

North Dakota and South Dakota Sunflower Hybrid Trial Results for 2016 and Selection Guide

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Introduction

In North Dakota, an estimated 670,000 acres of sunflowers were harvested in 2016. This was about 5 percent less than the acres harvested in 2015. Table 1 contains acreage data for the past 17 growing seasons as reported by the North Dakota Agricultural Statistics Service, U.S. Department of Agriculture.

Table 1. Harvested Sunflower Acreage in North Dakota and Yield Per Acre 2000-2016.

Year	Oil Type (1,000 acres)	Yield (lb/a)	Non-oil Type (1,000 acres)	Yield (lb/a)
2000	965	1,410	300	1,260
2001	835	1,440	215	1,260
2002	1,105	1,310	210	1,200
2003	1,020	1,300	145	1,330
2004	660	1,040	130	810
2005	885	1,610	220	1,490
2006	740	1,260	120	1,520
2007	895	1,450	160	1,270
2008	930	1,430	150	1,210
2009	760	1,520	108	1,500
2010	685	1,460	177	1,440
2011	500	1,380	61	1,250
2012	755	1,700	88	1,670
2013	400	1,260	71	1,360
2014	510	1,340	139	1,180
2015	605	1,470	97	1,850
2016	615	1,600 ¹	55	1,770 ¹

Source: National Agricultural Statistics Service.

¹Estimate by NASS for all sunflower, October 2016.

NDSU EXTENSION
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EXPERIMENT STATION

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2016 Sunflower Performance Trials

Information about sunflower hybrid performance can be accessed on the web at www.ag.ndsu.edu/varietytrials/. This site has variety trial data from all NDSU Experiment Station locations.

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 (0.05 level) or 90 percent probability (0.10 level), 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.

Traits to consider when 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.

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

Another factor to consider is the oil type. Hybrids are available with “traditional” (linoleic), high-oleic and midoleic (NuSun) oil composition. Markets may pay a premium based on the composition of the oil produced by a particular hybrid. Some companies offer guarantees for NuSun or high-oleic levels.

Maturity is especially important if planting is delayed. Yield and oil content often are reduced when a hybrid is damaged by frost before it is fully mature. Often, with delayed planting, only an early hybrid will mature and exhibit its full yield potential. An early hybrid likely will be drier at harvest than a later hybrid, thus reducing drying costs.

The most economical and effective means of managing sunflower diseases and other pests is the planting of resistant or tolerant hybrids and a minimum of four years rotation between successive sunflower crops. Most commercial sunflower hybrids in the U.S. have resistance to downy mildew and rust. Some hybrids also may exhibit tolerance to *Phomopsis* stem canker, or sunflower midge. Clearfield® and ExpressSun™ hybrids are resistant to Beyond® and Express® herbicides, respectively. Consult the seed company for information on the reaction of a particular hybrid to diseases and other pests that may pose risks in your growing area.

When selecting a high-yielding and good-quality hybrid, use data that summarize several years and locations. Choose the hybrid that, on average, performs the best at multiple locations near you during several years.

The presentation of data for the entries tested does not imply approval or endorsement by the authors or agencies conducting the tests. A listing of seed companies entering hybrids and their brand name is provided in Table 2. Weather data for North Dakota are provided in Table 3.

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 goes to Lisa Johnson, Extension Plant Sciences secretary, for assisting in the compilation of this publication.

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

Company	Abbreviated	Website
AgVenture Scherr’s Seed LLC	AgVenture	www.agventure.com
CHS Inc.	CHS	www.chsunflower.com
Croplan/Land O’Lakes	Croplan	www.croplan.com/
DuPont Pioneer	Pioneer	www.pioneer.com
Mycogen Seeds	Mycogen	www.mycogen.com
Nuseed Global/Americas	Nuseed	www.nuseed.com/products/sunflowers/
NuTech Seed LLC	NuTech	www.nutechseed.com
Proseed Inc.	Proseed	www.proseed.net
Red River Commodities	Red River Comm.	www.redriv.com
SunOpta	SunOpta	-----
Syngenta Seeds	Syngenta	www.syngenta-us.com/p/sunflower-seeds/
Thunder Seed	Thunder	www.thunderseed.com
U.S. Department of Agriculture	USDA	www.ars.usda.gov/plains-area/fargo-nd/rrvarc/docs/main/

Table 3. April-September 2016 Average Temperature and Precipitation Rankings for Selected North Dakota Locations.

City	Temperature Ranking	Precipitation Ranking
Bowman	59.9 F (39th Warmest Period Since 1915)	13.4 inches (34th Wettest Period Since 1915)
Bismarck	61.9 F (28th Warmest Period Since 1875)	18.7 inches (11th Wettest Period Since 1875)
Cavalier	58.1 F (43rd Warmest Period Since 1934)	27.6 inches (The Wettest Period Since 1927)
Fargo	63.1 F (8th Warmest Period Since 1881)	16.1 inches (66th Wettest Period Since 1881)
Minot Exp. Station	59.8 F (24th Warmest Period Since 1905)	15.4 inches (37th Wettest Period Since 1905)
Williston Exp. Station	61.7 F (11th Warmest Period Since 1894)	12.0 inches (44th Wettest Period Since 1894)
North Dakota Average	60.0 F (25th Warmest Period Since 1895)	17.4 in. (12th Wettest Period Since 1894)

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

¹Statewide values are calculated based on all available locations in North Dakota rather than the mathematical average of the list above.

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Table 4. 2016 Sunflower - Non-oilseed Hybrids With Traits and Locations Where Tested.

