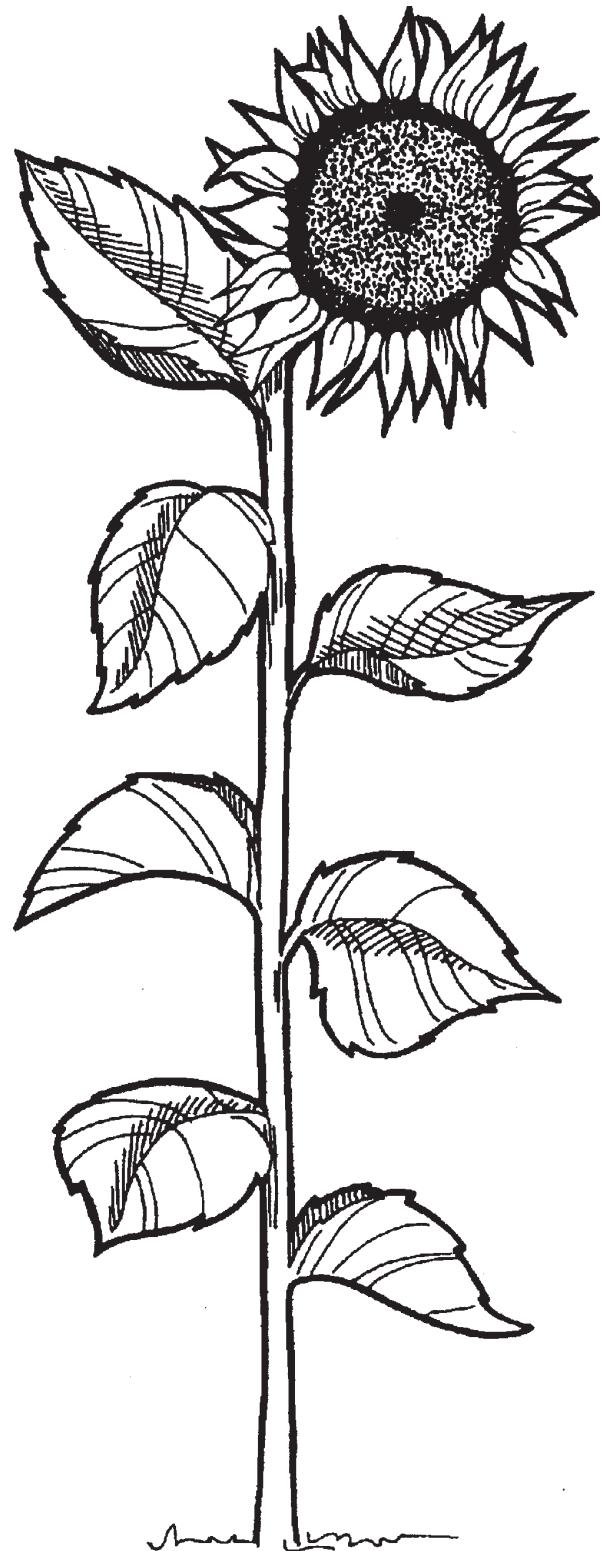


North Dakota
and South Dakota
HYBRID
SUNFLOWER
Performance Testing
2010



NDSU
N.D. Agricultural Experiment Station
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Introduction

In North Dakota, an estimated 862,000 acres of sunflowers were harvested in 2010. This was a decrease of 6,000 acres compared with 2009. Table 1 contains acreage data for the past 15 years as reported by the North Dakota Agricultural Statistics Service, U.S. Department of Agriculture. The yield estimate on Dec 20, 2010, for all sunflowers produced in North Dakota during the 2010 season was 1,638 pounds per acre (lb/a).

Table 1. Harvested Sunflower Acreage in North Dakota and Yield Per Acre 1996-2010.

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	--	177	--

2010 Sunflower Performance Trials

Information about sunflower hybrid performance can be accessed on the Web at www.ag.ndsu.edu/varietytrials/, the site with 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 is also 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. Presentation of data for the entries tested does not imply approval or endorsement by the authors or agencies conducting the test. A listing of seed companies entering hybrids and their brand name is provided in Table 2.

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
Flower Genetics	Flower	www.flowergenetics.com
Genosys Global	Genosys	www.genosysglobal.com
Integra Seed	Integra	www.integraseed.com
King Seeds	King	--
Mycogen Seeds	Mycogen	www.mycogen.com
Nidera S.A. Seeds	Nidera	www.nidera.com
Pannar	Pannar	www.pannarusa.com
Pioneer Hi-Bred International Inc.	Pioneer	www.pioneer.com
Procera Agrochemical	Procera	www.procera.ro
Proseed Inc.	Proseed	www.proseed.net
Prosun	Prosun	--
Red River Commodities	Red River Comm.	www.redriv.com
Seeds 2000	Seeds 2000	www.seeds2000.net
Syngenta	Syngenta	www.syngenta.com/en/products_brands/fieldcrops.html
Technology Crops	Technology	www.technologycrops.com
Triumph Seed Co.	Triumph	www.triumphseed.com/
U.S. Department of Agriculture	USDA	www.ars.usda.gov/Main/docs.htm?docid=3562

2010 Growing Season Weather Summary for North Dakota**Table 3. April-September 2010 Average Temperature and Precipitation Rankings for Selected North Dakota Locations.**

City	Temperature Ranking	Precipitation Ranking
Bowman	3rd Warmest (Since 1915)	9th Wettest (Since 1915)
Bismarck	48th Warmest (Since 1874)	12th Wettest (Since 1874)
Carrington	5th Warmest (Since 1929)	21st Wettest (Since 1929)
Cavalier	8th Warmest (Since 1934)	5th Wettest (Since 1927)
Fargo	10th Warmest (Since 1881)	15th Wettest (Since 1881)
Minot Exp. Station	27th Warmest (Since 1905)	11th Wettest (Since 1905)
Williston Exp. Station	30th Warmest (Since 1953)	9th Wettest (Since 1956)
North Dakota Average	36th Warmest (Since 1895)	5th Wettest (Since 1895)

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

Table 4. 2010 Sunflower - Non-oilseed Hybrids With Traits and Locations Where Tested.

Brand	Hybrid	Trait ¹	Minot	Onida	Carrington	Casselton	Langdon
CHS	10EXP01	CL	x			x	
CHS	10EXP02		x			x	
CHS	10EXP03					x	
CHS	RH 1121	CL	x			x	
CHS	RH 3126RT				x		
CHS	RH 400CL	CL	x	x	x	x	
Croplan	179		x	x	x	x	x
Dahlgren	9530		x	x	x	x	x
Dahlgren	9569			x			
Dahlgren	9579			x			
Dahlgren	9592		x	x	x		x
Dahlgren	9530CL	CL	x	x	x	x	x
Flower Genetics	FG10457					x	
Flower Genetics	FG10458					x	
Flower Genetics	FG10462					x	
Mycogen	8C451		x	x	x	x	x
Red River Comm.	2215		x	x	x	x	x
Red River Comm.	2216						
Red River Comm.	2217		x	x	x	x	x
Red River Comm.	2215 CL	CL	x	x	x	x	x
Seeds 2000	6946 DMR	DM	x				x
Seeds 2000	Jaguar	CL	x	x	x	x	x
Seeds 2000	Panther DMR	DM	x		x		x
Seeds 2000	Panther II			x		x	
Seeds 2000	Sundance				x	x	
Seeds 2000	X3639					x	
Seeds 2000	X4367				x		
Seeds 2000	6950		x				x
Seeds 2000	X9681						
Triumph	747C				x	x	x
Triumph	770CL	CL		x			
Triumph	TRX10454C						x
USDA	924			x	x	x	x

¹Traits provided by company: CL = Clearfield, DM = Downy mildew resistant.

Table 5. 2010 Sunflower - Oilseed Hybrids With Traits and Locations Where Tested (Page 1 of 3).

Company/ Brand	Hybrid	Traits ¹	Location in which the hybrid has been tested										
			Bison	Eureka	Onida	Presho	Carrington REC	Casselton	Hettinger REC	Minot REC	Langdon REC	Williston REC	Midge rating
Advanta	F30008NS,CL	NS,CL				x	x		x		x	x	x
Advanta	F51122NS,CL	NS,CL				x	x		x		x	x	x
Advanta	F51137NS,CL	NS,CL		x		x	x		x		x		x
Advanta	F51139NS,DM,CL	NS,CL,DM				x	x		x		x		x
Advanta	F51313NS,DM,CL	NS,CL,DM				x	x		x		x		
Advanta	F89036NS,DM,CL	NS,CL,DM				x	x		x		x		
Advanta	F89057NS,SU	NS,Ex		x		x	x		x		x		x
Advanta	F91033NS,SU	NS,Ex				x	x		x		x		
Advanta	NutriSun HS03	NS,HO	x	x	x	x							
Advanta	ADV590	NS		x	x								
Croplan	306 DMR NS	NS,DM	x	x	x	x	x	x	x	x	x	x	
Croplan	3080 DMR NS	NS,DM	x	x	x	x	x	x	x	x	x	x	
Croplan	356A NS	NS	x	x	x	x	x			x	x		
Croplan	378 DMR HO	HO,DM	x	x	x	x	x			x		x	
Croplan	378 DMR NS	NS,DM						x					
Croplan	460 E NS	NS,Ex	x	x	x	x	x	x	x	x	x	x	
Croplan	555 CL DMR NS	NS,CL,DM	x	x	x	x	x	x	x	x	x	x	
Croplan	559 CL DMR NS	NS,CL,DM	x	x	x	x	x	x	x	x	x	x	
Croplan	564 CL NS	NS,CL					x			x	x		
Dahlgren	4421	NS		x							x		
Flower	FG8529	HO					x						
Flower	FG9OB14	NS,DM					x						
Flower	FG9OB22	HO,DM					x						
Flower	FG9OB8	HO					x						
Flower	FG9W13	HO					x						
Genosys	6007	NS,CL				x	x	x	x	x	x		
Genosys	7052	HO,CL				x	x	x	x	x	x	x	
Genosys	7163	NS				x	x	x	x	x	x	x	x
Genosys	8037	NS,CL				x	x	x	x	x	x	x	x
Genosys	8064	HO,CL				x	x	x	x	x	x	x	x
Integra	724 NSCL	NS,CL				x		x					
Integra	516 NSDM	NS,C,DM							x	x			
Integra	536 NSDM	NS,C,DM							x				
Integra	735 NSCLDM	NS,CL,DM				x			x	x			
Integra	IX09-95010 NSDM	NS,DM								x			
Integra	IX10-10516 NSCLDM	NS,CL,DM							x				
Integra	IX10-10576	NS,CL				x		x		x		x	
Integra	IX10-94 NSSU	NS,EX				x		x	x	x	x		
Integra	IX10-96 NSSU	NS,EX				x		x	x	x			
Integra	IX10-98 NSSU	NS,EX				x		x	x	x			
King	SunKing 3909 NSCL	NS,CL	x	x	x	x							
King	SunKing 4404 NSCL	NS,CL	x	x	x	x							
Mycogen	8D310	NS					x	x	x	x	x	x	
Mycogen	8D481	NS	x	x	x	x	x	x	x	x	x	x	
Mycogen	8H288CLDM	HO,CL,DM	x	x		x	x	x	x	x	x	x	
Mycogen	8H449DM	HO,DM	x	x	x	x	x	x	x	x	x	x	
Mycogen	8N270CLDM	NS,CL,DM	x	x	x	x	x	x	x	x	x	x	
Mycogen	8N358CLDM	NS,CL,DM	x	x	x	x	x	x	x	x	x	x	
Mycogen	8N421CLDM	NS,CL,DM	x	x	x	x		x					
Mycogen	8N433DM	NS,DM	x	x	x	x	x			x			
Mycogen	8N453DM	NS,DM	x	x	x	x							
Mycogen	8N510	NS	x	x	x	x	x	x	x	x			

Table 5. 2010 Sunflower - Oilseed Hybrids With Traits and Locations Where Tested (Page 2 of 3).

