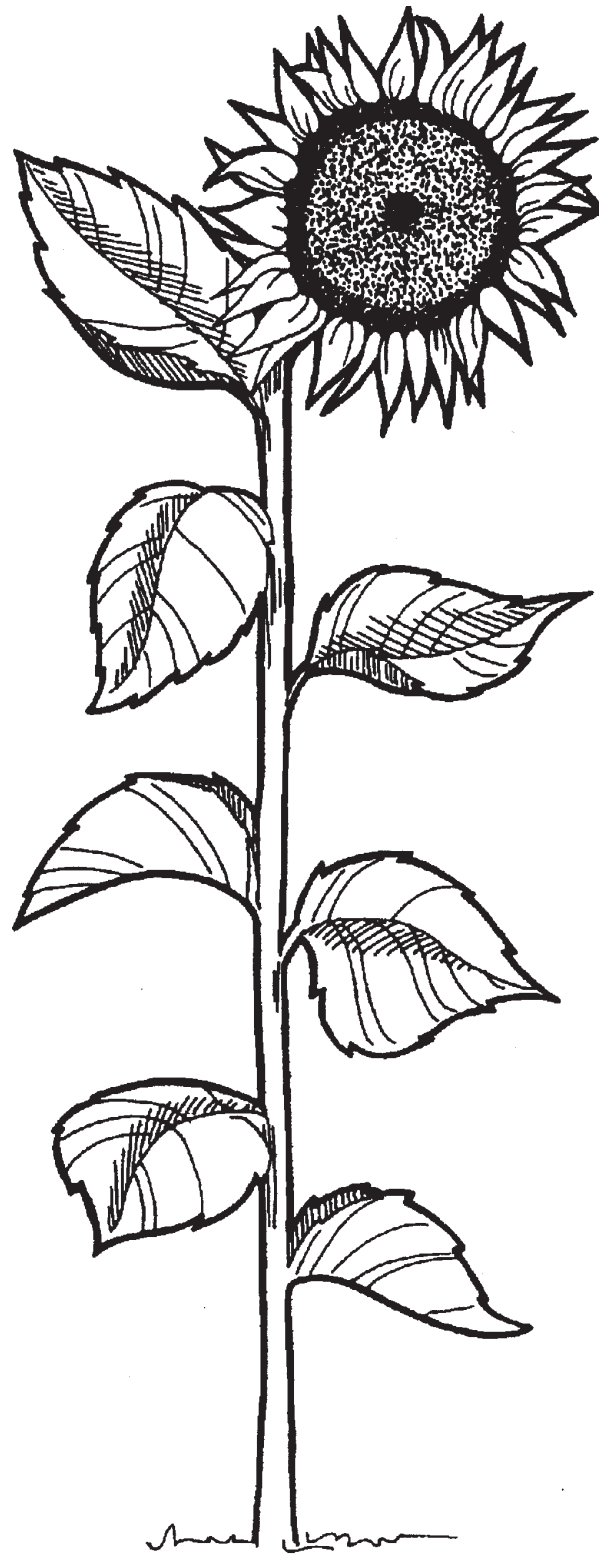


North Dakota
and South Dakota
HYBRID
SUNFLOWER
Performance Testing
2009



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JANUARY 2010



Acknowledgements

We would like to thank the following scientists/authors for contributing their time, land, labor and other materials to the 2009 sunflower hybrid yield trials and disease ratings:

Blaine Schatz, Tim Indergaard and Kelly Bjerke
Eric Eriksmoen
Bryan Hanson and Richard Wilhelmi
Mark Halvorson, Angela Sebelius and James Tarasenko
Neil Riveland, Gordon Bradbury and Lorna Bradbury
Samuel Markell

Carrington Research Extension Center
Hettinger Research Extension Center
Langdon Research Extension Center
Minot Research Extension Center
Williston Research Extension Center
NDSU Plant Pathology Department

The weather summary for North Dakota was provided by A. Akyüz and B.A. Mullins, NDSU Department of Soil Science.

Casselton data has been authored by sunflower breeder B. Hulke.

Disease ratings: Sclerotinia stalk rot ratings by authors T. Gulya, B. Schatz and E. Aberle can be found in Table 19.

Midge ratings: Sunflower midge ratings at Mapleton, N.D., authored by L.D. Charlet and J.J. Knodel, can be found in Table 18.

The South Dakota sunflower trials have been included in this year's performance publication.

We thank K.A. Grady, L. Gilbertson and J. Rickertsen from the Plant Science Department at SDSU for contributing the data.

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. A special thank you is given to Lisa Johnson, Extension Plant Sciences secretary, for typing tables and assisting in the compilation of this publication.

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Introduction

In North Dakota, an estimated 850,000 acres of sunflowers were harvested in 2009. This was a decrease of 230,000 acres compared with 2008. Table 1 contains acreage data for the past 14 years as reported by the North Dakota Agricultural Statistics Service, U.S. Department of Agriculture. The yield estimate on Jan 1, 2010, for all sunflowers produced in North Dakota during the 2009 season was 1,557 pounds per acre (lb/a).

Table 1. Harvested Sunflower Acreage in North Dakota and Yield Per Acre 1996-2009.

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	1,440	160	1,270
2008	930	1,430	150	1,210
2009	740	-----	110	-----

2009 Sunflower Performance Trials

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

Company	Abbreviated	Web site
Advanta Seeds USA, LLC	Advanta	www.advantaseedint.com/
Agricol	Agricol	
CHS Inc.	CHS	www.chssunflower.com
Croplan Genetics	Croplan	www.croplangenetics.com/
Dahlgren and Co.	Dahlgren	http://sunflowerseed.com
Dyna-Gro Seed	Dyna-Gro	www.dynagroseed.com/dynagro/
Garst Seed Co.	Garst	www.garstseed.com/GarstClient/default.aspx
Integra Seed	Integra	www.integraseed.com/
Mycogen Seeds	Mycogen	www.dowagro.com/mycogen/
Nidera S.A. Seeds	Nidera	
Pannar	Pannar	www.pannarusa.com/Pannar/default.aspx
Proseed Inc.	Proseed	www.proseed.net/
Seeds 2000	Seeds 2000	www.seeds2000.net/
Triumph Seed Co.	Triumph	www.triumphseed.com/
U.S. Department of Agriculture	USDA	www.ars.usda.gov/Main/docs.htm?docid=3562
Tom Heaton	Tom Heaton	
Pioneer Hi-Bred International Inc.	Pioneer	www.pioneer.com/web/site/portal/
Red River Commodities	Red River Comm.	www.redriv.com
Syngenta	Syngenta	www.syngenta.com/en/products_brands/fieldcrops.html

2009 Growing Season Weather Summary for North Dakota

Adnan Akyüz and Barbara A. Mullins

The 2009 growing season (the period from April through September) for North Dakota simply can be characterized as “cooler” and “drier” than normal, compared with the 30-year average from 1971 to 2000. The state average temperature during the 2009 growing season was 57.1 F, which made 2009 the 36th coolest growing season in the past 115 years. Likewise, the state average precipitation during the 2009 growing season was 11.38 inches, which made it the 21st driest growing season in the past 115 years. Table 3 shows the ranking of temperature and precipitation for six selected cities in North Dakota. Table 4 shows the length and the ranking of the growing season based on the number of consecutive days between the last and first day of frost.

Table 3. April-September 2009 Average Temperature and Precipitation Rankings for Selected North Dakota Locations.

City	Temperature Ranking	Precipitation Ranking
Bowman	13th Coolest (Since 1915)	24th Driest (Since 1915)
Bismarck	50th Coolest (Since 1874)	24th Wettest (Since 1874)
Cavalier	11th Coolest (Since 1934)	36th Wettest (Since 1927)
Fargo	52nd Coolest (Since 1881)	14th Driest (Since 1881)
Minot Research Extension Center	20th Coolest (Since 1905)	22nd Driest (Since 1905)
Williston Research Extension Center	20th Coolest (Since 1953)	20th Driest (Since 1956)
North Dakota Average	36th Coolest (Since 1895)	21st Driest (Since 1895)

Table 4. Length and Ranking of the 2009 Growing Season Based on Number of Consecutive Days Between the Last and First Day of Frost.

City	Length of the 2009 Growing Season	Ranking of the 2009 Growing Season
Bowman	112 Days (June 7 – Sept. 28)	16th Shortest (Since 1915)
Bismarck	144 Days (May 16 – Oct. 8)	26th Longest (Since 1875)
Cavalier	114 Days (June 6 – Sept. 29)	17th Shortest (Since 1934)
Fargo	150 Days (May 10 – Oct. 8)	24th Longest (Since 1881)
Minot Research Extension Center	141 Days (May 19 – Oct. 8)	17th Longest (Since 1905)
Williston Research Extension Center	110 Days (June 3 – Sept. 22)	15th Shortest (Since 1894)

Table 5. 2009 Sunflower - Non-oilseed Hybrids with Traits and Locations Where Tested.

Brand	Hybrid	Type ¹	Trait ²	Seed Trt. S.D. ³	Minot	Miller	Onida	Carrington	Casselton	Langdon
CHS	09EXP01								x	
CHS	RH 1121	Conf.	CL	CDM	x	x	x	x	x	x
CHS	RH 3126RT	Conf.		CDM	x	x	x	x	x	x
CHS	RH 400CL	Conf.	CL	CDM	x	x	x	x	x	x
Croplan	179	Conf.		CM	x	x	x	x	x	x
Dahlgren	95EXCL	Conf.	CL	CM	x	x	x	x	x	x
Dahlgren	9530				x			x		x
Dahlgren	9579	Conf.		CM		x	x	x		
Dahlgren	9592	Conf.		CM	x	x	x	x		x
Mycogen	8C451	Conf.			x	x	x	x	x	x
Red River Comm.	2215	Conf.	CL	CM	x	x	x	x	x	x
Red River Comm.	2216	Conf.		CM	x	x	x	x	x	x
Red River Comm.	2217	Conf.		CM	x	x	x	x	x	x
Seeds 2000	Badger CL		CL					x		
Seeds 2000	Jaguar	Conf.	CL	C/A	x	x	x	x		x
Seeds 2000	Panther II	Conf.		C/A		x	x		x	
Seeds 2000	Panther DMR	DM			x			x		x
Seeds 2000	X9681	Conf.		A		x	x			
Triumph	747c	Conf.				x		x	x	x
Triumph	777c	Conf.				x				
Check USDA	924	Conf.			x	x	x	x	x	x

¹Type: Conf. = Confection.

²Trait: CL = Clearfield, DM = Downy mildew.

³Seed Treatment in S.D. C = Cruiser, CDM = Cruiser DM Pak, CM = CruiserMaxx Sunflower and A = Apron.

Table 6. 2009 Sunflower - Oilseed Hybrids with Traits and Locations Where Tested (Page 1 of 2).

Company/ Brand	Hybrid	Traits ¹	Seed Trt. S.D. ²	Location in which the hybrid has been tested												
				Bison	Eureka	Miller	Onida	Reliance	Carrington REC	Casselton	Hettinger REC	Minot REC	Langdon REC	Williston REC		
Advanta	F51137NSCL	NS,CL								x	x					
Advanta	F51139NSDMCL	NS,CL,DM								x	x		x			
Advanta	F51313NSCL	NS,CL,DM								x			x			
CHS	08EXP01 (RH866)	Trad.	CDM			x	x			x	x		x			
Croplan	306 DMR NS	NS,DM	CM	x	x	x	x	x	x	x	x		x	x	x	x
Croplan	3080 DMR NS	NS,DM	CM	x	x	x	x	x	x	x	x		x	x	x	x
Croplan	325 DMR NS	NS,DM														
Croplan	356 A NS	NS	CM	x	x	x	x	x	x	x	x		x			
Croplan	369 DMR NS	NS,DM	CM	x	x	x	x	x	x	x	x		x	x	x	x
Croplan	378 DMR NS	NS,DM	CM	x	x	x	x	x								
Croplan	460 E NS	NS,Ex	CM	x	x	x	x	x	x	x	x		x	x	x	x
Croplan	555 CL DMR NS	NS,CL,DM	CM	x	x	x	x	x	x	x	x		x	x	x	x
Dahlgren	4416CL	NS,CL	yes		x		x			x	x			x		
Dahlgren	4421	NS								x				x		
Dahlgren	4455	NS	yes		x		x			x			x			
Integra	51179NSDM	NS,DM								x						
Integra	51139CLNSDM	NS,CL,DM								x		x				
Integra	735NSCLDM	NS,CL,DM								x		x	x	x		
Integra	737NSCLDM	NS,CL,DM								x		x				
Integra	IX09-85716 NSCLDM	NS,CL,DM											x	x		
Integra	IX09-95010 NSDM	NS,DM											x	x		
Integra	IX09-95016 NSDM	NS,DM											x	x		
King	SunKing 4404 NSCL	NS,CL	CM	x	x	x	x	x								
King	SunKing 4444 NS	NS,CL	CM	x	x	x	x	x								
Mycogen	8N288CLDM	HO,CL														x
Mycogen	8D310	NS			x	x	x	x	x	x	x	x	x	x	x	x
Mycogen	8D481	NS			x	x	x	x	x	x	x	x	x	x	x	x
Mycogen	8H288CLDM	HO,CL,DM			x	x	x			x	x	x	x	x		
Mycogen	8H449DM	HO,DM		x	x	x	x	x	x	x	x	x	x			
Mycogen	8N187	NS		x	x	x	x	x			x					
Mycogen	8N270CLDM	NS,CL,DM								x	x		x	x	x	x
Mycogen	8N337DM	NS,DM														
Mycogen	8N358CLDM	NS,CL,DM		x	x	x	x	x	x	x	x	x	x	x	x	x
Mycogen	8N433DM	NS,DM		x	x	x	x	x	x	x	x		x	x	x	x
Mycogen	8N453DM	NS,DM			x	x	x	x	x	x			x			
Mycogen	8N510	NS		x	x	x	x	x								
Nidera	KN9035	HO,IMI,DM								x	x					
Nidera	LN9714	HO,IMI,DM								x	x					
Nidera	LN9987	NS,IMI,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	x	x	x	x					
Pannar	PAN 8560 NSCL	NS,CL								x	x					
Pannar	PAN 8579 NSDM	NS,DM								x	x					
Pannar	PEX 7404	NS								x	x					
Pannar	PEX 7803	HO			x	x	x	x	x	x	x					
Pannar	PEX 7904	HO			x	x	x	x	x	x	x					
Pioneer	63M91	NS		x	x	x	x	x			x	x	x			
Pioneer	63N82	NS,Ex		x	x	x	x	x	x	x	x	x	x	x		
Pioneer	64H41	HO		x	x	x	x	x	x	x	x			x		
Proseed	6007	NS,CL								x	x	x	x	x		
Proseed	7001 CL	NS,CL								x	x	x	x	x		
Proseed	7052	NS,CL								x	x	x	x	x		
Proseed	7207	NS,CL								x	x	x	x	x		

Table 6. 2009 Sunflower - Oilseed Hybrids with Traits and Locations Where Tested (Page 2 of 2).

Company/ Brand	Hybrid	Traits ¹	Seed trt. S.D. ²	Location in which the hybrid has been tested											
				Bison	Eureka	Miller	Onida	Reliance	Carrington REC	Casselton	Hettinger REC	Minot REC	Langdon REC	Williston REC	
Proseed	9001 CL	NS,CL								x	x	x	x	x	
Proseed	E-4	NS,DM								x	x		x	x	
Proseed	E-5	NS,DM								x	x		x	x	
Proseed	E-6	NS,DM								x	x		x	x	
Proseed	E-8	NS,DM								x	x	x	x	x	
Proseed	E-85	NS,DM								x	x		x	x	
Seeds 2000	Badger CL	NS,CL	C/A		x	x	x	x			x				
Seeds 2000	Barracuda	NS,CL	C/A		x	x	x	x	x	x	x				
Seeds 2000	Blazer CL	NS,CL	C/A		x	x	x	x	x	x	x				
Seeds 2000	Defender Plus	NS,DM							x				x	x	x
Seeds 2000	Firebird	NS,Ex	C/A		x	x	x	x		x	x				
Seeds 2000	Sierra	HO	C/A		x	x	x	x		x	x				
Seeds 2000	Viper	NS,CL							x				x	x	
Seeds 2000	X5619	NS, Ex							x				x	x	x
Syngenta	2930 NS/DM	NS,DM							x	x	x	x	x	x	x
Syngenta	3433 NS/DM	NS,DM	CM	x	x	x	x	x	x	x	x	x	x	x	x
Syngenta	3480 NS/CL/DM	NS,CL,DM	CM	x	x	x	x	x	x	x	x	x	x	x	x
Syngenta	3731 NS	NS,CL	CM	x	x	x	x	x	x	x	x	x			x
Syngenta	3732 NS	NS	CM	x	x	x	x	x	x	x	x	x			x
Syngenta	3845 HO	HO	CM	x	x	x	x	x	x	x	x	x			x
Syngenta	3875 NS	NS	CM	x	x	x	x	x	x	x	x	x			x
Syngenta	3980 NS/CL	NS,CL	CM	x	x	x	x	x	x	x	x	x	x	x	x
Syngenta	7120 HO/DM	HO,DM	CM	x	x	x	x	x	x	x	x	x	x	x	x
Syngenta	MH9001CL	NS,CL	CM	x	x	x	x	x	x	x	x	x	x	x	x
Syngenta	MH9002CL	NS,CL	CM	x	x	x	x	x	x	x	x	x	x	x	x
Tech. Crops	Olimax	HO												x	
Triumph	630CL	NS,CL							x				x		
Triumph	s655	NS,SS,DM		x	x	x	x	x	x		x	x	x	x	x
Triumph	660CL	NS,CL				x									
Triumph	845HO	HO			x		x		x						
Triumph	R859HOCL	HO,CL				x									
Triumph	s668	NS				x	x	x							
Triumph	s671	NS,SS		x	x	x	x	x	x		x	x	x	x	x
Triumph	s672	NS,SS									x				
Triumph	s674	NS		x	x	x	x	x							
Triumph	s678	NS,SS		x	x	x	x	x			x				
Triumph	s878HO	HO,SS			x	x	x	x	x		x				
Triumph	TRXs9422	NS		x	x	x	x	x							
Triumph	TRXs9423	NS			x	x	x	x							
Triumph	TRXs9425	NS				x	x	x							
Triumph	TRX7435HO	HO							x	x					x
Triumph	TRXDM8247	NS											x		
Triumph	TRX8330HO								x				x		
Triumph	TRX8341	NS				x			x						
Triumph	s680CL	NS,CL		x	x	x	x	x							
Check early	Hysun 311										x	x	x		
Check med.	SF270										x	x	x		
Check late	P6451										x	x	x		
Check USDA	cms HA412/RHA 377	Trad.			x			x							
Check USDA	Hybrid 894	Trad.		x	x	x	x	x	x	x	x	x	x		x

¹Traits: HO = High Oleic, NS = NuSun, Trad = Traditional, CL = Clearfield, Ex= ExpressSun, DM = Downy Mildew, SS = Short Stature.