Company/ Brand	Hybrid	Hybrid Type ¹	Location in which the hybrid has been tested			
			Galchutt	Carrington	Langdon	Minot
CHS	RH609CLP	CP	x	--	--	x
Nuseed	4334	CL	x	--	--	--
Nuseed	5334	CL	x	--	--	--
Nuseed	Jaguar II	CL	x	--	--	--
Nuseed	LD5009	Trad.	x	--	--	--
Nuseed	Panther DMR	Trad., DM	x	x	x	x
Red River Comm.	2205	Trad.	--	x	x	--
Red River Comm.	2215	Trad.	x	x	x	--
Red River Comm.	8015	Trad.	x	--	--	--
Red River Comm.	2215CL	CL	x	x	x	--
Red River Comm. ²	2215CL	CL	--	x	--	--
SunOpta	9524	Trad.	x	x	--	--
SunOpta	EX33	Trad.	--	x	--	--
SunOpta	EX45	Trad.	--	x	--	--
USDA ²	924	Trad.	--	x	x	x

¹Hybrid type provided by companies.

CL = Clearfield, CP = Clearfield plus, EX = ExpressSun, Trad. = no herbicide tolerance trait, DM = downy mildew resistant.

²Long-term hybrid check.

Table 5. 2016 Sunflower - Oilseed Hybrids With Traits and Locations Where Tested (Page 1 of 2).

Company/ Brand	Hybrid	Hybrid Type ¹	Galchutt	Carrington	Hettinger	Langton	Minot	Williston	Presho
AgVenture	AF3H681ES	HO, EX, DM	--	--	x	--	--	--	x
AgVenture	AF3N680ES	NS, EX, DM	--	--	x	--	--	--	x
AgVenture	AF3N692ES	NS, EX, DM	--	--	x	--	--	--	x
AgVenture	AF3N94CD	NS, CL, DM	--	--	x	--	--	--	x
AgVenture	AF4H95CD	HO, CL, DM	--	--	x	--	--	--	x
AgVenture	XF2H14CD	NS, CL, DM	--	--	x	--	--	--	x
Croplan	432 E	NS, EX, DM	x	x	x	x	--	--	x
Croplan	455 E HO	HO, EX, DM	x	x	x	x	--	--	x
Croplan	458 HO	HO, EX, DM	x	x	x	x	--	--	x
Croplan	545 CL	NS, CL, DM	x	x	x	x	--	--	x
Croplan	549 CL HO	HO, CL, DM	x	x	x	x	--	--	x
Croplan	553 CL HO	HO, CL, DM	x	x	x	x	--	--	x
Mycogen ²	8D310CL	NS, CL, DM	x	x	x	--	x	--	--
Mycogen	8H288CLDM	HO, CL, DM	--	--	--	--	x	--	--
Mycogen	8H449CLDM	HO, CL, DM	x	x	x	--	x	--	x
Mycogen	8N270CLDM	NS, CL, DM	--	--	--	--	x	--	--
Mycogen	MY8H456CL	HO, CL, DM	x	x	x	--	x	--	x
Nuseed ²	Badger DMR	Trad, Cl, DM	x	x	x	x	x	--	x
Nuseed	Camaro II	NS, CL, DM	x	x	x	x	x	x	x
Nuseed	Cobalt II	HO, CL, DM	x	x	x	x	x	x	--
Nuseed	Daytona	HO, CL	--	--	x	--	x	x	--
Nuseed	Falcon	NS, EX	x	x	x	x	x	x	x
Nuseed	Hornet	HO, CL, DM	x	x	x	x	x	x	x
Nuseed	N4HM354	HO, CL, DM	x	x	x	x	x	x	x
Nuseed	N4HM521	HO, CL, DM	x	--	--	--	--	--	--
Nuseed ²	N5LM307	NS, CL, DM	x	x	x	x	x		x
Nuseed	NVKM44004	NS, CL, DM	x	--	--	--	--	--	--
Nuseed	Sierra	HO, CL	--	--	--	--	--	--	x
Nuseed	Talon	NS, EX	x	x	x	x	x	x	x
NuTech	63C4	NS,CL	--	x	--	x	--	x	--
NuTech	68H7	HO, EX, DM	--	x	--	x	--	x	--
Pioneer	P63HE60	HO, EX, DM	x	x	--	x	--	--	--
Pioneer	P63HE90	HO, EX DM	x	x	--	x	--	--	x
Pioneer	P63ME70	NS, EX DM	--	--	--	x	--	--	
Pioneer	P64ME01	NS, EX, DM	x	x	--		--	--	x
Proseed	12G04	HO	--	x	x	x	x	--	--
Proseed	12G25	HO, CL	--	x	x	x	x	--	--
Proseed	E 362436	HO/NS, DM	x	--	--	--	--	--	--
Proseed	E-21 CL	HO/NS, CL, DM	x	--	--	--	--	--	--
Proseed	E-31 CL	HO/NS, CL	x	x	x	x	x	--	--
Proseed	E-85 CL	HO, CL, DM	x	--	--	--	--	--	--
SunOpta	4415HO/CLP/DM	HO, CP, DM	x	x	--	--	--	--	--
SunOpta	4421CL	NS, CL	x	x	--	--	--	--	--
SunOpta	4425CL	NS, CL	x	x	--	--	--	--	--

Table 5. 2016 Sunflower - Oilseed Hybrids With Traits and Locations Where Tested (Page 2 of 2).