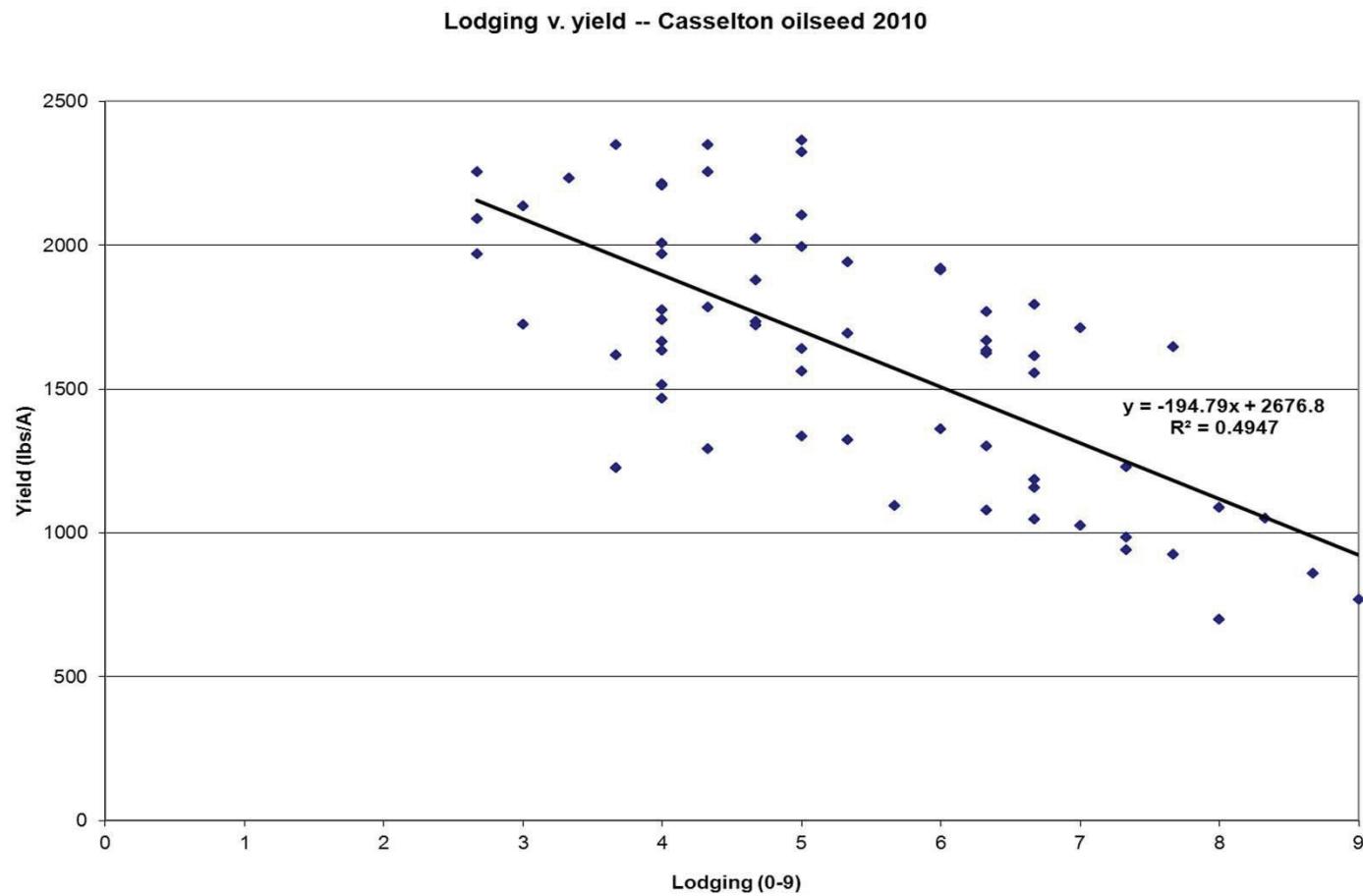
Company/ Brand	Hybrid	Traits ¹	Location in which the hybrid has been tested										
			Bison	Eureka	Onida	Reliance	Carrington REC	Casselton	Hettinger REC	Minot REC	Langdon REC	Williston REC	Midge rating
Nidera	LN9692	NS,DM					x	x					
Nidera	LN9714	HO,DM						x			x	x	
Nidera	LN9987	NS,DM					x	x					
Nidera	MN12138	HO,DM					x	x					
Pannar	PAN 7813NS	NS	x	x	x	x	x	x		x			
Pannar	PAN 7924NS	NS	x	x	x	x	x	x		x			
Pannar	PAN 8466 NSCL	NS,CL					x	x		x			
Pannar	PAN 8560 NSCL	NS,CL	x	x	x								
Pannar	PAN 9501	Trad.	x	x	x								
Pannar	PEX 7404	NS					x	x		x		x	x
Pannar	PEX 7803	HO	x	x	x	x	x	x		x		x	x
Pannar	PEX 7904	HO	x	x	x	x	x	x		x		x	x
Pioneer	63N82	NS,Ex	x	x	x	x	x	x				x	x
Pioneer	P63ME70	NS,Ex,DM	x	x	x	x	x	x		x		x	x
Pioneer	P64HE01	HO,Ex,DM	x	x	x	x	x	x				x	x
Procura	PROCERA 229	Trad.					x						
Proseed	CL 7001	NS,CL					x	x	x	x			
Proseed	CL 9001	NS,CL					x	x		x	x		
Proseed	E-4	NS,DM					x			x	x		
Proseed	E-5	NS,DM					x				x		
Proseed	E-8	NS,DM					x	x	x	x	x		x
Proseed	E-85	NS,DM					x	x	x	x	x		
Prosun	SK-4510	NS,CL	x	x	x								
Prosun	SK-4610	NS,CL	x	x	x								
Prosun	SK-4810	NS,CL	x	x	x								
Prosun	SK-4910	NS,CL	x	x	x								
Seeds 2000	Badger CL	NS,ConOil,CL	x	x	x		x	x					
Seeds 2000	Blazer CL	NS,CL	x	x	x		x	x	x	x			
Seeds 2000	Cobra	NS,EX					x	x	x	x	x	x	
Seeds 2000	Defender Plus	NS,DM								x	x	x	
Seeds 2000	Firebird	NS,Ex	x	x	x		x	x	x	x			
Seeds 2000	Sierra	HO	x	x	x								
Seeds 2000	X9464	HO,CL	x	x	x		x	x				x	x
Seeds 2000	X9828	NS,CL,DM					x		x	x	x	x	x
Seeds 2000	X9866	NS,DM	x	x	x		x	x	x	x	x	x	x
Syngenta	2930 NS/DM	NS,DM							x	x	x		
Syngenta	3433 NS/DM	NS,DM					x	x	x	x	x	x	
Syngenta	3480 NS/CL/DM	NS,CL,DM					x		x	x	x	x	
Syngenta	3732 NS	NS	x	x	x	x	x	x	x	x	x		
Syngenta	3845 HO	HO	x	x	x	x	x	x	x	x	x		
Syngenta	3875 NS	NS	x	x	x	x	x	x	x	x		x	x
Syngenta	3980 NS/CL	NS,CL	x	x	x	x	x	x	x	x	x		
Syngenta	4596 HO/DM	HO,DM	x	x	x	x	x	x				x	x
Syngenta	4651 NS/DM	NS,DM	x	x	x	x	x	x	x	x		x	x
Syngenta	7120 HO/DM	HO,DM					x		x	x	x	x	
Technology	OL535	HO	x	x	x	x							
Technology	OL555	HO	x	x	x	x							
Triumph	610CLD	NS,CL,DM					x	x	x	x	x	x	
Triumph	810HCLD	HO,CL,DM					x			x			
Triumph	845HO	HO	x	x									
Triumph	s655	NS,SS,DM	x	x	x	x				x			
Triumph	s668	NS,SS	x	x	x	x			x				
Triumph	s671	NS,SS	x	x		x	x				x		

Table 5. 2010 Sunflower - Oilseed Hybrids With Traits and Locations Where Tested (Page 3 of 3).

Company/ Brand	Hybrid	Traits ¹	Location in which the hybrid has been tested									
			Bison	Eureka	Onida	Reliance	Carrington REC	Casselton	Hettinger REC	Minot REC	Langdon REC	Williston REC
Triumph	s673	NS,SS	x	x	x	x	x		x	x	x	x
Triumph	s674	NS,SS	x	x	x	x			x	x	x	x
Triumph	s678	NS,SS	x	x	x	x			x			
Triumph	s870HCL	HO,CL,SS	x	x	x	x						
Triumph	s878H	HO,SS		x	x	x			x			
Triumph	TRX7435HO	HO					x					
Triumph	TRX8341	NS					x					
Triumph	TRXs9422	NS,SS	x	x	x	x						
USDA	894	Trad,	x	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.

Figure 1. Relationship between lodging and yield at Casselton oil seed trial¹.



¹Lodging was caused by a severe storm in July and was consistent across replicates.

Table 6. 2010 Sunflower - Oilseed - Casselton, N.D. - Author, B.S. Hulke (Page 1 of 2).

Company/Brand	Hybrid	Days to Flower (days)	Days to PM ¹ (days)	Plant Lodge ² (0-9)	Harvest Moisture (%)	Test Wt. (lb/bu)	Oil Content (%)	Seed Yield (lb/a)	Hulling Screen Test ³
Advanta	F30008NS,CL	66	105	4.0	10.0	31.8	37.1	1,633	
Advanta	F51122NS,CL	65	99	4.0	6.5	31.7	37.8	1,467	
Advanta	F51137NS,CL	65	102	2.7	6.9	33.9	39.4	1,969	
Advanta	F51139NS,DM,CL	67	102	4.0	8.5	35.4	36.6	2,006	
Advanta	F51313NS,DM,CL	66	102	2.7	7.2	31.0	37.0	2,092	
Advanta	F89036NS,DM,CL	66	100	6.7	8.9	33.9	38.0	1,187	
Advanta	F89057NS,SU	69	107	3.7	10.5	33.2	35.1	1,226	
Advanta	F91033NS,SU	66	99	5.3	6.4	32.6	38.0	1,323	
Croplan	306 DMR NS	66	109	4.0	9.2	33.8	37.6	1,776	
Croplan	3080 DMR NS	65	105	3.3	7.0	31.5	42.0	2,233	
Croplan	378 DMR NS	67	108	6.3	9.7	34.7	37.2	1,301	
Croplan	460 E NS	66	107	4.0	8.1	33.2	40.0	2,208	
Croplan	555 CL DMR NS	68	104	6.7	9.1	32.3	37.9	1,555	
Croplan	559 CL DMR NS	70	113	6.3	8.6	33.0	39.2	1,769	
Flower	FG8529	65	103	7.7	7.5	34.5	39.5	925	
Flower	FG9OB14	65	106	8.0	7.1	34.4	37.5	1,086	
Flower	FG9OB22	61	98	9.0	10.9	37.1	34.1	768	
Flower	FG9OB8	65	99	4.0	8.7	32.0	36.1	1,515	
Flower	FG9W13	64	103	7.0	7.9	33.5	34.5	1,025	
Genosys	6007	67	101	5.7	6.3	35.4	35.7	1,094	
Genosys	7052	65	103	7.3	8.9	35.9	36.5	940	
Genosys	7163	66	101	7.3	8.5	30.6	37.2	1,229	Fail
Genosys	8037	66	99	7.7	7.4	36.0	38.0	1,646	
Genosys	8064	69	103	6.3	7.6	34.3	32.8	1,078	Fail
Mycogen	8D310	63	103	4.3	9.2	29.9	30.6	1,291	
Mycogen	8D481	66	112	7.0	9.7	33.5	32.1	1,711	
Mycogen	8H270CLDM	63	101	5.0	6.5	33.7	39.0	1,336	
Mycogen	8H288CLDM	64	105	4.7	7.4	33.4	41.8	1,735	
Mycogen	8H449DM	66	108	6.0	8.3	34.8	42.7	1,913	
Mycogen	8N358CLDM	65	107	4.0	6.9	32.0	41.2	1,968	
Mycogen	8N421CLDM	66	105	2.7	7.0	32.7	39.8	2,256	
Mycogen	8N510	67	108	3.7	7.6	31.8	39.3	2,350	
Nidera	LN9692	65	108	3.7	10.2	32.1	36.3	1,618	
Nidera	LN9714	66	104	3.0	9.3	32.9	37.9	1,726	
Nidera	LN9987	69	106	6.7	9.4	32.4	36.3	1,158	
Nidera	MN12138	68	108	7.3	10.2	33.0	37.8	985	
Pannar	PAN 7813NS	66	104	4.3	8.3	34.0	41.2	2,253	
Pannar	PAN 7924NS	68	103	4.7	10.7	32.3	38.2	2,023	
Pannar	PAN 8466 NSCL	68	106	6.0	9.6	32.6	40.0	1,918	
Pannar	PEX 7404	65	104	6.3	7.8	32.4	39.0	1,625	
Pannar	PEX 7803	66	104	5.0	8.2	33.5	42.0	2,365	
Pannar	PEX 7904	66	103	5.0	8.9	32.0	39.1	2,325	
Pioneer	63N82	65	104	5.0	13.1	34.2	35.9	1,641	Fail
Pioneer	P63ME70	65	100	4.7	8.0	32.7	37.9	1,879	Avg.
Pioneer	P64HE01	65	109	6.7	13.9	36.3	34.0	1,048	
Proceria	PROCERA 229	65	104	5.0	7.9	33.8	42.0	1,563	
Proseed	CL 7001	68	107	5.3	8.1	31.9	36.7	1,942	
Proseed	CL 9001	63	98	4.7	6.4	32.5	37.3	1,722	
Proseed	E-8	68	104	8.0	12.3	32.1	35.5	698	
Proseed	E-85	65	101	4.3	8.6	29.9	38.0	1,783	
Mean		66	105	5.4	8.7	33.1	37.8	1,627	
CV %		1.4	2.7	18.2	24.0	3.2	3.6	19.6	
LSD 0.05		2	5	1.6	3.4	1.7	2.2	515	

Table 6. 2010 Sunflower - Oilseed - Casselton, N.D. - Author, B.S. Hulke (Page 2 of 2).

Company/Brand	Hybrid	Days to Flower (days)	Days to Maturity (days)	Plant Lodge (0-9)	Harvest Moisture (%)	Test Wt. (lb/bu)	Oil Content (%)	Seed Yield (lb/a)	Hulling Screen Test
Seeds 2000	Badger CL	64	104	5.3	8.4	31.1	32.0	1,692	
Seeds 2000	Blazer CL	69	111	5.0	10.2	32.6	36.3	1,995	
Seeds 2000	Cobra	66	97	4.0	7.6	31.8	38.9	1,665	
Seeds 2000	Firebird	68	107	4.0	9.3	32.7	39.4	2,215	
Seeds 2000	X9464	68	108	3.0	8.4	31.9	37.2	2,137	
Seeds 2000	X9866	66	109	4.3	9.7	33.2	37.4	2,350	
Syngenta	3433 NS/DM	67	106	6.3	8.5	34.9	40.2	1,632	
Syngenta	3732 NS	68	110	5.0	11.9	34.8	40.3	2,106	
Syngenta	3845 HO	66	104	6.7	6.8	34.0	41.4	1,615	
Syngenta	3875 NS	69	104	6.7	7.3	33.6	40.2	1,793	
Syngenta	3980 NS/CL	67	106	4.0	8.6	31.3	36.4	1,740	
Syngenta	4596 HO/DM	68	109	6.0	11.1	33.1	37.0	1,361	
Syngenta	4651 NS/DM	67	104	6.3	10.7	33.1	39.2	1,668	
Triumph	610CLD	65	103	8.3	7.6	32.4	38.6	1,049	
USDA	894	65	103	8.7	9.4	34.4	36.7	858	
Mean		66	105	5.4	8.7	33.1	37.8	1,627	
CV %		1.4	2.7	18.2	24	3.2	3.6	19.6	
LSD 0.05		2	5	1.6	3.4	1.7	2.2	515	

Planted May 27. Sharpen applied as dessicant Sept. 22. Harvested Oct. 14.

¹Days to maturity: Hysun 311 = 101, SF 270 = 101 and P6451 = 108.

²Description of lodging: 0 = perfectly upright stand; 1-3 = 10-30% root lodging, still easily harvested; 4-6 = 40-60% plants lodged, some severely; 7-8 = most plants lodged severely; 9 = all plants lodged severely. For relationship to yield see Fig. 1.

³Hulling screen test: Average = 75% of seed over a 13/64 inch screen; Fail = does not meet these criteria.

Table 7. 2010 Fatty Acid Composition of Selected Oilseed Sunflower Hybrids - Casselton, N.D. - Author, B.S. Hulke.

Company/Brand	Hybrid	Type	Fatty acids			
			Palmitic % ± SEM ¹	Stearic % ± SEM	Oleic % ± SEM	Linoleic % ± SEM
Syngenta	4596 HO/DM	HO	3.68 ± 0.13	3.89 ± 0.30	86.47 ± 1.07	3.98 ± 0.84
Syngenta	3845 HO	HO	3.04 ± 0.03	2.22 ± 0.11	90.92 ± 0.20	1.89 ± 0.11
Pioneer	P64HE01	HO	3.01 ± 0.09	3.04 ± 0.15	88.00 ± 1.77	3.76 ± 1.60

¹SEM = standard error of the mean.

Table 8. 2010 Sunflower - Oilseed - Carrington, N.D. - Authors, B. Schatz, S. Markell, T. Ingebretson and B. Smith (Page 1 of 2).

