62 | 108 | 123 | 3 | 10.9 | 27.9 | | |
| Triumph Seed | TRXs7425HOCL | HO/CL | 2714 | -- | -- | 46.9 | 64 | 110 | 102 | 0 | 11.7 | 28.7 | | |
| Triumph Seed | TRXs7426HO | HO | 2059 | -- | -- | 48.4 | 62 | 108 | 139 | 1 | 11.8 | 29.5 | | |
| USDA | Hyb. 894 (check) | Trad. | 1606 | 1323 | 1464 | 47.7 | 58 | 100 | 167 | 36 | 11.5 | 28.2 | | |
| USDA | cmsHA412/ RHA409(chk) | Trad. | 1493 | -- | -- | 48.5 | 57 | 95 | 151 | 38 | 12.6 | 27.1 | | |
| | Grand mean | | 1879 | 1446 | 1662 | 46.2 | 60 | 104 | 155 | 14 | 11.7 | 28.7 | | |
| | LSD 5% | | 502 | 392 | | 2.3 | 1 | 4 | 22 | 22 | 1.4 | 1.6 | | |
| | C.V. | | 16.6 | 19.5 | | 3.6 | 1.2 | 2.6 | 8.8 | 98.6 | 7.6 | 3.4 | | |

* NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield, DM=downy mildew resistant, SU=Express-resistant.

Planted June 6, 2007. Harvested October 25, 2007.

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

Table 7. Oilseed sunflower hybrid trial, Presho, SD - 2007.