Company/ Brand	Hybrid	Hybrid Type ¹	Galchutt	Carrington	Hettinger	Langdon	Minot	Williston	Presho
Syngenta	3732 NS	NS	--	--	--	--	--	--	x
Syngenta	SY7717	HO, CL, DM	x	x	x	x	x	--	x
Syngenta	SY7919	HO, CL, DM	x	x	x	x	--	--	x
Thunder	11N94	NS, CL	--	x	--	--	--	--	--
Thunder	12H92	HO, CL	--	x	--	--	--	--	--
Thunder	19N94	HO, CL	--	x	--	--	--	--	--
Thunder	35H92	HO, CL	--	x	--	--	--	--	--
Thunder	42H94	HO, CL	--	x	--	--	--	--	--
Croplan ³	559CL	NS, CL, DM	--	x	x	--	x	--	--
Mycogen ³	8N270CLDM	NS, CL, DM	--	x	x	--	x	--	--
USDA ³	894	Trad.	x	x	x	x	x	--	x
USDA ³	Honeycomb NS	NS	x	x	x	--	x	--	--

¹Hybrid type provided by companies; some hybrids may have additional traits.

HO = high oleic, NS = NuSun, HS = high stearic, Trad. = traditional (linoleic),

EX = ExpressSun, CL = Clearfield, CP = Clearfield plus, DM = downy mildew resistant.

²ConOil.

³Long-term hybrid check.

Table 6. 2016 Sunflower - Oilseed - Galchutt, N.D. - Author, B. Hulke.

Company/ Brand	Hybrid	Days to Flower (DAP) ⁴	Days to PM (DAP) ⁴	Height (inch)	Lodging ¹ (1-9)	Phomopsis Incidence ² (%)	Test Wt. (lb/bu)	Oil Content (%)	2016 Seed Yield (lb/a)	Hulling Screen Test ³
Croplan	432 E	61	99	63	2.0	62	31.8	42.2	3,671	Avg.
Croplan	455 E HO	65	103	69	2.7	57	30.7	44.6	3,407	Avg.
Croplan	458 E HO	66	101	71	1.7	53	29.9	43.3	3,274	Exc.
Croplan	545 CL	69	100	74	2.0	58	30.1	42.3	3,387	--
Croplan	549 CL HO	65	100	70	1.0	61	32.1	44.0	3,703	--
Croplan	553 CL HO	70	101	72	2.0	54	29.1	44.1	3,399	--
Mycogen	8H449CLDM	66	101	62	2.0	51	32.0	47.2	3,250	--
Mycogen	8D310CL	68	102	72	3.0	45	27.3	37.0	3,344	--
Mycogen	MY8H456CL	70	104	70	2.3	29	31.1	48.5	3,830	--
Nuseed	Badger DMR	64	97	66	3.3	83	27.5	34.8	2,581	--
Nuseed	Camaro II	66	102	67	2.3	46	32.2	44.0	3,456	--
Nuseed	Cobalt II	65	99	65	1.7	68	30.2	41.4	2,337	--
Nuseed	Falcon	66	99	66	1.7	53	31.9	42.8	2,895	--
Nuseed	Hornet	68	100	71	2.0	44	29.9	45.0	3,817	--
Nuseed	N4HM354	64	98	66	2.0	61	31.5	45.0	3,307	--
Nuseed	N4HM521	69	103	69	2.7	44	28.8	45.3	3,843	--
Nuseed	N5LM307	64	97	67	2.0	76	26.3	37.6	3,149	--
Nuseed	NVKM44004	63	96	67	2.3	68	26.3	38.3	3,226	--
Nuseed	Talon	65	95	66	3.0	88	25.6	39.4	2,212	--
Pioneer	P63HE60	65	97	64	2.0	45	31.9	45.6	3,526	--
Pioneer	P63HE90	66	100	70	2.0	39	30.2	44.6	3,594	--
Pioneer	P64ME01	66	104	66	2.0	16	31.5	43.4	4,304	--
Proseed	E 362436	67	99	68	2.3	61	31.1	45.5	3,302	--
Proseed	E-21 CL	65	100	66	2.0	66	30.5	44.7	3,381	--
Proseed	E-31 CL	67	99	67	2.0	30	30.3	41.8	3,548	--
Proseed	E-85 CL	67	100	62	1.7	29	30.4	45.5	3,557	--
SunOpta	4415/HO/CLP/DM	66	101	67	2.7	39	31.5	43.6	3,908	--
SunOpta	4421CL	68	101	69	2.3	36	26.5	36.3	3,392	--
SunOpta	4425CL	66	101	72	2.3	56	29.6	40.0	3,698	--
Syngenta	SY7717	65	101	63	2.3	31	31.6	44.7	2,995	--
Syngenta	SY7919	68	105	63	2.0	38	29.9	45.3	4,475	--
USDA	Honeycomb NS	57	94	55	3.7	65	31.1	41.4	2,067	--
USDA	Hybrid 894 ⁵	65	97	68	3.3	62	29.5	41.9	2,506	--
Mean		66	100	67	2.3	50	30.0	43.2	3,312	--
CV %		1.0	1.7	6.1	35.4	31.3	3.0	2.8	11.0	--
LSD 0.05		1	2	6	1.0	21	1.3	1.6	496	--
LSD 0.10		1	3	7	1.0	26	1.5	1.9	593	--

Planted: May 24. Harvested: Oct. 24.

¹Description 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.

²Phomopsis Incidence: percentage of plants infected with Phomopsis spp., as evidenced by a Phomopsis stalk³Hulling screen test: Exc. = 65% of seed over a 14/64 inch screen; Average = 75% of seed over a 13/64 inch screen;⁴Days after planting. Maturity checks: Honeycomb NS = 94 DAP, 8N270CLDM = 97 DAP, Falcon = 99 DAP, 559CL = 104 DAP.⁵Long-term hybrid check.