Company/ Brand	Hybrid	Days to Flower (days)	Days to PM (days)	Plant Ht. (inch)	Rust Severity ¹ (%)	Midge Incid. ² (%)	Midge Severity ³ (0-9)	Harvest Moisture (%)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield ⁴ (lb/ac)
Advanta	F30008NS,CL	73	128	63	0.8	55	4.3	11.7	30.3	34.8	1,032
Advanta	F51122NS,CL	71	123	64	1.9	36	4.0	8.2	31.8	36.6	1,244
Advanta	F51137NS,CL	73	122	66	1.0	21	4.5	8.6	32.8	35.7	1,290
Advanta	F51139NS,DM,CL	73	125	71	1.4	22	4.5	9.4	35.2	37.5	1,354
Advanta	F51313NS,DM,CL	73	123	67	0.1	34	5.0	11.0	31.5	36.2	1,236
Advanta	F89036NS,DM,CL	74	127	64	1.1	78	6.8	9.3	30.2	35.0	664
Advanta	F89057NS,SU	76	132	69	0.2	100	7.8	10.0	--	34.8	230
Advanta	F91033NS,SU	72	121	58	1.8	25	4.0	8.4	32.0	36.6	1,153
Croplan	306 DMR NS	71	126	65	1.1	80	4.3	9.9	29.0	34.9	759
Croplan	3080 DMR NS	71	124	62	1.6	35	3.5	8.5	32.6	39.3	1,592
Croplan	356A NS	73	124	66	0.5	16	4.3	8.7	32.2	38.0	1,860
Croplan	378 DMR HO	72	125	70	0.9	45	4.3	10.5	28.9	34.2	1,221
Croplan	460 E, NS	73	125	70	2.1	61	5.8	9.5	28.4	36.5	796
Croplan	555 CL DMR NS	73	123	70	1.5	28	5.5	9.9	30.2	35.5	1,444
Croplan	559 CL DMR NS	74	125	65	1.7	43	5.3	12.8	30.5	37.5	951
Croplan	564 CL NS	71	122	63	2.1	13	5.5	9.0	33.9	38.5	945
Genosys	6007	75	123	75	1.5	61	5.5	12.3	32.9	35.4	1,043
Genosys	7052	75	123	71	2.2	84	7.0	8.8	32.1	34.2	288
Genosys	7163	73	123	67	1.5	51	6.3	9.2	29.0	35.4	1,172
Genosys	8037	74	122	69	0.9	54	5.8	8.5	32.3	35.4	785
Genosys	8064	75	126	67	1.1	75	6.8	8.7	29.1	32.8	439
Integra	724 NSCL	71	122	60	0.8	30	5.0	9.1	33.9	36.3	1,222
Integra	735 NSCLDM	70	123	57	1.5	36	4.8	8.9	31.3	36.2	849
Integra	IX10-10576	73	124	70	0.9	19	5.0	8.1	34.8	35.3	1,340
Integra	IX10-94 NSSU	72	119	67	1.4	25	3.8	10.1	32.4	35.4	1,217
Integra	IX10-96 NSSU	75	132	65	0.1	98	7.8	10.6	24.9	--	330
Integra	IX10-98 NSSU	74	126	70	0.0	40	5.5	11.4	30.7	35.5	1,140
Mycogen	8D310	70	124	62	2.7	80	5.5	13.9	26.5	30.3	736
Mycogen	8D481	73	128	58	1.0	81	4.8	10.6	29.4	33.3	991
Mycogen	8H288CLDM	70	120	63	0.9	19	4.5	8.4	32.6	37.4	1,397
Mycogen	8H449DM	71	123	57	2.0	33	5.3	8.9	34.5	39.1	1,176
Mycogen	8N270CLDM	70	122	64	1.3	18	4.5	8.7	30.7	36.4	1,188
Mycogen	8N358CLDM	72	122	61	1.5	23	5.0	9.0	31.3	38.4	1,258
Mycogen	8N433DM	72	122	61	1.6	30	3.5	9.2	31.4	38.7	1,236
Nidera	LN9692	71	123	68	1.6	78	3.5	13.5	30.2	33.4	1,077
Nidera	LN9714	74	127	72	1.9	88	4.8	12.9	30.3	33.4	799
Nidera	LN9987	75	122	66	0.7	45	5.5	9.1	31.0	34.2	1,353
Nidera	MN12138	73	123	67	1.5	81	4.0	12.6	28.3	32.3	816
Pannar	PAN 7813NS	74	121	70	0.1	28	3.3	11.6	31.2	37.8	1,287
Pannar	PAN 7924NS	74	124	67	0.0	29	3.8	12.5	30.3	36.2	1,199
Pannar	PAN 8466 NSCL	74	124	69	1.6	61	3.8	10.8	30.4	36.6	1,173
Pannar	PEX 7404	72	123	63	0.2	30	4.3	10.5	30.8	35.3	1,445
Pannar	PEX 7803	73	121	60	0.2	17	4.0	9.2	32.5	36.1	1,146
Mean		73	124	64.3	1.3	46	4.8	10.1	30.6	35.7	1,070
CV %		1.8	2.0	10.9	55.5	40.0	27.7	27.5	4.1	3.6	23.4
LSD 0.05		1.8	3.5	9.7	1.0	25.4	1.8	NS	1.7	1.8	350

Table 8. 2010 Sunflower - Oilseed - Carrington, N.D. - Authors, B. Schatz, S. Markell, T. Ingebretson and B. Smith (Page 2 of 2).

Company/ Brand	Hybrid	Days to Flower (days)	Days to PM (days)	Plant Ht. (inch)	Rust Severity ¹ (%)	Midge Incid. ² (%)	Midge Severity ³ (0-9)	Harvest Moisture (%)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield ⁴ (lb/ac)
Pannar	PEX 7904	74	123	64	0.1	33	3.8	12.5	30.1	34.9	1,523
Pioneer	63N82	74	126	65	1.8	90	6.0	10.5	30.1	35.4	673
Pioneer	P63ME70	73	125	61	1.5	59	4.5	10.7	27.6	35.5	976
Pioneer	P64HE01	74	128	65	1.3	88	6.8	11.3	29.7	31.4	520
Proseed	CL 7001	74	128	66	0.7	50	4.3	13.9	29.2	34.3	1,137
Proseed	CL 9001	72	123	62	1.1	70	6.0	12.4	31.1	34.2	1,149
Proseed	E-4	72	121	66	1.3	55	5.0	10.8	28.8	32.7	906
Proseed	E-5	75	123	71	2.2	75	6.0	10.8	29.5	34.0	814
Proseed	E-8	74	127	72	0.9	78	7.8	12.7	29.0	35.4	507
Proseed	E-85	72	124	69	1.8	56	5.0	12.8	27.6	34.5	913
Seeds 2000	Badger CL	69	119	58	3.7	14	3.5	8.2	29.8	35.1	1,212
Seeds 2000	Blazer CL	74	120	62	3.8	19	4.5	8.8	31.3	38.0	1,097
Seeds 2000	Cobra	72	123	65	1.6	43	2.8	8.6	27.7	34.8	908
Seeds 2000	Firebird	74	120	63	2.7	10	5.5	8.6	30.1	36.7	1,177
Seeds 2000	X9464	76	123	59	4.3	49	4.5	8.8	30.4	34.2	745
Seeds 2000	X9828	72	122	56	2.9	30	4.3	8.3	30.9	35.4	840
Seeds 2000	X9866	73	122	70	1.9	26	5.0	12.5	29.4	36.0	1,422
Syngenta	3433 NS/DM	73	123	61	1.4	53	3.5	8.9	31.0	36.6	906
Syngenta	3480 NS/CL/DM	71	123	58	2.2	68	3.5	9.1	29.5	36.2	982
Syngenta	3732 NS	72	123	63	0.8	20	3.3	10.2	31.8	37.1	1,794
Syngenta	3845 HO	72	124	58	1.6	12	4.0	8.5	32.2	36.7	1,623
Syngenta	3875 NS	73	118	68	0.7	6	4.0	8.4	31.8	36.0	1,854
Syngenta	3980 NS/CL	75	128	66	0.8	22	5.0	10.6	30.5	35.9	1,031
Syngenta	4596 HO/DM	72	125	62	1.9	64	5.3	10.5	28.1	32.8	877
Syngenta	4651 NS/DM	71	124	59	1.9	21	3.5	9.3	29.3	36.1	1,042
Syngenta	7120 HO/DM	71	125	59	1.8	80	4.3	8.4	29.8	33.5	662
Triumph	610CLD	70	126	60	0.2	55	4.0	9.3	30.5	36.4	1,030
Triumph	810HCLD	71	126	64	0.1	55	3.8	11.5	31.0	35.8	1,117
Triumph	s671	74	123	48	0.0	19	3.3	9.1	32.0	39.5	1,513
Triumph	s673	76	126	52	0.0	56	3.8	10.0	31.0	38.9	1,093
Triumph	TRX7435HO	73	125	72	0.8	46	4.5	10.2	30.0	38.0	1,284
Triumph	TRX8341	70	129	60	0.2	44	5.0	9.7	29.6	38.5	1,291
USDA	894	71	124	63	1.8	51	5.5	8.4	31.0	35.5	861
Mean		73	124	64.3	1.3	46	4.8	10.1	30.6	35.7	1,070
CV %		1.8	2.0	10.9	55.5	40.0	27.7	27.5	4.1	3.6	23.4
LSD 0.05		1.8	3.5	9.7	1.0	25.4	1.8	NS	1.7	1.8	350

Planted: May 20. Harvested: Oct. 21. Previous crop: soybean.

¹Rust severity is the mean pustule coverage on the upper four fully expanded leaves of 10 randomly selected plants per plot. The composite rust race on 50 randomly selected leaf samples was race 336.

²Incidence of plants within hybrid evaluation plots where Sunflower Midge infested the head, reported as % of total plants.

³Sunflower Midge Severity: Scored on 0 to 9 scale, where 0 = no symptom to 9 = head fully cupped.

⁴The 2010 CREC Oil Sunflower Hybrid Performance Test was significantly influenced by an infestation of sunflower midge.

The high level of damage caused by the sunflower midge has an impact on how the information from this hybrid evaluation should be utilized. The traditional information provided by this study related to hybrid yield potential, oil content, harvest moisture and selected other hybrid traits is compromised by the midge damage. However, we believe this hybrid performance test does provide some very useful information related to hybrid reaction to sunflower midge and rust, and days to flower.

Table 9. 2010 Sunflower - Oilseed - Hettinger, N.D. - Authors, E. Eriksmoen and R. Olson.

Company/Brand	Hybrid	Days to Flower (days)	Days to Maturity (days)	Plant Height (inch)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield	
							2010	3-yr. Avg. (lb/a)
Croplan	306 DMR NS	73	124	42	31.2	44.5	1,799	--
Croplan	3080 DMR NS	72	120	41	31.5	41.5	2,049	--
Croplan	460 E NS	76	122	47	29.6	43.1	2,736	--
Croplan	555 CL DMR NS	74	119	46	30.2	41.6	1,781	--
Croplan	559 CL DMR NS	76	123	54	33.0	41.7	2,458	--
Genosys	6007	76	119	49	31.7	41.6	2,088	1,803
Genosys	7052	76	117	52	--	38.4	1,916	--
Genosys	7163	74	120	42	28.3	43.6	2,363	--
Genosys	8037	76	116	51	--	45.3	1,983	--
Genosys	8064	78	119	46	--	41.1	1,948	--
Integra	724 NSCL	75	120	46	32.4	43.9	1,544	--
Integra	IX10-10576	76	119	52	32.9	44.6	1,657	--
Integra	IX10-94 NSSU	77	119	47	31.3	43.4	2,168	--
Integra	IX10-96 NSSU	78	119	49	--	43.7	1,894	--
Integra	IX10-98 NSSU	76	119	46	31.4	44.5	1,866	--
Mycogen	8D310	71	118	45	27.5	43.4	1,694	--
Mycogen	8D481	75	124	46	27.7	43.4	1,784	1,752
Mycogen	8H288CLDM	72	119	48	32.2	42	2,059	--
Mycogen	8H449DM	76	121	38	34.0	43.1	2,404	2,279
Mycogen	8N358CLDM	74	119	41	31.1	43.7	2,132	2,018
Proseed	CL 7001	77	120	36	32.2	40.8	2,197	--
Proseed	E-8	77	125	33	31.1	43.8	2,755	--
Proseed	E-85	72	117	42	--	42.5	1,728	--
Seeds 2000	Blazer CL	78	121	45	31.3	40.1	2,565	1,961
Seeds 2000	Cobra	73	118	39	--	42.9	1,668	--
Seeds 2000	Firebird	77	123	40	31.2	40.9	2,664	2,289
Seeds 2000	X9828	74	118	47	31.7	42.4	2,106	--
Seeds 2000	X9866	76	123	45	29.9	43.3	2,003	--
Syngenta	3433 NS/DM	74	119	42	32.8	42.8	2,978	2,257
Syngenta	3480 NS/CL/DM	74	122	41	30.8	43.5	2,505	1,895
Syngenta	3732 NS	75	120	43	33.2	44.5	2,803	--
Syngenta	3845 HO	74	120	42	32.6	42.6	2,160	1,958
Syngenta	3875 NS	76	121	45	32.4	42.8	3,151	--
Syngenta	3980 NS/CL	78	125	51	--	43.1	1,668	1,572
Syngenta	4651 NS/DM	76	120	45	30.0	44.8	2,665	--
Syngenta	7120 HO/DM	72	122	39	--	44.9	1,979	1,480
Triumph	610CLD	73	116	45	31.0	42.9	1,543	--
Triumph	s668	78	120	34	30.6	40.9	2,791	--
Triumph	s673	79	126	38	--	45.3	2,069	--
Triumph	s678	76	122	31	30.1	43.3	2,528	1,963
Triumph	s878H	77	124	40	31.2	43.1	1,918	1,661
Mean		75	120	44	31.2	42.9	2,165	1,914
CV %		1.5	1.2	7.2	3.1	5.8	12.8	--
LSD 0.05		1	2	4	1.4	NS	389	--

Planted: May 17. Harvested: Nov. 8. Previous crop: spring wheat. Seeding rate: 19,000 seeds/acre.

Table 10. 2010 Sunflower - Oilseed - Langdon, N.D. - Authors, B. Hanson and R. Wilhelm.