²Seed Treatment in S.D. C = Cruiser, CDM = Cruiser DM Pak, CM = CruiserMaxx Sunflower and A = Apron.

Table 7. 2009 Sunflower - Oilseed - Casselton, N.D. - Author, B. Hulke (Page 1 of 2).

Company/ Brand	Hybrid	Days to Flower	Days to Mat.	Plant Height	Head Diam.	Plant Lodge	Head Phom.	Head Rot	Stalk Rot	Vert.	Harvest Moist.	Test Wt.	Oil Content	Seed Yield
		(days)	(days)	(inch)	(inch)	(0-9)	(%)	(%)	(%)	(%)	(%)	(lb/bu)	(%)	(lb/a)
Advanta	F51137NSCL	73	120	71	8.1	2.0	6.1	2.6	1.7	0.0	11.5	26.5	38.5	3,167
Advanta	F51139NSDMCL	72	114	71	7.9	1.3	3.0	3.6	6.5	0.0	10.7	27.5	37.9	2,983
CHS	08EXP01 (RH866)	72	119	71	7.3	4.0	6.5	4.6	1.0	0.0	10.9	23.6	33.0	3,233
Croplan	306 DMRNS	69	121	66	7.2	2.3	12.9	3.5	8.5	1.2	10.4	27.5	39.8	2,620
Croplan	3080 DMRNS	70	115	67	7.5	2.7	4.0	4.6	11.6	0.0	10.0	27.7	43.2	2,933
Croplan	356 A NS	72	121	58	7.8	1.7	4.5	3.4	6.9	0.0	11.3	27.5	40.9	3,534
Croplan	369 DMRNS	72	120	73	7.4	2.7	5.8	5.8	4.6	0.0	11.5	27.0	38.1	3,008
Croplan	460 E NS	72	119	75	7.6	2.0	1.9	6.6	11.6	0.6	10.2	27.1	40.9	3,063
Croplan	555 CLDMRNS	73	117	71	7.8	2.3	3.6	6.3	3.4	0.0	10.3	25.8	38.4	2,736
Dahlgren	4416CL	74	111	80	8.0	3.0	4.8	5.9	5.7	0.0	11.6	23.8	31.7	2,703
Mycogen	8D310 ¹	69	116	72	7.0	3.0	4.6	5.7	6.9	1.8	10.9	26.3	35.6	2,677
Mycogen	8D481 ¹	73	123	73	6.8	3.0	0.0	3.6	11.8	1.7	11.1	27.3	35.7	3,478
Mycogen	8H288CLDM	69	120	64	7.6	2.5	10.5	4.4	13.9	0.0	14.0	27.5	42.1	2,560
Mycogen	8H449DM	73	116	68	7.9	3.5	6.4	7.1	6.9	0.0	11.0	28.8	44.0	2,550
Mycogen	8N187 ²	70	113	62	8.5	2.3	12.0	7.2	11.4	4.3	10.8	26.6	38.4	2,822
Mycogen	8N270CLDM ²	66	112	67	7.7	2.0	14.3	3.4	10.3	0.6	9.9	29.3	41.2	2,922
Mycogen	8N358CLDM	71	115	69	7.3	3.3	9.3	6.4	11.7	0.0	10.0	27.7	40.9	3,059
Mycogen	8N433DM ²	72	116	67	7.6	2.0	11.1	3.8	2.3	0.0	11.8	27.9	43.9	3,078
Nidera	KN9035	73	120	76	7.5	1.3	4.2	7.7	9.5	0.0	10.5	28.5	39.6	3,132
Nidera	LN9714	73	120	71	7.4	1.7	4.1	4.8	4.2	0.6	9.9	29.1	39.0	2,733
Nidera	LN9987	74	116	69	7.5	1.0	4.1	8.9	10.6	0.6	10.2	28.4	37.6	2,937
Pannar	PAN 7813NS	73	120	74	8.4	3.0	6.5	1.8	0.0	0.0	13.7	28.1	40.6	3,358
Pannar	PAN 7924NS	74	120	67	8.0	3.0	5.6	3.6	1.9	0.0	13.0	25.7	38.9	2,595
Pannar	PAN 8466 NSCL	75	123	71	6.8	3.0	1.8	3.6	10.9	1.8	13.2	25.5	39.8	3,246
Pannar	PAN 8560 NSCL	75	121	79	7.8	3.3	5.8	4.1	9.3	1.2	10.8	27.3	36.3	2,575
Pannar	PAN 8579 NSDM	72	118	65	8.0	2.0	11.8	5.5	9.2	0.9	11.3	26.7	40.3	2,823
Pannar	PEX 7404	72	117	70	7.6	1.7	2.9	6.3	3.2	0.6	11.3	26.8	37.8	3,005
Pannar	PEX 7803	72	119	66	7.7	1.7	9.3	4.7	6.4	0.0	12.4	26.5	41.2	3,161
Pannar	PEX 7904	73	117	69	7.5	3.3	7.5	3.7	4.4	0.0	12.2	25.9	39.7	2,816
Pioneer	63M91	70	117	70	7.2	2.0	6.1	4.4	5.1	2.2	9.8	29.4	42.2	3,094
Pioneer	63N82	70	121	69	7.1	2.0	5.2	5.3	3.4	0.0	10.1	28.3	40.8	2,750
Pioneer	64H41	72	120	73	7.8	2.3	7.1	2.3	7.5	1.8	10.7	28.9	39.4	2,748
Proseed	6007	73	117	80	6.8	4.0	5.0	2.2	3.3	0.0	10.1	30.8	37.3	2,445
Proseed	7001 CL	72	119	69	7.5	2.0	8.7	0.9	25.7	0.9	10.4	26.5	36.3	2,637
Proseed	7052	73	115	77	7.6	3.0	7.3	4.0	4.5	0.5	9.4	29.5	40.2	2,550
Proseed	7207	74	115	72	7.2	2.0	5.3	5.9	12.6	0.0	9.9	27.6	36.1	2,321
Proseed	9001 CL	72	112	70	7.0	2.5	15.0	6.1	24.4	0.0	9.6	26.5	37.4	2,658
Proseed	E-4	69	117	73	7.9	2.3	5.6	1.2	3.5	0.0	10.0	26.6	36.8	2,951
Proseed	E-5	74	120	79	7.1	4.5	5.3	0.8	4.3	0.9	11.5	28.3	37.6	2,789
Proseed	E-6	75	120	75	6.9	2.3	2.3	1.2	0.6	0.0	10.5	24.4	39.0	2,744
Proseed	E-8 ²	73	118	79	7.0	3.3	5.0	0.6	6.1	0.0	10.4	27.6	42.3	2,497
Proseed	E-85	72	117	75	7.8	2.3	2.9	2.8	1.7	0.0	9.7	26.3	40.0	2,877
Seeds 2000	Badger CL	72	119	75	6.8	3.7	10.9	3.4	18.8	0.6	10.4	26.0	33.3	2,554
Seeds 2000	Barracuda	73	120	70	8.4	3.0	2.3	10.0	8.2	0.8	15.8	27.6	39.4	2,933
Seeds 2000	Blazer CL	73	122	70	7.5	3.0	9.9	7.6	4.6	0.0	11.4	26.4	40.0	2,848
Seeds 2000	Firebird	75	122	65	7.8	1.7	5.8	2.9	3.5	0.0	11.5	24.9	38.6	3,033
Seeds 2000	Sierra	75	122	73	7.7	3.7	2.8	7.4	10.1	0.6	12.2	25.2	38.0	3,057
Syngenta	2930 NS/DM	69	118	66	6.4	2.0	15.3	2.6	10.3	0.0	9.1	27.4	40.3	2,186
Syngenta	3433 NS/DM	72	120	65	7.7	2.7	8.9	5.2	7.6	0.0	9.1	30.5	42.4	2,558
Mean		72	118	71	7.6	2.6	6.5	4.6	8.5	0.5	10.9	27.3	39.2	2,867
CV %		1.0	2.1	4.4	7.4	30.1	73.3	57.0	68.0	233.3	10.8	4.0	2.2	11.1
LSD 0.05		2	4	5	0.97	1.3	8.4	4.7	10	2.2	2	1.9	1.5	546

Table 7. 2009 Sunflower - Oilseed - Casselton, N.D. - Author, B. Hulke (Page 2 of 2).

Company/ Brand	Hybrid	Days to Flower	Days to Mat.	Plant Height	Head Diam.	Plant Lodge	Head Phom.	Head Rot	Stalk Rot	Vert.	Harvest Moist.	Test Wt.	Oil Content	Seed Yield
		(days)	(days)	(inch)	(inch)	(0-9)	(%)	(%)	(%)	(%)	(%)	(lb/bu)	(%)	(lb/a)
Syngenta	3480 NS/CL/DM	71	117	65	8.5	2.3	6.0	8.2	10.2	0.6	9.5	27.6	41.0	2,517
Syngenta	3731 NS	72	118	67	8.0	2.7	4.4	4.9	10.6	0.0	11.0	28.4	40.9	3,479
Syngenta	3732 NS	72	118	66	7.6	1.7	4.6	7.5	24.3	0.0	10.9	27.8	40.5	3,158
Syngenta	3845 HO	72	118	68	7.7	2.3	11.1	4.1	15.8	0.0	9.3	29.1	42.7	3,352
Syngenta	3875 NS	74	112	72	8.5	4.5	4.7	7.5	12.1	0.0	11.6	28.4	39.9	3,266
Syngenta	3980 NS/CL	73	120	73	7.8	1.7	9.4	4.7	10.5	0.0	10.6	26.5	36.9	2,859
Syngenta	7120 HO/DM	69	119	66	7.6	2.0	2.3	3.5	4.0	0.6	10.4	28.6	39.4	2,674
Syngenta	MH9001CL	75	122	77	8.7	4.0	2.8	2.8	0.5	0.0	13.7	27.8	39.4	3,096
Syngenta	MH9002CL	72	114	68	7.7	1.7	1.7	3.5	14.4	0.0	11.1	28.2	37.1	2,817
Triumph	TRX7435HO	73	121	73	7.3	3.7	6.8	3.8	3.8	0.0	12.2	27.1	41.3	2,993
USDA	Hybrid 894	71	115	75	8.3	2.7	16.1	2.9	23.1	0.0	9.5	27.5	38.5	2,519
USDA	Hybrid 894	69	115	72	7.5	2.0	7.8	5.2	19.8	3.5	9.0	27.7	38.9	2,444
Mean		72	118	71	7.6	2.6	6.5	4.6	8.5	0.5	10.9	27.3	39.2	2,867
CV %		1.0	2.1	4.4	7.4	30.1	73.3	57	68	233	10.8	4.0	2.2	11.1
LSD 0.05		2	4	5	0.97	1.3	8.4	4.7	10	2.2	2	1.9	1.5	546

Planted: June 1. Gramoxone Max applied Oct. 4, 2009. Harvested: Nov. 10-11.

Days to mature hybrid check: Hysun 311=111, SF270=113 and P6451=117.

¹⁻²Hulling screen test: Average = 75% of seed over a 13/64 inch screen;

¹Excellent = 65% of seed over a 14/64 inch screen;

²Fail = does not meet either criteria.

Table 8. 2009 Fatty Acid Composition of Selected Oilseed Sunflower Hybrids - Casselton, N.D. - Author, B. Hulke.

Company/ Brand	Hybrid	Type	Fatty acids			
			Palmitic	Stearic	Oleic	Linoleic
			% ± SEM ¹	% ± SEM	% ± SEM	% ± SEM
Nidera	KN9035	IMI-HO-DMR	4.05 ± 0.17	3.22 ± 0.20	68.47 ± 3.93	21.99 ± 3.60
Nidera	LN9714	IMI-HO-DMR	3.08 ± 0.06	3.01 ± 0.14	87.14 ± 0.93	4.44 ± 0.82
Nidera	LN9987	IMI-NS-DMR-RRes	4.25 ± 0.30	2.55 ± 0.09	65.81 ± 4.78	25.35 ± 4.43
Proseed	E-8	NS, DM	3.38 ± 0.04	3.34 ± 0.12	88.53 ± 0.21	2.36 ± 0.08
Syngenta	3845	HO	4.09 ± 0.29	3.28 ± 0.18	86.20 ± 1.28	4.51 ± 0.81
Syngenta	7120 HO/DM	HO/DM	3.44 ± 0.11	4.06 ± 0.23	84.16 ± 2.89	7.06 ± 2.56
Triumph	TRX 7435HO	HO	3.24 ± 0.26	2.79 ± 0.40	81.75 ± 6.72	10.13 ± 6.05

¹SEM = standard error of the mean.

Table 9. 2009 Sunflower - Oilseed - Carrington, N.D. - Authors, B. Schatz, T. Indergaard, S. Markell and K. Bjerke (Page 1 of 2)

Company/ Brand	Hybrid	Neck Drop	Plant Ht.	Plant Lodge	Leaf Rust ¹	Days to Flower	Days to PM	Harvest Moisture	Test Weight	Oil Content	Seed Yield			Oil Yield
											2009	2-yr. Avg.	3-yr. Avg.	
											-----lb/a-----			
Advanta	F51313NSDMCL	30	58	0.0	0.1	79	136	8.1	31.5	40.8	1,711	--	--	698
Advanta	F51139NSDMCL	9	57	0.0	3.5	78	132	8.4	33.0	41.6	2,036	2,064	--	849
Advanta	F51137NSCL	36	59	0.0	1.8	80	136	8.4	31.9	39.9	1,445	1,845	--	578
CHS	08EXP01	31	56	0.3	10.0	79	128	7.9	24.7	38.3	789	--	--	303
Croplan	306 DMR NS	19	49	0.3	3.8	78	137	8.3	29.7	40.7	731	1,182	--	297
Croplan	3080 DMR NS	29	50	0.3	5.8	80	130	8.3	30.5	44.1	1,103	1,491	1,795	487
Croplan	356A NS	14	51	0.3	3.0	81	135	8.2	29.3	42.6	965	1,611	2,163	411
Croplan	369 DMR NS	41	52	0.3	4.0	83	138	8.3	31.3	40.0	648	1,142	--	259
Croplan	460 E NS	11	57	0.3	8.0	79	130	8.3	28.6	42.8	1,150	--	--	493
Croplan	555 CL DMR NS	18	59	0.0	3.5	80	134	8.4	30.6	42.0	1,175	--	--	493
Dahlgren	4455	15	53	0.5	4.3	78	138	8.1	32.4	38.6	1,156	--	--	449
Dahlgren	4416CL	25	53	0.8	15.0	79	129	7.9	26.7	34.6	806	--	--	280
Dahlgren	4421	25	55	0.8	3.0	77	136	8.4	28.5	37.8	1,228	--	--	463
Integra	735NSCLDM	30	48	0.0	2.0	77	134	8.2	30.9	39.9	1,146	1,503	1,792	459
Integra	51139NSCLDM	11	56	0.8	2.3	78	130	8.3	32.3	42.8	1,478	--	--	634
Integra	NSCLDM	24	53	0.8	2.3	81	137	8.4	30.4	39.4	990	1,429	1,702	390
Integra	51179NSDM	15	44	0.3	4.8	79	133	8.3	30.4	43.1	1,234	--	--	533
Mycogen	8N270CLDM	0	48	0.0	8.8	75	133	8.3	30.1	40.7	987	1,404	1,694	401
Mycogen	8H288CLDM	23	50	0.0	1.8	77	133	8.1	31.0	40.3	1,259	1,437	--	508
Mycogen	8N358CLDM	13	54	0.0	6.8	78	131	8.2	29.8	42.2	1,346	1,587	1,914	568
Mycogen	8D310	31	55	0.0	4.0	77	136	8.1	30.0	37.5	1,563	1,518	1,865	587
Mycogen	8D481	22	59	0.0	2.0	80	137	8.0	31.7	38.5	878	1,604	--	336
Mycogen	8N433DM	23	57	0.0	3.5	79	132	8.1	29.9	42.2	1,294	--	--	546
Mycogen	8N453DM	15	55	0.0	7.8	79	132	8.6	31.8	43.5	1,247	1,679	2,088	546
Mycogen	8H449DM	14	56	0.0	5.8	79	132	8.5	32.2	42.7	1,357	1,794	--	580
Nidera	LN9714	23	59	0.0	4.3	84	136	8.3	32.6	38.6	940	--	--	362
Nidera	KN9035	30	57	0.0	3.5	80	137	8.3	31.5	40.6	1,261	--	--	515
Nidera	LN9987	19	52	0.0	1.5	81	136	8.0	32.0	38.6	1,597	--	--	617
Pannar	PAN 7924NS	32	54	0.0	0.1	80	136	10.3	29.5	42.3	2,073	2,089	2,257	877
Pannar	PAN 7813NS	27	57	0.0	0.1	79	134	8.9	32.0	44.1	1,976	2,018	2,233	873
Pannar	PAN 8560 NSCL	29	59	0.8	2.5	81	137	8.3	30.5	40.5	1,073	--	--	430
Pannar	PAN 8466 NSCL	10	57	0.5	13.8	81	129	8.1	26.9	41.1	685	--	--	285
Pannar	PAN 8579 NSDM	18	53	1.0	5.0	79	132	8.3	30.1	42.6	1,152	1,460	--	491
Pannar	PEX7803	56	51	0.8	0.1	80	137	8.4	30.8	42.5	1,499	--	--	636
Pannar	PEX7904	38	51	0.5	0.1	80	136	8.7	30.8	41.7	1,761	--	--	735
Pannar	PEX7404	36	54	1.0	0.1	78	137	8.1	31.8	41.3	1,988	--	--	847
Pioneer	63N82	11	55	0.0	11.3	81	135	8.3	31.3	40.4	876	1,426	--	366
Pioneer	64H41	24	62	0.0	12.5	79	135	8.7	33.5	38.4	1,104	1,508	1,859	426
Proseed	6007	8	63	0.0	4.8	82	134	9.0	32.9	40.0	1,599	1,659	--	643
Proseed	7052	18	61	0.0	4.3	79	133	8.2	31.9	42.4	1,336	1,656	--	568
Proseed	7207	5	57	0.0	8.0	81	128	8.1	30.4	40.2	933	1,314	--	375
Proseed	7001 CL	44	56	0.0	1.9	80	138	8.3	30.5	39.7	1,222	--	--	477
Mean		22.5	54.4	0.2	5.3	80	134	8.3	30.3	41.0	1218	--	--	496
CV %		65.1	8.6	357	71.6	1.8	1.4	5.6	2.9	3.2	16.4	--	--	17.4
LSD 0.05		20.3	6.5	NS	5.2	2.0	2.6	0.6	1.2	1.8	277	--	--	120