Table 7. 2016 Sunflower - Non-oilseed - Galchutt, N.D. - Author, B. Hulke.

Company/ Brand	Hybrid	Days	Days	Height	Lodging ¹	Phomopsis Incidence ²	Test Wt.	2016 Seed Yield	Seed over screen			Seed size		Nut- meat
		to Flower (DAP) ³	to PM (DAP) ³						(inch)	(1-9)	(%)	(lb/bu)	(lb/a)	
CHS	RH609CLP	68	100	77	2.0	83.3	17.8	2,681	89	97	100	19	9	48.9
Nuseed	4334	65	96	77	2.3	91.0	16.2	2,320	95	99	100	20	10	49.5
Nuseed	5334	66	99	79	2.7	76.6	17.5	2,621	86	96	99	18	9	52.4
Nuseed	Jaguar II	63	97	72	2.0	87.5	16.7	2,315	82	95	99	17	9	50.4
Nuseed	LD5009	71	102	81	2.3	30.1	18.8	2,551	76	92	99	19	8	47.3
Nuseed	Panther DMR	61	97	69	2.0	85.7	19.0	2,519	54	84	98	17	8	50.3
Red River Comm.	2215	68	100	81	2.3	50.3	20.1	3,167	84	97	100	18	9	49.4
Red River Comm.	2215CL	71	102	86	2.7	36.0	18.6	2,763	79	93	99	18	9	50.0
Red River Comm.	8015	67	101	72	2.3	73.3	16.6	2,452	87	96	100	20	9	47.2
SunOpta	9524	70	103	82	2.3	73.1	18.7	2,276	93	99	100	19	10	46.2
USDA ⁴	Hybrid 924	66	96	79	2.3	95.8	17.3	1,681	45	76	97	13	9	58.2
Mean		68	101	78	2.3	65.5	17.6	2,547	79	93	99	18	9	50.0
CV %		1.4	1.3	2.8	18.7	17.6	4.4	15.4	--	--	--	--	--	--
LSD 0.05		1	2	3.0	NS	16.0	1.1	541	--	--	--	--	--	--
LSD 0.10		2	2	4.0	NS	19.0	1.3	650	--	--	--	--	--	--

Planted: May 24. Harvested: Oct. 24.

¹Description 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.²Phomopsis Incidence: percentage of plants infected with *Phomopsis* spp., as evidenced by a Phomopsis stalk canker lesion.³Days after planting. Maturity checks: Honeycomb NS = 94 DAP, 8N270CLDM = 97 DAP, Falcon = 99 DAP, 559CL = 104 DAP.⁴Long-term hybrid check.**Table 8. 2016 Sunflower - Fatty Acid Trial - Galchutt, N.D. - Author, B. Hulke.**

Company/ Brand	Hybrid	Type ¹	Palmitic		Stearic			Oleic			Linoleic	
			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Croplan	455 E HO	HO	3.48	± 0.07	2.66	± 0.10	90.66	± 0.21	2.10	± 0.23		
Croplan	458 E HO	HO	3.40	± 0.04	3.23	± 0.16	89.40	± 0.80	2.82	± 0.74		
Croplan	549 CL HO	HO	3.52	± 0.10	1.85	± 0.09	87.90	± 1.61	5.82	± 1.50		
Croplan	553 CL HO	HO	3.83	± 0.19	1.92	± 0.09	78.71	± 3.01	14.60	± 2.83		
Nuseed	NVKM44004	NS	4.41	± 0.33	3.54	± 0.30	56.13	± 5.06	35.71	± 4.44		
Pioneer	P63HE60	HO	3.37	± 0.03	3.03	± 0.15	90.62	± 0.10	1.82	± 0.07		
Pioneer	P63HE90	HO	3.27	± 0.06	3.37	± 0.22	87.89	± 0.83	4.67	± 0.86		
SunOpta ¹	4415/HO/CLP/DM	HO	3.63	± 0.06	3.21	± 0.09	89.81	± 0.15	2.16	± 0.10		
Syngenta	SY7717	HO	4.20	± 0.16	3.03	± 0.24	85.71	± 1.93	5.47	± 1.78		
Syngenta	SY7919	HO	3.46	± 0.08	2.38	± 0.12	87.64	± 1.79	5.04	± 1.71		

¹HO = high oleic, NS = NuSun, CL = Clearfield, DM = downy mildew resistant.

Table 9. 2016 Sunflower - Oilseed - Carrington N.D. - Authors, M. Ostlie, B. Schatz, J. Nielsen and D. Widmer.