Company/ Brand	Hybrid	Days to Flower (days)	Plant Height (inch)	Head Rot ¹ (%)	Stalk Rot ² (%)	Broken Stems ³ (%)	Test Weight (lb/bu)	Oil Cont. ⁴ (%)	Seed Yield		
									2010	2-yr. Avg. (lb/a)	3-yr. Avg. (lb/a)
Croplan	306 DMR NS	75	65	14	18	0	31.0	42.3	2,120	1,648	1,832
Croplan	3080 DMR NS	74	64	15	22	0	30.1	42.7	1,737	1,299	1,522
Croplan	356A NS	79	66	16	37	0	31.5	42.3	1,935	--	--
Croplan	460 E NS	79	74	10	19	1	31.4	43.3	1,777	1,556	--
Croplan	555 CL DMR NS	77	71	7	11	3	29.7	41.7	2,265	1,852	--
Croplan	559 CL DMR NS	80	73	5	14	0	30.4	41.3	2,397	--	--
Croplan	564 CL NS	79	72	6	42	12	31.7	40.0	1,743	--	--
Dalhgren	4421	72	67	18	28	0	27.8	36.0	2,304	1,977	2,146
Genosys	6007	79	72	6	33	16	33.9	39.0	1,711	1,535	1,619
Genosys	7052	79	73	11	24	32	35.5	38.7	1,281	1,536	1,698
Genosys	7163	77	68	7	27	0	29.6	39.0	2,437	--	--
Genosys	8037	81	71	12	26	12	32.9	39.3	1,664	--	--
Genosys	8064	82	72	0	13	5	33.1	34.7	1,618	--	--
Integra	516 NSDM	78	66	11	31	3	31.6	41.3	1,525	--	--
Integra	735 NSCLDM	76	69	8	35	0	30.0	38.7	1,803	1,463	1,661
Integra	IX09-95010 NSDM	72	59	12	33	1	33.5	43.7	1,704	1,216	--
Integra	IX10-10576	79	73	16	13	0	33.1	40.3	2,358	--	--
Integra	IX10-94 NSSU	79	69	13	44	0	30.4	38.0	1,756	--	--
Mycogen	8D310	73	68	5	37	0	28.0	34.7	2,100	1,889	2,016
Mycogen	8D481	79	75	5	43	0	33.0	37.3	1,684	1,401	--
Mycogen	8H288CLDM	75	66	20	17	0	30.5	41.0	2,060	1,454	1,519
Mycogen	8H449DM	79	69	21	30	0	32.2	42.0	1,539	--	--
Mycogen	8N270CLDM	73	69	11	28	0	32.2	41.0	2,265	1,787	1,813
Mycogen	8N358CLDM	76	68	11	21	0	30.6	42.3	1,961	1,630	1,811
Pioneer	P63ME70	78	72	6	15	0	30.9	41.7	1,889	--	--
Pioneer	P64HE01	76	68	4	16	6	35.3	39.3	2,139	--	--
Proseed	CL 9001	75	66	6	47	0	31.1	39.0	1,823	1,573	--
Proseed	E-4	75	69	12	31	0	29.9	37.3	1,875	1,711	--
Proseed	E-8	76	74	2	21	4	30.3	39.0	2,126	1,826	--
Proseed	E-85	76	73	9	20	0	28.7	39.3	2,021	1,725	1,798
Seeds 2000	Cobra	76	63	11	27	0	29.8	41.0	2,034	--	--
Seeds 2000	Defender Plus	75	64	7	34	1	31.4	39.7	1,948	1,553	1,725
Seeds 2000	X9828	79	68	4	30	0	31.5	38.0	2,338	--	--
Seeds 2000	X9866	80	72	1	36	2	29.4	40.7	1,869	--	--
Syngenta	2930 NS/DM	73	67	15	26	0	31.4	41.7	1,849	1,616	1,734
Syngenta	3433 NS/DM	79	64	21	40	4	31.1	40.3	2,133	1,758	1,804
Syngenta	3480 NS/CL/DM	79	72	3	23	10	31.5	43.7	1,869	1,380	1,634
Syngenta	3980 NS/CL	81	75	8	32	0	30.8	41.3	1,829	1,439	--
Syngenta	7120 HO/DM	72	61	7	26	0	32.3	39.0	1,836	1,356	1,657
Triumph	610CLD	76	63	18	31	6	31.8	39.0	1,763	--	--
USDA	894	75	69	11	28	10	29.3	42.0	1,948	1,467	1,662
Mean		77	68	10	28	3	31.2	40.0	1,928	1,586	1,744
CV %				1.6	4.6	69	52	220.6	3.1	3.4	17.9
LSD 0.05				2.0	5.1	11	NS	10.9	1.6	2.2	562

Planted: May 18. Harvested: Oct. 14.

¹Sclerotinia head rot indicates percent incidence of head rot for each hybrid. It does not indicate severity.²Sclerotinia stalk rot indicates percent incidence of basal or midstalk rot for each hybrid.³Broken stems were laying flat on the ground. Breakage may have resulted from stalk rot, phoma, insects damage or wind.

Plants were not harvested.

⁴Oil % of NuSun and traditional hybrids were adjusted for oil type.

Table 11. 2010 Sunflower - Oilseed - Minot, N.D. - Authors, M. Halvorson, A. Sebelius and J. Tarasenko. (Page 1 of 2).

Company/ Brand	Hybrid	Days to Flower (days)	Days to Maturity (days)	Plant Height (inch)	Plant Lodge ¹ (0-9)	1,000			Oil Content (%)	Seed Yield		
						Seed Weight (gram)	Seeds/ lb (seeds)	Test Weight (lb/bu)		2010	2-yr. Avg.	3-yr. Avg.
Advanta	F30008NS,CL	74	103	74	1.0	55	8,315	28.8	36.6	2,104	--	--
Advanta	F51122NS,CL	71	99	71	0.5	60	7,565	30.3	38.2	2,364	--	--
Advanta	F51137NS,CL	73	103	66	0.5	57	8,018	32.2	38.4	2,372	--	--
Advanta	F51139NS,DM,CL	73	100	77	0.5	58	7,875	32.0	39.3	2,404	2,130	2,304
Advanta	F51313NS,DM,CL	74	101	73	0.5	45	10,117	29.5	37.7	2,263	2,079	--
Advanta	F89036NS,DM,CL	73	101	74	1.0	57	8,009	31.1	41.0	1,825	--	--
Advanta	F89057NS,SU	76	106	79	1.5	59	7,738	28.7	37.3	1,805	--	--
Advanta	F91033NS,SU	72	98	74	1.3	56	8,180	31.5	39.0	2,550	--	--
Croplan	306 DMR NS	71	104	69	0.5	57	8,050	29.6	38.4	2,278	2,107	2,085
Croplan	3080 DMR NS	72	100	69	0.3	41	11,181	29.3	42.9	2,953	2,492	2,223
Croplan	356A NS	74	104	68	0.3	55	8,310	30.5	40.6	2,959	2,498	2,726
Croplan	378 DMR HO	72	107	74	0.8	59	7,672	29.0	38.2	2,705	--	--
Croplan	460 E NS	72	104	76	1.3	64	7,161	30.1	42.5	2,529	2,211	--
Croplan	555 CL DMR NS	74	101	81	0.3	56	8,169	28.0	38.8	2,850	2,406	--
Croplan	559 CL DMR NS	75	103	81	0.3	49	9,335	31.6	40.7	2,926	--	--
Croplan	564 CL NS	74	103	78	0.5	48	9,538	31.8	40.2	2,654	--	--
Genosys	6007	76	101	82	2.3	57	7,959	33.4	38.9	2,120	1,850	1,994
Genosys	7052	73	100	77	1.3	47	9,701	33.9	37.8	1,825	1,924	1,978
Genosys	7163	72	101	77	1.3	56	8,227	28.9	38.6	2,651	--	--
Genosys	8037	73	100	74	0.8	51	8,887	34.4	40.7	2,258	--	--
Genosys	8064	75	103	73	1.8	60	7,540	29.8	32.8	1,738	--	--
Integra	516 NSDM	74	103	72	1.3	51	8,970	30.9	41.5	2,775	2,313	--
Integra	536 NSDM	70	104	65	1.5	53	8,586	28.7	37.5	2,508	--	--
Integra	735 NSCLDM	70	100	69	1.5	62	7,387	29.9	37.6	2,412	2,265	2,413
Integra	IX10-10516 NSCLDM	74	100	78	0.5	56	8,115	33.8	38.4	2,503	--	--
Integra	IX10-94 NSSU	73	98	74	1.0	54	8,429	30.9	39.0	2,802	--	--
Integra	IX10-96 NSSU	77	107	79	1.5	54	8,391	28.5	37.6	1,766	--	--
Integra	IX10-98 NSSU	75	104	76	0.5	53	8,624	30.4	38.7	2,305	--	--
Mycogen	8D310	70	103	76	0.5	84	5,453	27.3	33.5	2,514	2,534	--
Mycogen	8D481	73	111	77	0.5	83	5,529	28.8	34.6	2,426	2,449	--
Mycogen	8H288CLDM	70	102	68	1.0	47	9,753	30.5	41.8	2,763	2,296	2,248
Mycogen	8H449DM	74	103	74	2.3	45	10,039	31.7	44.6	3,066	2,604	2,776
Mycogen	8N270CLDM	69	103	70	1.0	49	9,368	31.7	40.4	2,462	2,148	2,250
Mycogen	8N358CLDM	71	100	70	1.8	49	9,303	30.6	43.2	2,709	2,351	2,263
Mycogen	8N433DM	75	100	71	1.3	45	10,069	28.8	43.9	3,166	2,708	--
Mycogen	8N510	76	103	74	1.0	44	10,292	29.6	40.2	3,312	--	--
Pannar	PAN 7813NS	75	103	76	1.3	44	10,483	29.9	40.9	2,809	--	--
Pannar	PAN 7924NS	77	104	78	1.0	48	9,469	28.3	39.1	3,012	--	--
Pannar	PAN 8466 NSCL	76	103	80	1.3	50	9,101	29.0	39.5	3,184	--	--
Pannar	PEX 7404	73	100	74	0.8	46	9,853	29.8	37.1	2,769	--	--
Pannar	PEX 7803	76	103	75	0.8	43	10,722	28.7	41.0	2,899	--	--
Pannar	PEX 7904	75	102	75	1.0	46	9,868	29.5	38.4	3,178	--	--
Proseed	CL 7001	73	106	74	1.3	55	8,326	27.5	36.7	2,544	2,295	--
Proseed	CL 9001	71	101	70	0.5	59	7,706	30.8	38.2	2,191	2,165	--
Proseed	E-4	72	101	74	1.0	62	7,430	29.3	38.0	2,048	1,844	--
Proseed	E-5	77	105	84	1.5	54	8,399	30.1	39.0	2,576	2,322	2,363
Proseed	E-8	74	102	87	2.8	56	8,091	27.9	40.1	2,273	2,193	--
Proseed	E-85	73	104	81	0.5	58	7,800	26.8	38.3	2,483	2,249	2,160
Seeds 2000	Blazer CL	75	103	80	1.0	52	8,824	29.3	41.7	3,009	--	--
Seeds 2000	Defender Plus	70	101	67	0.5	63	7,262	30.5	37.3	1,948	1,875	1,858
Seeds 2000	Firebird	76	101	70	0.8	45	10,107	29.0	38.5	2,914	--	--
Seeds 2000	X9828	73	104	71	0.5	60	7,610	29.3	37.2	2,545	--	--
Seeds 2000	X9866	74	103	78	1.3	59	7,662	28.7	38.2	2,558	--	--
Syngenta	2930 NS/DM	70	103	73	1.3	52	8,864	31.0	40.0	2,309	1,837	2,000
Mean		73	102	73	1.0	54	8,615	30.1	39.3	2,525	2,221	2,207
CV %		1.3	2.0	5.1	70.7	7.7	8.3	3.4	2.8	11.9	--	--
LSD 0.05		1	3	5	1.0	5.8	989	1.4	1.5	411	--	--

Table 11. 2010 Sunflower - Oilseed - Minot, N.D. - Authors, M. Halvorson, A. Sebelius and J. Tarasenko. (Page 2 of 2).

Company/ Brand	Hybrid	1,000								Seed Yield		
		Days to Flower (days)	Days to Maturity (days)	Plant Height (inch)	Plant Lodge ¹ (0-9)	Seed Weight (gram)	Seeds/ lb (seeds)	Test Weight (lb/bu)	Oil Content (%)	2010	2-yr. Avg.	3-yr. Avg.
Syngenta	3433 NS/DM	74	103	67	0.8	55	8,238	31.8	42.2	2,545	2,108	2,137
Syngenta	3480 NS/CL/DM	73	102	69	1.3	53	8,598	29.4	42.2	2,699	2,265	2,222
Syngenta	3732 NS	74	101	73	1.5	53	8,574	31.6	40.1	2,779	2,558	--
Syngenta	3845 HO	72	100	71	1.3	56	8,107	31.7	42.7	2,717	2,361	2,420
Syngenta	3875 NS	76	99	74	1.5	54	8,525	30.6	39.8	3,163	2,606	--
Syngenta	3980 NS/CL	75	102	74	1.0	53	8,625	30.4	37.7	2,134	2,199	2,346
Syngenta	4651 NS/DM	72	106	75	1.5	59	7,757	28.9	38.8	2,862	--	--
Syngenta	7120 HO/DM	71	107	67	0.5	58	7,871	30.3	36.8	1,978	1,675	1,766
Triumph	610CLD	70	103	73	1.3	56	8,343	29.5	39.1	2,313	--	--
Triumph	810HCLD	69	103	75	1.3	60	7,709	29.3	40.2	2,522	--	--
Triumph	s655	74	102	46	0.5	42	11,011	30.7	42.5	1,543	1,585	1,803
Triumph	s673	78	104	59	1.0	39	11,819	28.6	41.7	2,549	--	--
Mean		73	102	73	1.0	54	8,615	30.1	39.3	2,525	2,221	2,207
CV %				1.3	2.0	5.1	70.7	7.7	8.3	3.4	2.8	11.9
LSD 0.05				1	3	5	1.0	5.8	989	1.4	1.5	411

Trial was planted on May 26 with a seeding rate of 22,000 PLS and harvested on Oct. 20.

¹Lodging score based on scale 0-9 (0 = upright, 9 = flat).

Table 12. 2010 Sunflower - Non-oilseed - Minot, N.D. - Authors, M. Halvorson, A. Sebelius and J. Tarasenko.

Company/ Brand	Hybrid	1,000								Seed Yield			
		Days to Flower (days)	Days to Maturity (days)	Plant Height (inch)	Plant Lodge (0-9) ¹	Seed Wt. (grams)	Seeds/ lb (seeds)	Test Weight (lb/bu)	22/64	20/64	18/64	2010	3-yr. Avg.
CHS	10EXP01	75	100	68	0.3	149	3,052	21.6	88	97	100	2,805	--
CHS	10EXP02	73	105	64	0.3	146	3,150	17.9	91	97	99	2,000	--
CHS	RH 3126RT	74	107	75	0.3	167	2,715	22.8	69	88	98	1,836	2,211
CHS	RH 400CL	70	98	66	0.5	148	3,078	19.5	85	96	99	1,696	--
Croplan	179	75	107	71	0.3	161	2,838	20.1	76	91	96	2,544	--
Dahlgren	9530	74	101	69	0.8	150	3,033	22.6	79	93	98	3,258	2,665
Dahlgren	9592	72	100	68	0.3	140	3,264	20.5	88	96	99	2,672	--
Dahlgren	9530CL	74	107	74	0.3	152	3,011	22.6	81	94	98	3,132	2,904
Mycogen	8C451	72	100	71	0.3	146	3,121	20.5	89	97	99	2,549	2,315
Red River Comm.	2215	74	104	75	1.3	148	3,088	23.1	70	88	97	2,980	2,674
Red River Comm.	2217	73	99	72	0.8	158	2,889	20.4	92	97	99	2,868	--
Red River Comm.	2215 CL	74	103	72	0.8	158	2,877	22.2	78	94	99	2,642	--
Seeds 2000	6946 DMR	73	96	68	0.3	126	3,610	23.0	37	75	94	2,612	--
Seeds 2000	Jaguar	70	96	62	0.0	128	3,573	20.4	83	94	98	1,982	2,037
Seeds 2000	Panther DMR	70	94	64	0.8	130	3,530	22.3	69	88	98	2,853	2,506
Seeds 2000	6950	71	98	69	0.5	124	3,679	23.2	46	73	92	2,604	--
Mean		73	101	69	0.5	145	3,156	21.4	76	91	97	2,565	2,473
CV %				1.6	2.6	5.4	140.5	6.0	6.0	5.6	6.7	2.7	1.6
LSD 0.05				2	4	5	NS	18.4	410	1.7	10.6	5.1	3

Trial was planted on May 28 with a seeding rate of 18,000 PLS and harvested on Nov. 4.