Table 9. 2009 Sunflower - Oilseed - Carrington, N.D. - Authors, B. Schatz, T. Indergaard, S. Markell and K. Bjerke (Page 2 of 2)

Company/ Brand	Hybrid	Neck Drop	Plant Ht.	Plant Lodge	Leaf Rust ¹	Days to Flower	Days to PM	Harvest Moisture	Test Weight	Oil Content	Seed Yield			Oil Yield
											2009	2-yr. Avg.	3-yr. Avg.	
											-----lb/a-----			
Proseed	9001 CL	49	49	0.0	1.4	78	134	8.5	31.2	39.8	1,204	--	--	479
Proseed	E-85	23	61	0.0	7.5	79	133	8.1	27.7	40.5	1,516	1,668	1,963	614
Proseed	E-4	19	54	0.0	8.8	78	131	7.8	29.7	40.0	786	--	--	315
Proseed	E-5	16	63	0.0	14.0	81	131	8.1	28.3	39.6	1,065	1,395	1,815	422
Proseed	E-6	18	60	0.0	6.5	84	136	7.9	27.1	39.6	1,136	1,497	--	451
Proseed	E-8	46	58	0.0	2.9	80	137	7.8	29.2	41.0	1,322	--	--	543
Seeds 2000	Blazer CL	14	57	0.0	10.3	81	129	8.0	27.8	42.3	785	1,267	1,781	332
Seeds 2000	Barracuda	45	52	0.0	7.0	80	134	8.1	29.9	42.4	938	1,535	--	397
Seeds 2000	Defender Plus-DMR	13	52	0.3	3.5	78	131	8.2	29.9	40.7	1,207	1,436	1,698	488
Seeds 2000	Viper	24	52	0.3	26.3	82	124	8.0	28.6	39.4	426	1,101	1,476	165
Seeds 2000	X5619	9	53	0.3	7.0	79	131	8.3	28.2	41.9	974	--	--	410
Syngenta	7120 HO/DM	29	51	0.0	10.8	78	138	8.1	32.2	37.8	440	1,001	1,530	167
Syngenta	2930 NS/DM	15	50	0.0	20.8	78	130	8.2	30.2	40.8	775	1,156	1,593	316
Syngenta	3433 NS/DM	21	53	0.0	5.5	79	133	8.4	31.3	41.4	1,190	1,495	2,002	492
Syngenta	MH9001CL	23	56	0.0	3.5	82	134	8.8	31.2	42.5	1,434	--	--	609
Syngenta	MH9002CL	11	57	0.0	2.3	79	131	8.5	33.3	41.5	1,789	--	--	742
Syngenta	3731 NS	5	53	0.0	3.3	80	132	8.2	29.6	42.9	1,237	1,778	2,182	530
Syngenta	3732 NS	17	49	0.0	2.8	81	134	8.4	30.1	43.3	1,444	--	--	624
Syngenta	3980 NS/CL	45	56	0.0	3.1	81	138	8.1	30.4	40.1	905	1,473	--	363
Syngenta	3480 NS/CL/DM	15	50	0.0	3.8	79	136	8.3	29.0	40.2	1,165	1,430	1,916	469
Syngenta	3875 NS	14	58	0.0	1.8	82	133	8.0	28.7	40.2	1,523	--	--	613
Syngenta	3845 HO	13	51	0.0	9.0	80	128	7.8	29.8	40.9	1,027	1,574	2,038	420
Triumph	s671	21	39	1.0	0.1	83	138	8.5	32.1	43.9	1,440	1,835	2,042	632
Triumph	s878HO	39	43	0.0	2.3	83	138	8.3	31.8	42.7	1,177	1,513	1,850	503
Triumph	s655	40	45	0.0	0.9	83	138	8.1	31.7	42.4	959	1,288	--	407
Triumph	TRX7435HO	15	60	0.0	1.8	80	137	9.0	30.0	42.2	1,694	--	--	714
Triumph	TRX8341	20	54	0.0	0.1	78	138	8.8	30.8	42.9	1,542	1,815	--	663
Triumph	630CL	26	59	0.0	0.1	81	137	9.5	30.5	41.6	1,254	1,593	--	520
Triumph	TRX8330HO	20	56	0.0	12.0	79	132	8.2	28.9	42.1	833	--	--	351
Triumph	845HO	6	62	0.0	5.3	80	129	8.2	26.2	41.3	1,065	1,456	1,777	440
USDA	894	56	52	0.0	10.5	78	135	8.5	31.0	40.9	1,075	1,357	1,708	439
Mean		22.5	54.4	0.2	5.3	80	134	8.3	30.3	41.0	1218	--	--	496
CV %		65.1	8.6	357	71.6	1.8	1.4	5.6	2.9	3.2	16.4	--	--	17.4
LSD 0.05		20.3	6.5	NS	5.2	2.0	2.6	0.6	1.2	1.8	277	--	--	120

Planted: May 27. Harvested: Nov. 16. Previous crop: cover crop/fallow.

¹Sunflower leaf rust was prevalent throughout this test, seed yields were impacted by these infections.

Table 10. 2009 Sunflower - Oilseed - Hettinger, N.D. - Author, E. Eriksmoen.

Company/ Brand	Hybrid	Days to Flower (days)	Plant Height (inch)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield	
						2009	3-yr. Avg. ----- (lb/a) -----
Integra	516	81	48	28.4	38.4	2,078	--
Integra	51139CLNSDM	82	53	28.2	37.2	1,989	--
Integra	735NSCLDM	82	42	26.8	37.1	1,536	1,149
Integra	737NSCLDM	84	58	25.0	36.2	1,737	1,438
Mycogen	8D310	79	47	25.8	38.1	2,290	--
Mycogen	8D481	83	48	28.1	38.3	1,817	--
Mycogen	8H288CLDM	78	48	28.5	37.3	2,352	--
Mycogen	8H449DM	82	51	29.6	38.9	2,798	2,113
Mycogen	8H358CLDM	82	50	27.8	40.4	2,428	1,790
Pioneer	63M91	81	46	29.4	41.8	2,174	--
Pioneer	63N82	81	42	28.4	38.4	2,545	--
Proseed	6007	83	56	30.5	38.3	2,283	--
Proseed	7001 CL	83	53	26.9	36.9	1,860	--
Proseed	7052	82	57	29.1	39.6	2,072	--
Proseed	7207	83	56	27.2	38.4	1,766	--
Proseed	9001 CL	81	49	26.8	36.6	1,831	--
Proseed	E-8	83	55	28.2	39.5	1,887	--
Seeds 2000	Barracuda	84	47	27.1	37.0	2,718	1,802
Seeds 2000	Blazer CL	83	48	28.0	36.9	2,112	1,780
Seeds 2000	Firebird	84	48	26.4	37.9	2,622	1,950
Seeds 2000	Sierra	85	44	25.1	35.1	2,224	1,910
Syngenta	2930 NS/DM	78	48	27.0	40.4	1,132	952
Syngenta	3433 NS/DM	80	49	30.2	42.2	2,814	1,725
Syngenta	3480 NS/CL/DM	80	47	27.1	39.7	2,111	1,481
Syngenta	3731 NS	81	45	28.6	40.3	2,490	1,547
Syngenta	3732 NS	81	45	27.0	39.2	2,497	--
Syngenta	3845 HO	82	44	29.0	40.5	2,320	1,783
Syngenta	3875 NS	82	46	28.0	39.2	2,342	--
Syngenta	3980 NS/CL	83	50	26.4	37.3	1,921	--
Syngenta	7120 HO/DM	76	43	27.6	36.7	1,635	1,210
Syngenta	MH9001CL	84	54	26.7	35.9	2,131	--
Syngenta	MH9002CL	82	54	29.0	37.4	1,784	--
Triumph	s671	84	39	28.7	41.7	1,213	--
Triumph	s672	82	34	28.1	44.2	1,268	--
Triumph	s678	85	42	28.5	42.4	1,914	1,734
Triumph	s7322	83	36	27.7	40.9	1,277	--
Triumph	s878H	84	45	28.1	38.9	1,844	--
Check early	Hysun 311	78	48	27.6	39.7	1,475	--
Check med.	SF270	79	41	28.1	37.6	2,010	--
Check late	P6451	83	46	27.0	41	2,495	--
Check USDA	Hybrid 894	81	51	26.6	36.9	1,875	--
Mean		82	48	27.8	38.8	2,040	
CV %		2.0	7.9	3.2	3.6	14.6	
LSD 0.05		2	5	1.2	2	405	

Planted: May 27. Harvested: Nov. 9. Previous crop: spring wheat.

Table 11. 2009 Sunflower - Oilseed - Langdon, N.D. - Authors, B. Hanson and R. Wilhelmi.

Company/ Brand	Hybrid	Days to Flower (days)	Days to Mature (days)	Plant Height (inch)	Head Rot ¹ (%)	Assert Damage ² (%)	Broken Stems ³ (%)	Oil Cont. (%)	Test Weight (lb/bu)	Harvest Moist. (%)	Seed Yield		
											2009 ⁴	2-yr. Avg. (lb/a)	3-yr. Avg.
Croplan	306 DMR NS	88	120	58	39	3	11	43.3	27.9	16	1,176	1,687	--
Croplan	3080 DMR NS	88	120	54	57	0	4	42.4	26.2	15	862	1,415	1,874
Croplan	369 DMR NS	90	121	59	64	12	3	40.2	25.7	16	1,000	1,370	--
Croplan	460 E NS	90	120	63	77	0	4	43.1	26.0	15	1,336	--	--
Croplan	555 CL DMR NS	89	121	63	38	4	14	43.0	26.0	17	1,438	--	--
Dahlgren	4421	89	120	59	50	8	5	37.8	27.5	21	1,649	2,068	2,383
Dahlgren	4416CL	92	122	70	51	5	8	33.7	25.7	23	1,330	--	--
Integra	735 CLNSDM	88	119	58	50	0	17	42.0	27.7	15	1,124	1,590	1,859
Integra	IX09-85716 NSCLDM	90	121	61	74	0	2	40.5	27.9	15	1,586	--	--
Integra	IX09-95010 NSDM	86	116	47	41	20	39	41.2	28.3	17	729	--	--
Integra	Ix09-95016 NSDM	90	121	57	75	5	15	43.4	28.0	23	1,049	--	--
Mycogen	8D310	89	120	58	26	6	3	39.6	28.5	22	1,678	1,974	--
Mycogen	8D481	93	125	65	67	2	4	40.4	27.0	20	1,118	--	--
Mycogen	8H288CLDM	87	122	54	68	2	11	41.4	26.9	23	847	1,249	--
Mycogen	8N270CLDM	85	120	59	19	0	16	43.9	30.9	20	1,309	1,588	1,933
Mycogen	8N358CLDM	89	120	58	57	0	4	41.4	27.7	21	1,298	1,735	--
Mycogen	8N433DM	91	122	64	83	3	3	40.5	27.5	18	966	--	--
Pioneer	63N82	89	122	62	22	0	1	46.4	31.4	28	1,529	1,858	--
Pioneer	64H41	90	122	64	20	0	6	43.4	31.7	27	1,540	1,904	2,116
Proseed	6007	91	118	69	38	0	5	41.3	30.9	19	1,358	1,573	--
Proseed	7052	89	118	67	39	0	4	44.9	32.1	17	1,790	1,907	--
Proseed	7207	92	121	68	52	0	2	40.8	25.8	14	1,151	1,684	--
Proseed	7001 CL	92	124	63	53	3	1	39.7	27.4	26	1,083	--	--
Proseed	9001 CL	88	117	58	46	1	4	41.6	27.5	16	1,324	--	--
Proseed	E-4	88	118	58	18	4	4	41.0	29.1	17	1,547	--	--
Proseed	E-5	91	123	63	30	3	1	42.7	29.0	26	1,367	1,602	2,003
Proseed	E-6	92	121	66	70	3	4	38.9	24.3	20	1,179	1,410	--
Proseed	E-8	89	121	65	35	6	3	43.7	26.6	24	1,525	--	--
Proseed	E-85	89	120	64	47	4	3	40.4	26.9	17	1,430	1,687	1,978
Seeds 2000	Defender Plus	87	117	53	36	10	21	40.7	28.4	17	1,158	1,613	1,986
Seeds 2000	Viper	91	121	51	84	0	7	39.4	27.5	19	658	1,169	--
Seeds 2000	X5619	90	120	58	79	0	23	42.8	25.3	16	984	--	--
Syngenta	2930 NS/DM	87	117	56	50	0	7	44.9	28.5	12	1,382	1,676	1,928
Syngenta	3433 NS/DM	90	121	56	67	3	3	42.9	28.3	15	1,382	1,639	1,957
Syngenta	3480 NS/CL/DM	90	117	57	70	0	16	40.1	25.3	14	891	1,517	1,987
Syngenta	3980 CL	93	124	71	71	0	3	39.3	26.8	23	1,049	--	--
Syngenta	7120 HO/DM	87	117	51	36	7	25	41.1	26.4	14	877	1,568	1,876
Syngenta	MH9001CL	93	123	64	72	2	3	42.7	25.8	28	1,047	--	--
Syngenta	MH9002CL	90	120	63	76	0	2	40.0	28.0	14	1,462	--	--
Triumph	s671	94	124	44	90	0	9	35.7	29.6	19	508	--	--
Triumph	s655	94	124	41	91	0	5	36.6	27.6	19	529	1,061	--
UDSA-Check	894	88	117	58	57	2	6	40.6	28.1	13	986	1,518	1,909
Mean		90	120	59	54	3	8	41.2	27.7	19	1,196	--	--
CV %		0.9	1.2	5.2	30	190	128	3.3	2.9	14.1	21.4	--	--
LSD 0.05		1.2	2.3	5.0	26	9	16	2.2	1.3	4.3	417	--	--

Planted: May 15. Harvested: Oct. 22. Days to mature hybrid check: Hysun 311=117, SF270=116 and PI6451=121.

¹Sclerotinia head rot. Indicates percent incidence of head rot for each hybrid. It does not indicate severity. Infected plants were harvested.

²Percent of plants with deformed heads. Assert sprayed June 23 at 0.7 pt/a. Temperature was 68F, R.H. 46%. Growth stage was six leaves. Heads were not harvested but replaced with normal heads from outside harvest area.

³Broken stems were laying flat on the ground. Breakage may have resulted from stalk rot, phoma or insects. Plants were not harvested.

⁴Percent Sclerotinia head rot incidence was plotted against yield with a resulting $R^2=0.34$. The yield variation and generally low yields were due to head rot.

Table 12. 2009 Sunflower - Oilseed - Minot, N.D. - Authors, M. Halvorson, A. Sebelius and J. Tarasenko. (Page 1 of 2).