Company/ Brand	Hybrid	Days to	Plant	Days	Harvest	Test	Oil	Seed Yield	
		Flower	Height	to PM	Moist.	Weight	Content	2016	3-yr. Avg.
		(DAP) ¹	(inch)	(DAP) ¹	(%)	(lb/bu)	(%)	----- (lb/a) -----	
Croplan	432 E	66	63	125	7	32.3	40.8	1,458	1,937
Croplan	455 E HO	69	63	130	8	32.4	42.1	1,905	--
Croplan	458 E HO	69	68	131	8	29.7	40.1	1,600	1,676
Croplan	545 CL	71	59	130	8	31.4	43.1	1,911	1,918
Croplan	549 CL HO	67	68	122	6	32.6	40.9	1,518	--
Croplan	553 CL HO	72	63	126	8	28.9	42.9	1,518	--
Mycogen	8D310CL	72	62	131	7	29.4	36.0	2,088	2,166
Mycogen	8H449CLDM	69	59	131	8	34.4	47.3	1,793	2,155
Mycogen	MY8H456CL	71	65	129	8	25.3	45.7	1,428	--
Nuseed	Badger DMR	67	62	123	8	30.1	36.8	1,707	2,046
Nuseed	Camaro II	67	62	126	8	32.5	45.4	1,663	2,065
Nuseed	Cobalt II	66	58	123	8	30.9	41.3	1,170	1,506
Nuseed	Falcon	70	60	128	7	33.8	46.3	1,523	1,854
Nuseed	Hornet	70	61	123	8	30.2	44.4	1,620	1,704
Nuseed	N4HM354	66	59	122	6	33.5	43.7	1,734	--
Nuseed	N4HM521	71	54	131	9	31.5	45.5	1,649	--
Nuseed	N5LM307	67	58	129	8	27.7	40.3	1,638	--
Nuseed	Talon	67	66	121	9	26.2	41.2	1,346	1,693
NuTech	63C4	66	57	122	6	32.2	46.0	1,700	--
NuTech	68H7	70	63	133	8	32.9	38.6	1,950	--
Pioneer	P63HE60	67	61	126	7	30.8	42.4	1,561	--
Pioneer	P63HE90	69	63	122	8	30.9	41.8	1,942	--
Pioneer	P64ME01	70	66	133	9	30.7	42.2	1,909	--
Proseed	12G04	70	60	125	6	30.1	45.4	1,680	--
Proseed	12G25	70	60	126	8	32.5	47.3	1,653	--
Proseed	E-31 CL	70	62	126	7	28.6	37.8	1,534	1,629
SunOpta	4415HO/CLP/DM	70	63	124	8	28.4	42.0	1,689	--
SunOpta	4421CL	71	69	128	8	28.0	35.4	2,028	--
SunOpta	4425CL	70	64	130	7	30.6	40.5	2,269	--
Syngenta	SY7717	68	60	120	8	32.2	40.6	1,783	1,726
Syngenta	SY7919	72	57	131	8	30.3	43.7	1,795	--
Thunder	11N94	69	59	125	8	31.7	44.6	1,539	--
Thunder	12H92	66	58	120	7	29.0	44.3	1,438	--
Thunder	19N94	69	60	130	7	30.8	39.6	1,536	--
Thunder	35H92	66	52	122	8	23.6	39.2	1,165	--
Thunder	42H94	71	56	124	9	29.5	43.2	1,854	--
Croplan ³	559CL	71	62	127	8	29.1	41.1	1,653	--
Mycogen ³	8N270CLDM	65	53	118	7	31.2	44.5	1,842	--
Nuseed ³	Falcon	69	58	126	8	33.4	41.8	1,684	--
USDA ³	894	67	57	121	7	30.6	40.9	1,600	--
USDA ³	Honeycomb NS	58	50	124	8	22.6	39.2	1,022	--
Mean		68	60	126	8	30.3	42.1	1,661	1,852
CV %		1.6	6.9	3.1	15.8	9.5	5.0	15.2	--
LSD 0.05		2	5.8	5	1.7	4.0	2.9	355	--
LSD 0.10		1	4.9	5	1.4	3.3	2.4	297	--

Planted: May 27. Harvested: Nov. 9. Previous crop: corn.

²Days after planting.³Long-term hybrid check.

Table 10. 2016 Sunflower - Non-oilseed - Carrington N.D. - Authors, M. Ostlie, B. Schatz, J. Nielson and D. Widmer.

Company/ Brand	Hybrid	Days to	Plant	Days	Seed Over Screen			Harvest	Test	Seed Yield	
		Flower	Height	to PM	22/64	20/64	18/64	Moist.	Weight	2016	3-yr. Avg.
		(DAP) ¹	(inch)	(DAP) ¹	(%)	(%)	(%)	(%)	(lb/bu)	----- (lb/a) -----	
Nuseed	Panther DMR	65	69	111	33	66	91	9	24.9	1,903	--
Red River Comm.	2205	65	66	116	50	62	72	10	23.8	2,213	--
Red River Comm.	2215	65	71	114	46	68	77	9	23.1	1,778	1,820
Red River Comm.	2215CL	68	78	116	71	89	95	9	21.9	1,706	1,657
SunOpta	9524	69	76	128	83	93	97	11	23.5	2,240	--
SunOpta	EX33	67	78	109	83	94	97	10	20.7	1,914	--
SunOpta	EX45	72	83	129	87	94	97	11	20.6	1,818	--
Red River Comm. ²	2215CL	68	75	118	65	83	89	10	21.4	1,764	--
USDA ²	924	65	63	115	32	56	70	9	24.0	1,610	1,440
Mean		67	73	117	61	78	87	10	22.6	1,883	1,639
CV (%)		3.2	7.9	3.5	23.8	20.3	18.7	6.4	2.6	11.5	--
LSD 0.05		3	12	6	21	23	NS	0.9	0.9	312	--
LSD 0.10		3	7	5	18	19	NS	0.7	0.7	259	-

Planted: June 2. Harvested: Nov. 10. Previous crop: corn.

¹Days after planting.²Long-term hybrid check.**Table 11. 2016 Sunflower - Non-oilseed - Langdon, N.D. - Authors, B. Hanson, T. Hakanson and L. Henry.**

Company/ Brand	Hybrid	Days to	Days	Plant	Seed Over Screen			Harvest	Test	Seed Yield	
		Flower	to PM	Height	22/64	20/64	18/64	Moist.	Weight	2016	3-yr. Avg.
		(DAP) ¹	(DAP) ¹	(inch)	(%)	(%)	(%)	(%)	(lb/bu)	----- (lb/a) -----	
Nuseed	Panther DMR	72	112	61	13	44	86	14	24.9	3,143	3,068
Red River Comm.	2205	74	118	69	57	73	84	14	24.3	3,841	--
Red River Comm.	2215	75	118	71	54	85	94	14	25.6	3,666	--
Red River Comm.	2215CL	77	120	71	48	84	95	17	24.7	3,477	--
USDA ²	924	73	112	65	23	56	80	15	27.1	2,861	2,867
Mean		74	116	68	39	68	88	15	25.3	3,398	2,968
CV %		1.4	1.3	5.8	--	--	--	11.3	4.6	9.0	--
LSD 0.05		2	2.7	NS	--	--	--	2.9	2.1	515	--
LSD 0.10		2	2.2	5.6	--	--	--	2	1.7	422	--

Planted: May 18. Harvested: Oct. 20.