¹Lodging score based on scale 0-9 (0 = upright, 9 = flat).

Table 13. 2010 Sunflower - Oilseed - Williston, N.D. - Authors, N. Riveland, G. Bradbury and L. Bradbury.

Company/Brand	Hybrid	Pop.						Seed Yield		
		Days to Flower	Plant Height (days)	Harvest Moisture (%)	x1,000 Plt/a (plants)	Test Weight (lb/bu)	Oil Content (%) ¹	2010	Avg.	3-yr. Avg.
		(days)	(inch)	(%)	(plants)	(lb/bu)	(%)	-----(lb/a)-----		
Seeds 2000	Cobra	73	32	8.1	18.6	28.6	40.1	831	--	--
Seeds 2000	Defender Plus	71	34	7.5	16.4	31.8	37.8	877	--	--
Seeds 2000	X9828	76	34	7.6	17.6	32.2	39.3	953	--	--
Seeds 2000	X9866	75	35	10.3	15.7	31.3	40.2	1,120	--	--
Syngenta	2930 NS/DM	71	34	6.9	19.3	30.0	39.4	813	1,687	1,525
Syngenta	3433 NS/DM	74	38	7.9	15.0	33.2	41.5	1,300	1,784	1,496
Syngenta	3480 NS/CL/DM	74	32	8.7	16.4	32.8	42.2	959	1,678	1,479
Syngenta	7120 HO/DM	71	34	7.7	18.8	31.6	44.0	1,062	1,748	1,594
Triumph	610CLD	74	34	8.6	18.9	32.1	43.5	1,006	--	--
Triumph	s671	77	26	16.9	17.9	34.3	45.0	1,001	1,539	--
Triumph	s673	79	30	25.8	17.9	32.0	43.2	948	--	--
USDA	894	74	37	7.4	17.1	32.9	40.4	578	1,229	1,151
Mean		74	33	10.3	17.5	31.9	41.4	954	1,611	1,449
CV %		0.9	9.0	12.3	12	1.8	1.3	16	--	--
LSD 0.05		1.0	4.3	1.8	NS	1.3	1.2	215	--	--

Planted: May 20. Harvested: Oct. 6. Previous crop: durum.

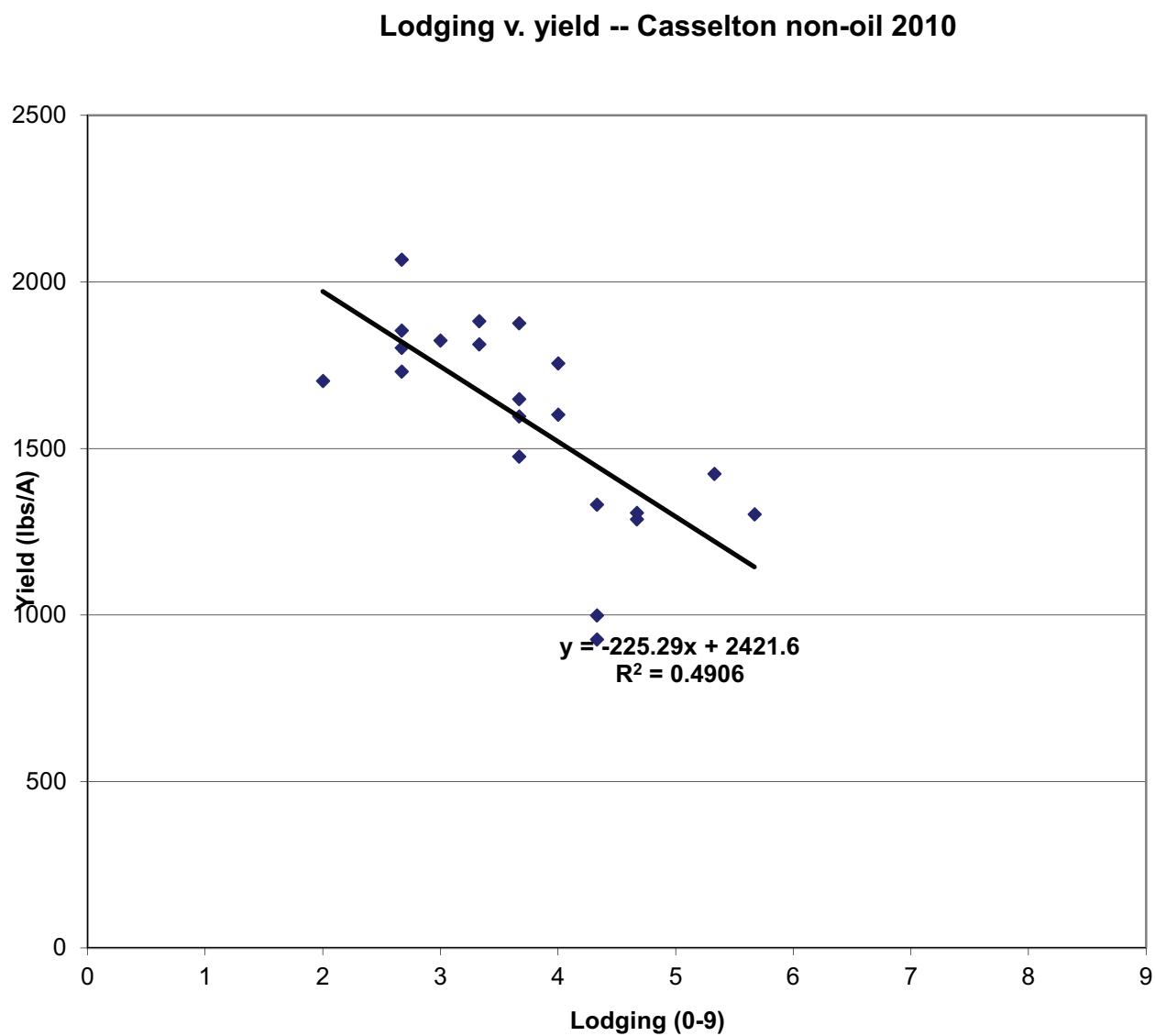
¹NuSun and high-oleic oils also adjusted for oil type.**Table 14. 2010 Sunflower - Non-oilseed - Casselton, N.D. - Author, B.S. Hulke.**

Company/Brand	Hybrid	Days to Lodge ²						Seed Over Screen			Seed Size		Nut-
		PM ¹	Lodge ²	Moisture (0-9)	Wt. (lb/bu)	Yield (lb/a)	22/64 (%)	20/64 (%)	18/64 (%)	L (mm)	W	meat (%)	
		(days)	(0-9)	(%)	(lb/bu)	(lb/a)	-----(%)-----			---(mm)---		(%)	
CHS	10EXP01	112	2.7	9.2	23.9	1,731	68.6	89.3	96.1	18.0	9.3	42.5	
CHS	10EXP02	111	4.7	18.4	23.5	1,307	78.5	91.0	95.4	17.3	9.4	44.4	
CHS	10EXP03	114	5.7	17.4	25.3	1,302	67.1	81.3	91.7	16.9	9.0	45.7	
CHS	RH 1121	113	4.0	15.2	24.5	1,755	83.3	90.8	95.5	16.8	9.3	45.2	
CHS	RH 400CL	109	3.7	10.5	21.8	1,648	82.1	92.5	96.2	19.6	9.3	43.8	
Croplan	179	114	4.3	20.7	22.7	1,331	63.7	80.7	90.1	16.5	8.3	50.0	
Dahlgren	9530	110	3.7	14.0	25.6	1,876	66.9	81.4	90.7	18.0	9.1	46.7	
Dahlgren	9530CL	111	3.3	11.7	25.0	1,882	69.3	85.9	93.7	17.6	8.8	46.5	
Flower Genetics	FG10457	106	3.0	11.3	21.4	1,824	81.7	92.5	97.4	17.7	9.5	43.2	
Flower Genetics	FG10458	102	2.0	8.6	18.6	1,703	88.7	94.4	97.3	18.4	9.8	47.7	
Flower Genetics	FG10462	112	2.7	15.8	21.7	1,854	73.2	86.0	92.7	18.8	8.8	46.3	
Mycogen	8C451	106	3.7	13.6	23.9	1,476	72.7	88.0	94.6	18.1	9.0	46.7	
Red River Comm.	2215	104	4.7	14.9	26.1	1,287	65.1	78.1	84.8	15.9	8.3	48.7	
Red River Comm.	2217	104	4.0	13.0	23.5	1,601	77.5	88.7	93.8	18.1	9.0	48.8	
Red River Comm.	2215 CL	111	3.3	11.5	23.5	1,812	67.1	85.5	92.9	17.1	8.8	46.7	
Seeds 2000	Jaguar	103	2.7	9.0	22.5	1,802	64.8	80.3	91.1	16.8	9.2	50.0	
Seeds 2000	Panther II	111	3.7	12.7	23.1	1,596	76.8	89.6	95.7	16.9	9.2	43.2	
Seeds 2000	Sundance	110	2.7	12.6	24.3	2,066	73.6	86.7	95.5	18.3	8.9	47.8	
Seeds 2000	X3639	114	4.3	11.5	23.8	998	76.3	90.1	95.7	18.2	8.5	50.0	
Triumph	747C	112	5.3	14.2	24.0	1,423	72.4	86.1	94.0	17.8	8.9	43.9	
USDA	924	110	4.3	12.6	26.6	926	49.0	70.1	86.6	13.7	8.3	51.5	
Mean		110	3.7	13.4	23.6	1,581	72.3	86.1	93.4	17.4	9.0	46.6	
CV %		2.4	25.2	19.5	4.3	17.6	--	--	--	--	--	--	
LSD 0.05		4	1.6	4.6	1.8	488	--	--	--	--	--	--	

Planted: May 27. Sharpen applied as dessicant Sept. 22. Harvested: Oct. 13.

¹Days to maturity: Hysun 311 = 101, SF 270 = 101 and P6451 = 108.²Description of lodging: 0 = perfectly upright stand; 1-3 = 10-30% root lodging, still easily harvested; 4-6 = 40-60% plants lodged, some severely; 7-8 = most plants lodged severely; 9 = all plants lodged severely. For relationship to yield see Fig 2.

Figure 2. Relationship between lodging and yield at Casselton non-oil seed trial¹.



¹Lodging was caused by a severe storm in July and was consistent across replicates.

Table 15. 2010 Sunflower - Non-oilseed - Carrington, N.D. - Authors, B. Schatz, S. Markell, T. Ingebretson and B. Smith.

Company/Brand	Hybrid	Plant Height (inch)	Days to Flower (days)	Days to PM (days)	Rust Severity ¹ (%)	Midge Incid ² (%)	Midge Severity ³ (0-9)	Harvest Moisture (%)	Test Weight (lb/bu)	Seed Yield ⁴ (lb/ac)
CHS	RH 3126RT	68	72	131	1.1	98	6.5	11.9	19.0	574
CHS	RH 400CL	62	68	118	14.3	46	4.5	8.5	20.2	943
Croplan	179	63	71	126	7.7	94	5.5	9.2	19.3	1,017
Dahlgren	9530	66	70	123	6.2	59	4.8	8.6	21.1	929
Dahlgren	9592	60	69	121	8.9	45	4.5	8.1	20.5	1,030
Dahlgren	9530CL	70	72	124	7.7	45	4.8	10.1	20.2	824
Mycogen	8C451	61	69	119	10.0	29	3.8	8.5	21.0	1,569
Red River Comm.	2215	64	69	120	7.9	46	4.3	9.3	21.8	1,108
Red River Comm.	2217	64	71	121	8.5	58	4.8	8.2	21.5	1,185
Red River Comm.	2215 CL	64	71	123	7.1	50	4.3	8.3	21.0	1,017
Seeds 2000	Jaguar	60	67	117	9.9	13	4.5	8.1	21.5	1,279
Seeds 2000	Panther DMR	63	65	121	7.9	45	4.0	8.0	24.1	1,144
Seeds 2000	Sundance	68	72	118	13.1	39	4.5	8.4	20.6	886
Seeds 2000	Jaguar II	68	70	119	9.0	40	4.3	8.3	20.6	1,077
Triumph	747C	63	67	130	0.5	91	3.0	13.1	19.9	869
USDA	924	58	67	123	5.6	90	5.0	9.7	21.6	673
Mean		64	69	122	7.8	55	4.6	9.14	20.8	1,008
CV %		7.5	2.0	1.7	45.2	28.0	12.8	23.1	4.6	22.0
LSD 0.05		6.7	1.9	3.0	5.1	21.3	0.8	NS	1.4	315

Planted: May 20. Harvested: Oct. 20. Previous crop: soybean.

¹Rust severity is the mean pustule coverage on the upper four fully expanded leaves of 10 randomly selected plants per plot.

The composite rust race on 50 randomly selected leaf samples was race 336.

²Incidence of plants within hybrid evaluation plots where Sunflower Midge infested the head, reported as % of total plants.³Sunflower Midge Severity: Scored on 0 to 9 scale, where 0 = no symptom to 9 = head fully cupped.⁴The 2010 CREC Oil Sunflower Hybrid Performance Test was significantly influenced by an infestation of sunflower midge.

The high level of damage caused by the sunflower midge has an impact on how the information from this hybrid evaluation should be utilized. The traditional information provided by this study related to hybrid yield potential, oil content, harvest moisture and selected other hybrid traits is compromised by the midge damage. However, we believe this hybrid performance test does provide some very useful information related to hybrid reaction to sunflower midge and rust, and days to flower.

Table 16. 2010 Sunflower - Non-oilseed - Langdon, N.D. - Authors, B. Hanson and R. Wilhelm (1 of 2).

