

North Dakota and South Dakota

HYBRID SUNFLOWER

Performance Testing 2011

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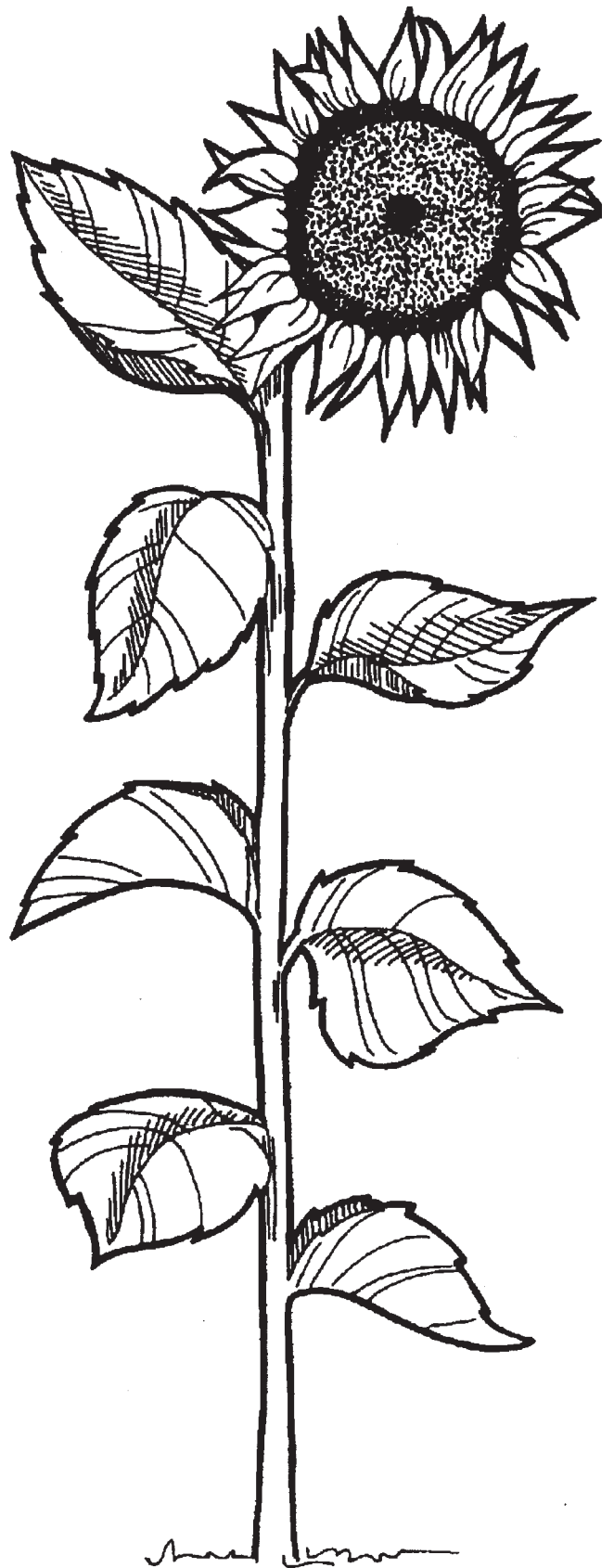
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Introduction

In North Dakota, an estimated 561,000 acres of sunflowers were harvested in 2011. This was a decrease of 301,000 acres compared with 2010. Table 1 contains acreage data for the past 16 years as reported by the North Dakota Agricultural Statistics Service, U.S. Department of Agriculture. The yield estimate on Dec 20, 2011, for all sunflowers produced in North Dakota during the 2011 season was 1,342 pounds per acre (lb/a).

Table 1. Harvested Sunflower Acreage in North Dakota and Yield Per Acre 1996-2011.

Year	Oil Type (1,000 acres)	Yield (lb/a)	Non-oil Type (1,000 acres)	Yield (lb/a)
1996	890	1,500	275	1,450
1997	1,100	1,330	310	1,290
1998	1,580	1,540	380	1,420
1999	1,220	1,150	425	1,090
2000	965	1,410	300	1,260
2001	835	1,440	215	1,260
2002	1,105	1,310	210	1,200
2003	1,020	1,300	145	1,330
2004	660	1,040	130	810
2005	885	1,610	220	1,490
2006	740	1,260	120	1,520
2007	895	1,450	160	1,270
2008	930	1,430	150	1,210
2009	760	1,520	108	1,500
2010	685	1,460	177	1,440
2011	495	-----	66	-----

2011 Sunflower Performance Trials

Information about sunflower hybrid performance can be accessed on the Web at www.ag.ndsu.edu/varietytrials/. This site has all variety trial data from all NDSU Research Extension Centers for all crops.

The agronomic data presented in this publication are from replicated research plots using experimental designs that enable the use of statistical analysis. The LSD (least significant difference) numbers beneath the columns in tables are derived from the statistical analyses and apply only to the numbers in the column in which they appear. If the difference between two hybrids exceeds the LSD value, it means that with 95 percent probability, the higher-yielding hybrid has a significant yield advantage. If the difference between two hybrids is less than the LSD value, then the hybrid yields are considered similar. The abbreviation NS is used to indicate no significant difference for that trait among any of the hybrids. The coefficient of variation (CV) is a measure of variability in the trial and is expressed as a percentage. Large CVs mean a large amount of variation that could not be attributed to differences in the hybrids. In the tables, the “mean” indicates the average of the observations in the trial. Only compare values within the table and look for trends for the desired trait among different experimental sites and years. Oil and harvest yields were adjusted to 10 percent moisture. Oil values for NuSun and high-oleic hybrids were adjusted for oleic acid content. In the tables, the sunflower hybrids are arranged in alphabetical order of the company/brand. Most of the tables have footnotes explaining, in more detail, information in the table under which they appear. Characteristics to evaluate for selecting a sunflower hybrid include yield potential in your area, oil content (for the oil types), test weight, reaction to problematic diseases and insects, maturity date and the weed control system. When selecting a confection sunflower hybrid, the seed size also is of importance.

When selecting a high-yielding and good-quality hybrid, use data that summarizes several years and locations. Choose the hybrid that, on average, performs the best at multiple locations near you during several years. Casselton and Carrington oilseed and non-oilseed tests were not reported because of adverse weather conditions, which prevented the collection of data. The Presentation of data for the entries tested does not imply approval or endorsement by the authors or agencies conducting the tests. A listing of seed companies entering hybrids and their brand name is provided in Table 2. Research specialists and technicians helped with the field work and data compilation. The assistance given by many secretaries in typing portions of this document is much appreciated.

Table 2. Full Company Name, Abbreviated Name Used in Tables and Website.

Company	Abbreviated	Web site
Advanta Seeds USA, LLC	Advanta	www.advantaus.com
CHS Inc.	CHS	www.chssunflower.com
Croplan Genetics	Croplan	www.croplangenetics.com
Dahlgren and Co.	Dahlgren	www.sunflowerseed.com
Elite Seeds	Elite	-----
Genosys Global LLC	Genosys	www.genosysglobal.com
Integra Fortified Seed	Integra	www.integraseed.com
Mycogen Seeds	Mycogen	www.mycogen.com
Nidera S.A. Seeds	Nidera	www.nidera.com
Pannar	Pannar	www.pannar.com
Pioneer Hi-Bred International Inc.	Pioneer	www.pioneer.com
Proseed Inc.	Proseed	www.proseed.net
Red River Commodities	Red River Comm.	www.redriv.com
Seeds 2000	Seeds 2000	www.seeds2000.net
Syngenta Seeds	Syngenta	www.syngenta.com/en/products_brands/fieldcrops.html
Technology Crops	Technology	www.technologycrops.com
Triumph Seed Co. Inc.	Triumph	www.triumphseed.com/
U.S. Department of Agriculture	USDA	www.ars.usda.gov/Main/docs.htm?docid=3562

2011 Growing Season Weather Summary for North Dakota

Table 3. April-September 2011 Average Temperature and Precipitation Rankings for Selected North Dakota Locations.

City	Temperature Ranking	Precipitation Ranking
Bowman	25th Warmest	6th Wettest
Bismarck	40th Coolest	12th Wettest
Carrington	22nd Warmest	4th Wettest
Fargo	29th Warmest	33rd Wettest
Minot Exp. Station	21st Warmest	3rd Wettest
Williston Exp. Station	53rd Coolest	11th Wettest
North Dakota Average	57th Coolest (117 years)	12th Wettest (117 years)

Source: Adnan Akyüz, NDSU, North Dakota state climatologist.

Table 4. 2011 Sunflower - Non-oilseed Hybrids With Traits and Locations Where Tested.

Brand	Hybrid	Trait¹	Minot	Onida	Langdon	Midge rating
CHS	10EXP01	CL	--	x	--	--
CHS	10EXP02	NA	x	x	--	--
CHS	RH 400CL	CL	x	x	--	--
CHS	RH 402CL	CL	x	--	--	--
Dahlgren	9506CL	CL		x	--	--
Dahlgren	9530	--	x	x	x	--
Dahlgren	9530CL	CL	x	x	x	--
Dahlgren	9579	--		x	--	--
Dahlgren	EX610	--	x	x	x	--
Dahlgren	EX819	--	--	x	--	--
Mycogen	8C410CL	CL	x	x	x	--
Mycogen	8C451	--	x	x	x	--
Red River Comm.	2215	--	x	x	x	x
Red River Comm.	2215 CL	CL	x	x	x	x
Red River Comm.	2217	--	x	x	x	x
Seeds 2000	6946 DMR	DM	x	--	x	
Seeds 2000	Jaguar	CL	x	x	x	x
Seeds 2000	Jaguar DMR	CL,DM	x	x	x	x
Seeds 2000	Jaguar II	CL	--	x	--	--
Seeds 2000	Jaguar XL	CL	--	x	--	--
Seeds 2000	Panther II	--	--	x	--	--
Seeds 2000	Sundance	--	--	x	--	--
Seeds 2000	X3207	DM	x	--	x	x
Seeds 2000	X3907	--	--	x	--	--
Seeds 2000	X9180	Ex,DM	x	--	x	
Seeds 2000	X9674	--	--	x	--	--
Syngenta	3733 NS Coated	--	x	--	--	--
Triumph	770CL	CL	--	x	--	--
USDA	924	--	--	x	x	--

¹Traits provided by company: CL = Clearfield, DM = Downy mildew resistant, Ex= ExpressSun, NA = not available.

Table 5. 2011 Sunflower - Oilseed Hybrids With Traits and Locations Where Tested (Page 1 of 2).