¹Days after planting.²Long-term hybrid check.

Table 12. 2016 Sunflower - Oilseed - Langdon, N.D. - Authors, B. Hanson, T. Hakanson and L. Henry.

Company/ Brand	Hybrid	Days to Flower (DAP) ¹	Days to PM (DAP) ¹	Plant Height (inch)	Stem Lodging (0-9)	Test Weight (lb/bu)	Harvest Moisture (%)	Oil Content (%)	Seed Yield		
									2016	2-yr. Avg. (lb/a)	3-yr. Avg.
Croplan	432 E	73	117	64	2	36.5	11	41.2	2,449	2,938	2,899
Croplan	455 E HO	76	121	66	1	33.9	17	43.4	3,356	--	--
Croplan	458 HO	76	120	69	0	33.4	13	45.6	2,988	2,909	2,707
Croplan	545 CL	78	121	70	1	34.4	25	44.4	3,465	3,435	3,165
Croplan	549 CL HO	66	116	67	2	34.2	9	47.0	2,880	2,959	--
Croplan	553 CL HO	79	123	66	6	33.7	26	44.0	3,120	3,103	--
Nuseed	Badger DMR	73	115	66	2	33.1	11	36.7	3,799	3,281	3,189
Nuseed	Camaro II	76	118	66	3	35.6	18	44.2	3,068	3,214	3,128
Nuseed	Cobalt II	74	117	64	2	36.1	15	44.6	3,083	3,025	2,902
Nuseed	Falcon	77	119	63	2	36.8	17	45.0	3,038	3,060	2,865
Nuseed	Hornet	78	119	67	4	33.3	20	45.7	3,730	3,733	3,257
Nuseed	N4HM354	74	115	63	0	37.5	11	46.8	3,508	--	--
Nuseed	N5LM307	74	115	63	1	31.5	13	39.3	2,745	--	--
Nuseed	Talon	74	115	66	5	30.6	14	44.3	3,483	3,385	3,385
NuTech	63C4	74	116	62	2	38.2	11	46.8	3,191	--	--
NuTech	68H7	76	120	73	1	37.2	15	43.8	3,439	3,138	3,131
Pioneer	P63HE60	74	116	68	0	36.3	11	46.9	2,704	--	--
Pioneer	P63HE90	76	121	64	2	34.4	16	44.2	3,476	--	--
Pioneer	P63ME70	75	117	65	1	33.0	10	47.2	3,201	--	--
Proseed	12G04	76	120	62	1	35.7	12	49.2	3,116	--	--
Proseed	12G25	75	117	65	1	36.5	14	47.3	3,487	--	--
Proseed	E-31	76	117	68	1	31.6	12	40.9	2,665	2,660	2,697
Syngenta	SY7717	74	116	65	1	33.7	10	45.4	2,609	2,943	2,831
Syngenta	SY7919	78	123	64	2	32.7	22	46.9	3,426	--	--
USDA	894 ²	72	114	61	1	34.7	8	43.3	2,263	2,482	2,488
Mean		75	118	65	2	34.6	14	44.6	3,131	3,084	2,973
CV %		3.0	1.3	5.5	76	1.8	11.9	2.5	10.2	--	--
LSD 0.05		4	3	6	2	1.0	2.8	1.9	528	--	--
LSD 0.10		3	2	5	2	0.8	2.4	1.6	441	--	--

Planted: May 18. Harvested: Oct. 20.

¹Days after planting.²Long-term hybrid check.

Table 13. 2016 Sunflower - Oilseed - Minot, N.D. - Authors, E. Eriksmoen, J. Tarasenko and J. Effertz.