| Brand | Hybrid | Type* | Seed Yield lbs/A | Oil % | Plant Hght cm | Lodg % | Harv. Moist. % | Test Wt. lb/bu | Pop. 1000 pl/A |
|-------------------|-------------------|--------------|-------------------------|--------------|----------------------|---------------|-----------------------|-----------------------|-----------------------|
| Dekalb | DKF29-30 | NS/DM | 1738 | 43.5 | 155 | 0 | 9.5 | 25.0 | 17.4 |
| Dekalb | DKF34-33 | NS/DM | 1413 | 44.0 | 142 | 2 | 11.2 | 26.3 | 16.3 |
| Dekalb | DKF34-80CL | NS/DM/CL | 1716 | 43.4 | 141 | 0 | 10.6 | 25.2 | 17.4 |
| Dekalb | DKF37-31 | NS | 1899 | 42.5 | 149 | 0 | 12.2 | 26.1 | 17.0 |
| Dekalb | DKF38-45 | NS | 2117 | 41.7 | 140 | 0 | 10.5 | 25.4 | 17.4 |
| Dekalb | DKF38-75 | Trad. | 2334 | 42.7 | 146 | 0 | 11.0 | 27.2 | 17.4 |
| Garst Seed | XF06NS16 | NS | 2058 | 41.0 | 135 | 0 | 13.4 | 25.5 | 17.4 |
| Garst Seed | XF07NC82 | NS/CL | 1846 | 39.3 | 130 | 0 | 9.6 | 23.9 | 17.4 |
| Garst Seed | XF07NS75 | NS | 2048 | 44.9 | 153 | 2 | 10.6 | 27.0 | 16.3 |
| Garst Seed | XF07NC68 | NS/CL | 1524 | 42.5 | 141 | 0 | 11.0 | 25.0 | 17.4 |
| Interstate Seed | IS4668 NS/CL | NS/CL | 2047 | 41.9 | 153 | 0 | 12.1 | 25.5 | 17.4 |
| Interstate Seed | IS5770 NS | NS | 1831 | 42.1 | 150 | 0 | 13.2 | 26.0 | 17.4 |
| Interstate Seed | IS5880 NS/CL | NS/CL | 1738 | 40.9 | 148 | 0 | 11.4 | 24.3 | 17.2 |
| Interstate Seed | IS6131 NS/DM | NS/DM | 1670 | 43.3 | 140 | 1 | 10.1 | 25.1 | 17.4 |
| Interstate Seed | IS7120 HO/DM | HO/DM | 1818 | 42.8 | 135 | 0 | 10.5 | 25.6 | 17.4 |
| King Seed Inc. | SunKing 4404NS/CL | NS/CL | 2257 | 42.3 | 148 | 0 | 11.9 | 25.2 | 17.4 |
| King Seed Inc. | SunKing 4500NS | NS | 2014 | 42.9 | 151 | 0 | 12.3 | 25.7 | 17.4 |
| King Seed Inc. | SunKing 4505 | Trad. | 1890 | 45.2 | 148 | 0 | 11.8 | 25.3 | 16.3 |
| Legend Seeds | LSF 121N | NS | 1443 | 41.4 | 136 | 0 | 10.9 | 25.5 | 17.4 |
| Legend Seeds | LSF 142N | NS | 1575 | 42.9 | 144 | 0 | 10.9 | 26.0 | 17.4 |
| Legend Seeds | LSF 223NCL | NS/CL | 2088 | 41.5 | 155 | 0 | 11.8 | 25.7 | 17.4 |
| Monsanto | MH6641 | NS/DM | 1772 | 42.2 | 138 | 0 | 10.9 | 26.7 | 17.4 |
| Mycogen Seeds | 8H449DM | HO | 1811 | 43.8 | 154 | 0 | 12.3 | 26.1 | 17.4 |
| Mycogen Seeds | 8N358CL | NS/CL | 2005 | 42.7 | 149 | 0 | 9.0 | 25.0 | 17.4 |
| Mycogen Seeds | 8N386CL | NS/CL | 1968 | 42.4 | 151 | 0 | 11.8 | 25.5 | 17.4 |
| Mycogen Seeds | 8N453DM | NS | 1962 | 43.5 | 149 | 0 | 11.5 | 27.1 | 17.4 |
| Mycogen Seeds | 8N510 | NS | 2315 | 43.6 | 154 | 0 | 11.2 | 25.5 | 17.4 |
| Pannar Seed Inc. | PANNAR 8330NS | NS | 1620 | 41.8 | 136 | 0 | 10.9 | 25.5 | 17.0 |
| Pannar Seed Inc. | PANNAR 7813NS | NS | 2080 | 42.6 | 134 | 0 | 10.7 | 25.7 | 17.0 |
| Pannar Seed Inc. | PANNAR 7924NS | NS | 1952 | 41.5 | 142 | 0 | 12.0 | 24.8 | 17.4 |
| Pannar Seed Inc. | PANNAR 9501 | Trad. | 1753 | 42.0 | 147 | 0 | 10.2 | 26.2 | 17.4 |
| Pannar Seed Inc. | PANNAR EX2453NS | NS | 1833 | 42.5 | 140 | 1 | 11.3 | 25.7 | 17.4 |
| Pannar Seed Inc. | PANNAR 9501DM | NS | 1718 | 42.2 | 147 | 0 | 11.3 | 27.0 | 17.4 |
| Producers Hybrids | SF7105NS | NS | 1806 | 41.8 | 133 | 1 | 12.4 | 27.1 | 17.4 |
| Producers Hybrids | SF7203 | Trad. | 1838 | 44.8 | 154 | 0 | 9.7 | 25.9 | 17.0 |
| Producers Hybrids | SF7303 | NS | 2110 | 41.4 | 144 | 0 | 11.1 | 26.0 | 17.4 |
| Proseed | Proseed 6004 | NS | 1470 | 42.3 | 161 | 0 | 12.0 | 25.7 | 16.8 |
| Proseed | Proseed 6294 | NS/CL | 1466 | 42.4 | 152 | 0 | 9.7 | 26.7 | 17.4 |
| Proseed | Proseed 6481 | NS | 1846 | 41.3 | 160 | 0 | 9.4 | 24.4 | 17.4 |
| Proseed | Proseed E-3 | NS | 1919 | 42.1 | 142 | 0 | 10.1 | 25.9 | 17.4 |
| Proseed | Proseed E-4 | NS | 2020 | 42.9 | 143 | 0 | 10.2 | 25.8 | 15.9 |
| Proseed | Proseed E-5 | NS | 1693 | 41.6 | 161 | 0 | 11.8 | 25.6 | 17.4 |
| Proseed | Proseed E-85 | HO | 1838 | 42.3 | 153 | 1 | 10.8 | 25.0 | 17.4 |
| Proseed | Proseed EE-1 | NS | 1751 | 40.8 | 146 | 0 | 12.2 | 25.2 | 17.4 |
| Proseed | Proseed EE-2 | NS | 1898 | 40.2 | 150 | 0 | 9.9 | 25.0 | 17.4 |