Company/ Brand	Hybrid	Days to Flower (days)	Plant Height (inch)	Harvest Moist. (%)	Days to Maturity (days)	Plant Lodge ¹ (0-9)	1,000 Seed Weight (gram)	Test Weight (gram)	Oil Content (%)	Seed Yield		
										2-yr.	3-yr.	
										-----lb/a-----		
										2009	Avg.	Avg.
Advanta	F51139NSDMCL	76	56	10.7	131	2.5	55.2	32.6	41.9	1,856	2,255	--
Advanta	F51313NS	77	52	12.0	133	1.5	42.5	29.3	40.3	1,895	--	--
CHS	08EXP01 (RH866)	77	51	12.7	134	3.3	88.7	24.4	37.1	2,048	--	--
Croplan	306 DMR NS	74	49	11.0	132	2.0	56.0	29.8	43.9	1,937	1,989	--
Croplan	3080 DMR NS	74	49	10.5	132	2.8	39.5	30.3	46.9	2,030	1,858	2,020
Croplan	356 A NS	77	46	12.7	133	3.3	55.4	32.1	43.7	2,037	2,609	2,499
Croplan	369 DMR NS	76	52	11.8	133	1.8	51.1	29.9	44.1	2,246	2,452	--
Croplan	460 E NS	78	55	13.8	135	2.8	57.5	30.3	46.3	1,893	--	--
Croplan	555 CL DMR NS	77	58	12.0	132	1.5	49.9	28.1	41.2	1,962	--	--
Dahlgren	4455	77	54	12.6	136	2.5	76.2	31.9	41.4	2,594	2,863	--
Integra	735NSCLDM	76	50	9.8	132	1.0	58.6	30.1	42.3	2,118	2,414	2,261
Integra	IX09-85716 NSCLDM	77	55	11.3	132	1.3	53.7	32.9	41.9	1,841	--	--
Integra	IX09-95010 NSDM	72	43	8.4	130	1.0	50.2	29.1	43.7	1,865	--	--
Integra	516 NS/DM	76	48	20.2	136	2.0	54.1	31.4	44.9	1,852	--	--
Mycogen	8D310	75	57	14.5	134	2.0	80.2	26.6	38.4	2,555	--	--
Mycogen	8D481	77	53	13.1	136	2.5	80.1	30.3	41.0	2,472	--	--
Mycogen	8H288CLDM	74	45	12.6	134	1.8	44.5	31.5	44.3	1,829	1,991	2,016
Mycogen	8H449DM	76	50	15.4	136	2.5	44.8	32.6	45.8	2,142	2,631	--
Mycogen	8N270CLDM	72	48	10.3	133	1.8	51.5	31.2	43.7	1,835	2,144	1,994
Mycogen	8N358CLDM	75	46	12.3	133	3.0	41.0	31.0	46.0	1,992	2,040	2,012
Mycogen	8N433DM	77	50	14.4	134	3.0	45.8	30.9	46.9	2,250	--	--
Mycogen	8N453DM	77	49	14.4	134	3.8	40.0	33.1	48.1	2,096	2,600	--
Pioneer	63M91	74	52	11.9	134	1.3	55.8	32.8	44.8	1,989	2,144	--
Pioneer	63N82	76	51	13.7	135	1.8	62.8	31.2	44.1	2,012	2,306	--
Proseed	6007	78	60	13.8	132	4.5	54.4	33.3	40.8	1,580	1,932	--
Proseed	7001 CL	78	53	16.7	136	1.3	54.0	30.4	41.6	2,046	--	--
Proseed	7052	77	57	10.0	131	3.3	49.8	33.3	44.8	2,022	2,055	--
Proseed	7207	79	52	10.6	131	1.5	49.0	31.0	40.9	1,328	1,645	--
Proseed	9001 CL	77	49	10.8	133	1.0	61.5	30.2	43.3	2,139	--	--
Proseed	E-4	76	53	11.2	133	2.0	58.1	29.1	42.4	1,640	--	--
Proseed	E-5	78	54	15.1	135	2.5	57.0	29.4	42.0	2,067	2,257	2,001
Proseed	E-6	81	58	16.1	136	3.3	57.4	28.6	41.3	1,959	2,249	--
Proseed	E-8	77	57	12.1	136	4.0	55.2	30.2	43.8	2,114	--	--
Proseed	E-85	76	54	13.2	134	1.8	60.0	27.6	42.0	2,015	1,999	2,066
Seeds 2000	Defender Plus	75	46	10.1	131	2.3	53.8	30.4	42.0	1,802	1,813	1,670
Seeds 2000	Viper	78	49	9.9	134	1.0	35.8	29.3	42.7	1,327	1,888	1,827
Seeds 2000	X5619	77	46	11.6	132	1.5	53.1	28.0	43.7	2,127	--	--
Syngenta	2930 NS/DM	75	49	8.5	130	3.5	51.0	29.1	44.1	1,366	1,846	1,848
Syngenta	3433 NS/DM	76	47	9.3	132	4.5	54.5	33.0	45.0	1,672	1,933	1,986
Syngenta	3480 NS/CL/DM	76	45	10.7	133	1.3	54.5	29.8	43.5	1,831	1,984	1,943
Syngenta	3731 NS	76	48	10.5	134	3.5	57.1	32.0	44.3	2,283	2,428	2,300
Syngenta	3732 NS	77	48	12.0	134	1.3	52.7	32.1	45.3	2,337	--	--
Syngenta	3845 HO	77	49	10.8	135	3.0	51.8	32.1	44.2	2,006	2,271	2,160
Syngenta	3875 NS	79	50	13.1	135	4.0	54.7	31.8	42.4	2,049	--	--
Syngenta	3980 NS/CL	77	56	15.1	135	2.0	52.4	30.8	41.1	2,265	2,453	--
Syngenta	7120 HO/DM	74	45	11.3	132	5.3	53.6	30.5	41.3	1,373	1,660	1,667
Syngenta	MH9001CL	81	52	21.9	136	1.5	46.8	31.4	42.3	1,950	--	--
Syngenta	MH9002CL	78	52	11.6	132	2.3	56.7	33.0	41.6	1,825	--	--
Triumph	630CL	77	53	13.9	136	3.8	54.7	29.9	43.6	1,857	2,119	--
Mean		76	50	12.4	133	2.4	54.4	30.7	43.4	1,934	--	--
CV %		1.6	5.9	9.4	1.1	52.7	6.8	3.7	2.3	16.8	--	--
LSD 0.05		2	4	1.6	2	1.8	7.4	1.6	1.4	454	--	--

Table 12. 2009 Sunflower - Oilseed - Minot, N.D. - Authors, M. Halvorson, A. Sebelius and J. Tarasenko. (Page 2 of 2).

Company/ Brand	Hybrid	Days to Flower (days)	Plant Height (inch)	Harvest Moist. (%)	Days to Maturity (days)	Plant Lodge ¹ (0-9)	1,000 Seed Weight (gram)	Test Weight (gram)	Oil Content (%)	Seed Yield		
										2009	2-yr. Avg. (lb/a)	3-yr. Avg.
Triumph	s671	78	36	15.6	137	1.0	43.4	31.2	46.2	2,012	2,390	2,201
Triumph	s655	79	33	14.3	137	1.0	41.6	32.9	46.0	1,627	1,934	1,958
Triumph	TRXDM8247	75	47	10.1	131	2.3	55.7	30.5	43.9	1,883	2,112	--
Triumph	TRXDM8330HO	77	51	14.9	136	2.8	59.2	30.7	44.2	1,790	--	--
Check early	Hysun 311	73	51	7.9	131	4.0	66.6	30.8	46.3	965	1,576	1,611
Check med.	P6451	77	52	13.3	134	2.5	56.3	30.1	47.7	2,208	2,312	2,155
Check late	SF270	74	46	9.4	132	4.3	57.6	32.0	44.7	1,793	1,631	1,506
Check USDA	Hybrid 894	76	52	11.8	134	2.3	47.6	30.8	43.2	1,619	2,018	1,964
Mean		76	50	12.4	133	2.4	54.4	30.7	43.4	1,934	--	--
CV %		1.6	5.9	9.4	1.1	52.7	6.8	3.7	2.3	16.8	--	--
LSD 0.05		2	4	1.6	2	1.8	7.4	1.6	1.4	454	--	--

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

Table 13. 2009 Sunflower - Non-oilseed -Minot, N.D. - Authors, M. Halvorson, A. Sebelius and J. Tarasenko.

Company/ Brand	Hybrid	Days to Flower (days)	Plant Height (inch)	Harvest Moisture (%)	1,000 Seed Wt. (grams)	Seeds/ lb (seeds)	Test Weight (lb/bu)	Seed Over Screen			Seed Yield	
								22/64 (%)	20/64 (%)	18/64 (%)	2009 --(lb/a)-----	3-yr. Avg.
CHS	RH 1121	78	63	12.1	119.3	3895	22.0	63	81	95	2,054	--
CHS	RH 3126RT	76	60	20.2	143.0	3228	21.8	48	73	91	2,214	1,944
CHS	RH 400CL	73	55	11.9	142.8	3222	20.1	68	87	96	1,935	--
Croplan	179	79	62	17.6	145.0	3145	20.9	61	83	96	2,504	--
Dahlgren	95EXCL	77	56	13.1	131.8	3484	21.9	59	81	94	2,495	2,124
Dahlgren	9530	76	59	12.2	124.8	3641	19.5	74	91	97	2,547	--
Dahlgren	9592	78	63	13.5	131.5	3462	21.7	61	83	96	3,076	--
Mycogen	8C451	76	62	13.7	126.5	3603	19.7	73	89	96	2,667	--
Red River Com	2215	75	62	13.1	132.8	3453	21.5	58	84	96	2,887	2,332
Red River Com	2216	75	59	13.5	142.8	3187	20.7	58	84	96	2,809	2,343
Red River Com	2217	77	62	12.7	122.0	3769	18.4	76	92	98	2,622	--
Seeds 2000	Jaguar CL	72	55	11.1	141.0	3217	19.4	77	93	98	2,379	2,011
Check USDA	924	73	59	15.6	118.5	3846	22.8	20	56	86	2,190	--
Seeds 2000	Panther DMR	72	53	11.9	130.0	3509	20.4	57	85	97	2,628	2,247
Mean		75	59	13.7	132.3	3476	20.8	61	83	95	2,501	--
CV %		1.3	5.7	8.6	9.1	9.2	4.9	13.5	6.2	2.2	13.4	--
LSD 0.05		1	5	1.7	17.2	455	1.4	12	7	3	478	--

Trial was planted on May 29 with a seeding rate of 18,000 PLS and harvested on Nov. 4.

Table 14. 2009 Sunflower - Oilseed - Williston, N.D. - Authors, N. Riveland, G. Bradbury and L. Bradbury.

Company/ Brand	Hybrid	Days to Flower (days)	Plant Height (inch)	Harvest Moisture (%)	Pop. Plt/a (plants)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield (lb/a)
Croplan	306 DMR NS	70.0	47.5	11.6	17,576	31.7	44.0	2,670
Croplan	3080 DMR NS	73.0	42.6	13.9	17,182	31.0	44.8	2,813
Croplan	369 DMR NS	75.3	48.7	15.0	15,245	30.1	42.3	2,316
Croplan	460 E NS	79.3	51.8	24.6	14,866	30.2	43.0	2,421
Croplan	555 CL DMR NS	76.7	53.1	17.6	15,969	29.4	40.0	1,835
Mycogen	8N288CLDM	71.7	45.0	14.3	17,664	31.8	43.2	2,375
Mycogen	8D310	71.0	55.9	14.3	18,353	29.6	38.9	2,312
Mycogen	8D481	77.3	52.9	19.8	17,656	32.0	39.8	2,341
Mycogen	8N270CLDM	70.0	45.7	11.8	18,121	32.8	43.6	2,113
Mycogen	8N358CLDM	75.7	44.9	11.2	18,353	31.0	44.1	2,275
Mycogen	8N433DM	77.3	50.2	15.8	17,540	30.0	44.4	2,999
Seeds 2000	Defender Plus	71.7	43.2	10.3	17,424	31.3	40.5	2,226
Seeds 2000	X5619	75.3	42.6	12.4	18,121	28.3	40.1	2,260
Syngenta	2930 NS/DM	72.3	47.9	11.1	15,990	30.5	43.4	2,561
Syngenta	3433 NS/DM	77.7	46.2	11.8	16,727	32.3	43.5	2,268
Syngenta	3480 NS/CL/DM	76.7	44.2	15.6	17,192	30.6	42.2	2,398
Syngenta	3731 NS	75.7	45.2	10.8	17,656	33.0	42.9	2,142
Syngenta	3732 NS	75.7	43.3	12.2	17,889	32.6	41.9	2,234
Syngenta	3845 HO	76.0	43.0	14.5	18,818	32.5	43.6	2,315
Syngenta	3875 NS	78.3	44.0	18.7	18,353	32.9	38.4	2,172
Syngenta	3980 NS/CL	76.7	51.7	18.1	18,353	31.5	40.6	2,214
Syngenta	7120 HO/DM	72.3	44.1	15.5	16,727	31.5	41.8	2,435
Syngenta	MH9001CL	79.3	51.4	20.8	16,093	33.6	40.3	1,921
Syngenta	MH9002CL	78.3	50.5	18.9	18,818	34.2	40.5	1,826
Triumph	s671	78.0	32.5	14.1	16,727	33.3	44.5	2,078
Triumph	s655	79.3	28.3	20.3	18,353	33.0	42.5	1,459
Triumph	TRX7435HO	75.0	50.5	18.0	16,233	30.7	42.3	1,892
Check USDA	Hybrid 894	74.3	50.9	10.7	17,192	31.4	41.1	1,879
Mean		74.8	45.7	14.8	17,408	31.4	42.0	2,228
CV %		2.2	6.9	33.0	14.0	1.6	1.5	15.4
LSD 0.05		2.7	5.1	8.0	NS	1.1	1.3	562.7

Table 15. 2009 Sunflower - Non-oilseed - Casselton, ND - Author, B. Hulke.

Company/Brand	Hybrid	Yield (lb/a)	Days to	Days to	Plant	Head	Plant	Harvest	Test	Seed Over Screen			Seed Size		Nut-	
			Flower	PM	Hgt.	Diam.	Lodge			Phom.	Moist.	Wt.	22/64	20/64		18/64
			(days)	(days)	(inch)	(inch)	(0-9)	(%)	(lb/bu)	-----(%)----			---(mm)---		(%)	
CHS	09EXP01	2,830	72	120	83	7.8	4.0	13.8	13.4	18.2	80.5	89.7	93.7	20.4	9.5	48.9
CHS	RH 1121	3,125	74	120	73	8.1	2.0	7.9	13.2	20.1	67.2	76.9	82.3	16.4	9.4	46.9
CHS	RH 3126RT	2,584	72	122	76	7.4	1.0	6.1	13.2	18.7	52.8	74.6	85.3	18.8	8.0	48.9
CHS	RH 400CL	3,146	68	111	71	7.8	2.3	4.5	11.7	19.1	75.4	89.1	94.7	19.8	8.6	51.0
Croplan	179	3,660	74	122	78	7.0	1.0	0.0	14.9	19.1	70.8	85.9	92.6	18.9	8.6	47.1
Dahlgren	95EXCL	3,823	75	121	83	7.8	2.3	4.4	13.7	20.1	80.6	91.7	94.7	18.3	9.0	47.1
Mycogen	8C451	3,147	73	118	77	8.0	3.0	7.2	13.2	19.4	72.3	88.3	93.5	18.1	9.0	51.1
Red River Comm.	2215	3,674	70	115	76	7.5	2.0	10.5	13.3	20.3	68.1	87.2	93.6	17.4	8.9	50.2
Red River Comm.	2216	3,098	71	113	76	7.6	2.7	5.3	12.3	20.3	67.6	86.1	92.7	18.2	8.9	50.8
Red River Comm.	2217	3,337	73	116	70	8.5	3.3	2.3	15.2	18.7	78.3	88.0	92.3	19.0	9.4	49.7
Seeds 2000	Panther II	3,333	68	112	71	7.6	2.3	9.9	12.2	20.6	76.8	88.9	95.2	17.3	9.2	47.5
Triumph	747c	3,442	70	122	72	7.3	3.0	7.0	17.4	18.8	70.4	85.5	92.8	19.9	8.6	51.0
USDA	924	2,556	71	117	76	7.2	2.3	14.4	11.6	21.6	39.7	71.2	88.0	13.6	8.7	53.5
Mean		3,212	72	118	75	7.7	2.4	7.2	13.5	19.6						
CV %		11.1	1.4	1.7	3.9	7.7	37.9	77.4	14.8	2.9						
LSD 0.05		614	2	3	5	NS	2.0	NS	NS	1.0						

Planted: June 1. Gramoxone Max applied Oct. 4, 2009. Harvested: Nov. 10-11.

Days to mature hybrid check: Hysun 311=111, SF270=113 and P6451=117.

Table 16. 2009 Sunflower - Non-oilseed - Carrington, N.D. - Authors, B. Schatz, T. Indergaard, S. Markell and K. Bjerke (1 of 2).

Company/Brand	Hybrid	Upper								
		Leaf Rust ¹ (%)	Plant Rust ¹ (%)	Mid Plt Rust (%)	Lower Plt Rust (%)	Plant Lodge (0-9)	Plant Height (inch)	Neck Break ² (%)	Days to Flower (days)	Days to PM (days)
CHS	RH 3126 RT	8	0	0	0	0.0	55	29	75.0	135
CHS	RH 400CL	84	50	34	100	0.0	53	5	73.3	122
CHS	RH 1121	86	30	30	100	0.0	58	9	79.0	127
Croplan	179	51	20	20	75	0.0	62	25	81.3	131
Dahlgren	9592	75	25	26	100	0.0	57	39	77.0	126
Dahlgren	95EXCL	74	40	34	100	0.8	63	1	77.3	123
Dahlgren	9579	21	11	11	65	0.0	55	55	78.5	132
Dahlgren	9530	53	18	18	100	0.3	61	1	77.0	126
Mycogen	8C451	71	33	28	85	0.0	56	32	76.8	125
Red River Comm.	2215	51	18	14	90	0.0	57	13	74.0	126
Red River Comm.	2216	71	30	36	100	0.0	61	7	74.3	123
Red River Comm.	2217	80	35	32	100	0.0	59	26	76.0	124
Seeds 2000	Badger CL	33	6	8	35	0.0	53	0	75.8	130
Seeds 2000	Jaguar CL	74	30	32	100	0.3	53	2	74.8	122
Seeds 2000	Panther DMR	42	18	18	85	0.0	53	1	74.5	128
Triumph	747c	20	0	0	0	0.3	54	70	74.8	135
USDA	924	58	11	9	50	0.0	53	39	74.5	132
Mean		57.1	22.7	20.6	77.0	0.1	56.7	21.2	76.0	127
CV %		25.8	48.1	42.8	22.0	338	5.4	76.5	2.1	1.5
LSD 0.05		21.0	15.5	12.5	24.1	0.4	4.4	23.0	2.3	2.8

Table 16. 2009 Sunflower - Non-oilseed - Carrington, N.D. - Authors, B. Schatz, T. Indergaard, S. Markell and K. Bjerke (2 of 2).

Company/Brand	Hybrid	Seed Over Screen			Harvest Moisture (%)	Test Weight (lb/bu)	Seed Yield			2-yr. Avg.	3-yr. Avg.
		22/64 (%)	20/64 (%)	18/64 (%)			2007	2008	2009		
CHS	RH 3126 RT	40	69	85	8.8	23.7	--	--	1,441	--	--
CHS	RH 400CL	48	70	82	7.8	19.4	--	--	830	--	--
CHS	RH 1121	50	74	87	7.8	20.8	--	--	890	--	--
Croplan	179	32	59	73	7.9	19.0	--	--	787	--	--
Dahlgren	9592	49	71	81	7.8	18.8	--	1,784	886	1,335	--
Dahlgren	95EXCL	39	70	82	7.8	19.0	--	1,686	772	1,229	--
Dahlgren	9579	58	76	83	7.9	17.5	--	--	1,027	--	--
Dahlgren	9530	49	76	94	7.9	19.5	1,734	1,724	870	1,297	1,443
Mycogen	8C451	49	69	80	7.8	19.2	--	1,673	668	1,171	--
Red River Comm.	2215	33	57	66	7.8	20.9	1,913	1,886	1,057	1,472	1,619
Red River Comm.	2216	33	70	85	7.8	19.0	1,692	1,857	1,001	1,429	1,517
Red River Comm.	2217	--	--	--	7.6	19.9	--	--	905	--	--
Seeds 2000	Badger CL	20	40	55	7.9	26.3	--	1,764	1,639	1,702	--
Seeds 2000	Jaguar CL	64	84	91	8.0	19.0	2,035	1,555	867	1,211	1,486
Seeds 2000	Panther DMR	28	62	79	8.0	22.3	2,383	1,704	1,633	1,669	1,907
Triumph	747c	45	71	86	8.5	24.5	--	1,834	1,819	1,827	--
USDA	924	24	61	81	8.1	22.9	1,308	1,432	932	1,182	1,224
Mean		42	67	81	7.9	20.8	1,838	1,767	1,051	--	--
CV %		--	--	--	1.7	5.0	14.3	14.3	16.5	--	--
LSD 0.05		--	--	--	0.2	1.5	371	360	246	--	--

Planted: May 28. Harvested: Nov. 17. Previous Crop: cover crop/fallow.