			Location in which the hybrid has been tested										
Company/ Brand	Hybrid	Traits ¹	Bison	Eureka	Onida	Presho	Casselton	Hettinger REC	Minot REC	Langdon REC	Williston REC	Williston-Irrigated	Midge rating
Advanta	0238 NS/SU	NS,Ex	--	--	--	--	--	--	X	--	--	--	--
Advanta	3651 NS/CL	NS,CL	--	--	--	--	--	--	X	--	--	--	--
Advanta	4551 NS/CL	NS,CL	--	--	--	--	--	--	X	--	--	--	--
Advanta	4651 NS/CL	NS,CL	--	--	--	--	--	--	X	--	--	--	--
Advanta	6752 NS/SU	NS,Ex	--	--	--	--	--	--	X	--	--	--	--
Advanta	6838 NS/SU	NS,Ex	--	--	--	--	--	--	X	--	--	--	--
Advanta	6852 NS/SU	NS,Ex	--	--	--	--	--	--	X	--	--	--	--
Advanta	6938 NS/SU	NS,Ex	--	--	--	--	--	--	X	--	--	--	--
Advanta	6952 NS/SU	NS,Ex	--	--	--	--	--	--	X	--	--	--	--
Advanta	7052 NS/SU	NS,Ex	--	--	--	--	--	--	X	--	--	--	--
Croplan	306 DMR NS	NS,DM	X	X	X	X	--	--	--	--	--	--	--
Croplan	3080 DMR NS	NS,DM	X	X	X	X	--	--	--	--	--	--	--
Croplan	356A NS	NS	X	X	X	X	--	--	--	--	--	--	--
Croplan	378 DMR HO	HO,DM	X	X	X	X	--	X	--	--	--	--	--
Croplan	442 E NS	NS, Ex	X	X	X	X	--	X	X	X	--	--	--
Croplan	460 E NS	NS, Ex	X	X	X	X	--	X	X	X	X	X	--
Croplan	548 CL DMR NS	NS,CL,DM	X	X	X	X	--	X	X	X	--	--	--
Croplan	555 CL DMR NS	NS,CL,DM	X	X	X	X	--	--	--	--	--	--	--
Croplan	559 CL DMR NS	NS,CL,DM	X	X	X	X	--	X	X	X	X	X	--
Dahlgren	DO-2012 CLDM	HO, CL	X	X	X	X	--	--	X	X	--	--	--
Dahlgren	DO-4421	NS	X	X	X	X	--	--	X	X	--	--	--
Dahlgren	DO-44EXCL	NS,CL	X	X	X	X	--	--	X	--	--	--	--
Elite	Balistic CL	HO,CL,DM	--	--	--	--	--	X	X	X	X	--	--
Elite	Biba	Trad	--	--	--	--	--	X	--	--	X	--	--
Elite	ESTR 10402	Na	--	--	--	--	--	--	X	--	--	--	--
Elite	Ethic	HO,DM	--	--	--	--	--	X	X	X	X	--	--
Elite	Pacific	HO,DM	--	--	--	--	--	X	X	X	X	--	--
Elite	Pomar	Trad,DM	--	--	--	--	--	X	X	X	X	--	--
Genosys	8037	NS,CL,DM	--	--	--	--	X	X	X	X	--	--	--
Genosys	9008	NS,DM	--	--	--	--	X	X	X	X	--	--	--
Genosys	9319	NS,DM	--	--	--	--	X	X	X	X	--	--	--
Integra	756 NS CL	NS,CL	--	--	--	--	--	X	X	--	--	--	--
Integra	724 NS CL	NS,CL	--	--	X	X	--	X	--	--	--	--	--
Integra	735 NS CL DM	NS,CL,DM	--	--	--	--	--	--	X	X	--	--	--
Integra	IX09-95010 NSDM	NS,NA,DM	--	--	--	--	--	--	X	X	--	--	--
Integra	IX10-94 NSSU	NS,Ex	--	--	--	--	--	X	X	X	--	--	--
Mycogen	8D310	NS	X	X	X	--	--	X	X	X	--	--	--
Mycogen	8D481	NS	X	X	X	X	--	X	X		--	--	--
Mycogen	8H288CLDM	HO,CL,DM	--	--	--	--	--	--	X	X	--	--	--
Mycogen	8H449CLDM	HO,CL,DM	X	X	X	X	--	X	X		--	--	--
Mycogen	8N270CLDM	NS,CL,DM	--	--	--	--	--	X	X	X	--	--	X
Mycogen	8N358CLDM	NS,CL,DM	X	X	X	--	--	--	X	X	--	--	--
Mycogen	8N421CLDM	NS,CL,DM	X	X	X	X	--	X	X		--	--	--
Mycogen	8N453DM	NS,DM	X		X	X	--	--	--	--	--	--	--
Mycogen	8N510	NS	X	X	X	X	--	--	--	--	--	--	--
Mycogen	E80159CLDM	NS,CL,DM	--	--	--	--	--	--	X		--	--	--
Nidera	MN13093	CL,HO,DM	--	--	--	--	X	--	--	--	--	--	--
Pannar	PAN 7924 NS	NS	X	--	X	X	--	--	--	--	--	--	--
Pannar	PAN 9501NS	NS	X	--	X	X	--	--	--	--	--	--	--
Pannar	PAN 9612NS	NS	X	--	X	X	--	--	--	--	--	--	--
Pannar	PAN9501	Trad.	X	--	X	X	--	--	--	--	--	--	--
Pannar	PANG3827	NS	X	--	X	X	--	--	--	--	--	--	--
Pannar	PANH3838	NS	X	--	X	X	--	--	--	--	--	--	--

Table 5. 2011 Sunflower - Oilseed Hybrids With Traits and Locations Where Tested (Page 2 of 2).

Company/ Brand	Hybrid	Traits ¹	Location in which the hybrid has been tested										Midge rating	
			Bison	Eureka	Onida	Presho	Casselton	Hettinger REC	Minot REC	Langdon REC	Williston REC	Williston-Irrigated		
Pannar	PANH3931	NS	x	--	x	x	--	--	--	--	--	--	--	--
Pannar	PANH3950	NS	x	--	x	x	--	--	--	--	--	--	--	--
Pioneer	P63HE60	HO,Ex,DM	x	x	x	x	x	x	--	x	--	--	--	--
Pioneer	P63ME70	NS,Ex,DM	x	x	x	x	x	x	--	x	--	--	--	--
Pioneer	P63ME80	NS,Ex,DM	x	x	x	x	x	x	--	x	--	--	--	--
Pioneer	P64HE01	HO,Ex,DM	x	x	x	x	x	--	--	x	--	--	--	--
Proseed	E-10	NS,DM	--	--	--	--	--	x	x	x	--	--	--	--
Proseed	E-14	NS,DM	--	--	--	--	--	x	x	x	--	--	--	--
Proseed	E-21CL	NS,CL,DM	--	--	--	--	--	x	x	x	--	--	--	--
Proseed	E-22CL	NS,CL,DM	--	--	--	--	--	x	x	x	--	--	--	--
Seeds 2000	Badger CL	ConOil,CL	x	x	x	x	--	x	x		--	--	--	--
Seeds 2000	Camaro	NS, CL,DM	x	x	x	x	--	x	x	x	x	x	x	x
Seeds 2000	Cobalt	HO,CL,DM	x	x	x	x	--		x		x	--	--	x
Seeds 2000	Daytona	HO,CL	x	x	x	x	--	--	--	--	--	--	--	--
Seeds 2000	Defender Plus	NS,DM	--	--	--	--	--		x	x	x	x	--	--
Seeds 2000	Durango	NS,Ex	x	x	x	x	--	x						--
Seeds 2000	Falcon	NS,Ex	x	x	x	x	--	x	x	x	x	x	--	--
Seeds 2000	Sierra	HO	--	--	--	x	--	--	--	--	--	--	--	--
Seeds 2000	Torino	NS,CL	x	x	x	x	--	x	x	--	--	--	--	x
Syngenta	3158 NS/CL/DM	NS,CL,DM	x	x	x	x	--	x	x	x	x	--	--	x
Syngenta	3480 NS/CL/DM	NS,CL,DM	--	--	--	--	--	x	x	x	x	--	--	--
Syngenta	3495 NS/CL/DM	NS,CL,DM	x	x	x	x	--	x	x	x	x	--	--	x
Syngenta	3733 NS/DM	NS,DM	x	x	x	x	--	x	x	x	x	--	--	x
Syngenta	3733 NS/DM coated	NS,DM	x	x	x	x	--	x		x	x	--	--	--
Syngenta	3845 HO	HO	x	x	x	x	--	x		x	x	--	--	x
Syngenta	3875 NS	NS	--	--	x		--	--	--	--	--	--	--	--
Syngenta	3990 NS/CL/DM	NS,CL,DM	x	x	x	x	--	x	x	x	x	--	--	x
Syngenta	3995 NS/SU	NS,Ex	x	x	x	x	--	x	x	x	x	--	--	x
Syngenta	4596 HO/DM	HO,DM	x	x	x	x	--	x	x	x	x	--	--	x
Syngenta	7120 HO/DM	HO,DM	x	x	x	x	--	x		x	x	--	--	--
Syngenta	NX01162	NS,CL,DM	x	x	x	x	--	x	x	x	x	--	--	x
Syngenta	NX82758	NS,CL,DM	x	x	x	x	--	x	x	x	x	--	--	x
Triumph	810HCLD	HO,CL,DM	--	x	--	--	--	--	x	--	--	--	--	--
Triumph	859HCL	HO,CL	--	--	x	x	--	--	--	--	--	--	--	--
Triumph	s655	NS,SS,DM	x	x	x	x	--	--	--	--	--	--	--	--
Triumph	s668	NS,SS	x	x	x	x	--	x	--	--	--	--	--	--
Triumph	s673	NS,SS	x	x	x	x	--	x	--	--	x	x	--	--
Triumph	s674	NS,SS	x	x	x	x	--		--	--	--	--	--	--
Triumph	s678	NS,SS	x	x	x	x	--	x	--	--	--	--	--	--
Triumph	s870HCL	HO,CL,SS	x	x	x	x	--	x	--	--	--	--	--	--
Triumph	TRXs10424	NS,DM	--	--	--	--	--	--	x	--	--	--	--	--
Triumph	TRXs10429H	HO,SS	--	--	x	x	--	--		--	--	--	--	--
Triumph	TRXs11345CLD	NS,CL,DM	--	--	--	--	--	--	x	--	--	--	--	--
Triumph	TRXs11430HOD	HO,DM	--	--	--	--	--	--	x	--	--	--	--	--
Triumph	TRXs11431CL	CL,SS	--	--	--	x	--	--	--	--	--	--	--	--
Triumph	TRXs11432CL	CL,SS	--	--	--	x	--	--	--	--	--	--	--	--
USDA	894	Trad.	x	x	x	x	--	--	--	x	x	--	--	x

¹Traits provided by company: Trad. = Traditional oil, HO = High Oleic, NS = NuSun, Trad = Traditional, CL = Clearfield, Ex = ExpressSun, DM = Downy Mildew resistant, SS = short stature, NA = not available.

Table 6. 2011 Fatty Acid Composition of Selected Oilseed Sunflower Hybrids - Casselton, N.D. - Author, B.S. Hulke.

Company/Brand	Hybrid ¹	Type	Fatty acids			
			Palmitic	Stearic	Oleic	Linoleic
			% ± SEM ²	% ± SEM	% ± SEM	% ± SEM
Genosys	Genosys 8037	HO,CL,DM	3.69 ± 0.08	5.28 ± 0.23	70.91 ± 1.96	16.99 ± 1.94
Genosys	Genosys 9008	NS,DM	4.00 ± 0.13	4.44 ± 0.30	64.59 ± 3.24	24.11 ± 3.00
Genosys	Genosys 9319	NS,DM	3.89 ± 0.08	4.02 ± 0.23	61.81 ± 2.52	27.62 ± 2.42
Nidera	MN13093	CL,HO,DM	3.20 ± 0.13	2.93 ± 0.11	84.08 ± 3.81	7.14 ± 3.69
Pioneer	P63HE60	HO	3.19 ± 0.07	4.18 ± 0.10	86.48 ± 0.92	3.36 ± 0.85
Pioneer	P63ME70	NS	4.19 ± 0.23	4.83 ± 0.24	58.70 ± 6.05	29.91 ± 5.82
Pioneer	P63ME80	NS	3.81 ± 0.09	4.39 ± 0.16	69.77 ± 2.92	19.69 ± 2.79
Pioneer	P64HE01	HO	3.24 ± 0.29	3.75 ± 0.17	81.23 ± 6.49	9.20 ± 6.12

Casselton oilseed and non-oilseed tests were not reported because of adverse weather conditions which prevented collection of data.

¹Hybrids were tested only for fatty acid not for yield.

²SEM = standard error of the mean.

Table 7. 2011 Sunflower - Non-oilseed - Langdon, N.D. - Authors, B. Hanson and R. Wilhelm.

Company/ Brand	Hybrid	Plant Height	Harvest Moist.	Test Weight	Seed over screen			Seed Yield	
					22/64	20/64	18/64	2011	3-yr. Avg.
		(inch)	(%)	(lb/bu)	(%)	(%)	(%)	------(lb/a)-----	
Dahlgren	9530	69	12	21.7	62	85	94	2,463	2,084
Dahlgren	9530CL	71	15	21.2	57	87	96	2,532	1,900
Dahlgren	EX610	63	13	20.4	77	89	95	2,297	--
Mycogen	8C410CL	70	18	21.7	57	83	95	2,445	--
Mycogen	8C451	67	12	20.0	74	90	95	2,436	1,983
Red River Comm.	2215	68	14	22.4	50	78	95	2,404	2,087
Red River Comm.	2215CL	67	16	21.1	62	88	97	2,823	--
Red River Comm.	2217	62	11	20.7	68	87	95	2,255	1,973
Seeds 2000	6946 DMR	68	11	24.4	11	44	90	2,992	--
Seeds 2000	Jaguar	71	12	22.1	71	92	98	3,035	2,319
Seeds 2000	Jaguar DMR	68	12	23.2	66	89	97	2,992	--
Seeds 2000	X3207	67	13	22.8	61	85	95	2,733	--
Seeds 2000	X9180	66	12	22.7	53	80	95	2,434	--
USDA	924	67	13	24.8	23	69	92	2,720	1,986
Mean		67	13	22.1	57	82	95	2,612	2,047
CV %		5	8.8	4.3	--	--	--	12.6	--
LSD 0.05		NS	2	1.6	--	--	--	NS	--

Planted: June 2. Harvested: Oct. 12.