Company/ Brand	Hybrid	Days to	Days to	Stalk	Root	Plant	Seed	Test	Seed Yield	
		Flower (DAP) ¹	Maturity (DAP) ¹	Lodge (%)	Lodging (%)	Height (inch)	Oil (%)	Weight (lb/bu)	2016 -----	2-yr. Avg. (lb/a)-----
Mycogen	8D310CL	69	110	2	8	59	34.9	30.8	3,259	2,369
Mycogen	8H288CLDM	65	106	18	24	52	44.7	34.0	3,029	2,526
Mycogen	8H449CLDM	69	110	11	29	55	47.0	33.3	2,969	1,966
Mycogen	8N270CLDM	63	102	26	16	50	39.2	34.4	2,707	--
Mycogen	MY8H456CL	69	113	15	13	58	46.5	30.9	2,499	--
Nuseed	Badger DMR	66	106	11	14	57	34.8	31.2	3,142	2,281
Nuseed	Camaro II	68	108	8	25	52	41.5	32.6	2,409	2,456
Nuseed	Cobalt II	66	115	10	9	51	42.3	31.3	3,212	1,928
Nuseed	Daytona	68	112	8	22	53	41.8	30.6	2,886	--
Nuseed	Falcon	68	112	10	18	56	43.2	36.2	3,083	1,840
Nuseed	Hornet	70	109	25	24	54	42.3	32.3	3,054	2,586
Nuseed	N4HM354	65	105	27	28	52	40.9	34.8	3,278	--
Nuseed	N5LM307	65	104	11	15	52	36.9	29.1	2,825	--
Nuseed	Talon	65	104	16	18	53	39.7	31.3	3,176	1,977
Proseed	12G04	68	107	27	23	58	43.5	32.9	2,634	--
Proseed	12G25 CL	67	109	33	23	57	45.6	35.5	3,361	--
Proseed	E-31 CL	68	112	13	17	59	38.7	31.8	3,694	2,156
Syngenta	SY7717	66	112	9	6	56	40.9	33.2	2,689	2,216
Croplan ²	559CL	70	115	8	7	55	43.1	32.5	2,863	--
Mycogen ²	8N270CLDM	63	104	21	14	54	40.7	33.7	2,474	--
USDA ²	894	66	104	42	37	50	38.1	31.1	2,636	1,672
USDA ²	Honeycomb NS	59	100	56	7	52	36.7	32.2	1,821	--
Mean		66	108	19	18	54	41.0	32.5	2,895	2,164
CV %		1.6	3.8	63.0	58.0	6.0	2.7	3.3	11.3	11
LSD 0.05		2	7	19	17	5	3	1.8	538	278
LSD 0.10		1	6	16	15	4	3	1.5	449	232

Planted: June 6. Harvested: Nov. 4. Previous crop: spring wheat.

¹Days after planting.²Long-term hybrid check.

Table 14. 2016 Sunflower - Non-oilseed - Minot, N.D. - Authors, E. Eriksmoen, J. Tarasenko and J. Effertz.

Company/ Brand	Hybrid	Days to	Days to	Plant	Test	Seed Over Screen			Seed Yield		
		50% Flower	Maturity	Height	Weight	22/64	20/64	18/64	2016	2-yr. Avg.	3-yr. Avg.
		(DAP) ¹	(DAP) ¹	(inch)	(lb/bu)	------(%)-----			------(lb/a)-----		
CHS	RH609CLP	66	109	59	26.7	81	93	100	1,888	1,780	1,957
Nuseed	Panther DMR	62	102	57	26.8	65	85	100	1,934	1,695	1,821
USDA ²	924	66	108	57	27.0	26	64	100	1,332	1,539	1,503
Mean		65	106	58	26.8	57	81	100	1,718	1,672	1,760
CV %		0.6	1.0	4.2	1.3	9.7	5.9	0.0	6.7	--	--
LSD 0.05		1	2	4	0.6	13	9	NS	219	--	--
LSD 0.10		1	2	4	0.5	10	8	NS	178	--	--

Planted: June 6. Harvested: Nov. 4. Previous crop: soybean.

¹Days after planting.²Long-term hybrid check.**Table 15. 2016 Sunflower - Oilseed - Williston, N.D. - Authors, J. Bergman, G. Pradhan, E. Link and A. Link.**

Company	Hybrid	Days to	Days to	Plant	Plants	Oil	Test	Seed Yield		
		Flower	Maturity	Height	per Acre	Content	Weight	2016	2-yr. Avg.	3-y. Avg.
		(DAP) ¹	(DAP) ¹	(inch)		(%)	(lb/bu)	------(lb/a)-----		
Nuseed	Camaro II	66	97	47	15,581	37.0	34.3	2,002	1,877	1,795
Nuseed	Cobalt II	64	97	46	17,256	37.5	32.9	2,240	1,814	1,768
Nuseed	Daytona	65	103	45	17,927	38.4	33.7	2,108	--	--
Nuseed	Falcon	66	100	45	17,089	38.1	34.6	1,879	--	--
Nuseed	Hornet	67	101	46	16,586	39.3	32.4	1,988	1,720	1,764
Nuseed	N4HM354	63	94	50	17,592	38.2	33.6	2,118	1,799	--
Nuseed	Talon	64	95	51	13,236	34.4	29.6	1,689	1,544	1,692
NuTech	63C4	63	95	49	18,932	38.6	33.1	1,371	--	--
NuTech	68H7	65	105	53	15,246	38.5	34.8	2,480	1,913	1,817
Mean		65	98	48	16,605	37.8	33.2	1,986	1,778	1,767
CV %		0.9	1.3	6.7	8.3	1.8	1.9	8.6	--	--
LSD 0.05		1	2	5	2,000	1.0	0.9	249	--	--
LSD 0.10		1	2	4	1,658	0.8	0.8	206	--	--

Planted: June 3. Harvested: Oct. 26. Previous crop: durum.

¹Days after planting.

Table 16. 2016 Sunflower - Oilseed - Hettinger N.D. - Authors, J. Rickertsen and R. Olsen.