Table 7. (cont.).

| Brand | Hybrid | Type* | Seed Yield lbs/A | Oil % | Plant Hght cm | Lodg % | Harv. Moist. % | Test Wt. lb/bu | Pop. 1000 pl/A |
|--------------|----------------------|--------------|-------------------------|--------------|----------------------|---------------|-----------------------|-----------------------|-----------------------|
| Seeds 2000 | Barracuda | NS/CL | 1832 | 42.8 | 144 | 0 | 12.6 | 26.8 | 17.4 |
| Seeds 2000 | Blazer | NS | 2109 | 43.9 | 129 | 0 | 11.9 | 27.0 | 17.4 |
| Seeds 2000 | Sierra | HO | 1992 | 42.1 | 148 | 0 | 10.2 | 24.0 | 17.4 |
| Seeds 2000 | Firebird NS-SU | NS/SU | 2026 | 41.6 | 135 | 1 | 12.3 | 25.7 | 17.4 |
| Triumph Seed | 660CL | NS/CL | 1750 | 43.3 | 143 | 0 | 12.6 | 26.3 | 17.4 |
| Triumph Seed | s675 | NS | 1537 | 43.6 | 103 | 0 | 13.4 | 25.7 | 17.4 |
| Triumph Seed | s678 | NS | 1777 | 43.0 | 129 | 0 | 12.2 | 24.6 | 17.4 |
| Triumph Seed | TRX7434HOCL | HO/CL | 1769 | 42.1 | 153 | 0 | 12.0 | 27.2 | 16.3 |
| Triumph Seed | TRX7449 | NS | 1811 | 43.3 | 149 | 0 | 11.5 | 25.8 | 17.4 |
| Triumph Seed | TRXs7425HOCL | HO/CL | 1922 | 44.1 | 99 | 0 | 13.2 | 25.5 | 17.4 |
| Triumph Seed | TRXs7426HO | HO | 1996 | 43.8 | 136 | 0 | 12.7 | 26.1 | 17.4 |
| USDA | Hyb. 894 (check) | Trad. | 1997 | 44.2 | 136 | 0 | 10.4 | 24.6 | 17.4 |
| USDA | cmsHA412/RHA409(chk) | Trad. | 1700 | 44.0 | 141 | 0 | 11.3 | 25.8 | 16.1 |
| | Grand mean | | 1847 | 42.6 | 142 | 0 | 11.3 | 25.7 | 17.2 |
| | LSD 5% | | 361 | 1.8 | 8 | ns | 1.4 | 1.3 | ns |
| | C.V. | | 14.0 | 3.0 | 4.1 | 383.1 | 8.8 | 3.6 | 4.7 |

* NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield, DM=downy mildew resistant, SU=Express-resistant.

Planted June 20, 2007. Harvested October 27, 2007.

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

Cooperator: Dennis Stanley, Presho, SD.