Table 8. 2011 Sunflower - Oilseed - Langdon, N.D. - Authors, B. Hanson and R. Wilhelmi.

Company/ Brand	Hybrid	Days to Flower (DAP) ¹	Plant Height (inch)	Harvest Moist. %	Test Weight (lb/bu)	Oil (%)	Seed Yield		
							2011	2-yr. Avg.	3-yr. Avg.
Croplan	442 E NS	74	64	17	28.0	41.1	1,694	--	--
Croplan	460 E NS	75	72	17	28.4	41.0	1,682	1,730	1,598
Croplan	548 CL DMR NS	71	64	10	28.6	38.9	1,641	--	--
Croplan	559 CL DMR NS	74	76	12	29.1	41.9	1,440	1,918	
Dahlgren	DO-2012CL	68	64	12	32.4	39.9	1,664	--	--
Dahlgren	DO-4421CL	68	68	11	30.2	35.4	1,589	1,947	1,847
Elite	Balistic	72	72	18	28.0	35.6	1,873	--	--
Elite	Ethic	74	76	11	28.8	39.7	1,609	--	--
Elite	Pacific	73	70	13	26.3	38.0	1,931	--	--
Elite	Pomar	73	73	11	29.3	40.0	2,040	--	--
Genosys	8037	75	72	13	31.2	36.8	1,531	1,597	--
Genosys	9008	74	72	11	30.1	37.1	1,829	--	--
Genosys	9319	75	69	12	30.3	40.3	1,888	--	--
Integra	735 NSCLDM	71	68	11	29.2	38.8	1,654	1,729	1,527
Integra	IX09-95010 NSDM	75	66	16	28.4	40.4	1,651	1,677	1,361
Integra	IX10-94 NSSU	74	67	12	28.1	38.6	1,542	1,649	--
Mycogen	8D310	68	66	10	29.3	35.9	1,776	1,938	1,851
Mycogen	8H288CLDM	69	62	13	29.9	40.3	1,512	1,786	1,473
Mycogen	8N270CLDM	69	66	12	31.4	41.2	1,975	2,120	1,850
Mycogen	8N358CLDM	72	68	14	28.3	41.6	1,723	1,842	1,661
Pioneer	P63HE60	72	71	13	30.1	39.8	2,125	--	--
Pioneer	P63ME70	72	69	13	26.6	41.2	1,902	1,895	--
Pioneer	P63ME80	70	71	10	30.9	43.2	1,754	--	--
Pioneer	P64HE01	72	69	10	31.8	38.4	1,560	1,849	--
Proseed	E-10	76	72	16	24.5	37.0	1,913	--	--
Proseed	E-14	73	69	12	32.0	38.9	1,680	--	--
Proseed	E-21CL	70	65	12	32.4	36.8	2,118	--	--
Proseed	E-22CL	69	69	11	31.7	37.8	2,349	--	--
Seeds 2000	Camaro	74	71	17	31.4	41.0	1,790	--	--
Seeds 2000	Cobalt	72	65	14	31.9	37.9	1,827	--	--
Seeds 2000	Defender Plus	70	68	11	29.8	39.4	1,715	1,831	1,607
Seeds 2000	Falcon	73	71	13	31.1	40.8	1,279	--	--
Syngenta	3158 NS/CL/DM	72	62	10	30.8	39.6	1,510	--	--
Syngenta	3480 NS/CL/DM	74	68	11	29.2	41.0	1,756	1,812	1,505
Syngenta	3495 NS/CL/DM	75	70	12	30.7	39.1	2,175	--	--
Syngenta	3733 NS/DM	74	65	13	29.4	39.9	1,768	--	--
Syngenta	3733 NS/DM Coated	77	66	14	29.2	38.5	2,168	--	--
Syngenta	3845 HO	73	62	12	30.2	38.5	1,428	--	--
Syngenta	3990 ND/CL/DM	75	68	16	31.0	41.4	2,412	--	--
Syngenta	3995 ND/SU	75	72	14	32.3	38.1	1,258	--	--
Syngenta	4596 HO/DM	73	69	13	30.7	37.6	2,048	--	--
Syngenta	7120 HO/DM	71	63	11	30.1	38.8	1,513	1,675	--
Syngenta	NX01162	72	65	13	29.1	37.6	1,715	--	--
Syngenta	NX82758	71	64	13	29.4	42.7	1,965	--	--
USDA	894	70	66	11	30.0	38.7	1,288	1,618	--
Mean		72	68	13	29.8	39.2	1,761	1,801	1,628
CV %		2	5	16	3.9	2.6	15.6	--	--
LSD 0.05		2	5	3	1.9	1.7	449	--	--

Planted: June 2. Harvested: Oct. 13.

¹Days after planting.

Maturity Checks: Days to Flower. Falcon-73, 8N270CLDM-69, 378HO-70.

Table 9. 2011 Sunflower - Oilseed - Hettinger, N.D. - Authors, E. Eriksmoen and R. Olson.

Company/ Brand	Hybrid	Days to Flower (DAP) ¹	Days to Maturity (DAP)	Plant Height (inch)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield	
							2011 -----lb/a-----	3-yr. Avg.
Croplan	442 E NS	70	103	60	23.4	36.9	1,691	--
Croplan	460 E NS	70	109	58	23.3	36.3	1,911	--
Croplan	548 CL DMR NS	69	106	52	25.5	36.6	1,437	--
Croplan	559 CL DMR NS	71	110	69	25.2	36.9	2,175	--
Elite	Balistic CL	71	112	73	24.6	35.6	1,580	--
Elite	Biba	70	105	62	24.0	37.0	1,799	--
Elite	Ethic	72	110	69	22.9	36.5	1,205	--
Elite	Pacific	72	111	67	21.6	34.8	2,058	--
Elite	Pomar	72	108	72	22.9	36.0	1,659	--
Genosys	8037	71	102	66	28.3	33.4	1,272	--
Genosys	9008	73	110	64	24.8	33.7	1,560	--
Genosys	9319	71	110	67	25.1	35.5	1,794	--
Integra	724 NS CL	70	106	59	24.0	34.6	1,220	--
Integra	756 NS CL	71	106	66	26.6	35.0	1,664	--
Integra	IX10-94 NSSU	71	108	56	24.5	35.5	1,660	--
Mycogen	8D310	68	108	62	24.1	33.0	1,550	1,845
Mycogen	8D481	73	110	67	25.2	33.7	2,389	1,997
Mycogen	8H449CLDM	72	110	67	26.5	37.5	1,631	2,278
Mycogen	8N421CLDM	72	109	59	24.2	35.8	1,401	--
Pioneer	P63HE60	72	106	70	24.4	34.8	1,442	--
Pioneer	P63ME70	71	107	68	21.9	37.3	1,670	--
Pioneer	P63ME80	69	110	72	24.5	35.6	1,843	--
Proseed	E-10	73	109	70	21.3	33.6	1,385	--
Proseed	E-14	70	109	75	24.2	34.0	1,543	--
Proseed	E-21CL	71	110	71	22.9	34.2	1,420	--
Proseed	E-22CL	68	112	67	26.0	34.2	1,748	--
Seeds 2000	Badger CL	67	105	58	25.0	34.4	2,134	--
Seeds 2000	Camaro	72	103	65	24.7	35.2	1,352	--
Seeds 2000	Durango	76	108	56	23.6	35.1	1,770	--
Seeds 2000	Falcon	72	105	53	23.7	35.6	1,767	--
Seeds 2000	Torino	73	106	56	25.9	35.8	1,537	--
Seeds 2000	X9822	70	108	52	24.5	35.7	1,345	--
Syngenta	3158 NS/CL/DM	71	106	61	24.3	36.0	1,569	--
Syngenta	3480 NS/CL/DM	72	105	63	23.7	36.7	1,912	2,176
Syngenta	3495 NS/CL/DM	73	106	66	26.4	36.4	1,927	--
Syngenta	3733 NS/DM	70	107	56	24.5	37.7	2,264	--
Syngenta	3733 NS/DM coated	70	108	59	23.8	36.3	1,707	--
Syngenta	3845 HO	70	106	51	26.0	37.4	1,719	2,066
Syngenta	3990 NS/CL/DM	73	104	65	24.7	36.1	1,353	--
Syngenta	3995 NS/SU	71	103	62	22.3	34.5	1,778	--
Syngenta	4596 HO/DM	69	112	67	27.7	36.2	1,711	--
Syngenta	7120 HO/DM	66	110	51	24.8	37.1	1,578	1,731
Syngenta	NX01162	70	104	65	21.6	31.9	1,440	--
Syngenta	NX82758	70	110	58	21.7	34.7	1,630	--
Triumph	s668	76	110	46	24.8	35.9	1,726	--
Triumph	s673	78	110	45	24.1	37.2	1,543	--
Triumph	s678	74	121	50	25.7	37.6	1,644	2,029
Triumph	s870HCL	76	111	46	24.0	37.4	1,487	--
Maturity Checks								
Seeds 2000	Early -Falcon	72	105	--	--	--	--	--
Mycogen	Medium 8N270CLDM	66	104	--	--	--	--	--
Croplan	Late- 378 DMR HO	69	110	--	--	--	--	--
Mean		71	108	62	24.4	35.6	1,658	2,017
CV %		1.8	1.6	4.9	4.0	3.5	8.1	--
LSD 0.05		2	2	4	1.3	1.7	188	--

Planted: June 6. Harvested: Sept. 9. Previous crop: spring wheat. Seeding rate: 19,000 seeds/acre. Row spacing: 30 inches.

¹Days after planting.

Table 10. 2011 Sunflower - Oilseed - Minot, N.D. - Authors, M. Halvorson, A. Sebelius and J. Tarasenko. (Page 1 of 2).