¹ Sunflower leaf rust was prevalent throughout this test, seed yields were impacted by these infections.

Leaf Rust rating recorded by CREC and reflects more the whole-plant incidence.

Upper Plant Rust rating recorded by Markell et al. and reflects the upper part of the plants' rust severity.

² Data on Neck Break reflects stems breaking over below the head, yet the heads are still fully attached to the plant.

Table 17. 2009 Sunflower - Non-oilseed - Langdon, N.D. - Authors, B. Hanson and R. Wilhelmi (1 of 2).

Company/Brand	Hybrid	Days to	Days to	Plant	Harvest	Head	Assert	Test
		Flower	Mature	Height	Moisture	Rot ²	Damage ³	Weight
		(days)	(days)	(inch)	(%)	(%)	(%)	(lb/bu)
CHS	RH1121	93	123	64	29	35	19	21.9
CHS	RH3126RT	89	122	64	30	24	7	22.5
CHS	RH400CL	85	120	59	25	15	0	23.8
Croplan	179	94	126	65	32	48	10	18.9
Dahlgren	95EXCL	93	124	67	28	54	2	21.3
Dahlgren	9530	91	123	63	28	42	22	21.9
Dahlgren	9592	89	122	44	25	26	0	21.3
Mycogen	8C451	89	122	58	28	36	2	20.7
Red River Comm.	2215	88	121	60	28	32	13	23.0
Red River Comm.	2216	88	122	61	30	25	15	23.1
Red River Comm.	2217	90	123	61	25	53	7	20.0
Seeds 2000	Jaguar	86	119	57	20	18	0	22.3
Seeds 2000	Panther DMR ¹	85	121	57	19	16	9	24.4
Triumph	747c	88	124	56	37	6	16	23.2
Check-USDA	924	86	120	59	23	21	23	24.7
Mean		89	122	60	27	30	10	22.2
CV %		0.9	1.5	11.6	11.6	31.3	103.7	4.2
LSD 0.05		1.4	3.0	NS	5.3	15.7	NS	1.6

Table 17. 2009 Sunflower - Non-oilseed - Langdon, N.D. - Authors, B. Hanson and R. Wilhelmi (2 of 2).

Company/Brand	Hybrid	Seed over screen			Seed Yield		
		22/64	20/64	18/64	2009	2-yr. Avg.	3-yr. Avg.
		(%)	(%)	(%)	------(lb/a)-----		
CHS	RH1121	57	78	85	1,766	2,416	2,424
CHS	RH3126RT	55	77	86	1,319	--	--
CHS	RH400CL	83	94	95	1,913	--	--
Croplan	179	59	80	85	1,290	--	--
Dahlgren	95EXCL	45	78	85	1,471	1,954	--
Dahlgren	9530	47	77	86	1,570	--	--
Dahlgren	9592	55	75	83	1,821	--	--
Mycogen	8C451	55	81	87	1,707	--	--
Red River Comm.	2215	42	71	86	1,632	2,102	2,201
Red River Comm.	2216	52	81	88	1,639	2,065	2,290
Red River Comm.	2217	50	74	81	1,559	--	--
Seeds 2000	Jaguar	26	70	86	2,136	2,172	2,319
Seeds 2000	Panther DMR ¹	21	60	85	1,819	1,952	2,123
Triumph	747c	71	89	93	1,399	1,904	2,095
Check-USDA	924	18	45	76	1,167	1,708	1,935
Mean					1,614	--	--
CV %					13.5	--	--
LSD 0.05					364	--	--

Planted: May 15. Harvested: Oct. 22.

¹ Downy mildew resistant² Sclerotinia head rot. Indicates percent incidence of head rot for each hybrid. It does not indicate severity. Infected plants were harvested.³ Percent of plants with deformed heads. Assert sprayed June 23 at 0.7 pt/a. Temperature was 68F, R.H. 46%. Growth stage was six leaves. Heads were not harvested but replaced with normal heads from outside harvest area.

Days to mature hybrid check: Hysun 311=117, SF270=116 and PI6451=121.

Table 18. 2009 Sunflower Midge, Sunflower Seed Maggot and Sunflower Bud Moth evaluation - Mapleton, N.D. - Authors, J. Knodel and L. D. Charlet (Page 1 of 2).

Company/Brand	Hybrid	Necrosis Score ¹		Seed Maggot Score ²		Sunflower
		Hybrid Score	Damage Rating	Hybrid Score	Damage Rating	Bud Moth ³
Seeds 2000	4994	0.15	Low	0.00	Low	0.0
Dahlgren	94EXCL	0.40	Low	0.15	Low	5.0
Pannar	PAN 8466 NSCL	0.40	Low	0.00	Low	0.0
Red River Comm.	2217	0.45	Low	0.15	Low	0.0
Triumph	9342	0.45	Low	0.00	Low	5.0
Syngenta	MH9001CL	0.50	Low	0.00	Low	0.0
Seeds 2000	9478	0.55	Low	0.00	Low	0.0
Tom Heaton	XFG2	0.55	Low	0.30	Low	0.0
Croplan	WF09-01	0.60	Low	0.00	Low	0.0
Seeds 2000	4744	0.60	Low	0.25	Low	0.0
Seeds 2000	4537	0.60	Low	0.15	Low	0.0
Tom Heaton	XFG5	0.60	Low	0.05	Low	5.0
CHS	09HRT-3	0.65	Low	0.40	Low	0.0
Mycogen	8N433	0.70	Low	0.20	Low	0.0
Red River Comm.	2215	0.70	Low	0.15	Low	0.0
Seeds 2000	9427	0.70	Low	0.00	Low	0.0
Advanta	F51139	0.80	Low	0.00	Low	0.0
Mycogen	M9560	0.80	Low	0.15	Low	0.0
Mycogen	8N288	0.80	Low	0.00	Low	0.0
Triumph	9343	0.80	Low	0.00	Low	0.0
Seeds 2000	6796	0.85	Low	0.05	Low	0.0
Tom Heaton	XFG6	0.85	Low	0.00	Low	0.0
Triumph	9427	0.85	Low	0.05	Low	0.0
Triumph	8325	0.90	Low	0.00	Low	0.0
Triumph	8330	0.90	Low	0.10	Low	5.0
Seeds 2000	3974	0.95	Low	0.00	Low	0.0
Croplan	WF09-05	1.00	Low	0.00	Low	0.0
Pannar	PAN 8579	1.05	Low	0.30	Low	0.0
Syngenta	MH9002CL	1.10	Low	0.00	Low	0.0
Nidera	LN 9992	1.10	Low	1.25	Low	5.0
Seeds 2000	4137	1.10	Low	0.10	Low	5.0
Tom Heaton	XFG7	1.10	Low	1.30	Low	5.0
ProSeed	7001CL	1.15	Low	0.10	Low	0.0
Seeds 2000	5619	1.15	Low	0.15	Low	0.0
Triumph	8341	1.15	Low	0.25	Low	5.0
Croplan	WF09-06	1.25	Low	0.10	Low	0.0
CHS	09HRT-1	1.30	Low	0.10	Low	0.0
Croplan	WF09-03	1.30	Low	0.00	Low	5.0
Mycogen	8N270	1.30	Low	0.00	Low	0.0
Mycogen	8N358	1.30	Low	0.10	Low	0.0
Tom Heaton	XFG4	1.30	Low	0.20	Low	5.0
Advanta	F51311	1.35	Low	0.30	Low	0.0
CHS	09HRT-4	1.35	Low	0.30	Low	0.0
Nidera	JN 7381	1.35	Low	0.00	Low	0.0

Table 18. 2009 Sunflower Midge, Sunflower Seed Maggot and Sunflower Bud Moth evaluation - Mapleton, N.D. - Authors, J. Knodel and L. D. Charlet (Page 2 of 2).

Company/Brand	Hybrid	Necrosis Score ¹		Seed Maggot Score ²		Sunflower
		Hybrid Score	Damage Rating	Hybrid Score	Damage Rating	Bud Moth ³
Seeds 2000	9477	1.35	Low	0.10	Low	0.0
Croplan	WF09-09	1.40	Low	0.20	Low	0.0
ProSeed	E-8	1.40	Low	0.05	Low	0.0
Tom Heaton	XFG1	1.40	Low	0.20	Low	0.0
CHS	09HRT-5	1.45	Low	0.00	Low	5.0
Dahlgren	9599	1.45	Low	0.00	Low	0.0
Pannar	PEX 7904	1.45	Low	0.00	Low	0.0
Seeds 2000	4294	1.45	Low	0.00	Low	0.0
Seeds 2000	4529	1.45	Low	0.20	Low	0.0
Croplan	WF09-02	1.50	Low	0.10	Low	0.0
Nidera	KN 9035	1.50	Low	0.30	Low	5.0
Pioneer	63N82	1.50	Low	0.30	Low	10.0
Seeds 2000	4129	1.60	Low	0.05	Low	0.0
Advanta	AP464	1.65	Low	0.45	Low	5.0
Pannar	PEX 7404	1.65	Low	0.05	Low	0.0
Triumph	9420	1.70	Low	0.00	Low	0.0
Tom Heaton	XFG3	1.75	Low	0.25	Low	5.0
USDA	Hybrid 894	1.84	Low	0.19	Low	5.0
Advanta	F51137	1.95	Low	0.10	Low	0.0
Seeds 2000	3939	1.95	Low	0.25	Low	10.0
Advanta	AP461	2.05	Moderate	0.10	Low	5.0
ProSeed	9001CL	2.05	Moderate	0.10	Low	5.0
Nidera	LK 9987	2.15	Moderate	0.35	Low	0.0
Advanta	AP443	2.25	Moderate	0.20	Low	5.0
Pannar	PEX 7803	2.25	Moderate	0.00	Low	0.0
CHS	09HRT-2	2.30	Moderate	0.20	Low	5.0
CHS	09HRT-6	2.30	Moderate	0.55	Low	0.0
Croplan	WF09-07	2.30	Moderate	0.25	Low	0.0
CHS	09HRT-7	2.60	Moderate	0.10	Low	0.0
Advanta	F51122	2.65	Moderate	0.10	Low	5.0

Insect damage ratings taken on Aug. 28, 2009; hybrids in single row plots randomized and replicated four times; five 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 and the range is 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 to 1.99 = low, 2 to 3.99 = moderate and 4 to 5 = high.

²**Sunflower seed maggot** score measures injury symptoms to the sunflower head on a 0 (no injury) to 5 (feeding damage extending through all quadrants of the head); Damage rating is based on the maggot score, with score values of 0 to 1.99 = low, 2 to 3.99 = moderate and 4 to 5 = high.

³**Sunflower bud moth** damage is the percentage of evaluated heads with visible damage caused by larval feeding injury.

**Table 19. 2009 Sunflower Sclerotinia Stalk Rot Evaluations of Commercial Sunflower Hybrids (Page 1 of 2).
Authors, T. Gulya, B. Schatz and E. Aberle.**

Company/Brand	Hybrid	Carrington	Crookston	Grandin	SR Mean	Rank, across locations
-----(% of plants)-----						
Advanta	AP443	20.6	15.9	9.6	15.3	35
Advanta	AP461	14.6	2.7	6.5	7.9	4
Advanta	AP464	31.2	21.4	29.3	27.3	76
Advanta	F30294**	18.7	7.2	6.3	10.8	16
Advanta	F51122	31.4	10.5	17.4	19.8	48
Advanta	F51137	15.5	2.5	16.1	11.4	17
Advanta	F51139	21.7	7.4	6.2	11.8	19
Advanta	F51311	26.2	0.0	4.7	10.3	14
Agricol	5283	43.6	32.4	12.6	29.5	80
Agricol	5551	46.3	24.6	9.1	26.7	73
Agricol	5671	42.7	15.5	7.7	21.9	58
Agricol	8065	47.1	4.3	35.0	28.8	78
Agricol	8251	19.0	20.2	10.4	16.6	37
Agricol	8751	14.2	11.9	44.3	23.4	68
CHS ¹	09HRT-1	31.7	14.1	17.4	21.1	54
CHS ¹	09HRT-2	43.6	77.9	15.8	45.8	97
CHS ¹	09HRT-3	42.7	19.1	20.1	27.3	75
CHS ¹	09HRT-4	31.2	28.0	9.9	23.0	65
CHS ¹	09HRT-5	3.7	8.4	2.5	4.9	1
CHS ¹	09HRT-6	28.0	43.0	3.9	25.0	71
CHS ¹	09HRT-7	64.5	19.0	10.8	31.4	86
Croplan	WF09-01	49.4	16.7	31.7	32.6	90
Croplan	WF09-02	19.4	22.8	9.6	17.2	39
Croplan	WF09-03	11.4	10.9	19.9	14.1	28
Croplan	WF09-04	3.9	13.7	23.1	13.6	26
Croplan	WF09-06	9.4	11.5	8.0	9.6	10
Croplan	WF09-07	19.2	38.5	8.7	22.1	60
Croplan	WF09-09	21.1	24.3	13.5	19.7	47
Dahlgren ¹	9583	5.0	5.7	13.7	8.1	5
Dahlgren ¹	9599	17.7	11.2	15.2	14.7	31
Dahlgren ¹	94EXCL	26.1	17.9	12.8	18.9	42
Dahlgren ¹	9519**	33.8	41.8	12.2	29.3	79
Mycogen	8H288	40.7	9.7	7.3	19.2	45
Mycogen	8N270	35.0	17.1	15.0	22.4	62
Mycogen	8N358	24.5	20.4	19.8	21.5	56
Mycogen	8N433	38.7	1.1	16.7	18.9	41
Mycogen	E87425**	17.2	6.4	7.0	10.2	12
Mycogen	M9560	14.4	3.5	9.0	9.0	8
Nidera	JN 7381	6.8	8.2	13.7	9.6	9
Nidera	KN 9035	6.0	5.9	13.7	8.5	7
Nidera	LK 9987	36.2	50.5	31.6	39.4	95
Nidera	LN 9992	40.9	24.2	30.1	31.7	87
Pannar	PAN 8466	49.2	22.5	22.3	31.3	85
Pannar	PAN 8579	22.4	5.4	17.3	15.0	33
Pannar	PEX 3426**	20.9	8.2	8.7	12.6	23
Pannar	PEX 7404	22.7	28.8	5.5	19.0	44
Pannar	PEX 7803	22.4	12.9	25.6	20.3	52
Pannar	PEX 7904	39.5	13.2	21.3	24.7	70
Pioneer	63N82	46.2	33.0	6.2	28.5	77
Pioneer	X303	34.5	9.4	16.4	20.1	51
ProSeed	6007**	10.9	16.9	7.9	11.9	20
ProSeed	7001CL	21.4	9.9	7.3	12.9	24

**Table 19. 2009 Sunflower Sclerotinia Stalk Rot Evaluations of Commercial Sunflower Hybrids (Page 2 of 2).
Authors, T. Gulya, B. Schatz and E. Aberle.**

Company/Brand	Hybrid	Carrington	Crookston	Grandin	SR Mean	Rank, across locations
-----(% of plants)-----						
ProSeed	7016**	23.7	4.4	18.0	15.4	36
ProSeed	7025**	0.0	2.2	16.5	6.2	2
ProSeed	7052**	24.6	17.8	14.6	19.0	43
ProSeed	7207**	30.1	9.5	12.0	17.2	38
ProSeed	9001CL	44.7	13.7	4.3	20.9	53
ProSeed	E-8	19.3	14.0	10.8	14.7	30
Red River Comm. ¹	2215	44.4	22.7	28.8	32.0	88
Red River Comm. ¹	2217	15.6	47.1	34.5	32.4	89
Seeds 2000 ¹	3939	64.7	30.5	29.1	41.4	96
Seeds 2000 ¹	3974	48.3	15.8	25.5	29.9	82
Seeds 2000 ¹	4129	65.8	73.4	30.1	56.4	98
Seeds 2000 ¹	4137	28.9	27.6	35.0	30.5	84
Seeds 2000	4294	23.7	7.1	23.6	18.2	40
Seeds 2000 ¹	4529	47.2	38.7	22.1	36.0	92
Seeds 2000 ¹	4537	42.5	45.0	23.2	36.9	94
Seeds 2000	4744	11.1	16.0	18.7	15.2	34
Seeds 2000	4994	16.2	17.7	11.0	14.9	32
Seeds 2000	5619	53.9	23.4	31.9	36.4	93
Seeds 2000	6796	16.1	14.4	13.3	14.6	29
Seeds 2000 ¹	9477	39.3	21.7	16.7	25.9	66
Seeds 2000	9478	27.0	21.8	17.2	22.0	72
Seeds 2000	9427	43.6	8.0	17.5	23.0	59
Seeds 2000	9466**	40.1	22.5	28.0	30.2	83
Syngenta	3980 NS/CL	28.8	13.1	23.7	21.9	57
Syngenta	MH9001CL	54.8	15.9	17.9	29.5	81
Syngenta	MH9002CL	27.5	20.7	18.5	22.2	61
Tom Heaton	6N14**	10.3	10.5	9.7	10.2	11
Tom Heaton	XFG1	14.9	8.9	12.6	12.1	21
Tom Heaton	XFG2	28.1	24.1	12.3	21.5	55
Tom Heaton	XFG3	33.6	12.7	13.3	19.9	49
Tom Heaton	XFG4	6.9	1.1	22.9	10.3	13
Tom Heaton	XFG5	13.1	12.5	8.9	11.5	18
Tom Heaton	XFG6	9.2	10.4	11.8	10.5	15
Tom Heaton	XFG7	14.8	7.3	17.5	13.2	25
Triumph	8325	33.9	20.8	14.6	23.1	67
Triumph	8330	34.0	18.4	6.5	19.6	46
Triumph	8341	45.3	14.9	20.1	26.7	74
Triumph	9342	56.7	24.2	24.1	35.0	91
Triumph	9343	19.1	4.4	13.8	12.4	22
Triumph	9420	23.8	9.2	38.9	23.9	69
Triumph	7449**	54.2	5.3	7.9	22.5	50
Triumph	9427	27.5	5.5	26.7	19.9	64
Triumph	X7435**	13.8	4.8	6.6	8.4	6
Resist Check	Croplan 305	12.4	11.2	17.7	13.8	27
Resist Check 2	Croplan 343	9.6	5.2	7.9	7.6	3
Susc Check	Cargill 270	25.0	21.9	20.4	22.5	63
Mean		28.1	17.4	16.6	20.7	
CV %		79.0	81.0	82.0	82.6	
LSD 0.05		30.7	19.6	18.9	13.6	

Four replications of single-row plots (22' long, and containing ~ 25-30 plants) were planted at each location.