Table 8. Oilseed sunflower hybrid trial averaged over Miller, Eureka, and Presho, SD - 2007.

| Brand | Hybrid | Type* | Seed Yield lbs/A | Oil % | Plant Height cm | Lodging % | Harv. Moist. % | Test Wt. lb/bu |
|-------------------|-------------------|--------------|-------------------------|--------------|------------------------|------------------|-----------------------|-----------------------|
| Dekalb | DKF29-30 | NS/DM | 1636 | 45.5 | 161 | 13 | 10.7 | 27.8 |
| Dekalb | DKF34-33 | NS/DM | 1625 | 46.1 | 155 | 18 | 11.2 | 28.9 |
| Dekalb | DKF34-80CL | NS/DM/CL | 1539 | 45.8 | 156 | 1 | 11.2 | 27.6 |
| Dekalb | DKF37-31 | NS | 2078 | 45.4 | 164 | 4 | 11.7 | 28.5 |
| Dekalb | DKF38-45 | NS | 2149 | 45.7 | 150 | 6 | 11.5 | 28.3 |
| Dekalb | DKF38-75 | Trad. | 2179 | 46.3 | 165 | 4 | 11.7 | 29.3 |
| Garst Seed | XF06NS16 | NS | 1810 | 44.4 | 148 | 18 | 12.8 | 27.9 |
| Garst Seed | XF07NC68 | NS/CL | 1861 | 46.1 | 154 | 1 | 11.4 | 27.1 |
| Garst Seed | XF07NC82 | NS/CL | 1861 | 44.9 | 145 | 1 | 10.3 | 26.6 |
| Garst Seed | XF07NS75 | NS | 1984 | 45.8 | 160 | 5 | 11.7 | 28.6 |
| Interstate Seed | IS4668 NS/CL | NS/CL | 2079 | 43.8 | 170 | 2 | 12.1 | 27.3 |
| Interstate Seed | IS5770 NS | NS | 1744 | 44.2 | 165 | 3 | 12.3 | 28.1 |
| Interstate Seed | IS5880 NS/CL | NS/CL | 1704 | 43.9 | 157 | 4 | 11.1 | 26.5 |
| Interstate Seed | IS6131 NS/DM | NS/DM | 1836 | 46.4 | 157 | 3 | 10.7 | 28.4 |
| Interstate Seed | IS7120 HO/DM | HO/DM | 2077 | 46.0 | 149 | 1 | 11.3 | 27.9 |
| King Seed Inc. | SunKing 4404NS/CL | NS/CL | 2202 | 43.8 | 163 | 3 | 12.4 | 27.1 |
| King Seed Inc. | SunKing 4500NS | NS | 2091 | 45.5 | 163 | 4 | 12.4 | 27.6 |
| King Seed Inc. | SunKing 4505 | Trad. | 1771 | 46.9 | 161 | 2 | 11.1 | 27.1 |
| Legend Seeds | LSF 121N | NS | 1407 | 43.9 | 146 | 7 | 11.7 | 27.9 |
| Legend Seeds | LSF 142N | NS | 2147 | 44.8 | 154 | 3 | 12.3 | 27.7 |
| Legend Seeds | LSF 223NCL | NS/CL | 2037 | 43.8 | 166 | 7 | 12.0 | 27.5 |
| Monsanto | MH6641 | NS/DM | 2308 | 45.8 | 154 | 2 | 11.9 | 28.5 |
| Mycogen Seeds | 8H449DM | HO | 2135 | 46.7 | 162 | 4 | 12.3 | 28.4 |
| Mycogen Seeds | 8N358CL | NS/CL | 2138 | 44.7 | 153 | 4 | 10.3 | 27.7 |
| Mycogen Seeds | 8N386CL | NS/CL | 1900 | 44.3 | 168 | 1 | 11.5 | 27.2 |
| Mycogen Seeds | 8N453DM | NS | 1956 | 47.4 | 153 | 10 | 12.3 | 28.8 |
| Mycogen Seeds | 8N510 | NS | 2486 | 44.7 | 159 | 3 | 11.7 | 27.3 |
| Pannar Seed Inc. | PANNAR 7813NS | NS | 2367 | 44.8 | 153 | 3 | 11.8 | 28.3 |
| Pannar Seed Inc. | PANNAR 7924NS | NS | 2182 | 44.1 | 161 | 4 | 12.2 | 27.0 |
| Pannar Seed Inc. | PANNAR 8330NS | NS | 1867 | 44.3 | 152 | 1 | 11.7 | 28.3 |
| Pannar Seed Inc. | PANNAR 9501 | Trad. | 2098 | 44.3 | 168 | 3 | 11.6 | 28.0 |
| Pannar Seed Inc. | PANNAR 9501DM | NS | 1500 | 44.3 | 166 | 3 | 11.6 | 28.0 |
| Pannar Seed Inc. | PANNAR EX2453NS | NS | 1814 | 45.3 | 158 | 13 | 12.1 | 28.1 |
| Producers Hybrids | SF7105NS | NS | 1422 | 44.4 | 144 | 16 | 12.4 | 28.7 |
| Producers Hybrids | SF7203 | Trad. | 1768 | 46.2 | 166 | 3 | 10.6 | 27.7 |
| Producers Hybrids | SF7303 | NS | 2226 | 44.4 | 149 | 1 | 11.7 | 27.9 |
| Proseed | Proseed 6004 | NS | 1551 | 44.7 | 182 | 8 | 11.9 | 28.6 |
| Proseed | Proseed 6294 | NS/CL | 1347 | 45.0 | 168 | 14 | 10.3 | 28.5 |
| Proseed | Proseed 6481 | NS | 1678 | 43.7 | 175 | 14 | 10.7 | 26.7 |
| Proseed | Proseed E-3 | NS | 1727 | 44.7 | 149 | 6 | 11.2 | 27.5 |