Company/ Brand	Hybrid	Days to Flower (DAP) ²	Days to Maturity (DAP) ²	Plant Height (inch)	Plant Lodge ¹ (0-9)	Harvest Moisture (%)	1,000			Seed Yield			
							Seed Weight (gram)	Seeds/ lb (seeds)	Test Weight (lb/bu)	Oil Content (%)	2011	2-yr. Avg.	3-yr. Avg.
Advanta	0238 NS/SU	68	90	68	4	15	48.1	9,492	30.9	43.1	859	--	--
Advanta	3651 NS/CL	68	92	70	6	14	57.9	7,898	29.2	40.6	1,144	--	--
Advanta	4551 NS/CL	69	89	72	6	10	50.0	9,117	29.7	41.3	1,248	--	--
Advanta	4651 NS/CL	70	91	70	6	10	50.6	8,983	30.1	41.0	1,004	--	--
Advanta	6752 NS/SU	69	92	69	6	13	46.7	9,728	32.1	42.1	1,136	--	--
Advanta	6838 NS/SU	68	89	71	4	9	52.4	8,711	31.8	41.5	1,352	--	--
Advanta	6852 NS/SU	64	88	62	3	10	42.6	10,683	34.6	42.5	725	--	--
Advanta	6938 NS/SU	69	90	68	5	11	48.3	9,421	31.0	42.4	1,477	--	--
Advanta	6952 NS/SU	65	90	61	5	12	44.0	10,377	32.2	41.0	723	--	--
Advanta	7052 NS/SU	68	95	66	6	14	42.4	10,727	32.1	41.5	1,181	--	--
Croplan	442 E NS	70	95	65	5	17	52.8	8,606	29.9	44.9	1,511	--	--
Croplan	460 E NS	70	95	67	5	15	59.0	7,723	30.5	45.2	1,297	1,913	1,906
Croplan	548 CL DMR NS	67	90	73	2	10	49.2	9,232	29.5	41.2	2,163	--	--
Croplan	559 CL DMR NS	69	95	82	1	12	49.4	9,208	31.7	44.5	2,445	2,686	--
Dahlgren	DO-2012CLDM	65	91	70	3	11	52.5	8,678	32.4	42.0	1,565	--	--
Dahlgren	DO-4421	65	93	72	3	15	82.1	5,571	28.2	36.2	2,131	--	--
Dahlgren	DO-44EXCL	65	93	75	2	14	77.2	5,885	28.0	37.9	2,323	--	--
Elite	Balistic CL	68	95	79	2	15	67.5	6,731	30.3	38.7	2,268	--	--
Elite	ESTR 10402	68	94	70	4	13	53.3	8,569	31.2	42.3	2,172	--	--
Elite	Ethic	68	95	80	7	14	54.5	8,524	30.9	37.0	1,098	--	--
Elite	Pacific	69	95	77	4	16	54.6	8,319	27.6	39.3	1,795	--	--
Elite	Pomar	70	95	76	5	13	57.5	7,960	29.7	42.3	1,746	--	--
Genosys	8037	69	91	71	6	12	50.6	8,988	32.8	39.2	1,087	--	--
Genosys	9008	70	90	75	5	11	50.2	9,131	32.4	39.7	1,241	--	--
Genosys	9319	70	90	74	6	12	47.0	9,712	33.1	43.8	857	--	--
Integra	735 NS CL DM	66	91	68	6	10	60.7	7,605	31.5	41.4	1,117	1,764	1,882
Integra	756 NS CL	69	92	74	2	12	58.0	7,843	33.6	41.9	1,870	--	--
Integra	IX09-95010 NSDM	70	93	74	4	16	59.1	7,692	29.1	40.6	1,084	--	--
Integra	IX10-94 NSSU	70	91	70	5	11	56.3	8,081	30.4	39.9	1,020	1,911	--
Mycogen	8D310	66	94	73	2	13	78.4	5,798	29.2	39.4	2,388	2,451	2,486
Mycogen	8D481	71	95	72	6	17	73.6	6,186	30.7	41.1	1,831	2,129	2,243
Mycogen	8H288CLDM	67	94	70	5	13	40.9	11,149	32.4	43.2	1,316	2,040	1,969
Mycogen	8H449CLDM	71	95	66	7	19	38.3	11,880	32.7	43.8	1,443	2,255	2,217
Mycogen	8N270CLDM	66	91	69	3	11	50.9	8,956	32.8	43.9	1,435	1,948	1,911
Mycogen	8N358CLDM	69	91	69	6	14	45.2	10,134	30.6	44.2	1,483	2,096	2,061
Mycogen	8N421CLDM	69	90	73	1	13	47.7	9,645	31.4	43.4	1,779	--	--
Mycogen	E80159CLDM	61	89	58	6	11	44.2	10,426	31.2	42.9	1,133	--	--
Proseed	E-10	71	95	81	6	24	62.0	7,329	27.4	38.6	1,428	--	--
Proseed	E-14	70	95	68	7	13	55.0	8,295	31.7	39.5	1,311	--	--
Proseed	E-21CL	68	94	76	6	13	58.5	7,799	32.9	38.5	1,767	--	--
Proseed	E-22CL	67	94	81	4	12	62.0	7,335	32.5	37.7	1,955	--	--
Seeds 2000	Badger	67	94	74	3	13	80.7	5,632	29.8	37.8	2,222	--	--
Seeds 2000	Camero	70	95	75	2	16	54.9	8,286	31.5	41.9	1,836	--	--
Seeds 2000	Cobalt	68	94	71	2	14	54.7	8,320	30.8	39.9	1,398	--	--
Seeds 2000	Defender Plus	68	92	67	3	10	47.6	9,544	31.2	41.5	1,537	1,743	1,762
Seeds 2000	Falcon	69	95	69	1	14	44.7	10,168	31.4	42.4	1,890	--	--
Seeds 2000	Torino	71	95	77	5	23	52.5	8,656	30.8	42.5	1,947	--	--
Syngenta	3158 NS/CL/DM	68	95	66	4	14	45.2	10,063	29.6	43.1	1,930	--	--
Syngenta	3480 NS/CL/DM	70	94	71	2	11	48.3	9,436	31.4	43.6	1,916	2,307	2,149
Syngenta	3495 NS/CL/DM	69	91	75	2	11	56.0	8,126	31.8	41.6	2,067	--	--
Syngenta	3733 NS/DM	70	94	68	3	11	57.0	7,984	34.0	45.2	2,125	--	--
Mean		68	93	71	4	13	53.6	8,754	31.0	41.6	1,581	2,103	2,059
CV %		--	1	5	48	19	7.7	7.9	4.9	3.6	16.8	11.9	21.6
LSD 0.05		--	3	5	3	4	8.3	1,378	2.1	2.1	454	411	478

Table 10. 2011 Sunflower - Oilseed - Minot, N.D. - Authors, M. Halvorson, A. Sebelius and J. Tarasenko. (Page 2 of 2).

Company/ Brand	Hybrid	Days to Flower (DAP) ²	Days to Maturity (DAP) ²	Plant Height (inch)	Plant Lodge ¹ (0-9)	Harvest Moisture (%)	1,000 Seed Weight (gram)	Seeds/ lb (seeds)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield		
											2011	Avg. (lb/a)	3-yr. Avg.
Syngenta	3990 NS/CL/DM	70	94	75	2	15	53.0	8,570	29.3	41.6	1,670	--	--
Syngenta	3995 NS/SU	70	95	72	3	13	47.9	9,513	30.7	40.5	1,942	--	--
Syngenta	4596 HO/DM	68	95	79	2	13	49.8	9,138	33.8	42.6	2,295	--	--
Syngenta	NX01162	68	94	67	4	12	45.8	9,920	29.4	38.4	1,565	--	--
Syngenta	NX82758	68	95	70	2	13	49.2	9,246	31.5	44.5	2,039	--	--
Triumph	810HCLD	68	92	68	6	12	57.8	7,911	29.5	42.0	1,110	--	--
Triumph	TRX11345CLD	69	95	78	5	13	58.6	7,768	28.8	45.1	1,406	--	--
Triumph	TRXs10424	73	95	61	4	14	42.8	10,618	30.7	45.8	1,595	--	--
Triumph	TRXs11430HOD	71	95	56	4	19	37.5	12,210	31.0	42.3	1,459	--	--
Mean		68	93	71	4	13	53.6	8,754	31.0	41.6	1,581	2,103	2,059
CV %		--	1	5	48	19	7.7	7.9	4.9	3.6	16.8	11.9	21.6
LSD 0.05		--	3	5	3	4	8.3	1,378	2.1	2.1	454	411	478

Planted: May 26. Harvested: Oct 20. Seeding rate of 22,000 PLS per acre.

¹Lodging score based on scale 0-9 (0 = upright, 9 = flat).²Days after planting.**Table 11. 2011 Sunflower - Non-oilseed - Minot, N.D. - Authors, M. Halvorson, A. Sebelius and J. Tarasenko.**

Company/ Brand	Hybrid	Days to Flower (DAP) ²	Plant Height (inch)	Plant Lodge ¹ (0-9)	1,000 Seed Wt. (grams)	Seeds/ lb (seeds)	Test Weight (lb/bu)	Seed Over Screen			Seed Yield	
								22/64	20/64	18/64	2011 ² (lb/a)	3-yr. Avg.
CHS	10EXP02	69	58	4	164	2,777	21.5	44.0	61.5	70.0	1,516	--
CHS	RH400CL	66	63	4	157	2,900	22.4	54.5	65.3	70.8	1,274	1,635
CHS	RH402CL	71	67	1	136	3,357	24.0	76.7	89.3	95.8	2,392	--
Dahlgren	9530	69	72	2	136	3,351	24.8	62.3	83.8	93.0	2,655	2,803
Dahlgren	9530CL	71	74	6	137	3,333	23.5	73.5	88.5	93.3	2,118	2,775
Dahlgren	EX610	66	58	6	139	3,275	21.4	52.5	66.3	70.5	1,143	--
Mycogen	8C410CL	71	78	2	140	3,274	25.0	49.0	63.3	69.3	2,285	--
Mycogen	8C451	68	66	4	141	3,248	22.2	65.6	84.5	93.5	1,830	2,349
Red River Comm.	2215	69	74	3	129	3,542	24.4	50.4	76.5	90.0	2,130	2,666
Red River Comm.	2217	70	69	3	134	3,376	22.9	54.1	66.5	70.8	1,967	2,499
Red River Comm.	2215 CL	71	76	3	140	3,249	24.3	45.8	62.5	69.5	2,064	--
Seeds 2000	6946 DMR	66	62	4	120	3,794	26.7	55.5	75.5	89.8	1,982	--
Seeds 2000	Jaguar	67	69	3	149	3,049	23.3	49.5	63.5	70.5	1,966	2,109
Seeds 2000	Jaguar DMR	64	68	2	154	2,958	24.9	32.6	77.0	91.3	2,148	2,543
Seeds 2000	X3207	68	72	3	153	2,971	27.3	36.0	58.3	69.3	2,865	--
Seeds 2000	X9180	66	65	3	132	3,446	25.8	39.1	57.8	69.3	1,780	--
Syngenta	3733 NS Coated	70	61	4	65	7,104	33.3	21.2	36.5	44.3	2,269	--
Syngenta	3845 HO	69	65	2	69	6,609	34.6	40.8	60.8	68.0	1,812	--
Syngenta	7120 HO/DM	68	61	5	68	6,767	32.6	47.3	61.5	69.3	1,433	--
Mean		68	67	3	129	3,810	25.5	50.0	68.4	76.8	1,980	2,422
CV %		2	5	59	6	6.7	3.7	63	53	51	25	--
LSD 0.05		2	5	3	10.6	384	1.3	NS	NS	NS	685	--

Planted: May 28. Harvested: Nov.4. Seeding rate of 18,000 PLS per acre.

¹Lodging score based on scale 0-9 (0 = upright, 9 = flat).²High CV for yield. Data should be interpreted with caution. Additional data sites should be used for making decisions.³Days after planting.

Table 12. 2011 Sunflower - Oilseed - Williston, N.D. - Authors, G. Bradbury and S. Loomer.

Company/ Brand	Hybrid	Days to Flower	Plant Height	Harvest Moisture ¹	Test Weight	Oil Content	Seed Yield		
							2011	2-yr. Avg.	3-yr. Avg.
		(DAP) ²	(inch)	(%)	(lb/bu)	(%)	------(lb/a)-----		
Croplan	460 E NS	69	48	13	34.1	47.0	1,132	--	--
Croplan	559 CL DMR NS	69	47	13	32.3	45.9	1,427	--	--
Elite	Balistic	68	59	11	31.8	41.5	1,394	--	--
Elite	Biba	67	51	12	31.8	42.6	1,435	--	--
Elite	Ethic	68	54	13	32.2	45.1	1,248	--	--
Elite	Pacific	68	52	12	29.7	42.9	1,076	--	--
Elite	Pomar	69	53	12	31.5	41.7	1,189	--	--
Seeds 2000	Camaro	69	49	14	33.8	42.7	1,469	--	--
Seeds 2000	Cobalt	68	50	12	33.4	44.0	1,150	--	--
Seeds 2000	Defender Plus	65	47	10	32.7	41.2	1,243	1,060	1,449
Seeds 2000	Falcon	68	44	14	33.7	43.5	1,377	--	--
Syngenta	3158 NS/CL/DM	67	49	12	33.8	43.1	1,254	--	--
Syngenta	3480 NS/CL/DM	68	47	13	32.4	44.7	1,352	1,155	--
Syngenta	3495 NS/CL/DM	67	51	11	34.7	41.9	1,343	--	--
Syngenta	3733 NS/DM	67	48	12	34.9	43.3	1,285	--	--
Syngenta	3733 NS/DM Coated	67	46	12	34.2	43.3	1,383	--	--
Syngenta	3845 HO	67	45	12	34.2	46.6	1,372	--	--
Syngenta	3990 NS/CL/DM	68	47	12	33.7	42.8	1,285	--	--
Syngenta	3995 NS/SU	67	48	12	34.2	41.7	1,284	--	--
Syngenta	4596 HO/DM	67	55	14	34.0	44.7	1,713	--	--
Syngenta	7120 HO/DM	66	46	12	32.8	43.3	1,161	1,111	
Syngenta	NX01162	65	45	12	30.3	40.1	1,153	--	--
Syngenta	NX82758	67	51	13	31.5	43.1	1,129	--	--
Triumph	s673 NS	71	39	17	32.4	45.9	1,806	1,377	--
USDA	894	66	49	12	32.8	42.1	939	758	1,132
Mean		67	49	12	32.9	43.2	1,302	1,092	1,290
CV %		1.4	6.7	8.7	1.9	2.7	17	--	--
LSD 0.05		1	5	2	1.3	2.4	319	--	--

Planted: June 2. Harvested: Oct. 24. Previous crop: durum.