Sclerotinia inoculum (consisting of mycelium grown on millet) was deposited in a furrow beside the row at the last cultivation, at a rate of 80g (~ 3 oz) per row.

Stalk rot was rated two to three times per location, ending at physiological maturity (late September).

Figures listed are the percent of plants showing Sclerotinia wilt/stalk rot symptoms (averaged over four replicates).

** denotes hybrids (now in their second year of testing) selected in the first year of testing for either good head rot OR good stalk rot ratings.

¹Hybrids are confection entries. All others are oilseed hybrids.

2009 SOUTH DAKOTA HYBRID SUNFLOWER TRIALS

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Locations and Hybrids

Oilseed hybrid sunflower trials were planted at five locations in South Dakota (Bison, Eureka, Miller, Onida and Reliance). Entries in the oilseed sunflower trials included traditional linoleic oil hybrids, NuSun (mid-oleic) hybrids and high-oleic hybrids. Non-oilseed (confection) sunflower trials were conducted at Miller and Onida. Test locations are indicated on the map in Figure 1. Trial sites for each of the hybrids tested in 2009 appear in Tables 5 and 6.

Climate

A summary of climate conditions near the sunflower test sites is presented in Table 20. The 2009 growing season began with below-normal precipitation and temperature in May. It remained drier than usual through June at Miller and Onida but was wetter than usual at the other sites in June. July brought slightly above-normal rainfall to most sites. August was somewhat drier than normal at Bison, Eureka and Miller but wetter than normal at Onida and Reliance. September was drier than normal at all locations except Eureka, while October was wetter and much cooler than normal at all locations. Miller had virtually no rain from Aug. 10 until Oct. 1, limiting yield and reducing test weight. Summer temperatures were generally cooler than normal, but September brought above-normal temperatures. The first killing frost (below 24 F) occurred on Oct. 9-10 at all locations, which was near normal at Eureka and Reliance, but four to eight days earlier than normal at Miller, Onida and Bison.

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 most also was treated with fungicide. Seed treatments used on individual hybrids are listed in Tables 5 and 6. All trials were seeded no-till. The previous crop at Eureka and Miller was corn; at Bison, Reliance and Onida, it was wheat. Plots were overseeded and thinned to a plant population of approximately 17,400 plants per acre (Onida and Bison) or 16,300 plants per acre (Miller and Reliance). Thinning was not adequate at Eureka due to an inexperienced crew, so stand counts were made prior to harvest. Plant population averaged 23,600 plants per acre at Eureka. Stands were good everywhere except Reliance. Miller had a low drainage area through the middle of the third replication of the oilseed trial, which reduced stands and stunted plants in that area. The third replication at Miller therefore was excluded from all oilseed statistical analyses; however, the yield data were still too variable for publication.

Flowering was recorded at Onida as the number of days from planting to 50 percent ray petals extended. Days from planting to physiological maturity (rated visually) also were recorded at Onida. Plant height and lodging notes were taken at all locations immediately before harvest. Lodging was low at all locations except Bison for most hybrids. Bison had considerable lodging in some plots, which appeared to be mainly due to deer/antelope damage. The fourth replication had the most damage and therefore was excluded from yield and lodging analyses, as were any plots in the other three replications with greater than 25 percent lodging (five additional plots).

Plots at Onida, Miller, Eureka and Reliance were harvested with a Gleaner Model K combine fitted with a two-row all-row crop header. 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 confection trials was passed over 22/64, 20/64 and 18/64 round-hole screens to determine the percent of large seed. Nutmeat percent was determined by weighing 20 whole seeds from each plot and dehulling and weighing the 20 dehulled kernels.

Results

Data from each location and combined over locations are contained in Tables 21-29. Yields of oilseed hybrids were highest at Eureka, averaging 2381 lb/acre over all hybrids tested, with an average oil content of 45.8%. The lowest yield and oil was measured at Bison, which averaged 890 lb/acre and 45.5% oil. Confection seed yield averaged 2,205 lb/acre at Onida and were too variable for publication at Miller. In the tables that follow, hybrids are listed alphabetically by brand.

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

Figure 1. 2009 South Dakota sunflower trial locations.

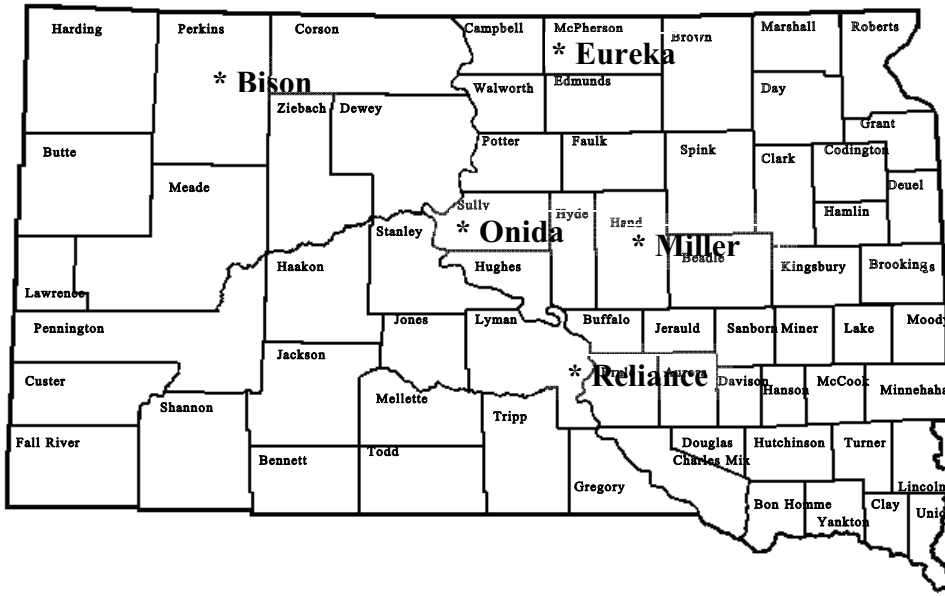


Table 20. 2009 Climate Summary for Weather Stations Nearest to South Dakota Sunflower Test Sites and Departures from Normal.

Location- Month	2009 Temperature			Total Precip (inch)	Departure from Normal ²			Precip (inch)
	Avg Max.	Avg Min.	Mean		Max Temp	Min Temp	Avg Temp	
	------(°F)-----				------(°F)-----			
<u>Bison</u>¹								
May	66.3	40.5	53.9	1.43	-3.2	-3.2	-2.7	-1.29
June	71.1	49.1	60.2	3.40	-7.8	-3.9	-5.8	0.58
July	78.8	54.2	66.5	1.77	-7.2	-4.2	-5.7	-0.50
August	79.6	52.7	66.1	1.00	-6.6	-4.2	-5.5	-0.47
September	77.3	49.6	62.7	0.38	2.5	3.1	2.0	-0.82
October	44.6	29.9	36.6	2.02	-15.9	-5.4	-11.3	0.56
<u>Eureka</u>¹								
May	69.4	40.8	55.1	1.13	-0.4	-2.8	-1.6	-1.50
June	74.4	50.4	62.4	4.31	-3.8	-2.5	-3.2	1.14
July	79.0	55.0	67.0	3.86	-5.7	-3.0	-4.4	1.08
August	80.2	55.8	68.0	1.71	-3.6	-0.4	-2.0	-0.59
September	75.9	49.3	62.6	1.46	2.6	3.9	3.2	0.03
October	45.3	27.1	36.2	3.54	-13.8	-6.5	-10.2	1.88
<u>Miller</u>¹								
May	69.2	41.7	55.4	1.09	0.8	-3.8	-1.6	-2.05
June	74.9	53.2	64.0	2.20	-3.3	-2.1	-2.8	-0.70
July	79.1	56.0	67.5	3.05	-6.0	-4.6	-5.4	0.45
August	79.4	54.8	67.1	1.56	-4.3	-3.0	-3.7	-0.45
September	74.0	51.2	62.6	0.00	-0.1	3.7	1.8	-1.80
October	45.9	31.8	38.9	3.59	-14.8	-3.1	-8.9	1.82
<u>Onida 4 NW</u>¹								
May	71.0	41.4	56.2	0.89	0.6	-2.9	-1.2	-1.96
June	76.7	52.0	64.4	2.16	-3.5	-1.6	-2.6	-0.95
July	82.3	55.7	69.0	3.03	-5.3	-3.1	-4.2	0.34
August	81.0	54.5	67.8	3.35	-4.8	-2.5	-3.6	1.21
September	76.7	51.0	63.8	0.23	0.7	4.7	2.6	-1.31
October	47.1	30.6	38.9	3.11	-14.1	-3.9	-9.0	1.53
<u>Reliance</u>¹								
May	72.0	44.7	59.0	0.57	1.1	0.0	1.2	-3.05
June	76.5	55.3	66.0	4.99	-4.5	0.9	-1.7	1.59
July	81.7	57.7	70.0	3.11	-7.0	-2.1	-4.3	0.19
August	81.8	57.7	69.7	5.05	-5.8	-0.5	-3.2	2.77
September	75.7	53.1	64.6	0.82	-1.9	5.1	1.8	-1.16
October	49.7	34.1	41.7	2.22	-13.3	-1.4	-7.6	0.46

¹Based 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.

²Departures from normal were determined by comparing 2009 observations to 30-year averages (1971-2000) for each site.

Table 21. 2009 Sunflower - Oilseed - Bison, S.D.

Company/ Brand	Hybrid	Seed Yield			Oil Content	Plant Height	Plant Lodge	Harvest Moisture	Test Weight	Pop. x1,000 Plt/a (plants)
		2-yr. 2009	3-yr. Avg.	3-yr. Avg.						
		------(lb/a)-----			(%)	(inch)	(%)	(%)	(lb/bu)	
Croplan	306 DMR NS	944	1,406	--	45.8	51	6.4	4.4	28.4	16.4
Croplan	3080 DMR NS	1,029	1,518	--	48.4	51	11.8	6.3	29.7	18.0
Croplan	356A NS	910	--	--	46.0	48	1.6	5.9	28.6	17.8
Croplan	369 DMR NS	817	1,164	--	44.8	53	4.4	6.9	27.2	16.0
Croplan	378 DMR NS	999	1,438	--	43.6	55	3.4	13.0	29.7	17.6
Croplan	460 E NS	637	--	--	46.1	52	6.0	9.8	29.0	17.6
Croplan	555 CL DMR NS	710	--	--	46.7	53	5.3	7.4	26.5	17.3
King	SunKing 4404 NSCL	832	1,539	--	44.3	48	1.1	7.4	29.4	17.8
King	SunKing 4444 NS	882	--	--	42.1	54	3.3	9.9	29.2	15.3
Mycogen	8H449DM	1,296	1,713	1,566	48.7	57	1.2	10.9	31.3	17.8
Mycogen	8N187	927	1,369	--	44.3	46	3.3	6.7	31.1	17.3
Mycogen	8N358CLDM	1,058	1,469	1,201	45.4	46	10.4	7.4	32.2	16.8
Mycogen	8N433DM	1,023	--	--	47.1	51	8.8	7.6	27.4	17.7
Mycogen	8N510	1,266	1,426	1,494	45.4	50	0.0	9.4	26.5	18.2
Pioneer	63M91	628	--	--	45.2	51	1.8	11.0	31.8	17.1
Pioneer	63N82	983	--	--	45.2	50	0.0	10.3	30.7	17.8
Pioneer	64H41	737	--	--	45.0	52	6.2	10.3	29.5	16.8
Syngenta	3433 NS/DM	667	1,122	1,031	46.3	48	6.3	5.9	34.2	16.2
Syngenta	3480 NS/CL/DM	614	1,122	1,196	45.5	49	10.7	5.3	31.0	17.2
Syngenta	3731 NS	796	1,026	1,154	45.0	50	9.4	7.6	29.9	16.9
Syngenta	3732 NS	820	--	--	44.3	47	7.5	7.0	31.3	17.0
Syngenta	3845 HO	872	1,417	1,567	47.4	48	2.8	8.3	31.3	16.7
Syngenta	3875 NS	827	1,420	1,506	42.9	50	7.2	7.8	28.2	15.7
Syngenta	3980 NS/CL	643	1,155	--	45.1	57	5.3	7.7	29.0	15.9
Syngenta	7120 HO/DM	1,020	1,346	1,316	44.8	49	5.8	5.5	31.3	17.2
Syngenta	MH9001CL	821	--	--	45.4	52	5.8	11.8	29.3	16.5
Syngenta	MH9002CL	785	--	--	44.6	50	4.0	8.2	29.6	18.1
Triumph	s671	1,185	1,582	--	45.3	37	3.2	7.9	28.0	18.4
Triumph	s674	1,302	--	--	46.5	39	0.5	9.1	27.4	18.5
Triumph	s678	1,086	1,435	1,506	45.0	45	2.9	7.7	27.6	16.9
Triumph	s655	911	--	--	45.7	33	1.1	8.0	30.5	17.9
Triumph	TRXs9422	728	--	--	45.2	37	1.6	7.8	24.6	17.7
Triumph	s680CL	876	--	--	44.9	36	2.9	9.6	29.5	17.6
USDA (check)	894	619	856	860	47.7	44	2.4	9.9	31.3	16.1
Mean		890	1,343	1,309	45.5	48	4.5	8.2	29.5	17.2
CV %		19.9	21.3	20.7	3.0	6.1	100.9	14.0	4.5	6.8
LSD 0.05		289	305	267	1.9	4	NS	1.6	1.9	NS

Planted: June 4. Harvested: Nov. 9. Previous crop: wheat.

Table 22. 2009 Sunflower - Oilseed - Eureka, S.D.

Company/ Brand	Hybrid	Seed Yield			Oil Content	Plant Height	Plant Lodge	Harvest Moisture	Test Weight	Pop. x1,000 Plt/a
		2009	2-yr. Avg.	3-yr. Avg.						
		------(lb/a)-----			(%)	(inch)	(%)	(%)	(lb/bu)	(plants)
Croplan	306 DMR NS	1,789	1,946	--	45.1	59	0.8	15.1	26.0	20.5
Croplan	3080 DMR NS	2,426	2,129	--	46.5	57	4.3	14.6	26.4	26.3
Croplan	356A NS	2,771	--	--	44.9	56	1.3	16.2	28.1	20.1
Croplan	369 DMR NS	2,527	2,281	--	44.6	63	2.6	16.4	27.4	23.3
Croplan	378 DMR NS	2,961	2,399	--	45.5	65	2.2	18.8	26.9	22.3
Croplan	460 E NS	2,203	--	--	46.7	61	1.1	16.4	28.0	21.9
Croplan	555 CL DMR NS	2,449	--	--	45.0	65	0.3	15.9	26.8	25.0
Dahlgren	4416CL ConOil	2,164	--	--	42.3	72	2.6	15.8	26.6	21.4
Dahlgren	4455 Con Oil	2,542	--	--	43.8	64	0.8	17.2	27.7	22.2
King	SunKing 4404 NSCL	2,400	2,275	2,210	45.9	67	3.7	15.3	27.3	26.3
King	SunKing 4444 NS	2,872	--	--	44.2	61	4.5	16.3	26.0	23.4
Mycogen	8D310	2,437	--	--	42.2	62	0.8	16.5	28.0	23.7
Mycogen	8D481	2,484	2,414	--	44.7	67	1.3	16.8	28.1	25.3
Mycogen	8H288CLDM	2,180	--	--	47.4	61	1.3	14.6	28.0	24.9
Mycogen	8H449DM	2,647	2,366	2,433	47.6	65	0.0	17.8	28.7	24.6
Mycogen	8N187	2,163	1,974	--	45.6	54	2.2	13.7	26.9	22.8
Mycogen	8N358CLDM	2,127	2,090	2,242	48.0	63	1.3	15.0	26.9	27.0
Mycogen	8N433DM	2,711	--	--	45.5	62	2.5	15.9	26.2	23.7
Mycogen	8N453DM	2,302	2,336	2,243	46.0	65	0.0	16.6	27.9	24.2
Mycogen	8N510	2,522	2,366	2,558	44.4	65	2.0	15.2	26.0	25.0
Pannar	PAN7813 NS	2,413	2,222	2,262	45.5	59	0.9	17.9	26.9	25.6
Pannar	PAN7924 NS	2,591	2,191	2,254	45.5	67	3.7	17.5	27.0	24.3
Pannar	PAN8466 NS/CL	1,929	--	--	44.7	65	6.1	15.7	26.6	23.3
Pannar	PEX7803	2,414	--	--	46.8	58	5.4	17.6	27.9	25.5
Pannar	PEX7904	2,319	--	--	46.0	60	2.7	18.5	28.0	23.1
Pioneer	Pioneer Brand 63M91	1,730	--	--	45.6	63	0.4	15.9	26.7	23.1
Pioneer	Pioneer Brand 63N82	2,165	--	--	45.8	61	0.0	17.4	27.6	25.0
Pioneer	Pioneer Brand 64H41	2,419	--	--	46.2	66	0.3	17.2	28.0	26.2
Seeds 2000	Badger CL	2,319	--	--	43.1	66	2.6	15.5	26.8	22.6
Seeds 2000	Barracuda	2,476	2,202	2,191	44.0	61	0.0	18.9	26.5	18.6
Seeds 2000	Blazer CL	2,418	2,182	2,116	44.6	68	6.1	17.2	26.3	25.0
Seeds 2000	Firebird	2,277	2,277	2,435	45.3	57	0.5	17.3	26.6	20.4
Seeds 2000	Sierra	1,893	1,850	1,972	45.0	59	7.1	15.5	26.7	24.9
Syngenta	3433 NS/DM	2,294	2,215	2,236	46.1	63	4.2	15.0	28.8	20.6
Syngenta	3480 NS/CL/DM	1,948	1,867	1,832	46.0	62	0.4	14.7	26.7	22.3
Syngenta	3731 NS	2,385	2,405	2,316	47.7	60	1.2	15.9	28.5	24.4
Syngenta	3732 NS	2,506	--	--	45.9	59	0.3	15.8	28.9	27.0
Syngenta	3845 HO	2,729	2,566	2,570	45.5	56	0.3	16.6	29.2	23.7
Syngenta	3875 NS	2,221	2,152	2,223	45.9	60	5.6	17.8	26.0	20.2
Syngenta	3980 NS/CL	2,224	2,053	--	44.4	72	3.1	16.4	26.2	19.8
Syngenta	7120 HO/DM	1,743	1,809	1,957	46.1	59	1.1	15.6	25.2	27.3
Syngenta	MH9001CL	2,414	--	--	46.8	65	0.0	18.9	27.1	28.8
Syngenta	MH9002CL	2,579	--	--	44.5	67	2.1	17.0	29.8	25.6
Triumph	845HO	2,319	2,186	--	47.1	65	2.6	18.8	26.0	21.2
Triumph	s671	2,473	2,329	--	48.0	46	0.5	16.9	27.7	20.0
Triumph	s674	2,900	--	--	48.9	43	1.9	16.2	27.9	27.7
Triumph	s678	2,795	2,537	2,374	47.9	50	1.8	18.4	29.2	26.3
Triumph	s878H	2,701	2,499	--	46.6	54	0.8	17.1	27.1	24.0
Triumph	s655	2,438	2,347	--	47.7	40	1.6	15.8	27.8	25.5
Triumph	TRXs9422	2,370	--	--	47.2	41	1.2	17.3	27.8	22.9
Triumph	TRXs9423	2,535	--	--	46.9	42	2.8	17.7	27.1	19.0
Triumph	s680CL	2,840	--	--	47.8	44	3.3	17.3	28.7	21.0
USDA (check)	894	2,243	1,949	1,845	48.1	52	1.2	17.2	27.2	22.5
USDA (check)	cms HA412/RHA 377	1,854	--	--	46.1	60	0.7	16.6	27.0	21.6
Mean		2,381	2,214	2,225	45.8	60	2.0	16.6	27.3	23.6
CV %		17.5	15.2	14.6	3.1	6.2	132.8	7.1	3.9	17.3
LSD 0.05		581	340	265	2.0	5	3.7	1.6	1.5	NS