Company/Brand	Hybrid	Days to Flower (days)	Plant Height (inch)	Head Rot ¹ (%)	Stalk Rot ² (%)	Broken Stems ³ (%)	Test Weight (lbs/bu)
Croplan	179	77	70	3	32	0	21.8
Dahlgren	9530	76	75	4	25	0	22.7
Dahlgren	9592	75	73	5	12	0	20.4
Dahlgren	9530CL	77	75	8	16	0	21.7
Mycogen	8C451	74	70	4	19	0	20.0
Red River Comm.	2215	76	73	3	20	0	22.0
Red River Comm.	2217	75	70	2	8	0	20.4
Red River Comm.	2215 CL	79	78	3	23	0	21.9
Seeds 2000	6946 DMR	73	68	5	28	8	22.9
Seeds 2000	Jaguar	74	70	5	20	6	22.1
Seeds 2000	Panther DMR	72	68	2	35	2	22.5
Seeds 2000	X9151	74	70	1	17	1	23.5
Triumph	747C	72	69	7	11	0	21.4
Triumph	TRX10454C	74	70	4	11	3	22.2
USDA	924	72	62	11	28	2	24.2
Mean		75	71	5	20	2	22.0
CV %		1.2	3.8	97	47	321	2.6
LSD 0.05		1.5	4.5	NS	15.8	NS	1.0

Table 16. 2010 Sunflower - Non-oilseed - Langdon, N.D. - Authors, B. Hanson and R. Wilhelm (2 of 2).

Company/Brand	Hybrid	Seed Over Screen			Seed Yield		
		22/64 (%)	20/64 (%)	18/64 (%)	2010	2-yr. Avg.	3-yr. Avg.
Croplan	179	67	87	95	1,685	1,487	--
Dahlgren	9530	68	87	94	2,218	1,894	2,051
Dahlgren	9592	73	89	94	2,038	1,930	2,149
Dahlgren	95EXCL-9530CL	50	81	94	1,698	1,585	1,869
Mycogen Seeds	8C451	76	93	96	1,805	1,756	1,910
Red River Comm.	2215	63	92	96	2,225	1,928	2,143
Red River Comm.	2217	72	93	96	2,105	1,832	--
Red River Comm.	2215 CL	60	90	96	1,665	--	--
Seeds 2000	6946 DMR	3	38	84	1,512	--	--
Seeds 2000	Jaguar	44	82	93	1,785	1,960	2,043
Seeds 2000	Panther DMR	30	78	93	1,925	1,872	1,943
Seeds 2000	X9151	7	41	80	2,038	--	--
Triumph	747c	73	87	95	1,751	1,575	1,853
Triumph	TRX10454C	69	90	96	2,218	--	--
USDA	924	34	72	89	2,071	1,619	1,829
Mean		53	80	93	1,916	1767	1977
CV %		--	--	--	13.3	--	--
LSD 0.05		--	--	--	427	--	--

Planted: May 18. Harvested: Oct. 12.

¹Sclerotinia head rot. Indicates percent incidence of head rot for each hybrid. It does not indicate severity.²Sclerotinia stalk rot. Indicates percent incidence of basal or midstalk rot for each hybrid.³Broken stems were laying flat on the ground. Breakage may have resulted from stalk rot, phoma or insects damage.

Plants were not harvested.

Table 17. 2010 Sunflower Hybrid Midge Evaluation - Mapleton, N.D. - Authors, J. Knodel, L.D. Charlet and P. Beauzay (Page 1 of 2).

Company/Brand	Hybrid	<u>Necrosis Score</u> ¹		
		Hybrid Score	Damage Rating	Bracken Scale ² (0-5)
Advanta	F30008NS,CL	4.65	High	0.80
Advanta	F51122NS,CL	4.70	High	0.89
Advanta	F51289	4.50	High	1.42
Advanta	F89057	4.50	High	1.78
Advanta	F91034	4.27	High	1.03
CHS	HRT10-4	4.25	High	0.86
CHS	HRT10-1	4.85	High	0.95
CHS	HRT10-2	4.80	High	1.46
CHS	HRT10-3	4.60	High	1.04
CHS	HRT10-5	4.80	High	0.86
CHS	HRT10-6	4.60	High	1.69
CHS	HRT10-7	3.85	Moderate	0.71
Croplan	179	4.35	High	1.09
Croplan	9692	4.45	High	0.89
Croplan	9992	4.58	High	1.25
Croplan	10456	4.70	High	0.89
Croplan	10457	4.70	High	1.15
Croplan	12144	4.65	High	1.07
Croplan	10455	4.25	High	1.12
Croplan	10W1	4.55	High	1.15
Croplan	9CX01	4.15	High	0.83
Croplan	9H611	4.55	High	1.04
Croplan	10454	4.75	High	1.01
Genosys	9279	4.55	High	0.74
Genosys	7163	3.70	Moderate	0.83
Genosys	8037	4.25	High	0.92
Genosys	8064	4.70	High	1.09
Genosys	9008	4.81	High	0.89
Genosys	9069	4.60	High	1.04
Genosys	9319	4.00	High	0.89
Mycogen	DAS10-2	4.07	High	0.83
Mycogen	DAS10-4	4.20	High	0.89
Mycogen	DAS10-1	4.05	High	0.89
Mycogen	DAS10-3	4.35	High	0.92
Mycogen	DAS10-5	4.75	High	0.83
Mycogen	DAS10-6	4.10	High	0.89
Mycogen	DAS10-7	4.75	High	0.83
Nidera	LN9714	4.45	High	1.24
Nidera	MN12174	4.30	High	1.48
Pannar	PEX 7404	4.20	High	0.83
Pannar	PEX 7803	4.70	High	0.89
Pannar	PEX 7904	4.75	High	0.95
Pioneer	63ME70	4.80	High	0.83
Pioneer	63N82	4.60	High	1.36

Table 17. 2010 Sunflower Midge Hybrid Evaluation - Mapleton, N.D. - Authors, J. Knodel, L.D. Charlet and P. Beauzay (Page 2 of 2).

Company/Brand	Hybrid	<u>Necrosis Score</u> ¹		
		Score	Damage Rating	Bracken Scale ² (0-5)
Pioneer	64HE01	4.85	High	1.18
Seeds 2000	X2113	4.78	High	0.66
Seeds 2000	X3293	4.65	High	1.36
Seeds 2000	X4328	4.55	High	1.07
Seeds 2000	X4437	4.35	High	1.09
Seeds 2000	X4467	4.70	High	0.86
Seeds 2000	X4628	4.75	High	1.12
Seeds 2000	X5913	4.40	High	0.95
Seeds 2000	X9464	4.33	High	0.79
Seeds 2000	X9814	4.39	High	0.89
Seeds 2000	X9828	4.15	High	0.92
Seeds 2000	X9846	4.45	High	0.89
Seeds 2000	X9856	4.25	High	0.80
Seeds 2000	X9866	4.40	High	0.77
Seeds 2000	X9978	4.45	High	0.89
Syngenta	3875 NS	4.40	High	1.01
Syngenta	4596 HO/DM	3.80	Moderate	1.07
Syngenta	4651 NS/DM	3.35	Moderate	0.77
Syngenta	X9978CL	3.30	Moderate	0.74
Triumph	TRXs8420	4.30	High	1.07
Triumph	EX61706	3.40	Moderate	0.71
Triumph	EX62212	4.30	High	1.33
Triumph	EX62819	4.55	High	1.07
Triumph	TRX61737	3.45	Moderate	0.86
Triumph	TRX8343	4.60	High	1.01
Triumph	TRX8344	4.20	High	0.83
USDA	894	4.56	High	1.06
Mean		4.40	--	1.68
LSD 0.05		0.83	--	0.6

Sunflower midge damage ratings taken on Aug. 30, 2010; hybrids in single-row plot randomized and replicated 4 times; 5 plants were evaluated per row (20 total per hybrid).

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.

Table 18. 2010 Sunflower Sclerotinia Stalk Rot Evaluations of Sunflower Hybrids - Author, T. Gulya (Page 1 of 2).

Company/Brand	Hybrid	Carrington		Grandin		Avg. Two Locations	
		(% of plants)	Rank	(% of plants)	Rank	(% of plants)	Overall Rank
Advanta	AP461	5.1	27	1.9	2	3.5	5
Advanta	F30008NS,CL	1.9	13	11.6	51	6.8	20
Advanta	F51122NS,CL	6.2	30	13.4	62	9.8	39
Advanta	F51137NS,CL	13.8	62	28.2	93	21.0	82
Advanta	F51137NS,CL	14.7	67	7.1	23	10.9	49
Advanta	F51139NS,DM,CL	71.1	96	18.6	78	44.8	96
Advanta	F51139NS,DM,CL	0.9	5	6.4	18	3.6	6
Advanta	F51289	2.8	17	28.3	94	15.6	67
Advanta	F51311	8.3	42	5.1	11	6.7	19
Advanta	F89057NS,SU	3.1	18	7.4	25	5.3	12
Advanta	F91034	0.0	1	0.0	1	0.0	1
CHS	09HRT-1	15.3	68	13.0	58	14.2	59
CHS	09HRT-3	24.0	83	11.5	48	17.8	77
CHS	09HRT-4	48.6	93	13.7	63	31.1	90
CHS	09HRT-5	10.9	50	8.8	31	9.8	40
CHS	09HRT-6	22.3	78	21.3	83	21.8	84
CHS	09HRT-7	18.6	72	9.9	37	14.2	60
CHS	HRT10/7	2.3	14	15.2	70	8.7	32
CHS	HRT10-1	41.0	90	21.8	84	31.4	91
CHS	HRT10-2	13.1	59	23.8	87	18.5	80
CHS	HRT10-3	1.1	7	19.0	79	10.0	42
CHS	HRT10-4	53.0	94	26.4	91	39.7	95
CHS	HRT10-5	33.3	89	21.9	85	27.6	88
CHS	HRT10-6	8.6	44	25.9	89	17.3	74
Croplan	10454	17.6	71	14.9	69	16.2	71
Croplan	10455	13.9	63	1.9	3	7.9	28
Croplan	10456	12.0	56	19.9	80	16.0	70
Croplan	10457	28.4	87	41.2	95	34.8	94
Croplan	9W13	0.0	2	5.9	16	2.9	2
Croplan	WF09-05	20.9	77	10.6	42	15.8	69
Croplan	135	28.1	86	6.8	22	17.5	75
Croplan	10W1	11.1	51	5.7	15	8.4	31
Croplan	8TH529	1.1	8	8.1	30	4.6	9
Croplan	9CX01	13.3	60	15.5	71	14.4	61
Croplan	9H611	23.4	80	16.3	73	19.8	81
Croplan	9OB14	4.8	25	18.3	77	11.5	53
Genosys	7163	2.6	16	7.9	29	5.2	11
Genosys	8037	14.3	65	12.7	55	13.5	58
Genosys	8064	6.7	34	5.1	12	5.9	17
Genosys	9008	20.0	73	26.1	90	23.1	85
Genosys	9069	14.6	66	5.3	14	9.9	41
Genosys	9279	8.1	40	16.6	74	12.4	55
Genosys	9319	11.5	54	2.5	4	7.0	21
Interstate	MH9001	20.0	74	9.1	33	14.6	63
Mycogen	DAS10-1	1.8	12	5.0	10	3.4	4
Mycogen	DAS10-2	15.3	69	4.9	9	10.1	43
Mycogen	DAS10-3	0.0	3	11.4	47	5.7	15
Mycogen	DAS10-4	26.1	85	8.9	32	17.5	76
Mycogen	DAS10-5	4.5	24	16.7	75	10.6	47
Mycogen	DAS10-6	20.1	75	11.1	44	15.6	68
Mycogen	DAS10-7	6.6	33	23.0	86	14.8	64
Mycogen	M9560	1.4	10	4.6	8	3.0	3
Nidera	JN 7381	5.8	29	12.9	56	9.4	38
Nidera	KN 9035	3.8	20	11.9	52	7.9	27
Nidera	LN9714	0.0	4	11.2	45	5.6	13

Table 18. 2010 Sunflower Sclerotinia Stalk Rot Evaluations of Sunflower Hybrids - Author, T. Gulya (Page 2 of 2).

Company/Brand	Hybrid	Carrington		Grandin		Avg. Two Locations	Overall Rank
		(% of plants)	Rank	(% of plants)	Rank		
Nidera	MN12174	9.4	47	23.9	88	16.7	73
Pannar	PEX 7404	13.6	61	11.3	46	12.4	56
Pannar	PEX 7803	10.0	48	7.5	26	8.8	33
Pannar	PEX 7904	11.2	52	10.9	43	11.0	51
Pioneer	63N82	14.2	64	16.0	72	15.1	65
Pioneer	P63ME70	4.2	22	16.8	76	10.5	46
Pioneer	P64HE01	8.2	41	20.7	82	14.4	62
ProSeed	E-8	8.5	43	2.8	5	5.7	14
Seeds 2000	X9978	16.2	70	20.6	81	18.4	79
Seeds 2000	9427	11.4	53	13.1	59	12.3	54
Seeds 2000	9478	25.8	84	6.8	21	16.3	72
Seeds 2000	X2113	7.5	36	14.5	67	11.0	50
Seeds 2000	X3292	7.3	35	4.6	7	6.0	18
Seeds 2000	X4328	20.5	76	27.2	92	23.9	86
Seeds 2000	X4437	9.0	45	9.5	35	9.3	37
Seeds 2000	X4467	23.8	82	7.1	24	15.5	66
Seeds 2000	X4628	23.4	81	43.9	96	33.7	93
Seeds 2000	X5913	10.6	49	12.2	54	11.4	52
Seeds 2000	X9464	32.4	88	10.1	39	21.3	83
Seeds 2000	X9814	7.7	37	13.0	57	10.3	44
Seeds 2000	X9828	13.1	58	7.8	27	10.4	45
Seeds 2000	X9846	12.4	57	13.3	61	12.9	57
Seeds 2000	X9856	22.4	79	13.9	64	18.1	78
Seeds 2000	X9866	6.3	31	12.2	53	9.2	36
Syngenta	3875 NS	3.6	19	5.3	13	4.4	8
Syngenta	4596 HO/DM	9.3	46	6.3	17	7.8	25
Syngenta	4651 NS/DM	4.9	26	2.9	6	3.9	7
Tom Heaton	XFG3	4.2	23	11.5	49	7.9	26
Tom Heaton	XFG6	7.8	39	6.7	19	7.3	23
Tom Heaton	XFG7	1.4	11	14.7	68	8.0	30
Triumph	8325	41.9	91	11.6	50	26.8	87
Triumph	EX61706	2.4	15	7.8	28	5.1	10
Triumph	EX62212	3.9	21	14.0	65	9.0	35
Triumph	EX62819	5.4	28	10.1	40	7.7	24
Triumph	s8420	59.3	95	6.8	20	33.0	92
Triumph	TRX8343	11.7	55	9.5	36	10.6	48
Triumph	TRX8344	1.1	9	10.6	41	5.9	16
Triumph	9427	47.0	92	14.4	66	30.7	89
Croplan check ¹	305	1.0	6	13.1	60	7.1	22
Croplan check ¹	343	6.4	32	9.5	34	7.9	29
Mycogen check ²	270	7.7	38	9.9	38	8.8	34
Mean		13.8		12.9		13.3	

¹Resistant check²Susceptible check.