Heads from the middle rows (two harvested rows) were netted after seed set. However, blackbird damage did occur.

¹Seed moisture taken at harvest.

²Days after planting.

Table 13. 2011 Sunflower - Oilseed - Irrigated - Williston - Authors, T. Tjelde and C. Wahlstrom

Company/ Brand	Hybrid	Days to Flower	Plant Height	Lodging Scale ¹	Harvest Pop.	Oil Content	Test Weight	Yield
Croplan	460 E NS	74	70	5	25,025	47.0	32.0	2,303
Croplan	559 CL DMR NS	72	67	6	17,976	45.3	32.6	2,731
Seeds 2000	Camaro	73	65	7	20,670	43.4	34.7	2,381
Seeds 2000	Defender Plus	72	57	8	14,852	41.8	32.2	2,128
Seeds 2000	Falcon	73	62	8	18,198	45.0	35.0	1,808
Triumph	s673	77	58	7	18,059	47.0	30.5	2,293
Mean		74	63	7	19,130	44.9	32.8	2,274
CV %		1	5	14	14	1.3	2.2	14
LSD 0.05		1	5	1	3,976	1.6	1.8	480

Planted: May 26. Harvested: Nov. 3.

¹Lodging Scale Rating: 1-9, 9 being severely lodged.

²Days after planting.

Table 14. 2011 Sunflower Hybrid Midge Evaluation - Mapleton, N.D. - Authors, J. Knodel, J. Prasifka, P. Beauzay and Theresa Gross (Page 1 of 2).

Company/Brand	Hybrid	Necrosis Score ¹		Bracken Scale ² (0-5)
		Hybrid Score	Damage Rating	
CHS	11-M1	1.40	Low	0.75
CHS	11-M2	1.50	Low	0.60
CHS	11-M3	1.85	Low	0.85
CHS	11-M4	1.70	Low	1.00
CHS	11-M5	2.85	Moderate	1.65
CHS	11-M6	1.85	Low	0.90
CHS	11-M7	1.85	Low	0.80
CHS	11-M8	1.40	Low	0.90
CHS	11-M9	1.90	Low	1.00
CHS	11-M10	2.53	Moderate	1.42
Mycogen	8N270CLDM	1.90	Low	0.95
Mycogen	E070947	1.55	Low	0.75
Mycogen	E070948	1.10	Low	0.55
Mycogen	E257687	2.15	Moderate	1.15
Mycogen	E279687	1.40	Low	0.85
Mycogen	E289687	1.65	Low	1.00
Mycogen	E81423DM	0.60	Low	0.45
Mycogen	E81424DM	1.55	Low	1.00
Mycogen	E81551	0.75	Low	0.45
Mycogen	E81552DM	1.45	Low	0.90
Nidera	LN9994	1.85	Low	0.95
Nidera	MN11812	1.85	Low	1.00
Nidera	MN12070	1.10	Low	0.50
Nidera	ON17799	1.85	Low	1.15
Red River Comm.	2215	1.05	Low	0.55
Red River Comm.	2217	1.35	Low	0.85
Red River Comm.	2215 CL	1.05	Low	0.55
Seeds 2000	Badger DMR	0.55	Low	0.40
Seeds 2000	Camaro	0.85	Low	0.45
Seeds 2000	Cobalt	1.65	Low	0.80
Seeds 2000	Jaguar	1.60	Low	1.05
Seeds 2000	Jaguar DMR	2.85	Moderate	1.30
Seeds 2000	Torino	0.65	Low	0.40
Seeds 2000	X3207	2.45	Moderate	1.50
Seeds 2000	X3213	2.10	Moderate	0.85
Seeds 2000	X3274	1.40	Low	0.80
Seeds 2000	X4219	1.80	Low	0.75
Seeds 2000	X4519	1.15	Low	0.75
Syngenta	3158 NS/CL/DM	1.30	Low	0.60
Syngenta	3495 NS/CL/DM	1.25	Low	0.60
Syngenta	3733 NS/DM	1.00	Low	0.65
Syngenta	3845 HO	1.95	Low	0.85
Mean		1.64	--	0.86
LSD 0.05		1.07	--	0.57

Table 14. 2011 Sunflower Hybrid Midge Evaluation - Mapleton, N.D. - Authors, J. Knodel, J. Prasifka, P. Beauzay and Theresa Gross (Page 2 of 2).

Company/Brand	Hybrid	Necrosis Score ¹		
		Hybrid Score	Damage Rating	Bracken Scale ² (0-5)
Syngenta	3990 NS/CL/DM	1.05	Low	0.60
Syngenta	3995 NS/SU	1.10	Low	0.70
Syngenta	4596 HO/DM	1.75	Low	0.85
Syngenta	4651 NS/DM	1.20	Low	0.70
Syngenta	NX01162	2.20	Moderate	1.55
Syngenta	NX82758	1.35	Low	1.00
USDA	412HO/472	0.95	Low	0.65
USDA	412HO/473	2.25	Moderate	1.00
USDA	412HO/474	1.65	Low	0.90
USDA	412HO/475	1.30	Low	0.60
USDA	445/472	1.65	Low	0.80
USDA	445/473	3.20	Moderate	1.10
USDA	445/474	3.10	Moderate	1.75
USDA	445/475	3.05	Moderate	0.95
USDA	894 Check	1.90	Low	0.75
Mean		1.64	--	0.86
LSD 0.05		1.07	--	0.57

Sunflower midge damage rating taken on Sept. 1, 2011; hybrids were planted on May 25 in single row plots randomized and replicated 4 times; 5 plants were evaluated per row (20 total per hybrid). Later than normal planting date may have mitigated sunflower midge damage in 2011.

¹**Sunflower midge necrosis score** measures the extent of necrosis at the base of the bracts caused by sunflower midge larval feeding. The range is from 0 (no injury) to 5 (50% or more of each quadrant of the head with midge necrosis). **Damage rating** is based on the necrosis score, with score values of 0-1.99 = low, 2-3.99 = moderate and 4-5 = high.

²**Bracken scale** measures sunflower midge injury symptoms on a 0 (no injury) to 5 (head closed, no seeds present) scale.

2011 SOUTH DAKOTA HYBRID SUNFLOWER TRIALS

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Locations and Hybrids

Oilseed hybrid sunflower trials were planted at four locations in South Dakota (Bison, Eureka, Onida, and Presho) in 2011. A planned trial at Miller could not be planted because of prolonged wet soil conditions. Entries in the oilseed sunflower trials included traditional linoleic oil hybrids, NuSun (mid-oleic) hybrids, and high oleic hybrids. A non-oilseed (confection) sunflower trial was conducted at Onida. Test locations are indicated on the map in Figure 1. Trial sites for each of the hybrids tested in 2011 appear in Tables 4 and 5.

Climate

A summary of climate conditions near the sunflower test sites is presented in Table 15. The 2011 growing season began with below-normal temperatures in May and June at all locations. May was drier than normal at Eureka and Presho but wetter than normal at Bison. June was cooler and wetter than normal at all stations. July brought warmer than normal temperatures and near-normal precipitation at all locations. Bison was wetter than normal in August but the remaining locations had below-normal precipitation with near-normal temperatures. All stations had below-normal precipitation in September and all but Onida remained drier than normal in October, which facilitated crop drydown even though the first killing frost ($\leq 24^{\circ}\text{F}$) did not occur until about Oct. 20, which was later than normal for all locations.

Experimental Methods

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

Seed of most of the hybrids entered in the trials was pre-treated with Cruiser insecticide and at least one fungicide. All trials were seeded no-till. Seeding date at Eureka was June 3; Onida and Bison were seeded on June 8. Wet field conditions delayed planting at Presho until June 30. The previous crop at Eureka was corn; at Bison, Presho and Onida it was wheat. Plots were overseeded and thinned to a plant population of approximately 18,000 plants per acre. Stands were good at all locations.

At Onida, damage expressed as a burning of upper leaves and flower buds was observed between stages R-1 and R-2. This injury was believed to have been caused by a chemical application. Some hybrids evidenced greater levels of damage than others. Notes on the amount of damage observed are included in the yield results table for Onida (Table 18). The injured plants appeared to grow out of the damage, but it is not known how yield may have been affected. Because of the plant injury at Onida, it was decided to record flowering and maturity data at Presho. Flowering was recorded as the number of days from planting to 50 percent ray petals extended. Days from planting to physiological maturity (rated visually) were recorded at Presho. Plant height and lodging notes were taken at all locations immediately before harvest. Lodging was low at all sites for most hybrids. Presho had some leaning and lodged plants caused by high winds, but most plants were harvestable. Phomopsis stem lesions were observed at Eureka and Presho. Disease incidences were recorded on 10 consecutive plants from each plot in replications one and two at Eureka and replication one at Presho. Most of the Phomopsis-infested plants remained standing and were harvested.

Plots at Eureka, Onida, and Presho were harvested with a Gleaner Model K combine fitted with a two-row all-row crop header and HarvestMaster HM-400 HarvestData System. Plots at Bison were harvested with a Wintersteiger Delta plot combine fitted with a HarvestMaster GrainGauge. Seed yields were adjusted to a 10 percent moisture basis. Oil content was determined by NMR analysis, using a Bruker minispec. Oil values for NuSun and high oleic hybrids were adjusted for oleic acid content. Hulling quality was measured at Onida on selected hybrids by passing a 1-pint seed sample over 14/64 and 13/64 round-hole screens.

A 1-pint subsample of seed from each plot of the Onida confection trial was passed over 22/64, 20/64, and 18/64 round-hole screens to determine percent of large seed. Nutmeat percent was determined by weighing 20 whole seeds from each plot, then dehulling, and weighing the 20 dehulled kernels.

Results

Data from each location and combined over locations are contained in Tables 16-21. Yields of oilseed hybrids were highest at Onida and Presho, averaging 1,933 and 1,928 pounds per acre, respectively, over all hybrids tested, with an average oil content of 44.4 percent at Onida and 42.5 percent at Presho (Tables 18 and 20). The lowest overall yield was measured at Eureka, which averaged 1,583 pounds per acre and 46.8 percent oil for the 48 hybrids tested (Table 17). Twenty-four confection sunflower hybrids averaged 1,602 pounds per acre seed yield at Onida (Table 19). 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. 2011 South Dakota sunflower trial locations.

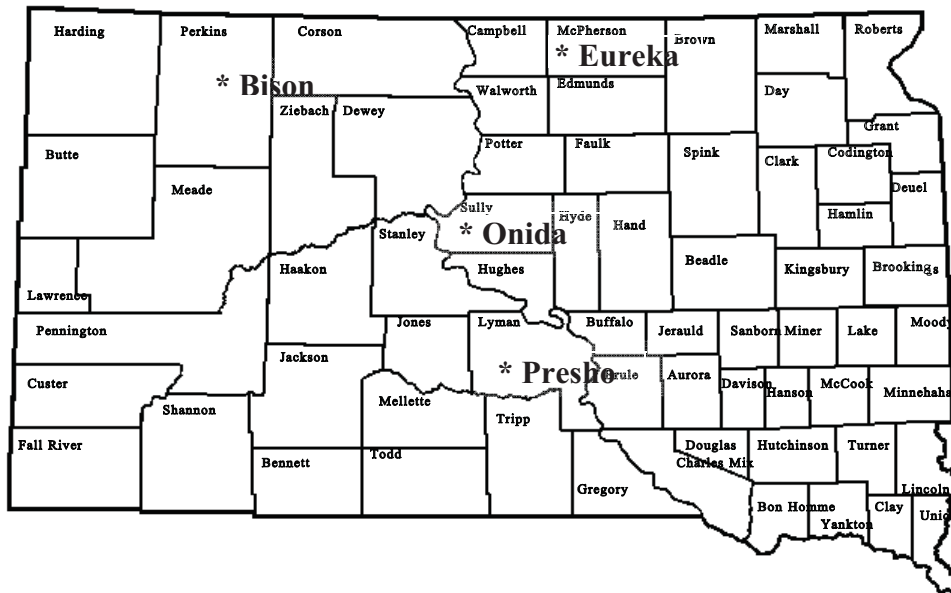


Table 15. 2011 Climate Summary for Weather Stations Nearest to South Dakota Sunflower Test Sites and Departures From Normal.