Table 8. (cont.).

| Brand | Hybrid | Type* | Seed Yield lbs/A | Oil % | Plant Height cm | Lodging % | Harv. Moist. % | Test Wt. lb/bu |
|--------------|--------------------------|--------------|-------------------------|--------------|------------------------|------------------|-----------------------|-----------------------|
| Proseed | Proseed E-4 | NS | 1868 | 44.8 | 158 | 4 | 10.5 | 27.2 |
| Proseed | Proseed E-5 | NS | 1817 | 43.5 | 168 | 12 | 12.2 | 27.4 |
| Proseed | Proseed EE-1 | NS | 1735 | 43.2 | 160 | 6 | 11.3 | 27.4 |
| Proseed | Proseed EE-2 | NS | 1760 | 42.2 | 166 | 10 | 10.9 | 27.4 |
| Seeds 2000 | Barracuda | NS/CL | 1778 | 45.0 | 159 | 7 | 13.4 | 28.2 |
| Seeds 2000 | Blazer | NS | 2028 | 46.6 | 144 | 1 | 12.3 | 28.6 |
| Seeds 2000 | Sierra | HO | 2093 | 45.0 | 160 | 2 | 11.1 | 25.9 |
| Seeds 2000 | Firebird NS-SU | NS/SU | 2346 | 43.7 | 148 | 1 | 12.5 | 27.5 |
| Triumph Seed | s675 | NS | 2014 | 46.3 | 118 | 0 | 12.9 | 27.6 |
| Triumph Seed | s678 | NS | 2088 | 46.7 | 134 | 0 | 12.3 | 27.7 |
| Triumph Seed | TRXs7425HOCL | HO/CL | 2255 | 46.0 | 110 | 0 | 12.3 | 27.8 |
| USDA | Hyb. 894 (check) | Trad. | 1746 | 47.2 | 150 | 12 | 10.9 | 27.0 |
| USDA | cmsHA412/ RHA409(chk) | Trad. | 1638 | 47.6 | 155 | 13 | 11.5 | 27.1 |
| Grand mean | | | 1914 | 45.1 | 156 | 5 | 11.7 | 27.8 |
| LSD 5% | | | 415 | 1.4 | 11 | ns | 1.2 | 1.0 |
| C.V. | | | 15.4 | 3.1 | 5.8 | 140.8 | 7.4 | 3.4 |

* NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield, DM=downy mildew resistant, SU=Express-resistant.

Yield is reported at 10% moisture.