Planted: May 27. Harvested: Nov. 6. Previous crop: corn.

Table 23. 2009 Sunflower - Oilseed¹ - Miller, S.D.

Company/ Brand	Hybrid	Oil Content (%)	Plant Height (inch)	Plant Lodge (%)	Harvest Moisture (%)	Test Weight (lb/bu)	Pop. x1,000 Plt/a (plants)
CHS	08EXP01	43.0	62	1.2	11.7	19.7	16.3
Croplan	306 DMR NS	46.3	60	1.2	12.1	23.0	16.3
Croplan	3080 DMR NS	47.0	58	4.2	12.0	25.6	16.3
Croplan	356A NS	47.0	57	0.0	12.5	25.0	16.3
Croplan	369 DMR NS	45.5	64	0.0	12.9	23.7	16.3
Croplan	378 DMR NS	46.6	65	7.3	13.3	24.8	16.3
Croplan	460 E NS	48.0	61	0.0	13.1	25.2	16.3
Croplan	555 CL DMR NS	45.4	64	2.4	12.3	22.4	16.3
King	SunKing 4404 NSCL	44.1	63	2.4	12.3	24.7	16.3
King	SunKing 4444 NS	45.0	60	3.6	11.9	22.5	16.3
Mycogen	8D310	42.1	64	4.8	13.1	23.4	16.3
Mycogen	8D481	44.0	63	0.0	13.2	23.1	16.3
Mycogen	8H288CLDM	46.3	61	1.8	12.0	22.4	16.3
Mycogen	8H449DM	47.9	65	0.0	13.1	24.6	16.3
Mycogen	8N187	44.6	52	0.0	12.4	20.6	16.3
Mycogen	8N358CLDM	45.4	60	1.8	11.8	22.0	16.3
Mycogen	8N433DM	47.7	66	4.2	12.3	22.7	16.3
Mycogen	8N453DM	45.4	61	0.0	12.5	22.2	16.3
Mycogen	8N510	45.6	62	0.0	12.3	23.6	16.3
Pannar	PAN7813 NS	45.3	58	0.0	12.2	24.1	16.3
Pannar	PAN7924 NS	43.4	58	0.6	12.5	23.3	16.3
Pannar	PAN8466 NS/CL	44.1	61	1.2	12.0	21.8	16.3
Pannar	PEX7803	47.8	52	0.8	12.9	24.3	14.9
Pannar	PEX7904	44.5	58	1.2	12.5	21.9	14.0
Pioneer	63M91	46.6	63	0.0	12.3	21.9	14.3
Pioneer	63N82	48.4	57	0.6	13.3	25.8	15.0
Pioneer	64H41	45.2	65	1.8	12.9	22.0	15.3
Seeds 2000	Badger CL	43.6	64	0.0	12.2	25.4	15.2
Seeds 2000	Barracuda	46.4	60	0.0	12.7	24.3	14.2
Seeds 2000	Blazer CL	46.0	63	0.9	12.5	23.5	14.4
Seeds 2000	Firebird	45.6	57	0.0	13.0	26.0	16.3
Seeds 2000	Sierra	44.6	57	0.6	12.9	22.4	16.3
Syngenta	3433 NS/DM	47.5	57	6.0	13.5	25.9	16.3
Syngenta	3480 NS/CL/DM	46.1	58	1.8	11.6	20.9	16.3
Syngenta	3731 NS	48.1	61	0.0	13.1	27.4	16.3
Syngenta	3732 NS	44.4	60	0.0	13.1	25.4	16.3
Syngenta	3845 HO	46.9	56	0.0	12.6	24.4	16.3
Syngenta	3875 NS	46.3	64	3.3	12.9	26.3	16.3
Syngenta	3980 NS/CL	44.5	65	1.2	11.3	22.8	16.3
Syngenta	7120 HO/DM	45.5	57	1.2	12.3	23.4	16.3
Syngenta	MH9001CL	46.1	61	0.0	13.4	24.4	16.3
Syngenta	MH9002CL	45.2	59	1.8	13.3	26.6	16.3
Triumph	660CL	46.9	68	0.6	12.5	24.7	16.3
Triumph	859HOCL	47.2	61	0.0	12.7	26.1	16.3
Triumph	s668	50.7	51	0.0	13.0	27.2	17.6
Triumph	s671	46.4	47	0.0	12.7	24.4	16.3
Triumph	s674	47.8	48	0.0	13.1	24.5	16.3
Triumph	s678	48.1	50	0.0	13.2	26.1	16.3
Triumph	s878H	47.5	51	0.0	13.4	25.9	16.3
Triumph	s655	48.1	45	0.0	12.6	23.0	16.3
Triumph	TRXs9422	48.2	42	0.0	13.4	24.2	16.3
Triumph	TRXs9423	47.9	45	0.0	13.1	25.4	16.3
Triumph	TRXs9425	47.2	42	0.0	12.9	25.7	16.3
Triumph	s680CL	46.2	38	1.2	13.4	29.4	16.3
Triumph	TRX 8341	46.3	56	4.2	12.8	24.1	16.3
USDA (check)	USDA 894 (check)	47.5	49	1.8	12.3	24.4	14.6
Mean		46.2	58	1.2	12.7	24.1	16.1
CV %		3.1	5.4	1.74	3.0	5.6	7.2
LSD 0.05		2.0	5	3.3	0.6	2.2	NS

Planted: June 4. Harvested: Nov. 16.

¹Seed yields not reported due to high coefficient of variation.

Table 24. 2009 Sunflower - Non-oilseed¹ - Miller, S.D.

Company/ Brand	Hybrid	Hybrid Type ²	Plant Height (inch)	Test Weight (lb/bu)	Plant Lodge (%)	Pop. x1,000 Plt/a (plants)	Seed Over Screen			Nut- meat (%)
							22/64	20/64	18/64	
CHS	RH 1121	Conf.	67	17.3	3.1	16.3	74	78	83	44.3
CHS	RH 3126RT	Conf.	64	17.5	7.0	15.1	70	80	85	44.9
CHS	RH 400CL	Conf./CL	53	17.6	6.3	15.6	80	88	92	45.5
Croplan	179	Conf.	61	17.7	2.1	16.1	79	87	91	43.8
Dahlgren	9579	Conf.	57	16.6	5.4	15.2	76	82	87	45.5
Dahlgren	9592	Conf.	65	17.4	2.4	16.5	85	88	91	46.7
Dahlgren	95EXCL	Conf./CL	65	17.4	5.1	14.9	84	87	88	47.7
Mycogen	8C451	Conf.	63	18.5	0.5	16.3	79	86	88	45.1
Red River Comm.	2215	Conf.	63	18.5	1.4	13.8	82	87	90	47.7
Red River Comm.	2216	Conf.	67	18.3	1.3	15.7	69	82	87	47.8
Red River Comm.	2217	Conf.	64	17.6	0.0	15.8	78	83	87	46.0
Seeds 2000	Jaguar	Conf./CL	60	18.1	2.1	16.1	79	88	91	47.3
Seeds 2000	Panther II	Conf.	60	19.0	3.3	15.6	76	86	88	45.5
Seeds 2000	X9681	Conf.	66	18.3	2.3	16.3	68	82	85	46.7
Triumph	747C	Conf.	57	18.5	2.4	16.5	68	86	90	47.1
Triumph	777C	Conf.	67	18.2	7.6	16.3	73	78	81	49.0
USDA	924 (check)	Conf.	68	18.9	4.5	16.1	63	69	74	48.0
Mean			63	18.0	3.3	15.8	75	83	87	46.4
CV %			5.0	5.6	109	7.5	13.8	8.9	7.8	4.6
LSD 0.05			4	NS	NS	NS	NS	11	NS	NS

Planted: June 4. Harvested: Nov. 17.

¹Seed yields not reported due to high coefficient of variation.²Type: Conf. = Confection, CL = Clearfield.**Table 25. 2009 Sunflower - Non-oilseed - Onida, S.D.**

Company/ Brand	Hybrid	Hybrid Type ²	Seed Yield (lb/a)	Days to Flower (days)	Days to Maturity (days)	Plant Height (inch)	Test Weight (lb/bu)	Plant Lodge (%)	Pop. x1,000 Plt/a (plants)	Seed Over Screen			Nut- meat (%)
										22/64	20/64	18/64	
CHS	RH 1121	Conf.	2,306	68	112	72	21.5	4.2	17.4	78	90	93	46.0
CHS	RH 3126RT	Conf.	1,812	65	106	74	21.9	1.8	16.8	72	86	90	46.3
CHS	RH 400CL	Conf./CL	2,016	60	99	62	22.3	3.1	17.0	73	84	89	46.4
Croplan	179	Conf.	2,398	68	117	73	22.0	0.8	17.4	81	88	91	46.3
Dahlgren	9579	Conf.	2,017	65	108	61	20.5	1.7	17.0	80	93	95	45.7
Dahlgren	9592	Conf.	2,120	65	107	74	22.3	2.1	16.8	83	96	98	54.8
Dahlgren	95EXCL	Conf./CL	2,259	66	106	72	21.5	4.0	16.6	79	83	87	49.2
Mycogen	8C451	Conf.	2,362	67	106	72	20.1	0.8	17.4	83	89	90	51.4
Red River Comm.	2215	Conf.	2,699	64	103	73	21.1	2.5	16.8	78	86	89	48.1
Red River Comm.	2216	Conf.	2,447	65	105	76	22.1	3.8	17.4	83	89	90	48.5
Red River Comm.	2217	Conf.	2,066	66	108	72	19.7	3.2	16.3	81	89	91	49.0
Seeds 2000	Jaguar	Conf./CL	2,162	60	101	71	21.8	6.3	17.4	72	87	90	47.9
Seeds 2000	Panther II	Conf.	2,298	63	104	70	23.2	7.5	17.4	73	87	90	47.9
Seeds 2000	X9681	Conf.	2,309	66	109	76	19.7	1.9	14.6	83	86	89	46.2
USDA (check)	924	Conf.	1,801	65	103	76	23.1	5.3	16.3	34	51	64	53.0
Mean			2,205	65	106	72	21.5	3.3	16.8	75	86	89	48.4
CV %			12.5	1.3	2.3	4.1	9.3	93.2	8.2	11.3	7.6	6.5	8.1
LSD 0.05			393	1	4	4	NS	NS	NS	12	9	8	5.6

Planted: June 12. Harvested: Nov. 10.

Table 26. 2009 Sunflower - Oilseed - Onida, S.D.

Company/ Brand	Hybrid	Seed Yield			Oil Content	Days to Flower	Days to Maturity	Plant Height	Plant Lodge	Harvest Moisture	Test Weight	Pop. x1,000 Plt/a	Hulling ¹ Quality
		2009	2008	2-yr. Avg.									
		------(lb/a)-----			(%)	---(days)---		(inch)	(%)	(%)	(lb/bu)	(plants)	
CHS	08EXP01	2,202	--	--	38.8	66	105	64	2.5	12.0	26.7	16.5	
Croplan	306 DMR NS	2,195	1,809	2,002	41.8	63	104	63	1.3	12.0	29.7	17.4	
Croplan	3080 DMR NS	2,298	1,603	1,951	45.3	63	104	64	2.1	10.0	29.3	17.4	
Croplan	356A NS	2,228	--	--	42.5	66	105	65	0.8	12.5	29.2	17.4	
Croplan	369 DMR NS	2,103	1,859	1,981	43.7	65	103	69	0.4	12.1	28.3	17.4	
Croplan	378 DMR NS	2,486	1,400	1,943	43.2	66	107	72	0.9	12.9	28.4	17.0	
Croplan	460 E NS	2,303	--	--	43.3	67	105	70	2.5	12.7	28.6	17.4	
Croplan	555 CL DMR NS	1,930	--	--	42.5	67	103	70	1.7	12.8	28.5	17.2	
Dahlgren	4416CL ConOil	2,312	--	--	38.0	66	104	72	3.5	13.4	27.5	16.3	
Dahlgren	4455 Con Oil	2,106	1,991	2,049	39.8	64	100	68	1.7	12.9	28.0	17.4	
King	SunKing 4404 NSCL	1,946	1,554	1,750	41.4	67	110	68	5.8	12.9	27.9	17.4	
King	SunKing 4444 NS	2,230	--	--	43.2	66	104	66	6.3	12.9	28.2	17.4	
Mycogen	8D310	2,435	--	--	41.9	62	97	68	1.3	12.7	28.6	17.4	Excel.
Mycogen	8D481	2,039	2,091	2,065	43.7	65	105	69	1.7	12.4	29.1	17.4	Excel.
Mycogen	8H288CLDM	2,208	--	--	44.1	61	103	66	2.1	12.0	29.4	16.8	
Mycogen	8H449DM	2,027	1,967	1,997	45.3	65	105	67	0.8	13.3	29.5	17.4	
Mycogen	8N187	2,268	1,619	1,944	42.8	64	102	61	1.3	11.9	29.0	17.4	Excel.
Mycogen	8N358CLDM	1,925	1,631	1,778	44.8	63	102	64	2.9	12.4	30.0	17.4	
Mycogen	8N433DM	2,128	--	--	45.7	65	103	67	1.7	11.5	28.7	17.4	Excel.
Mycogen	8N453DM	2,150	1,973	2,062	45.6	64	102	68	3.5	12.6	30.3	17.0	
Mycogen	8N510	2,272	2,075	2,173	43.5	67	104	67	2.1	12.5	28.4	17.4	Excel.
Pannar	PAN7813 NS	2,177	1,665	1,921	42.1	65	105	68	3.3	13.4	29.0	17.4	
Pannar	PAN7924 NS	2,233	2,113	2,173	42.5	66	105	66	3.3	13.2	28.6	17.4	
Pannar	PAN8466 NS/CL	1,900	--	--	42.4	67	104	72	5.0	12.8	28.3	17.0	
Pannar	PEX7803	2,271	--	--	42.3	65	105	60	4.6	13.3	28.9	17.4	
Pannar	PEX7904	2,190	--	--	43.9	66	104	63	2.9	13.1	29.1	17.4	
Pioneer	63M91	2,054	1,524	1,789	44.2	63	101	69	1.3	11.6	29.5	17.4	
Pioneer	63N82	2,556	1,793	2,174	43.9	65	106	69	1.7	13.1	30.2	17.4	
Pioneer	64H41	2,144	1,653	1,898	43.4	65	103	72	2.9	13.5	30.2	17.4	
Seeds 2000	Badger CL	2,241	--	--	39.2	64	103	74	3.3	12.3	28.3	17.4	
Seeds 2000	Barracuda	2,324	1,972	2,148	42.7	65	105	63	1.7	14.0	29.2	17.4	
Seeds 2000	Blazer CL	2,109	1,701	1,905	41.9	67	103	70	1.7	12.2	27.4	17.0	
Seeds 2000	Firebird	1,889	2,072	1,980	41.5	67	107	65	4.2	13.1	28.5	17.4	
Seeds 2000	Sierra	1,869	1,588	1,728	40.8	68	107	67	6.7	11.6	26.3	17.4	
Syngenta	3433 NS/DM	2,320	1,718	2,019	44.9	63	103	63	2.9	11.1	30.4	17.4	
Syngenta	3480 NS/CL/DM	2,263	1,910	2,087	44.2	65	101	66	2.9	10.8	28.6	17.4	
Syngenta	3731 NS	2,126	2,002	2,064	43.3	65	104	63	2.5	12.0	29.6	17.4	
Syngenta	3732 NS	2,247	--	--	43.1	65	103	62	2.5	12.4	29.5	17.4	
Syngenta	3845 HO	1,900	1,916	1,908	45.2	64	101	63	2.1	12.0	29.9	17.4	
Syngenta	3875 NS	2,217	2,020	2,118	42.6	66	104	66	12.1	12.5	29.6	17.4	
Syngenta	3980 NS/CL	1,963	1,216	1,589	42.0	67	104	76	3.8	13.0	29.0	17.4	
Syngenta	7120 HO/DM	2,210	1,722	1,966	44.0	62	101	61	2.9	11.7	29.4	17.4	
Syngenta	MH9001CL	2,142	--	--	43.3	67	105	69	2.5	14.3	29.8	17.4	
Syngenta	MH9002CL	2,133	--	--	42.1	65	102	69	0.0	12.6	30.0	17.4	
Triumph	845HO	2,329	2,163	2,246	44.0	66	104	67	4.2	13.2	28.4	17.4	
Triumph	s668	2,421	1,721	2,071	44.7	66	111	50	0.8	12.9	29.4	17.4	
Triumph	s671	1,873	1,711	1,792	44.6	68	107	51	2.3	12.6	30.2	18.9	
Triumph	s674	1,734	--	--	45.1	70	112	48	1.7	12.8	29.1	17.4	
Triumph	s678	2,052	1,985	2,018	44.6	68	112	54	0.8	13.0	29.7	17.4	
Triumph	s878H	2,274	1,758	2,016	43.7	68	111	56	1.4	12.6	30.3	16.5	
Triumph	s655	1,935	--	--	42.6	67	108	42	0.4	12.7	29.7	17.4	
Triumph	TRXs9422	1,975	--	--	45.8	71	114	48	2.5	12.5	29.2	17.4	
Triumph	TRXs9423	1,697	--	--	44.2	71	115	48	0.8	12.5	29.0	17.4	
Triumph	TRXs9425	1,776	--	--	45.2	70	115	43	1.3	13.0	29.1	17.4	
Triumph	s680CL	1,831	--	--	45.5	70	114	44	2.1	12.1	29.9	17.4	
USDA (check)	894	1,983	1,693	1,838	44.8	64	103	62	2.0	12.7	28.9	15.7	
Mean		2,128	1,800	1,975	43.2	66	105	63	2.6	12.5	29.0	17.3	
CV %		13.8	16.0	14.5	3.2	1.0	1.6	4.5	112.5	5.5	2.5	4.3	
LSD 0.05		NS	389	282	2.0	1	3	4	4.0	1.0	1.0	NS	

Planted: June 12. Harvested: Nov. 9. Previous crop: wheat.