Location- Month	2011 Temperature			Total Precip. (inch)	Departure from Normal ¹			Precip. (inch)
	Avg. Max.	Avg. Min.	Mean		Max. Temp	Min. Temp	Avg. Temp	
	------(°F)-----				------(°F)-----			
<u>Bison</u>²								
May	62.2	41.4	51.8	4.56	-7.3	-2.3	-4.8	1.84
June	76.4	50.3	63.3	3.31	-2.5	-2.7	-2.7	0.49
July	86.0	62.4	74.2	2.53	0.0	4.0	2.0	0.26
August	85.6	57.9	71.8	4.19	-0.6	1.0	0.2	2.72
September	77.9	46.5	62.2	0.00	3.1	0.0	1.5	-1.20
October	64.3	38.3	51.3	0.53	3.8	3.0	3.4	-0.93
<u>Eureka</u>²								
May	63.4	42.0	52.7	1.68	-6.4	-1.6	-4.0	-0.95
June	76.2	53.6	64.9	4.68	-2.0	0.7	-0.7	1.51
July	85.9	64.4	75.2	2.83	1.2	6.4	3.8	0.05
August	83.7	58.5	71.1	1.50	-0.1	2.3	1.1	-0.80
September	75.4	43.2	59.3	0.62	2.1	-2.2	-0.1	-0.81
October	64.6	36.0	50.3	1.41	5.5	2.4	3.9	-0.25
<u>Onida 4 NW</u>²								
May	63.9	43.8	53.8	3.22	-6.5	-0.5	-3.6	0.37
June	76.8	55.5	66.1	5.37	-3.4	1.9	-0.8	2.26
July	89.1	66.6	77.9	3.54	1.5	7.8	4.7	0.85
August	84.8	57.8	71.3	1.59	-1.0	0.8	-0.1	-0.55
September	74.9	46.0	60.5	0.90	-1.1	-0.3	-0.7	-0.64
October	64.6	39.8	52.2	3.47	3.4	5.3	4.3	1.89
<u>Presho 7 NW</u>²								
May	66.6	43.0	54.8	1.57	-5.7	-1.4	-3.6	-1.74
June	79.5	53.9	66.7	5.87	-2.7	0.1	-1.3	2.36
July	90.9	65.9	78.4	2.42	1.6	6.3	4.0	-0.27
August	87.4	60.8	74.1	0.00	-1.3	3.0	0.8	-2.28
September	77.7	45.6	61.7	0.31	-0.5	-1.6	-1.0	-1.18
October	67.4	39.8	53.6	1.38	3.8	4.9	4.3	-0.13

¹Departures from normal were determined by comparing 2011 observations to 30-yr averages (1971-2000) for each site.

²2011 climate observations are 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.

Table 16. 2011 Sunflower - Oilseed - Bison, S.D. (Page 1 of 2)

Company/ Brand	Hybrid	Pop. x1,000 Plt/a (plants)	Plant Height (inch)	Harvest Moisture (%)	Plant Lodge (%)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield		
								2011	2-yr. Avg. (lb/a)	3-yr. Avg.
Croplan	306 DMR NS	17.7	64	5	2	26.9	46.2	2,042	1,873	1,563
Croplan	3080 DMR NS	17.8	69	5	1	26.8	47.3	2,053	1,976	1,660
Croplan	356A NS	18.0	63	8	0	28.0	46.7	2,396	2,207	1,775
Croplan	378 DMR HO	16.7	70	10	10	26.0	45.1	1,524	1,552	--
Croplan	442 E NS	16.9	67	7	1	24.4	46.3	1,741	--	--
Croplan	460 E NS	17.6	68	6	1	24.6	47.0	1,848	1,646	1,310
Croplan	548 CL DMR NS	16.9	73	6	3	26.0	45.7	2,009	--	--
Croplan	555 CL DMR NS	17.6	74	5	3	24.3	44.4	1,704	1,492	1,231
Croplan	559 CL DMR NS	17.5	76	5	2	27.0	44.1	2,012	1,792	--
Dahlgren	DO-2012 CL	17.4	67	6	3	27.1	44.4	1,414	--	--
Dahlgren	DO-4421	17.1	76	6	1	25.5	43.3	1,693	--	--
Dahlgren	DO-44EXCL	17.7	78	8	1	22.1	40.0	1,607	--	--
Mycogen	8D310	17.7	74	6	3	25.2	40.5	1,489	--	--
Mycogen	8D481	17.1	70	8	1	26.0	42.4	1,866	1,851	--
Mycogen	8H449CLDM	17.6	66	10	1	28.0	47.8	2,406	--	--
Mycogen	8N358CLDM	17.3	74	6	1	26.2	47.5	1,581	1,541	1,380
Mycogen	8N421CLDM	17.9	70	6	4	26.1	44.1	1,989	--	--
Mycogen	8N453DM	17.3	74	8	7	28.1	48.0	1,983	2,064	--
Mycogen	8N510	18.1	69	7	8	24.4	45.1	2,094	1,888	1,681
Pannar	PAN7924 NS	17.2	71	8	0	24.2	42.3	1,998	--	--
Pannar	PAN9501	17.4	79	8	8	26.4	42.7	1,769	--	--
Pannar	PAN9501 NS	17.3	74	7	6	27.5	42.8	1,826	--	--
Pannar	PAN9612 NS	17.6	74	8	2	27.1	42.4	2,000	--	--
Pannar	PANG3827	16.4	72	7	5	25.6	45.9	1,606	--	--
Pannar	PANH3838	17.3	71	7	3	26.4	47.9	1,928	--	--
Pannar	PANH3931	17.3	75	5	7	25.9	47.7	1,464	--	--
Pannar	PANH3950	16.8	75	7	5	25.9	46.2	1,752	--	--
Pioneer	P63HE60	17.1	69	7	2	28.0	45.0	1,234	--	--
Pioneer	P63ME70	17.7	69	4	4	26.9	44.3	1,181	1,411	--
Pioneer	P63ME80	17.7	73	6	3	27.0	45.5	1,487	--	--
Pioneer	P64HE01	16.8	74	8	7	29.4	44.7	1,610	1,623	--
Seeds 2000	Badger CL	17.4	74	8	4	24.7	39.0	1,571	1,537	--
Seeds 2000	Camaro	17.3	72	8	2	27.8	43.6	1,655	--	--
Seeds 2000	Cobalt	17.3	66	6	2	27.1	43.6	1,171	--	--
Seeds 2000	Daytona	17.6	67	7	0	26.1	44.6	1,378	--	--
Seeds 2000	Durango	17.0	64	8	2	26.5	42.4	1,529	--	--
Seeds 2000	Falcon	17.4	70	7	1	28.1	43.9	1,785	--	--
Seeds 2000	Torino	17.8	76	9	0	27.5	44.1	1,878	--	--
Syngenta	3158 NS/CL/DM	17.5	68	6	1	28.4	44.5	2,024	--	--
Syngenta	3495 NS/CL/DM	17.6	68	6	1	29.0	42.5	1,758	--	--
Syngenta	3733 NS/DM	17.9	66	5	1	27.1	46.7	2,058	--	--
Syngenta	3733 NS/DM coated	17.6	66	5	0	27.6	45.7	2,366	--	--
Syngenta	3845 HO	16.8	66	6	3	27.9	47.8	1,866	1,882	1,546
Syngenta	3990 NS/CL/DM	17.5	72	8	1	27.8	45.5	1,751	--	--
Syngenta	3995 NS/SU	17.6	67	5	0	25.0	41.1	1,599	--	--
Syngenta	4596 HO/DM	17.0	76	7	2	29.0	44.3	1,734	1,613	--
Syngenta	7120 HO/DM	16.6	63	5	2	26.0	45.3	1,683	--	--
Syngenta	NX01162	17.1	69	5	0	24.5	39.2	1,095	--	--
Syngenta	NX82758	17.7	70	7	4	26.8	44.0	1,636	--	--
Mean		17.4	69	7	3	26.5	44.7	1,747	1,783	1,514
CV %		3	3	11	128	3.4	2.8	11.4	12.6	14.1
LSD 0.05		0.8	3	1	5	1.3	1.8	278	222	180

Table 16. 2011 Sunflower - Oilseed - Bison, S.D. (Page 2 of 2)

Company/ Brand	Hybrid	Pop. x1,000 Plt/a (plants)	Plant Height (inch)	Harvest Moisture (%)	Plant Lodge (%)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield		
								2011	2-yr. Avg.	3-yr. Avg.
Triumph	s655	18.1	47	6	0	27.1	45.6	1,562	1,647	1,401
Triumph	s668	17.9	61	9	3	25.4	45.6	1,824	2,112	--
Triumph	s673	17.8	64	5	1	25.1	45.1	2,062	2,094	--
Triumph	s674	17.7	53	7	0	25.6	47.2	1,959	2,023	1,783
Triumph	s678	17.8	59	8	1	28.6	46.6	2,001	2,203	1,830
Triumph	s870HCL	17.5	50	5	2	24.8	45.5	1,511	1,775	--
USDA	894 (check)	16.9	62	6	10	26.6	45.8	1,047	1,199	1,006
Mean		17.4	69	7	3	26.5	44.7	1,747	1,783	1,514
CV %		3	3	11	128	3.4	2.8	11.4	12.6	14.1
LSD 0.05		0.8	3	1	5	1.3	1.8	278	222	180

Planted: June 8. Harvested: Oct. 8. Previous crop: wheat.

Table 17. 2011 Sunflower - Oilseed - Eureka, S.D.