Table 9. Confection hybrid sunflower trial - Miller, SD 2007.

| Brand | Hybrid | Type* | Seed Yield (lbs/A) | | | Days to Flwr | Days to Mat. | Plant Hght cm | Lodging % | Test Wt. lb/bu | % Seed Over Screen | | | Nut-meant % | Red Rust^ % |
|-----------------------|-------------|---------|--------------------|------|------|--------------|--------------|---------------|-----------|----------------|--------------------|-------|-------|-------------|-------------|
| | | | 2007 | 2006 | 2-yr | | | | | | 22/64 | 20/64 | 18/64 | | |
| CHS Inc. | 06EXP02 | Conf. | 1712 | -- | -- | 61 | 109 | 184 | 8 | 21.7 | 60.0 | 80.2 | 90.1 | 49.5 | 2.0 |
| CHS Inc. | 07EXP01 | Conf. | 1090 | -- | -- | 60 | 101 | 188 | 19 | 22.1 | 39.3 | 61.8 | 80.8 | 49.8 | 1.0 |
| CHS Inc. | RH1121 | Conf. | 1501 | -- | -- | 63 | 111 | 182 | 7 | 23.1 | 52.5 | 76.1 | 89.6 | 49.8 | 0.5 |
| CHS Inc. | RH1122 | Conf. | 1299 | 1195 | 1247 | 60 | 101 | 182 | 4 | 23.2 | 47.5 | 71.2 | 84.3 | 49.2 | 5.0 |
| Dahlgren & Co. | 9519 | Conf. | 1461 | -- | -- | 61 | 110 | 191 | 0 | 25.1 | 45.2 | 71.9 | 85.9 | 48.3 | 0.5 |
| Dahlgren & Co. | 9530 | Conf. | 1882 | -- | -- | 60 | 102 | 185 | 9 | 22.2 | 52.7 | 76.2 | 87.8 | 52.4 | 0.2 |
| Dahlgren & Co. | 9569 | Conf. | 1341 | -- | -- | 61 | 107 | 193 | 24 | 21.7 | 64.1 | 82.0 | 90.7 | 52.4 | 0.5 |
| Dahlgren & Co. | 9579 | Conf. | 1475 | -- | -- | 60 | 103 | 175 | 10 | 20.3 | 53.3 | 77.4 | 90.5 | 49.3 | 0.0 |
| Dahlgren & Co. | 9583CL | Conf/CL | 1480 | -- | -- | 61 | 106 | 198 | 9 | 22.3 | 47.9 | 72.9 | 86.4 | 51.8 | 1.5 |
| Mycogen Seeds | 8C482 | Conf. | 1487 | 1539 | 1513 | 60 | 109 | 203 | 4 | 22.3 | 47.7 | 72.1 | 86.8 | 47.5 | 0.7 |
| Red River Commodities | 2215 | Conf. | 1659 | 1398 | 1528 | 61 | 106 | 187 | 5 | 22.2 | 46.9 | 74.1 | 89.4 | 51.6 | 0.5 |
| Red River Commodities | 2216 | Conf. | 1779 | 1430 | 1604 | 61 | 102 | 199 | 10 | 23.1 | 54.9 | 77.3 | 91.0 | 49.9 | 1.0 |
| Red River Commodities | EX41 | Conf. | 1365 | -- | -- | 62 | 108 | 201 | 17 | 22.3 | 44.6 | 68.8 | 85.7 | 52.9 | 1.0 |
| Seeds 2000 | Panther | Conf. | 1439 | -- | -- | 54 | 100 | 167 | 12 | 23.0 | 45.5 | 71.0 | 87.7 | 49.1 | 5.0 |
| SunOpta Sunflower | SS38A | Conf. | 1486 | -- | -- | 57 | 105 | 182 | 6 | 24.3 | 25.5 | 52.8 | 76.4 | 53.9 | 0.1 |
| Triumph Seed | 777C | Conf. | 1324 | 1549 | 1437 | 63 | 108 | 177 | 30 | 21.8 | 49.2 | 72.9 | 86.1 | 52.5 | 0.6 |
| Triumph Seed | TRX7352C | Conf. | 1198 | -- | -- | 62 | 115 | 175 | 12 | 24.6 | 36.4 | 64.1 | 80.4 | 51.3 | 0.2 |
| USDA | 924 (check) | Conf. | 1305 | 846 | 1076 | 60 | 101 | 189 | 11 | 22.7 | 30.6 | 52.1 | 74.0 | 52.0 | 3.0 |
| Grand mean | | | 1460 | 1330 | 1395 | 60 | 106 | 187 | 11 | 22.7 | 46.9 | 70.8 | 85.8 | 50.7 | 1.3 |
| LSD 5% | | | 381 | 335 | | 1 | 4 | 16 | 8 | 1.6 | 10.7 | 8.0 | 5.8 | ns | |
| C.V. | | | 18.4 | 17.7 | | 1.6 | 2.6 | 6.1 | 54.9 | 4.8 | 16.0 | 8.0 | 4.8 | 6.2 | |