2010 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). 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 3. Trial sites for each of the hybrids tested in 2010 appear in Tables 4 and 5.

Climate

A summary of climate conditions near the sunflower test sites is presented in Table 19. The 2010 growing season began with above-normal precipitation and below-normal temperatures in May at all locations except Presho, which had near-normal May rainfall. June was drier than normal at Bison and Eureka but wetter than normal at Onida and Presho. Eureka remained drier and warmer than normal through August but was cooler and wetter than the 30-year average in September. Bison had above-average rainfall from July through September. Onida had below-normal precipitation in July and August but was cooler and wetter in September. Presho was wetter than normal in July but drier than usual from August through October. October was warmer and drier than normal at all sites, which facilitated crop drydown even though the first killing frost (≤ 24 F) did not occur until Oct. 28, 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 pretreated with Cruiser insecticide and at least one fungicide. All trials were seeded no-till. 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 17,000 plants per acre. Stands were spotty at Eureka, so stand counts were made prior to harvest. Initial stands were good at Presho, Bison and Onida, but Presho had a fair number of seedlings systemically infected with downy mildew. These plants were removed preferentially at thinning.

Flowering was recorded at Onida as the number of days from planting to 50 percent ray petals extended. The number of days from planting to physiological maturity (rated visually) also was recorded at Onida. Plant height and lodging notes were taken at all locations immediately before harvest. Lodging was low at Bison and Presho for most hybrids. Onida and Eureka had extensive lodging in some plots and Eureka also had considerable neck breakage due to high winds. The combination of poor stands, lodging and neck breakage made the yield data at Eureka highly variable, so only entries with adequate stands and relatively low levels of lodging and neck breakage were included in the yield analysis. Confection plot yields at Onida also were variable due to lodging and seed shatter, so no yield data are reported.

Plots at Onida and Presho were harvested with a Kincaid Massey Ferguson plot combine fitted with sunflower pans and a HarvestMaster HM400 Classic GrainGage weigh system. Plots at Eureka were harvested with the USDA-ARS sunflower research unit's Kincaid 8XP plot combine fitted with a custom two-row sunflower header and an HM800 high-capacity GrainGage weigh 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 from locations are contained in Tables 20-25. Yields of oilseed hybrids were highest at Presho, averaging 1,792 pounds/acre over all hybrids tested, with an average oil content of 46 percent. The lowest overall yield was measured at Eureka, which averaged 1,475 pounds/acre and 46.4 percent oil for hybrids with adequate stands and fairly low levels of lodging and neck breakage. Confection seed yields at Onida were too variable for publication, but other data collected appear in Table 23. 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 3. 2010 South Dakota sunflower trial locations.

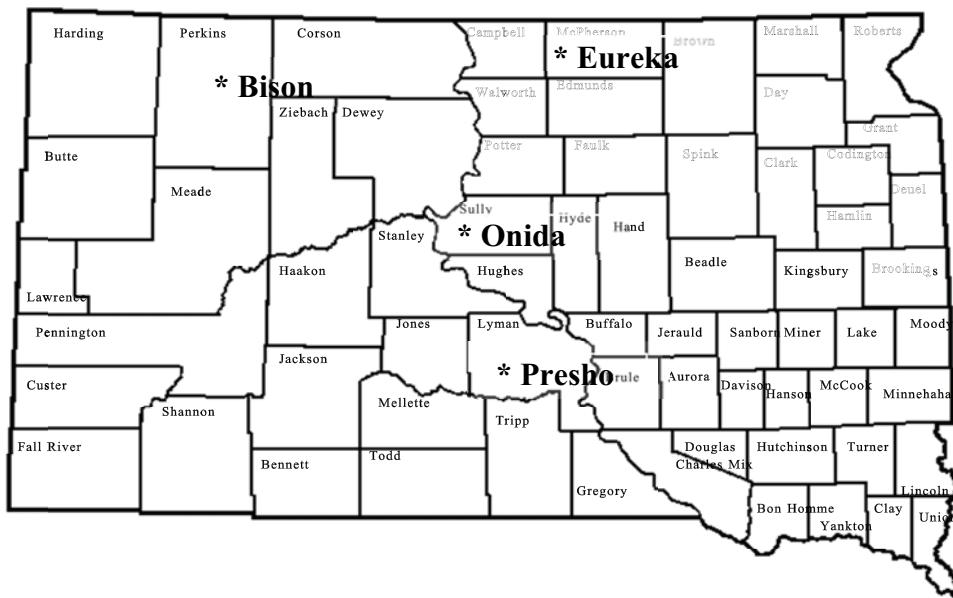


Table 19. 2010 Climate Summary for Weather Stations Nearest to South Dakota Sunflower Test Sites and Departures From Normal.

Location-Month	2010 Temperature			Total Precip.	Departure from Normal ¹			
	Avg.	Max.	Avg. Min.		Mean	Max. Temp	Min. Temp	Avg. Temp
	(°F)			(inch)	(°F)			(inch)
Bison								
May	63.8	41.3	52.6	5.58	-5.7	-2.4	-4.0	2.86
June	75.8	52.5	64.2	2.18	-3.1	-0.5	-1.8	-0.64
July	86.0	57.5	71.8	2.90	0.0	-0.9	-0.4	0.63
August	86.8	58.3	72.6	2.70	0.6	1.4	1.0	1.23
September	74.4	46.1	60.2	2.81	-0.4	-0.4	-0.5	1.61
October	66.4	38.9	52.7	0.77	5.9	3.6	4.8	-0.69
Eureka								
May	64.2	45.1	54.6	5.65	-5.6	1.5	-2.1	3.02
June	77.7	55.5	66.6	1.51	-0.5	2.6	1.0	-1.66
July	85.4	59.9	72.7	1.45	0.7	1.9	1.3	-1.33
August	87.3	59.8	73.5	0.12	3.5	3.6	3.5	-2.18
September	69.1	46.2	57.6	3.57	-4.2	0.8	-1.8	2.14
October	62.5	36.6	49.6	0.83	3.4	3.0	3.2	-0.83
Onida 4 NW								
May	65.2	44.2	54.7	4.10	-5.2	-0.1	-2.7	1.25
June	77.2	55.7	66.5	3.87	-3.0	2.1	-0.4	0.76
July	86.4	60.0	73.2	1.97	-1.2	1.2	0.0	-0.72
August	89.2	60.9	75.1	0.73	3.4	3.9	3.7	-1.41
September	72.7	47.4	60.0	3.51	-3.3	1.1	-1.2	1.97
October	64.4	38.6	51.5	0.96	3.2	4.1	3.6	-0.62
Presho 7 NW								
May	68.7	44.8	56.7	3.22	-3.6	0.4	-1.7	-0.09
June	79.7	56.7	68.2	5.70	-2.5	2.9	0.2	2.19
July	88.2	62.0	75.1	3.83	-1.1	2.4	0.7	1.14
August	91.2	61.6	76.4	0.00	2.5	3.8	3.1	-2.28
September	75.9	47.4	61.7	0.00	-2.3	0.2	-1.0	-1.49
October	69.7	37.8	53.7	0.00	6.1	2.9	4.4	-1.51

2010 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.

Table 20. 2010 Sunflower - Oilseed - Bison, S.D.

Company/Brand	Hybrid	Pop.						Seed Yield		
		x1,000 (plants)	Plant Plt/a	Plant (inch)	Lodge (%)	Test (lb/bu)	Oil (%)	2010	Avg. (lb/a)	3-yr. Avg.
Advanta	NutriSun HS03	16.1	61	3	31.7	41.6	1,322	--	--	--
Croplan	306 DMR NS	16.2	62	1	28.5	46.2	1,703	1,323	1,505	
Croplan	3080 DMR NS	16.4	62	3	28.1	46.6	1,899	1,464	1,645	
Croplan	356A NS	16.4	59	0	32.0	45.5	2,019	1,464	--	
Croplan	378 DMR HO	17.1	67	3	27.7	42.7	1,579	--	--	
Croplan	460 E NS	17.1	65	3	30.0	48.1	1,444	1,041	--	
Croplan	555 CL DMR NS	17.1	63	3	27.6	43.4	1,280	995	--	
Croplan	559 CL DMR NS	14.5	67	1	29.6	47.2	1,573	--	--	
King	SunKing 3909 NSCL	16.5	63	3	28.4	43.1	1,395	--	--	
King	SunKing 4404 NSCL	17.5	64	1	29.0	42.8	1,686	1,259	1,588	
Mycogen	8D481	16.7	67	0	29.0	43.8	1,836	--	--	
Mycogen	8N358CLDM	16.8	64	2	30.4	46.8	1,502	1,280	1,480	
Mycogen	8N453DM	15.9	64	1	31.3	49.0	2,145	--	--	
Mycogen	8N510	14.8	60	1	27.7	46.0	1,682	1,474	1,512	
Pioneer	63N82	17.2	64	0	29.2	46.1	1,613	1,298	--	
Pioneer	P63ME70	16.4	62	1	25.3	44.9	1,640	--	--	
Pioneer	P64HE01	15.6	59	2	30.5	45.3	1,637	--	--	
ProSun	SK-4510	17.3	62	2	29.4	43.1	1,549	--	--	
ProSun	SK-4610	16.3	64	0	31.8	45.4	1,904	--	--	
ProSun	SK-4810	16.4	59	1	30.2	43.5	1,868	--	--	
ProSun	SK-4910	15.2	64	0	29.8	43.0	1,691	--	--	
Seeds 2000	Badger CL	15.6	68	2	28.9	40.3	1,503	--	--	
Seeds 2000	Blazer CL	17.0	64	3	27.8	45.4	1,784	--	--	
Seeds 2000	Firebird	16.9	61	0	29.0	45.1	1,751	--	--	
Seeds 2000	Sierra	15.8	62	0	27.8	44.5	1,665	--	--	
Seeds 2000	X9464	16.7	65	3	28.9	44.5	1,101	--	--	
Seeds 2000	X9866	15.6	64	0	26.5	43.6	1,603	--	--	
Syngenta	3732 NS	17.6	59	0	31.9	46.0	1,996	1,408	--	
Syngenta	3845 HO	16.6	59	2	29.7	47.4	1,899	1,385	1,578	
Syngenta	3875 NS	15.9	57	4	30.0	44.7	2,115	1,471	1,651	
Syngenta	3980 NS/CL	16.1	68	0	28.7	43.8	1,937	1,290	1,415	
Syngenta	4596 HO/DM	17.9	68	5	28.1	44.2	1,492	--	--	
Syngenta	4651 NS/DM	15.4	69	1	28.1	44.6	1,719	--	--	
Technology	OL535	15.9	64	2	28.1	44.4	1,571	--	--	
Technology	OL555	16.5	65	4	26.9	44.0	1,792	--	--	
Triumph	s655	16.7	38	0	31.4	46.4	1,731	1,321	--	
Triumph	s668	15.1	48	0	29.0	45.5	2,401	--	--	
Triumph	s671	15.9	46	0	28.7	45.4	2,405	1,795	1,856	
Triumph	s673	15.5	54	0	28.9	42.1	2,125	--	--	
Triumph	s674	14.9	44	0	28.5	46.5	2,086	1,694	--	
Triumph	s678	15.1	57	0	29.1	46.2	2,405	1,745	1,758	
Triumph	s870HCL	14.2	44	0	28.3	44.4	2,038	--	--	
Triumph	TRXs9422	15.8	45	0	29.0	47.3	2,076	1,402	--	
USDA	894	15.6	59	0	31.2	46.5	1,351	985	1,021	
Mean		16.2	60	1	29.1	44.9	1,762	1,373	1,546	
CV %		7.7	4.8	149	4.4	3.3	14.1	16.1	17.5	
LSD 0.05		1.7	4	3	1.8	2.0	348	235	229	

Planted: June 10. Harvested: Nov. 1. Previous crop: wheat.

Table 21. 2010 Sunflower - Oilseed - Eureka, S.D.