Company	Hybrid	Days to Flower (DAP) ¹	Plant Height (inch)	Plant Lodge (%)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield		
							2016	2-yr. Avg.	3-yr. Avg.
							------(lb/a)-----		
AgVenture	AF3H681ES	74	59	5	30.7	40.3	2,156	2,218	1,784
AgVenture	AF3N680ES	74	54	1	29.2	37.2	2,293	--	--
AgVenture	AF3N692ES	75	57	0	28.9	39.2	2,838	3,084	2,336
AgVenture	AF3N94CD	74	57	9	32.2	40.7	2,698	--	--
AgVenture	AF4H95CD	77	56	8	29.8	39.1	2,812	--	--
AgVenture	XF2H14CD	72	56	5	31.7	42.0	2,602	--	--
Croplan	432 E	72	51	1	30.2	37.9	2,348	2,132	1,679
Croplan	455 E HO	72	55	6	30.2	39.6	2,651	--	--
Croplan	458 E HO	73	57	0	28.8	39.6	2,586	2,552	--
Croplan	545 CL	75	56	1	29.5	37.4	2,976	3,029	2,549
Croplan	549 CL HO	71	56	1	30.8	38.3	2,574	2,735	--
Croplan	553 CL HO	76	53	13	30.2	41.1	3,081	3,247	--
Mycogen	8D310CL	76	59	11	27.8	33.8	2,021	2,453	2,256
Mycogen	8H449CLDM	74	52	3	32.9	45.0	2,871	3,139	2,693
Mycogen	8H456CLDM	75	59	5	28.3	42.4	2,587	3,361	--
Nuseed	Badger DMR	73	54	3	29.4	34.7	2,099	2,226	1,893
Nuseed	Camaro II	75	53	6	31.4	39.9	2,412	2,758	2,389
Nuseed	Cobalt II	73	51	2	30.4	38.9	2,302	2,440	1,970
Nuseed	Daytona	74	56	1	30.1	36.9	2,473	2,735	--
Nuseed	Falcon	74	51	2	31.1	37.4	2,291	2,643	2,287
Nuseed	Hornet	74	53	3	30.7	40.8	3,268	3,478	2,959
Nuseed	N4HM354	74	53	1	30.8	40.0	2,550	--	--
Nuseed	N5LM307	73	58	0	27.9	34.4	2,212	--	--
Nuseed	Talon	72	50	4	28.6	37.7	2,259	2,576	2,169
Proseed	12G04	75	56	7	30.1	41.0	2,566	--	--
Proseed	12G25	73	53	6	32.0	38.6	2,802	--	--
Proseed	E-31 CL	74	53	5	28.6	35.5	2,395	2,253	1,796
Syngenta	SY7717	71	55	7	31.1	38.6	2,371	2,584	2,413
Syngenta	SY7919	75	53	6	29.3	40.9	2,929	--	--
Croplan ²	559CL	75	58	0	30.7	39.1	2,360	--	--
Mycogen ²	8N270CLDM	69	47	3	30.8	38.5	2,156	2,201	--
USDA ²	894	74	52	1	30.6	38.7	2,269	2,549	2,157
USDA ²	Honeycomb NS	67	51	0	28.9	34.4	1,517	1,475	--
Mean		74	54	4	30.1	38.8	2,495	2,630	2,222
CV %		7.2	1.5	116	2.6	5.3	13.1	--	--
LSD 0.05		5	2	7.5	1.1	2.9	458	--	--
LSD 0.10		5	1	6.3	0.9	2.4	384	--	--

Planted: May 17. Harvested: Oct. 26. Previous crop: wheat.

¹Days after planting.²Long-term hybrid check.

Table 17. 2016 Sunflower - Oilseed - Presho, S.D. - Authors, F. Mathew, C. Graham, N. Braun, L. Gilbertson and B. Swan.

Company/ Brand	Hybrid	Hybrid Traits	Harvest Moisture	Oil Content	Seed Yield 2016
			(%)	(%)	(lb/a)
AgVenture	AF3H681ES	HO, EX, DM	7.2	41.2	3,523
AgVenture	AF3N680ES	NS, EX, DM	6.1	42.6	3,026
AgVenture	AF3N692ES	NS, EX, DM	6.5	43.1	3,885
AgVenture	AF3N94CD	NS, CL, DM	6.7	43.2	3,275
AgVenture	AF4H95CD	HO, CL, DM	6.3	43.6	3,964
AgVenture	XF2H14CD	NS, CL, DM	6.3	42.4	2,577
Croplan	432 E	NS, EX, DM	6.7	42.9	3,189
Croplan	455 E HO	HO, EX, DM	6.3	41.6	3,362
Croplan	458 E HO	HO, EX, DM	6.4	42.2	3,006
Croplan	545 CL	NS, CL, DM	6.1	41.5	3,547
Croplan	549 CL HO	HO, CL, DM	6.7	41.7	3,640
Croplan	553 CL HO	HO, CL, DM	6.5	42.1	3,448
Mycogen	8H449CLDM	HO, CL, DM	6.5	45.5	3,542
Mycogen	MY8H456CL	HO, CL, DM	5.9	44.7	3,350
Nuseed	Badger DMR	Conoil, DM	6.6	40.3	3,095
Nuseed	Camaro II	HO, CL, DM	6.8	42.9	2,934
Nuseed	Falcon	NS, EX	6.6	44.5	3,045
Nuseed	Hornet	NS, CL, DM	6.3	41.0	3,170
Nuseed	N4HM354	HO, CL, DM	5.9	44.3	2,961
Nuseed	N5LM307	Conoil, DM	6.6	40.4	2,637
Nuseed	Sierra	HO, CL	6.3	42.0	3,002
Nuseed	Talon	NS, EX	6.3	42.1	2,872
Pioneer	P63HE90	NS, EX, DM	7.1	41.9	3,626
Pioneer	P64ME01	NS, EX, DM	7.1	38.5	3,278
Syngenta	3732 NS	NS, Trad	6.2	43.5	2,771
Syngenta	SY7717	HO, CL, DM	5.8	43.8	2,769
Syngenta	SY7919	HO, CL, DM	6.1	42.4	3,400
USDA ¹	894		6.2	43.3	2,128
Mean			6	42.5	3,179
CV %			4.0	6.3	17.1
LSD 0.05			2.4	0.6	764
LSD 0.10			2.0	0.5	639

Planted: June 15. Previous crop: corn.

¹Long-term hybrid check.

For more information on this and other topics, see www.ag.ndsu.edu

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