* Conf.=Confection, CL=Clearfield.

^ Rust severity was estimated as the average percent leaf area affected on the upper 4 leaves of 5 consecutive plants.

Planted June 6, 2007. Harvested October 26, 2007.

Cooperator: Roger Bertsch, St. Lawrence, SD.

Table 10. Oilseed sunflower fatty acid profiles of selected hybrids -- Miller, SD 2007.

| Sunflower Brand | Hybrid | Type* | Palmitic % | Stearic % | Oleic % | Linoleic % | Linolenic % | Saturated % |
|------------------------|-----------------|--------------|-------------------|------------------|----------------|-------------------|--------------------|--------------------|
| Dahlgren & Co. | 4421ND | NS | 3.0 | 3.1 | 81.0 | 10.0 | 0.0 | 8.8 |
| Dahlgren & Co. | EX4370 | Trad. | 5.3 | 5.7 | 28.6 | 58.4 | 0.2 | 12.8 |
| Dahlgren & Co. | EX4377NS | NS | 3.9 | 4.8 | 70.0 | 18.7 | 0.0 | 10.9 |
| Dahlgren & Co. | EX4455NS | NS | 4.3 | 5.6 | 54.4 | 33.2 | 0.1 | 11.8 |
| Pannar Seed Inc. | PANNAR 8330NS | NS | 4.0 | 4.5 | 60.0 | 29.4 | 0.1 | 10.4 |
| Pannar Seed Inc. | PANNAR 7813NS | NS | 4.2 | 5.0 | 52.2 | 36.3 | 0.1 | 11.1 |
| Pannar Seed Inc. | PANNAR 7924NS | NS | 4.1 | 5.2 | 60.8 | 27.2 | 0.1 | 11.5 |
| Pannar Seed Inc. | PANNAR EX2453NS | NS | 4.3 | 5.1 | 64.4 | 23.6 | 0.0 | 11.4 |
| Pannar Seed Inc. | PANNAR 9501DM | Trad. | 4.3 | 7.8 | 25.2 | 60.9 | 0.1 | 13.7 |
| Proseed | Proseed 6004 | NS | 3.5 | 5.0 | 74.8 | 14.2 | 0.1 | 10.8 |
| Proseed | Proseed 6294 | NS/CL | 3.8 | 3.2 | 79.4 | 11.3 | 0.1 | 9.0 |
| Proseed | Proseed EE-1 | NS | 3.0 | 3.9 | 87.8 | 3.0 | 0.1 | 8.9 |
| Proseed | Proseed EE-2 | NS | 3.0 | 4.8 | 82.8 | 7.1 | 0.1 | 9.9 |
| Triumph Seed | 845HO | HO | 2.8 | 2.7 | 89.2 | 3.2 | 0.1 | 7.3 |

* NS=NuSun, HO=High Oleic, Trad.=Traditional linoleic, CL=Clearfield, DM=downy mildew resistant.