Company/Brand	Hybrid	Pop.							Seed Yield ¹		
		x1,000	Plant Plt/a	Plant Height (plants)	Lodge (inch)	Neck ² (%)	Harvest Break (%)	Test Moisture (%)	Oil Weight (lb/bu)	Content (%)	2-yr. 2010
										----- (lb/a)-----	----- Avg.-----
Advanta	ADV590	15.5	46	23	7	9	26.7	45.5	--	--	--
Advanta	NutriSun HS03	19.2	43	17	0	9	29.6	40.6	--	--	--
Croplan	306 DMR NS	20.7	48	3	1	9	28.7	47.2	1,292	1,541	1,728
Croplan	3080 DMR NS	19.1	48	1	1	7	28.1	49.4	1,424	1,925	1,894
Croplan	356A NS	16.7	46	8	2	10	30.6	46.4	1,457	2,114	--
Croplan	378 DMR HO	11.4	60	37	7	10	28.8	45.6	--	--	--
Croplan	460 E NS	20.9	52	9	31	7	27.9	47.8	--	--	--
Croplan	555 CL DMR NS	17.8	53	33	2	8	26.5	45.6	--	--	--
Croplan	559 CL DMR NS	17.6	46	4	12	9	29.5	48.5	--	--	--
King	SunKing 3909 NSCL	19.3	46	2	19	8	29.8	46.9	--	--	--
King	SunKing 4404 NSCL	18.0	49	19	2	8	29.0	43.5	--	--	--
Mycogen	8D481	19.2	55	21	7	8	29.9	43.9	--	--	--
Mycogen	8H288CLDM	13.1	49	18	0	7	29.4	49.7	--	--	--
Mycogen	8H449DM	13.6	51	51	4	8	30.7	48.0	--	--	--
Mycogen	8N270CLDM	19.2	57	1	1	7	30.8	47.6	1,186	--	--
Mycogen	8N358CLDM	19.4	52	8	2	9	29.4	48.4	1,302	1,714	1,827
Mycogen	8N421CLDM	19.0	54	5	13	9	29.1	46.6	--	--	--
Mycogen	8N433DM	20.1	53	13	8	8	27.8	49.7	--	--	--
Mycogen	8N453DM	19.0	48	43	2	9	30.6	50.7	--	--	--
Mycogen	8N510	13.9	52	24	2	8	27.6	44.0	--	--	--
Pannar	PAN 7813 NS	14.8	50	25	6	12	29.0	47.5	--	--	--
Pannar	PAN 7924 NS	17.4	49	17	22	10	28.4	45.6	--	--	--
Pannar	PAN 8560 NS/CL	20.7	56	9	0	9	28.0	43.5	1,133	--	--
Pannar	PAN 9501	21.1	55	3	5	9	30.7	43.9	1,279	--	--
Pannar	PEX 7803	12.8	44	9	2	11	29.9	47.9	--	--	--
Pannar	PEX 7904	10.3	52	3	4	13	28.1	45.4	--	--	--
Pioneer	63N82	20.1	53	5	2	9	30.2	47.9	1,368	1,767	--
Pioneer	P63ME70	18.5	50	23	2	8	27.0	47.5	--	--	--
Pioneer	P64HE01	21.0	53	6	2	8	31.4	47.7	1,181	--	--
ProSun	SK-4510	13.3	44	0	21	9	30.0	43.7	--	--	--
ProSun	SK-4610	18.4	44	6	3	9	30.8	45.5	--	--	--
ProSun	SK-4810	18.1	48	2	2	11	29.2	45.2	1,613	--	--
ProSun	SK-4910	18.9	50	8	1	9	27.7	43.8	1,139	--	--
Seeds 2000	Badger CL	11.9	46	8	0	7	27.7	39.3	--	--	--
Seeds 2000	Blazer CL	16.7	48	33	1	10	28.7	47.4	--	--	--
Seeds 2000	Firebird	18.2	42	9	0	13	26.9	44.7	1,704	1,991	2,086
Seeds 2000	Sierra	17.1	45	15	8	11	26.2	43.1	--	--	--
Seeds 2000	X9464	15.1	51	3	27	10	28.8	43.9	--	--	--
Seeds 2000	X9866	16.7	60	15	5	10	28.2	46.1	--	--	--
Syngenta	3732 NS	18.8	50	6	1	11	31.8	48.3	1,652	2,079	--
Syngenta	3845 HO	17.1	54	29	4	7	31.1	49.2	--	--	--
Syngenta	3875 NS	14.6	58	56	0	7	30.8	47.5	--	--	--
Syngenta	3980 NS/CL	19.3	54	13	0	10	28.6	44.1	1,169	1,696	1,758
Syngenta	4596 HO/DM	14.8	56	35	11	10	28.0	45.1	--	--	--
Syngenta	4651 NS/DM	18.3	58	20	0	10	29.0	44.6	--	--	--
Technology	OL535	18.3	61	50	1	7	26.7	46.2	--	--	--
Technology	OL555	13.5	56	29	0	8	28.0	47.7	--	--	--
Triumph	610CLD	17.5	50	10	7	8	27.6	47.2	--	--	--
Triumph	810HCLD	15.4	52	6	5	9	28.2	47.8	1,043	--	--
Triumph	845HO	16.9	58	12	5	12	26.5	48.1	--	--	--
Triumph	s655	19.5	35	7	0	10	28.8	46.3	1,705	2,071	2,133
Triumph	s668	17.0	37	2	0	17	28.2	45.9	1,750	--	--
Triumph	s671	13.2	39	1	1	11	28.2	46.1	--	--	--
Triumph	s673	19.0	42	0	0	15	27.4	45.5	2,230	--	--
Triumph	s674	16.0	38	3	0	13	28.5	46.8	1,975	2,437	--
Triumph	s678	14.4	39	2	1	13	28.4	46.8	1,624	2,209	2,233
Triumph	s870HCL	10.2	39	3	0	11	27.7	46.7	--	--	--
Triumph	s878H	15.9	39	10	1	12	27.7	49.0	1,623	2,162	2,207
Triumph	TRXs9422	16.5	32	4	0	13	29.1	47.5	1,866	2,118	--
USDA	894	15.0	43	8	2	9	30.2	49.8	1,207	1,725	1,701
Mean		16.9	49	14	5	10	28.8	46.4	1,475	1,968	1,952
CV %		25.7	--	114	128	14.3	3.6	3.5	19.6	18.2	16.8
LSD 0.05		6.1	--	22	8	1.9	1.4	2.3	409	353	263

Planted: June 16. Harvested: Nov. 8-9. Previous crop: corn.

¹Yield is reported only for hybrids with adequate stands and relatively low levels of lodging and neck breakage.²Neck break is the percentage of standing plants with heads completely broken off at the neck.

Table 23. 2010 - Sunflower - Non-oilseed - Onida, S.D.

Company/Brand	Hybrid	Pop. x1,000	Days to		Plant Height (inch)	Test Weight (lb/bu)	Lodge (%)	Seed Yield ¹ (lb/a)	Seed Over Screen			Nut- meat (%)
		Plt/a (plants)	Flower ----- (days)-----	Maturity ----- (days)-----					22/64 ----- (%)-----	20/64 ----- (%)-----	18/64 ----- (%)-----	
CHS	RH 400CL	17.4	61	92	67	20.5	15	--	46.5	80.8	94.3	47.7
Croplan	179	17.4	66	103	73	21.8	11	--	41.5	74.3	87.7	46.6
Dahlgren	9530	17.4	64	99	80	22.2	13	--	55.7	81.2	92.9	50.3
Dahlgren	9569	17.4	64	98	74	21.4	11	--	47.9	75.0	89.9	45.5
Dahlgren	9579	17.4	63	99	69	19.1	15	--	51.4	85.3	98.1	52.9
Dahlgren	9592	17.4	64	97	73	21.3	18	--	53.5	82.4	93.8	53.4
Dahlgren	9530CL	17.4	68	105	81	22.3	14	--	36.7	70.1	88.7	54.8
Mycogen	8C451	17.4	65	98	78	19.9	23	--	61.7	86.3	93.2	48.5
Red River Comm.	2215	17.4	64	100	74	23.5	15	--	52.9	83.6	93.7	50.3
Red River Comm.	2217	17.4	64	97	74	21.1	19	--	57.2	83.1	92.3	52.9
Red River Comm.	2215 CL	17.4	67	108	79	22.8	14	--	45.3	75.5	87.1	46.8
Seeds 2000	Jaguar	17.4	60	93	63	19.0	15	--	61.6	89.4	98.0	46.1
Seeds 2000	Panther II	17.4	62	95	72	21.4	20	--	62.2	85.2	91.9	48.5
Triumph	770CL	16.5	71	112	87	23.9	9	--	45.6	82.2	95.9	56.5
USDA	924	17.4	64	95	85	27.1	31	--	8.1	14.8	30.5	70.1
Mean		17.34	65	99	75	21.8	16	--	48.5	76.6	88.5	51.4
CV %		2.8	0.7	1.3	2.9	6.3	33.5	--	18.6	7.0	5.3	7.8
LSD 0.05		0.7	1	2	5	2.0	8	--	12.9	7.7	6.7	5.7

Planted: June 9. Harvested: Oct. 30.

¹Seed yields were too variable to report.

Table 24. 2010 Sunflower - Oilseed - Presho, S.D.

Company/Brand	Hybrid	Pop.							Seed Yield ¹		
		x1,000	Plant Plt/a	Plant (plants)	Lodge (inch)	Harvest (%)	Test (lb/bu)	Oil Weight (%)	2010	2-yr. Avg. (lb/a)	3-yr. Avg.
Advanta	NutriSun HS03	16.6	57	1	6	29.9	38.9	1,691	--	--	
Croplan	306 DMR NS	16.4	62	6	6	28.5	46.1	1,544	1,930	2,068	
Croplan	3080 DMR NS	14.5	53	9	5	28.0	48.3	1,628	1,794	1,988	
Croplan	356A NS	17.1	61	8	6	28.5	47.1	2,034	2,104	--	
Croplan	378 DMR HO	16.4	69	6	6	28.0	44.6	1,555	--	--	
Croplan	460 E NS	15.4	65	11	6	27.1	48.8	1,684	1,794	--	
Croplan	555 CL DMR NS	16.8	72	10	6	27.3	45.0	1,993	2,049	--	
Croplan	559 CL DMR NS	16.8	69	12	6	27.6	46.2	1,913	--	--	
King	SunKing 3909 NSCL	17.3	58	7	6	27.5	44.2	1,704	--	--	
King	SunKing 4404 NSCL	17.1	62	7	6	27.9	42.3	1,599	1,834	2,018	
Mycogen	8H449DM	17.4	65	9	6	30.0	49.0	1,869	1,969	2,054	
Mycogen	8N270CLDM	15.5	65	9	5	28.1	43.8	1,542	--	--	
Mycogen	8N358CLDM	16.9	67	6	5	26.0	45.8	1,650	1,832	1,953	
Mycogen	8N421CLDM	16.8	64	4	6	28.2	46.0	1,694	--	--	
Mycogen	8N433DM	17.5	68	6	5	26.3	47.3	1,990	2,088	--	
Mycogen	8N453DM	16.7	67	10	5	30.0	50.0	1,694	1,981	2,174	
Mycogen	8N510	17.5	62	4	5	28.7	45.2	1,934	2,410	2,569	
Mycogen	8D481	17.0	68	6	6	30.3	41.2	1,978	2,130	2,254	
Pannar	PAN 7813 NS	16.5	62	6	6	29.1	46.0	1,946	2,303	2,350	
Pannar	PAN 7924 NS	15.4	64	5	6	28.1	44.5	1,989	2,103	2,247	
Pannar	PAN 8560 NS/CL	16.5	66	5	6	28.5	41.7	1,595	--	--	
Pannar	PAN 9501	17.3	65	2	6	30.6	42.7	2,160	--	--	
Pannar	PEX 7803	15.4	56	2	6	29.4	47.2	1,674	2,098	--	
Pannar	PEX 7904	16.0	57	4	6	28.8	46.7	1,861	1,973	--	
Pioneer	63N82	17.0	65	4	5	30.6	45.2	1,574	1,841	2,086	
Pioneer	P63ME70	15.6	65	5	5	25.9	45.7	1,920	--	--	
Pioneer	P64HE01	16.5	71	13	6	31.5	44.8	1,496	--	--	
Syngenta	3732 NS	17.4	63	7	5	30.2	46.8	1,854	2,140	--	
Syngenta	3845 HO	15.6	61	10	5	27.2	47.2	1,622	1,953	2,173	
Syngenta	3875 NS	16.7	64	2	6	28.5	45.7	1,867	1,783	2,164	
Syngenta	3980 NS/CL	15.7	68	6	6	28.4	43.5	1,639	1,946	2,056	
Syngenta	4596 HO/DM	15.6	69	12	6	27.6	45.6	1,661	--	--	
Syngenta	4651 NS/DM	15.2	67	5	6	28.0	43.0	1,738	--	--	
Technology	OL555	17.8	67	7	5	26.9	45.7	1,504	--	--	
Technology	OL535	16.4	71	7	5	26.8	43.9	1,598	--	--	
Triumph	s655	17.4	43	3	6	28.8	47.3	1,949	2,171	2,478	
Triumph	s668	17.4	41	1	7	29.8	47.5	2,203	2,412	--	
Triumph	s671	17.1	46	1	6	28.9	47.4	1,964	2,123	2,296	
Triumph	s673	16.5	45	4	6	29.1	48.1	2,122	--	--	
Triumph	s674	13.5	43	3	6	30.5	50.7	1,973	1,929	--	
Triumph	s678	15.4	52	6	6	31.3	49.7	2,118	2,209	2,335	
Triumph	s870HCL	15.0	43	2	6	27.6	48.1	2,021	--	--	
Triumph	s878H	13.6	50	4	7	28.6	47.8	1,769	2,186	2,322	
Triumph	TRXs9422	18.6	48	1	6	29.9	49.8	1,853	2,251	--	
USDA	894	16.9	58	8	6	26.9	46.7	1,258	1,575	1,624	
Mean		16.4	60	6	6	28.6	46.0	1,792	2,031	2,169	
CV %		12.9	4.2	75.3	8.0	4.0	2.2	9.5	13.1	12.4	
LSD 0.05		NS	5	6	0.6	1.6	1.4	239	261	216	

Planted: June 9. Harvested: Oct. 22. Previous crop: winter wheat.

¹The 2-yr yield average is from 2010 Presho and 2009 Reliance. The 3-yr yield average is from 2010 Presho and 2008-2009 Reliance.

Table 25. 2010 Sunflower - Oilseed - Averages Across Three Locations (Bison, Onida and Presho, S.D.)

Company/Brand	Hybrid	Pop.	Plant x1,000	Plant Plt/a	Lodge (%)	Test (lb/bu)	Oil Content (%)	Seed Yield (lb/a)
		(plants)						
Advanta	NutriSun HS03	16.7	64	9	29.9	39.6	1,415	
Croplan	306 DMR NS	16.7	63	9	28.5	45.8	1,593	
Croplan	3080 DMR NS	16.2	59	12	28.0	47.0	1,705	
Croplan	356A NS	17.1	62	7	30.5	46.3	2,080	
Croplan	378 DMR HO	17.2	70	10	28.1	43.9	1,594	
Croplan	460 E NS	16.6	68	15	28.4	48.3	1,437	
Croplan	555 CL DMR NS	17.3	71	14	27.9	44.1	1,568	
Croplan	559 CL DMR NS	15.9	71	10	28.8	46.3	1,788	
King	SunKing 3909 NSCL	17.1	63	13	27.9	43.2	1,405	
King	SunKing 4404 NSCL	17.5	68	13	28.8	42.2	1,533	
Mycogen	8D481	16.9	69	7	30.0	42.4	1,932	
Mycogen	8N358CLDM	17.2	69	9	28.6	46.5	1,617	
Mycogen	8N453DM	16.6	68	9	30.5	49.7	1,904	
Mycogen	8N510	16.7	63	10	28.2	45.1	1,803	
Pioneer	63N82	17.2	66	4	30.4	45.6	1,693	
Pioneer	P63ME70	16.4	66	13	26.2	44.6	1,666	
Pioneer	P64HE01	16.4	69	13	31.0	44.9	1,515	
Syngenta	3732 NS	17.4	65	10	30.6	46.2	1,923	
Syngenta	3845 HO	16.6	63	11	28.6	46.8	1,864	
Syngenta	3875 NS	16.8	66	9	28.9	44.6	2,016	
Syngenta	3980 NS/CL	16.4	71	10	28.4	43.4	1,650	
Syngenta	4596 HO/DM	16.7	72	13	28.0	44.7	1,534	
Syngenta	4651 NS/DM	15.9	70	10	28.6	43.7	1,516	
Technology	OL535	16.7	70	10	27.0	43.3	1,516	
Technology	OL555	17.4	70	10	27.5	44.4	1,662	
Triumph	s655	16.9	41	3	29.9	46.9	1,796	
Triumph	s668	17.6	46	1	29.6	47.3	2,256	
Triumph	s673	17.3	51	8	29.0	45.7	1,958	
Triumph	s674	15.0	46	3	29.3	49.4	1,977	
Triumph	s678	16.3	56	7	30.0	48.2	2,131	
Triumph	s870HCL	15.2	46	4	28.1	47.0	1,987	
Triumph	TRXs9422	17.4	47	3	29.6	48.9	1,915	
USDA	894	16.3	60	11	28.8	46.2	1,296	
Mean		16.7	63	9	28.9	45.5	1,735	
C.V. %		9.4	4.3	59.2	4.1	2.7	12.1	
LSD 5%		1.3	3	4	0.9	1.0	169	

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