¹Hulling quality: Excel = ≥65% of seed passes over a 14/64 screen; Good = ≥75% of seed passes over a 13/64 screen.

Table 27. 2009 Sunflower - Oilseed - Reliance, S.D.

Company/ Brand	Hybrid	Seed Yield ¹			Oil Content	Plant Height	Plant Lodge	Harvest Moisture	Test Weight	Pop. x1,000 Plt/a
		2009	2-yr. Avg.	3-yr. Avg.						
		------(lb/a)-----			(%)	(inch)	(%)	(%)	(lb/bu)	(plants)
Croplan	306 DMR NS	2,316	2,331	--	43.6	61	1.9	12.3	29.1	14.8
Croplan	3080 DMR NS	1,961	2,168	--	46.5	66	3.1	11.6	29.5	14.9
Croplan	356A NS	2,175	--	--	45.1	63	2.3	12.0	29.2	14.0
Croplan	369 DMR NS	2,394	2,176	--	44.3	65	4.2	11.9	28.8	15.7
Croplan	378 DMR NS	2,721	2,416	--	43.9	70	3.7	12.2	29.2	15.7
Croplan	460 E NS	1,903	--	--	46.5	70	4.2	12.0	29.2	15.7
Croplan	555 CL DMR NS	2,105	--	--	42.1	72	2.3	11.7	28.6	15.7
King	SunKing 4404 NSCL	2,070	2,228	2,238	42.4	66	5.1	12.1	28.2	15.7
King	SunKing 4444 NS	1,898	--	--	43.5	67	3.7	12.2	28.1	15.7
Mycogen	8D310	2,618	--	--	39.9	68	3.7	12.0	29.3	15.7
Mycogen	8D481	2,282	2,392	--	42.6	70	0.6	12.3	29.0	14.0
Mycogen	8H449DM	2,069	2,146	2,035	46.7	68	3.2	11.7	29.5	15.7
Mycogen	8N187	2,237	2,305	--	42.9	58	7.4	12.0	28.9	15.7
Mycogen	8N358CLDM	2,014	2,104	2,071	43.3	69	4.2	11.8	28.8	15.3
Mycogen	8N433DM	2,186	--	--	45.0	65	2.8	11.7	29.6	15.5
Mycogen	8N453DM	2,267	2,415	2,264	46.5	66	3.7	11.8	29.7	15.1
Mycogen	8N510	2,885	2,886	2,695	42.4	66	1.9	12.1	28.1	15.7
Pannar	PAN7813 NS	2,661	2,552	2,394	42.7	64	5.4	12.3	29.0	15.6
Pannar	PAN7924 NS	2,218	2,376	2,235	43.3	67	1.0	12.2	27.5	15.5
Pannar	PAN8466 NS/CL	2,169	--	--	42.3	66	5.0	12.4	27.9	13.2
Pannar	PEX7803	2,522	--	--	45.1	56	5.0	12.1	29.6	15.7
Pannar	PEX7904	2,084	--	--	44.2	61	3.6	12.1	28.9	14.4
Pioneer	63M91	1,887	2,042	--	44.5	69	7.0	12.1	29.0	15.1
Pioneer	63N82	2,108	2,341	--	44.0	64	1.4	12.0	30.9	15.3
Pioneer	64H41	2,072	2,165	--	43.7	70	1.2	12.1	31.5	14.8
Seeds 2000	Badger CL	2,290	--	--	40.5	70	3.7	11.8	28.9	15.6
Seeds 2000	Barracuda	2,163	2,128	2,029	44.0	66	4.9	12.7	29.4	15.1
Seeds 2000	Blazer CL	2,026	1,969	2,016	42.7	67	4.8	12.4	28.2	11.6
Seeds 2000	Firebird	2,154	2,350	2,242	41.5	61	3.8	11.7	28.6	15.5
Seeds 2000	Sierra	2,021	2,227	2,149	43.0	64	5.6	11.9	26.1	14.8
Syngenta	3433 NS/DM	1,996	2,250	1,971	45.8	61	6.3	11.8	30.4	12.9
Syngenta	3480 NS/CL/DM	2,076	2,251	2,072	43.9	58	2.8	11.7	27.7	14.3
Syngenta	3731 NS	2,308	2,694	2,429	45.6	57	4.6	11.7	29.4	13.4
Syngenta	3732 NS	2,425	--	--	44.0	58	2.7	11.8	28.8	14.2
Syngenta	3845 HO	2,283	2,449	2,338	45.0	61	5.0	11.7	30.6	14.5
Syngenta	3875 NS	1,698	2,313	2,320	43.7	62	2.0	11.8	29.2	9.7
Syngenta	3980 NS/CL	2,253	2,264	--	43.6	72	4.2	12.0	29.0	15.7
Syngenta	7120 HO/DM	2,068	2,295	2,136	43.1	62	2.3	11.8	29.6	15.7
Syngenta	MH9001CL	2,215	--	--	43.3	66	3.3	12.6	29.4	15.3
Syngenta	MH9002CL	1,932	--	--	42.5	69	2.3	12.0	31.3	15.7
Triumph	s668	2,622	--	--	46.4	50	0.5	12.0	29.7	15.7
Triumph	s671	2,282	2,461	--	45.4	48	5.1	11.9	30.2	15.7
Triumph	s674	1,884	--	--	45.6	42	5.6	11.8	28.8	15.7
Triumph	s678	2,300	2,443	2,221	45.5	54	6.0	11.9	30.3	15.7
Triumph	s878H	2,602	2,598	2,398	46.5	54	4.6	12.0	31.3	15.7
Triumph	s655	2,394	2,742	--	46.1	42	2.8	11.8	30.0	15.7
Triumph	TRXs9422	2,648	--	--	46.8	40	2.8	11.8	29.8	15.1
Triumph	TRXs9423	2,298	--	--	46.2	48	4.8	12.0	29.4	16.9
Triumph	TRXs9425	2,244	--	--	47.0	43	3.2	11.9	29.4	15.7
Triumph	s680CL	1,916	--	--	47.4	43	5.8	11.9	29.4	16.5
USDA (check)	894	1,891	1,806	1,870	45.9	61	0.9	11.5	30.0	15.7
USDA (check)	cms HA412/RHA 377	1,599	--	--	46.4	67	4.8	12.0	28.6	14.4
Mean		2,200	2,321	2,206	44.3	61	3.7	12.0	29.2	15.0
CV %		15.2	13.4	13.1	2.6	5.1	100.4	2.3	3.4	9.2
LSD 0.05		466	302	234	1.6	4	NS	0.4	1.4	1.9

Planted: June 17. Harvested: Nov. 12. Previous crop = wheat.

¹Three-year yield average is from 2009 Reliance, 2008 Reliance and 2007 Presho, S.D.

Table 28. 2009 Sunflower - Oilseed - Averages across three locations (Eureka, Onida and Reliance, S.D.)

Company/ Brand	Hybrid	Seed Yield (lb/a)	Oil Content (%)	Plant Height (inch)	Plant Lodge (%)	Harvest Moisture (%)	Test Weight (lb/bu)	Pop. x1,000 Plt/a (plants)
Croplan	306 DMR NS	2,100	43.5	61	1.3	13.2	28.2	17.5
Croplan	3080 DMR NS	2,229	46.1	62	3.2	12.1	28.4	19.5
Croplan	356A NS	2,391	44.2	61	1.5	13.6	28.8	17.1
Croplan	369 DMR NS	2,342	44.2	65	2.4	13.4	28.2	18.8
Croplan	378 DMR NS	2,722	44.2	69	2.3	14.6	28.2	18.3
Croplan	460 E NS	2,136	45.5	67	2.6	13.7	28.6	18.3
Croplan	555 CL DMR NS	2,161	43.2	69	1.5	13.5	28.0	19.3
King	SunKing 4404 NSCL	2,139	43.3	67	4.9	13.4	27.8	19.8
King	SunKing 4444 NS	2,333	43.6	65	4.8	13.8	27.4	18.8
Mycogen	8D310	2,497	41.3	66	1.9	13.7	28.6	18.9
Mycogen	8D481	2,268	43.7	69	1.2	13.8	28.7	18.9
Mycogen	8H449DM	2,248	46.6	67	1.4	14.2	29.2	19.2
Mycogen	8N187	2,223	43.8	57	3.6	12.5	28.2	18.6
Mycogen	8N358CLDM	2,022	45.3	66	2.8	13.1	28.6	19.9
Mycogen	8N433DM	2,342	45.4	65	2.3	13.0	28.2	18.9
Mycogen	8N453DM	2,240	46.0	66	2.4	13.6	29.3	18.8
Mycogen	8N510	2,560	43.4	66	2.0	13.3	27.5	19.4
Pannar	PAN7813 NS	2,417	43.5	63	3.2	14.5	28.3	19.5
Pannar	PAN7924 NS	2,347	43.8	67	2.7	14.3	27.7	19.1
Pannar	PAN8466 NS/CL	1,999	43.2	68	5.4	13.6	27.6	17.8
Pannar	PEX7803	2,402	44.8	58	5.0	14.3	28.8	19.5
Pannar	PEX7904	2,198	44.7	61	3.1	14.6	28.6	18.3
Pioneer	63M91	1,890	44.8	67	2.9	13.2	28.4	18.5
Pioneer	63N82	2,276	44.6	65	1.0	14.2	29.6	19.2
Pioneer	64H41	2,211	44.4	69	1.5	14.3	29.9	19.4
Seeds 2000	Badger CL	2,283	40.9	70	3.2	13.2	28.0	18.5
Seeds 2000	Barracuda	2,321	43.6	63	2.2	15.2	28.3	17.0
Seeds 2000	Blazer CL	2,184	43.1	68	4.2	13.9	27.3	17.8
Seeds 2000	Firebird	2,107	42.8	61	2.8	14.1	27.9	17.8
Seeds 2000	Sierra	1,928	42.9	63	6.5	13.0	26.3	19.0
Syngenta	3433 NS/DM	2,203	45.6	62	4.4	12.6	29.9	17.0
Syngenta	3480 NS/CL/DM	2,095	44.7	62	2.0	12.4	27.7	18.0
Syngenta	3731 NS	2,273	45.5	60	2.8	13.2	29.2	18.4
Syngenta	3732 NS	2,393	44.4	60	1.8	13.3	29.1	19.5
Syngenta	3845 HO	2,304	45.2	60	2.5	13.4	29.9	18.5
Syngenta	3875 NS	2,045	44.1	63	6.6	14.0	28.2	15.7
Syngenta	3980 NS/CL	2,147	43.4	74	3.7	13.8	28.1	17.6
Syngenta	7120 HO/DM	2,007	44.4	61	2.1	13.1	28.1	20.1
Syngenta	MH9001CL	2,257	44.5	67	1.9	15.2	28.8	20.5
Syngenta	MH9002CL	2,215	43.0	69	1.5	13.9	30.4	19.6
Triumph	s671	2,209	46.0	48	2.6	13.8	29.4	18.2
Triumph	s674	2,173	46.5	44	3.0	13.6	28.6	20.3
Triumph	s678	2,382	46.0	52	2.9	14.4	29.7	19.8
Triumph	s878H	2,526	45.6	55	2.2	13.9	29.6	18.8
Triumph	s655	2,256	45.5	41	1.6	13.4	29.1	19.5
Triumph	TRXs9422	2,331	46.6	43	2.2	13.9	28.9	18.5
Triumph	TRXs9423	2,177	45.8	46	2.8	14.1	28.5	17.7
Triumph	s680CL	2,195	46.9	43	3.7	13.8	29.3	18.3
USDA (check)	894	2,039	46.3	58	1.4	13.8	28.7	18.0
Mean		2,229	44.5	62	2.8	13.7	28.6	18.7
CV %		15.7	3.0	5.3	112.8	5.9	3.3	13.5
LSD 0.05		282	1.1	3	2.5	0.6	0.8	2.0

Table 29. 2009 - Sunflower Oilseed - Averages across four locations (Bison, Eureka, Onida and Reliance, S.D.)

Company/ Brand	Hybrid	Seed Yield (lb/a)	Oil Content (%)	Plant Height (inch)	Plant Lodge (%)	Harvest Moisture (%)	Test Weight (lb/bu)	Pop. x1,000 Plt/a (plants)
Croplan	306 DMR NS	1,811	44.1	59	2.6	11.0	28.3	17.3
Croplan	3080 DMR NS	1,929	46.7	59	5.3	10.6	28.7	19.2
Croplan	356A NS	2,021	44.6	58	1.5	11.6	28.8	17.3
Croplan	369 DMR NS	1,960	44.3	62	2.9	11.8	27.9	18.1
Croplan	378 DMR NS	2,291	44.1	65	2.5	14.2	28.6	18.2
Croplan	460 E NS	1,762	45.6	63	3.4	12.8	28.7	18.2
Croplan	555 CL DMR NS	1,799	44.1	65	2.4	11.9	27.6	18.8
King	SunKing 4404 NSCL	1,812	43.5	62	3.9	11.9	28.2	19.3
King	SunKing 4444 NS	1,970	43.3	62	4.4	12.8	27.8	18.0
Mycogen	8H449DM	2,010	47.1	64	1.3	13.4	29.7	18.9
Mycogen	8N187	1,899	43.9	55	3.6	11.1	28.9	18.3
Mycogen	8N358CLDM	1,781	45.3	61	4.7	11.7	29.5	19.1
Mycogen	8N433DM	2,012	45.8	61	3.9	11.7	28.0	18.6
Mycogen	8N510	2,236	43.9	62	1.5	12.3	27.3	19.1
Pioneer	63M91	1,575	44.9	63	2.6	12.7	29.2	18.2
Pioneer	63N82	1,953	44.7	61	0.8	13.2	29.9	18.9
Pioneer	64H41	1,843	44.6	65	2.7	13.3	29.8	18.8
Syngenta	3433 NS/DM	1,819	45.8	59	4.9	11.0	31.0	16.8
Syngenta	3480 NS/CL/DM	1,725	44.9	59	4.2	10.6	28.5	17.8
Syngenta	3731 NS	1,904	45.4	57	4.4	11.8	29.4	18.0
Syngenta	3732 NS	2,000	44.4	57	3.3	11.8	29.6	18.9
Syngenta	3845 HO	1,946	45.8	57	2.6	12.2	30.3	18.1
Syngenta	3875 NS	1,741	43.8	59	6.7	12.5	28.2	15.7
Syngenta	3980 NS/CL	1,771	43.8	69	4.1	12.3	28.3	17.2
Syngenta	7120 HO/DM	1,760	44.5	58	3.0	11.2	28.9	19.4
Syngenta	MH9001CL	1,898	44.7	63	2.9	14.4	28.9	19.5
Syngenta	MH9002CL	1,857	43.4	64	2.1	12.4	30.2	19.2
Triumph	s671	1,953	45.8	45	2.8	12.3	29.0	18.2
Triumph	s674	1,955	46.5	43	2.4	12.5	28.3	19.8
Triumph	s678	2,058	45.8	51	2.9	12.8	29.2	19.1
Triumph	s655	1,919	45.5	39	1.5	12.1	29.5	19.1
Triumph	TRXs9422	1,930	46.3	42	2.0	12.3	27.9	18.3
Triumph	s680CL	1,866	46.4	41	3.5	12.7	29.4	18.1
USDA (check)	894	1,684	46.6	55	1.6	12.8	29.3	17.5
Mean		1,896	45.0	58	3.1	12.2	28.9	18.4
CV %		16.7	3.0	5.5	114.2	7.4	3.6	12.1
LSD 0.05		229	0.9	2	2.5	0.6	0.7	1.6

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

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