Company/Brand	Hybrid	Plant	Plant	Phomopsis	Harvest	Test	Oil	Seed Yield
		Height	Lodge	Incl. ¹	Moisture	Weight	Content	2011
		(inch)	(%)	(%)	(%)	(lb/bu)	(%)	(lb/a)
Croplan	306 DMR NS	68	1	95	10	26.2	48.1	1,781
Croplan	3080 DMR NS	71	5	95	8	25.5	48.1	1,464
Croplan	356A NS	65	2	80	11	26.5	47.1	1,931
Croplan	378 DMR HO	70	6	85	11	25.3	46.2	1,287
Croplan	442 E NS	66	5	80	10	26.2	48.3	2,264
Croplan	460 E NS	67	5	70	11	25.9	46.1	1,573
Croplan	548 CL DMR NS	75	2	35	10	26.0	47.5	1,916
Croplan	555 CL DMR NS	77	8	70	10	26.8	46.2	1,703
Croplan	559 CL DMR NS	75	2	55	10	27.4	48.0	2,079
Dahlgren	DO-2012CL	71	4	80	10	27.0	47.9	1,628
Dahlgren	DO-4421	69	5	80	8	23.6	44.6	1,072
Dahlgren	DO-44EXCL	74	3	95	11	24.0	43.5	1,350
Mycogen	8D310	73	5	90	9	25.1	43.6	1,421
Mycogen	8D481	73	4	75	10	25.9	44.0	2,029
Mycogen	8H449CLDM	69	4	90	11	26.4	47.8	1,927
Mycogen	8N358CLDM	70	6	85	9	25.6	48.0	1,764
Mycogen	8N421CLDM	66	1	100	9	26.1	46.6	1,623
Mycogen	8N510	65	2	55	9	25.1	45.7	1,649
Pioneer	Pioneer Brand 63HE60	73	4	50	10	27.2	47.1	1,384
Pioneer	Pioneer Brand 63ME70	69	4	10	9	26.3	46.6	1,524
Pioneer	Pioneer Brand 63ME80	69	1	55	10	27.4	47.2	1,471
Pioneer	Pioneer Brand 64HE01	71	2	55	11	26.9	46.5	1,417
Seeds 2000	Badger CL	71	6	90	9	26.7	43.8	1,129
Seeds 2000	Camaro	70	4	90	11	27.8	46.8	1,709
Seeds 2000	Cobalt	65	2	90	10	25.9	46.2	1,245
Seeds 2000	Daytona	64	3	100	11	26.5	46.5	1,231
Seeds 2000	Durango	63	7	65	11	27.3	46.3	1,758
Seeds 2000	Falcon	70	2	55	10	26.3	47.9	1,853
Seeds 2000	Torino	71	5	70	11	26.4	46.5	1,633
Syngenta	3158 NS/CL/DM	66	2	30	10	26.2	46.9	1,545
Syngenta	3495 NS/CL/DM	72	4	70	9	28.4	46.6	1,696
Syngenta	3733 NS/DM	69	3	90	10	26.7	47.0	1,454
Syngenta	3733 NS/DM coated	67	4	20	10	27.6	47.4	1,823
Syngenta	3845 HO	64	4	50	9	25.9	48.9	1,512
Syngenta	3990 NS/CL/DM	65	1	45	11	25.7	46.5	1,383
Syngenta	3995 NS/SU	63	3	35	10	25.9	45.2	1,608
Syngenta	4596 HO/DM	67	5	55	10	27.6	47.9	1,945
Syngenta	7120 HO/DM	62	1	75	9	25.5	47.8	1,536
Syngenta	NX01162	66	4	90	9	25.4	44.2	1,323
Syngenta	NX82758	66	3	80	10	26.3	47.4	1,297
Triumph	810HCLD	69	4	85	9	26.3	47.7	1,393
Triumph	s655	44	3	40	10	25.8	47.6	1,329
Triumph	s668	50	0	45	11	26.5	48.3	1,743
Triumph	s673	54	2	0	11	25.5	46.7	2,027
Triumph	s674	47	3	5	10	24.7	47.8	1,667
Triumph	s678	48	2	20	10	26.6	47.2	1,515
Triumph	s870HCL	47	0	40	10	26.8	48.7	1,426
USDA	894 (check)	56	4	50	10	25.1	48.0	947
Mean		66	3	64	10	26.2	46.8	1,583
CV %		5	83	33	7	4.0	2.3	18.0
LSD 0.05		5	4	42	1	1.5	1.5	399

Planted: June 3. Harvested: Oct. 19. Previous crop: corn.

¹Phomopsis incidence indicates the percentage of 10 consecutive plants of each hybrid in two replications that had one or more phomopsis stem lesions on 9/21/11. Infected plants were harvested unless lodged.

Table 18. 2011 Sunflower - Oilseed - Onida, S.D.

Company/Brand	Hybrid	Bud Burn ¹ (%)	Plant Height (inch)	Plant Lodge (%)	Harvest Moisture (%)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield			Hulling Screen Test ²
								2011	2-yr. Avg.	3-yr. Avg.	
Croplan	306 DMR NS	50	66	1	7	25.0	45.9	1,763	1,647	1,830	NT
Croplan	3080 DMR NS	95	61	2	7	25.3	47.2	1,900	1,744	1,928	NT
Croplan	356A NS	10	64	1	9	26.4	45.6	2,217	2,202	2,211	NT
Croplan	378 DMR HO	15	74	2	8	24.6	43.1	1,819	1,732	--	NT
Croplan	442 E NS	3	65	1	8	25.2	44.2	2,684	--	--	NT
Croplan	460 E NS	40	63	1	7	24.9	44.8	1,790	1,486	1,758	NT
Croplan	548 CL DMR NS	75	72	0	8	25.6	45.0	1,908	--	--	NT
Croplan	555 CL DMR NS	90	71	1	7	25.2	43.5	1,802	1,617	1,721	NT
Croplan	559 CL DMR NS	80	71	3	8	25.8	45.0	2,238	2,058	--	NT
Dahlgren	DO-2012CL	40	67	0	7	26.1	44.0	1,529	--	--	NT
Dahlgren	DO-4421	75	69	1	7	24.4	44.0	1,696	1,610	--	NT
Dahlgren	DO-44EXCL	99	70	1	8	24.1	39.1	1,886	--	--	NT
Integra	724 NS/CL	15	61	2	7	25.5	43.9	2,208	--	--	NT
Mycogen	8D310	90	68	2	7	24.6	42.6	1,740	--	--	NT
Mycogen	8D481	99	67	0	7	25.9	43.0	2,193	2,087	2,071	NT
Mycogen	8H449CLDM	95	63	0	8	26.7	46.8	1,821	--	--	NT
Mycogen	8N358CLDM	90	66	0	7	25.6	45.6	1,938	1,819	1,854	NT
Mycogen	8N421CLDM	100	63	3	7	25.1	44.6	1,597	1,634	--	NT
Mycogen	8N453DM	98	70	2	8	26.5	47.5	1,881	1,877	1,968	NT
Mycogen	8N510	100	62	2	7	25.6	44.1	2,209	2,001	2,091	NT
Pannar	PAN7924 NS	99	65	3	6	24.7	43.7	1,804	1,745	1,907	NT
Pannar	PAN9501	99	71	3	7	26.3	44.3	2,113	1,822	--	NT
Pannar	PAN9501 NS	99	70	2	8	26.5	42.3	1,665	--	--	NT
Pannar	PAN9612 NS	95	67	2	7	25.9	43.3	1,664	--	--	NT
Pannar	PANG3827	50	65	3	8	25.6	45.5	2,293	--	--	NT
Pannar	PANH3838	50	65	2	8	26.3	46.4	2,093	--	--	NT
Pannar	PANH3931	40	69	1	7	25.5	46.0	1,940	--	--	NT
Pannar	PANH3950	75	67	1	7	25.3	45.4	1,985	--	--	NT
Pioneer	P63HE60	30	68	1	7	25.7	45.2	1,600	--	--	Excel
Pioneer	P63ME70	50	65	1	7	24.2	44.5	1,944	1,691	--	Excel
Pioneer	P63ME80	40	66	0	7	25.3	44.5	2,247	--	--	Excel
Pioneer	P64HE01	50	67	2	8	25.7	44.2	1,791	1,602	--	Fail
Seeds 2000	Badger CL	10	69	2	7	24.5	40.8	1,765	1,404	1,683	NT
Seeds 2000	Camaro	98	65	0	8	26.3	43.7	1,606	--	--	NT
Seeds 2000	Cobalt	25	64	0	7	24.9	43.8	1,165	--	--	NT
Seeds 2000	Daytona	15	60	0	6	25.5	43.7	1,718	--	--	NT
Seeds 2000	Durango	10	65	1	8	25.3	44.2	1,766	--	--	NT
Seeds 2000	Falcon	2	65	2	7	25.9	44.5	2,281	--	--	NT
Seeds 2000	Torino	93	67	3	8	27.2	44.4	1,793	--	--	NT
Syngenta	3158 NS/CL/DM	10	67	2	7	26.5	45.7	2,206	--	--	NT
Syngenta	3495 NS/CL/DM	20	67	1	7	26.3	43.3	1,946	--	--	NT
Syngenta	3733 NS/DM	20	69	2	7	25.8	46.0	2,601	--	--	NT
Syngenta	3733 NS/DM coated	30	70	0	7	25.7	45.4	2,158	--	--	NT
Syngenta	3845 HO	95	65	2	8	26.7	44.9	2,254	2,162	2,075	NT
Syngenta	3875 NS	75	68	2	9	26.1	45.3	2,603	2,334	2,295	NT
Syngenta	3990 NS/CL/DM	99	63	1	7	24.7	42.9	1,546	--	--	NT
Syngenta	3995 NS/SU	60	63	0	8	24.8	42.3	1,755	--	--	NT
Syngenta	4596 HO/DM	5	73	0	8	26.2	43.7	2,172	1,810	--	NT
Syngenta	7120 HO/DM	50	65	2	7	25.6	46.0	1,754	--	--	NT
Syngenta	NX01162	95	69	0	7	24.2	42.4	1,485	--	--	NT
Syngenta	NX82758	5	69	4	8	24.7	43.4	1,724	--	--	NT
Triumph	859HCL	75	67	1	7	25.9	43.7	1,878	--	--	NT
Triumph	s655	80	46	1	7	25.4	45.9	1,752	1,730	1,798	NT
Triumph	s668	80	47	0	10	25.5	45.3	2,397	2,280	2,327	NT
Triumph	s673	95	52	1	9	25.6	44.6	2,373	1,999	--	NT
Triumph	s674	25	46	2	7	25.5	45.6	1,458	1,665	1,688	NT
Triumph	s678	20	53	0	8	26.5	44.9	2,352	2,111	2,091	NT
Triumph	s870HCL	30	41	0	8	25.9	45.8	1,943	1,922	--	NT
Triumph	TRXs10429H	30	55	0	8	25.6	44.6	2,046	--	--	NT
USDA	894 (check)	30	62	4	7	24.2	45.1	1,524	1,401	1,595	NT
Mean		57	65	1	7	25.5	44.4	1,933	1,828	1,939	--
CV %		--	4	136	11	2.6	2.7	15.6	14.1	13.9	--
LSD 0.05		--	3	2	1	0.9	1.7	420	253	216	--

Planted: June 8. Harvested: Oct. 20. Previous crop: wheat.

¹Bud burn is the approximate percent of immature heads and upper leaves that showed damage believed to have been caused by a chemical application between stages R-1 and R-2. It is not known how yield may have been affected.

²Hulling screen test: Excel = ≥ 65% of seed passes over a 14/64 screen; Good = ≥ 75% of seed passes over a 13/64 screen; NT=not tested.

Table 19. 2011 - Sunflower - Non-oilseed - Onida, S.D.

Company/Brand	Hybrid	Hybrid Type	Plant Height (inch)	Test Weight (lb/bu)	Plant Lodge (%)	Seed Yield ¹ (lb/a)	Seed Over Screen			Nut- meat (%)
							22/64 (%)	20/64 (%)	18/64 (%)	
CHS	10EXP01	CL	66	20.3	2	1,826	79	91	95	44.7
CHS	10EXP02	CL	63	20.2	1	1,687	80	90	93	47.7
CHS	RH 400CL	CL	63	20.6	0	1,711	69	86	92	45.9
Dahlgren	9506CL	CL	66	19.9	4	1,340	68	84	90	48.5
Dahlgren	9530	--	67	21.0	0	1,575	64	83	90	48.2
Dahlgren	9530CL	CL	74	20.5	0	1,776	59	80	87	48.3
Dahlgren	9579	--	56	18.6	3	1,386	67	85	91	49.5
Dahlgren	EX610	--	68	20.3	1	1,554	65	87	93	48.7
Dahlgren	EX819	--	67	18.4	1	1,457	72	86	91	49.3
Mycogen	8C410CL	CL	71	21.1	3	1,604	69	86	91	46.8
Mycogen	8C451	--	68	21.1	2	1,437	76	88	92	48.7
Red River Comm.	2215	--	70	20.3	3	1,791	67	83	89	47.7
Red River Comm.	2217	--	71	19.5	2	1,881	78	88	92	46.1
Red River Comm.	2215 CL	CL	72	20.3	3	1,785	68	86	91	45.9
Seeds 2000	Jaguar	CL	68	21.7	3	1,695	69	84	91	44.8
Seeds 2000	Jaguar DMR	CL,DM	68	20.4	1	1,441	76	88	93	47.8
Seeds 2000	Jaguar II	CL	72	20.6	3	1,511	70	84	91	46.2
Seeds 2000	Jaguar XL	CL	81	19.8	3	1,979	60	80	89	45.1
Seeds 2000	Panther II	--	68	20.4	2	1,447	65	80	88	46.2
Seeds 2000	Sundance	--	68	21.4	0	2,091	57	79	90	48.5
Seeds 2000	X3907	--	69	21.9	2	1,606	66	85	92	47.4
Seeds 2000	X9674	--	69	20.8	0	1,580	74	86	92	46.7
Triumph	770CL	CL	69	21.4	5	1,352	69	84	91	47.4
USDA	924 (check)	--	78	19.9	9	925	52	66	77	45.8
Mean			69	20.4	2	1,602	68	84	91	47.2
CV %			4	8	87	18	9.3	5.2	3.5	4.3
LSD 0.05			4	NS	3	404	9	6	4	2.9

Planted: June 8. Harvested: Oct. 24. Previous crop: wheat.

Table 20. 2011 Sunflower - Oilseed - Presho, S.D.

Company/ Brand	Hybrid	Days to Flower (DAP) ³	Days to Maturity (DAP) ⁴	Pop. x1,000 Plt/a (plants)	Phomopsis Incid. ² (%)	Plant Height (inch)	Plant Lodge (%)	Harvest Moisture (%)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield ¹		
											2011	2-yr. Avg. (lb/a)	3-yr. Avg.
Croplan	306 DMR NS	57	94	18.0	90	61	3	11.3	23.9	42.6	1,821	1,682	1,894
Croplan	3080 DMR NS	57	96	18.0	40	58	1	11.2	24.6	43.0	1,815	1,721	1,801
Croplan	356A NS	58	97	15.5	20	57	3	12.2	25.7	42.3	1,883	1,958	2,031
Croplan	378 DMR HO	58	99	15.8	0	65	8	16.3	24.7	42.0	1,735	1,645	--
Croplan	442 E NS	58	102	18.0	10	61	13	15.8	24.6	44.2	1,947	--	--
Croplan	460 E NS	59	100	16.9	20	61	5	13.6	24.5	42.7	1,614	1,649	1,734
Croplan	548 CL DMR NS	58	99	18.0	10	67	2	15.9	25.8	43.8	2,290	--	--
Croplan	555 CL DMR NS	58	97	17.9	20	62	1	11.8	22.9	42.8	1,931	1,962	2,010
Croplan	559 CL DMR NS	58	99	18.0	10	66	1	14.7	25.3	42.3	2,348	2,130	--
Dahlgren	DO-2012CL	56	93	18.0	10	63	7	12.4	24.5	42.5	1,741	--	--
Dahlgren	DO-4421	56	93	18.0	40	64	5	10.8	24.5	41.1	2,007	--	--
Dahlgren	DO-44EXCL	58	94	18.0	70	68	4	12.3	22.3	41.4	1,414	--	--
Integra	724 NS/CL	58	97	18.0	0	54	0	11.2	25.2	41.2	1,754	--	--
Mycogen	8D481	58	99	18.0	30	63	3	12.5	24.5	40.6	1,939	1,959	2,067
Mycogen	8H449CLDM	59	100	18.0	20	62	2	16.2	26.3	45.1	2,202	--	--
Mycogen	8N421CLDM	58	98	18.0	10	58	0	14.1	24.7	42.7	1,828	1,761	--
Mycogen	8N453DM	58	96	18.0	30	63	4	14.5	25.1	43.8	1,965	1,830	1,975
Mycogen	8N510	58	99	18.0	10	59	5	14.9	24.7	42.3	1,875	1,905	2,232
Pannar	PAN7924 NS	60	100	18.0	40	64	3	15.4	24.0	40.1	1,797	1,893	2,001
Pannar	PAN9501	60	100	18.0	0	65	2	13.6	25.3	43.2	2,025	2,093	--
Pannar	PAN9501NS	58	98	18.0	10	63	5	13.8	25.4	42.1	2,004	--	--
Pannar	PAN9612NS	57	98	18.0	0	59	4	14.1	26.2	40.4	2,049	--	--
Pannar	PANG3827	57	100	18.0	10	63	3	14.3	25.7	43.2	2,365	--	--
Pannar	PANH3838	58	100	18.0	0	57	4	13.8	25.4	45.0	1,885	--	--
Pannar	PANH3931	59	99	18.0	10	61	2	13.0	24.4	43.7	2,038	--	--
Pannar	PANH3950	58	99	18.0	10	63	4	13.7	26.1	42.6	2,134	--	--
Pioneer	P63HE60	58	96	18.0	40	64	0	13.6	25.1	43.0	1,740	--	--
Pioneer	P63ME70	58	96	18.0	30	64	3	11.7	23.3	43.0	2,048	1,984	--
Pioneer	P63ME80	58	97	18.0	10	63	2	13.6	25.4	43.3	2,017	--	--
Pioneer	P64HE01	58	98	18.0	30	65	6	16.5	26.0	42.8	1,671	1,583	--
Seeds 2000	Badger CL	57	97	18.0	60	64	5	13.4	25.0	40.3	1,623	--	--
Seeds 2000	Camaro	59	99	18.0	30	65	4	16.8	25.8	40.6	2,152	--	--
Seeds 2000	Cobalt	58	96	16.3	50	59	3	14.8	24.7	41.2	1,675	--	--
Seeds 2000	Daytona	58	98	18.0	30	58	1	13.7	24.9	41.6	1,768	--	--
Seeds 2000	Durango	61	101	18.0	0	56	2	18.1	25.8	41.5	1,983	--	--
Seeds 2000	Falcon	59	99	18.0	20	59	6	14.9	25.2	42.0	1,855	--	--
Seeds 2000	Sierra	61	104	17.1	30	61	14	15.3	24.6	43.1	1,761	--	--
Seeds 2000	Torino	60	100	18.0	20	64	5	18.8	25.7	42.0	2,075	--	--
Syngenta	3158 NS/CL/DM	58	99	18.0	10	62	6	17.2	26.2	41.7	2,172	--	--
Syngenta	3495 NS/CL/DM	58	96	18.0	0	61	1	12.5	26.5	41.4	2,115	--	--
Syngenta	3733 NS/DM	58	97	18.0	10	61	1	12.9	25.9	43.9	2,155	--	--
Syngenta	3733 NS/DM coated	58	97	17.9	0	59	2	12.5	26.6	42.6	2,257	--	--
Syngenta	3845 HO	57	97	17.9	40	58	4	12.3	25.8	44.0	1,978	1,800	1,961
Syngenta	3990 NS/CL/DM	59	98	18.0	20	63	3	17.3	26.1	42.0	2,203	--	--
Syngenta	3995 NS/SU	57	97	17.9	0	57	1	12.5	24.9	39.8	1,582	--	--
Syngenta	4596 HO/DM	58	99	18.0	0	67	6	16.5	26.9	42.4	2,104	1,883	--
Syngenta	7120 HO/DM	56	92	18.0	50	59	2	11.6	24.5	41.4	1,749	--	--
Syngenta	NX01162	58	96	18.0	40	61	3	12.3	23.9	40.9	1,774	--	--
Syngenta	NX82758	59	100	18.0	10	65	5	15.5	24.6	41.4	2,200	--	--
Triumph	859HCL	60	102	18.0	30	58	7	13.3	24.8	41.3	1,714	--	--
Triumph	s655	60	100	17.9	30	39	0	15.0	26.9	42.1	1,816	1,882	2,053
Triumph	s668	60	104	18.0	10	39	0	20.9	26.6	45.4	2,094	2,149	2,306
Triumph	s673	61	101	18.0	10	43	0	22.0	26.2	42.6	2,191	2,157	--
Triumph	s674	62	103	17.1	10	38	0	20.1	26.4	43.8	1,826	1,899	1,894
Triumph	s678	61	104	18.0	0	50	0	18.9	27.1	45.2	1,933	2,026	2,117
Triumph	s870HCL	61	102	17.9	20	37	0	15.3	25.1	43.2	1,723	1,872	--
Triumph	TRXs10429H	61	105	18.0	20	47	1	14.3	25.3	43.3	1,784	--	--
Triumph	TRXs11431CL	59	105	18.0	20	41	1	19.3	25.3	43.8	2,146	--	--
Triumph	TRXs11432CL	58	102	18.0	20	39	0	18.8	26.0	44.7	1,924	--	--
USDA	894 (check)	58	96	18.0	70	52	12	12.6	24.6	43.7	1,480	1,369	1,543
Mean		58	99	17.8	22	58	3	14.6	25.2	42.5	1,928	1,866	1,975
CV %		1	1	6	--	4	70	11.7	3.2	3.0	12	11	13
LSD 0.05		1	2	NS	--	3	3	2.4	1.1	1.8	329	202	205

Planted: June 30. Harvested: Oct. 25. Previous crop: winter wheat.

¹The 2-yr yield average is from 2010 and 2011 Presho, the 3-yr yield average is from 2010 and 2011 Presho and 2009 Reliance.

²Phomopsis incidence indicates the percentage of 10 consecutive plants of each hybrid in one replication that had one or more phomopsis stem lesions on 9/22/11. Infected plants were harvested unless lodged.

³Days after planting.

Table 21. 2011 Sunflower - Oilseed - Averages Across Four Locations (Bison, Eureka, Onida and Presho, S.D.)

Company/Brand	Hybrid	Plant Height (inch)	Plant Lodge¹ (%)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield (lb/a)
Croplan	306 DMR NS	65	2	25.5	45.7	1,852
Croplan	3080 DMR NS	65	2	25.6	46.4	1,808
Croplan	356A NS	62	2	26.6	45.4	2,107
Croplan	378 DMR HO	70	7	25.2	44.1	1,591
Croplan	442 E NS	65	5	25.1	45.8	2,159
Croplan	460 E NS	65	3	25.0	45.2	1,706
Croplan	548 CL DMR NS	72	2	25.8	45.5	2,031
Croplan	555 CL DMR NS	71	3	24.8	44.2	1,785
Croplan	559 CL DMR NS	72	2	26.4	44.8	2,169
Dahlgren	DO-2012CL	67	3	26.1	44.7	1,578
Dahlgren	DO-4421	69	3	24.5	43.3	1,617
Dahlgren	DO-44EXCL	72	2	23.1	41.0	1,564
Mycogen	8D481	68	2	25.6	42.5	2,007
Mycogen	8H449CLDM	65	2	26.9	46.9	2,089
Mycogen	8N421CLDM	64	2	25.5	44.5	1,759
Mycogen	8N510	64	5	24.9	44.3	1,957
Pioneer	63HE60	69	2	26.5	45.1	1,490
Pioneer	P63ME70	67	3	25.2	44.6	1,674
Pioneer	P63ME80	68	2	26.3	45.1	1,806
Pioneer	P64HE01	69	4	27.0	44.6	1,622
Seeds 2000	Badger CL	69	4	25.2	41.0	1,522
Seeds 2000	Camaro	68	3	26.9	43.7	1,780
Seeds 2000	Cobalt	64	2	25.7	43.7	1,314
Seeds 2000	Daytona	62	1	25.7	44.1	1,524
Seeds 2000	Durango	62	3	26.2	43.6	1,759
Seeds 2000	Falcon	66	3	26.4	44.6	1,944
Seeds 2000	Torino	69	3	26.7	44.3	1,845
Syngenta	3158 NS/CL/DM	66	3	26.8	44.7	1,987
Syngenta	3495 NS/CL/DM	67	2	27.6	43.5	1,879
Syngenta	3733 NS/DM	66	2	26.4	45.9	2,067
Syngenta	3733 NS/DM coated	65	2	26.9	45.3	2,151
Syngenta	3845 HO	63	3	26.6	46.4	1,902
Syngenta	3990 NS/CL/DM	66	2	26.1	44.2	1,721
Syngenta	3995 NS/SU	63	1	25.1	42.1	1,636
Syngenta	4596 HO/DM	71	3	27.4	44.6	1,989
Syngenta	7120 HO/DM	62	2	25.4	45.1	1,680
Syngenta	NX01162	67	2	24.5	41.7	1,419
Syngenta	NX82758	67	4	25.6	44.1	1,714
Triumph	s655	44	1	26.3	45.3	1,615
Triumph	s668	50	1	26.0	46.2	2,014
Triumph	s673	53	1	25.6	44.7	2,163
Triumph	s674	46	1	25.6	46.1	1,727
Triumph	s678	53	1	27.2	46.0	1,950
Triumph	s870HCL	44	0	25.6	45.8	1,651
USDA	USDA 894 (check)	58	7	25.1	45.7	1,249
Mean		64	2	26	45	1,791
C.V. %		4	106	3.4	2.7	14
LSD 5%		2.0	2	0.6	0.8	179

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