

A652-19

# North Dakota Sunflower

## *Variety Trial Results for 2019 and Selection Guide*

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### Introduction

In North Dakota, an estimated 540,000 acres of sunflowers were planted in 2019. This is up about 104,000 acres, compared with 2018. Table 1 contains acreage data for the past 19 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 2000-2019.**

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	610	1,730	53	1,550
2017	381	1,650	42	1,800
2018	380	1,750	40	1,860
2019	460	1,832 <sup>1</sup>	62	1,832 <sup>1</sup>

Source: National Agricultural Statistics Service (NASS).

<sup>1</sup>Estimate by NASS for all sunflowers, October 2018.

## 2019 Sunflower Performance Trials

Information about sunflower hybrid performance can be accessed on the web at [www.ag.ndsu.edu/varietytrials](http://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% probability (0.05 level) or 90% 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 table. Only compare values within the table and look for trends for the desired trait among different experimental sites and years.

Sunflower harvest yields were adjusted to 10% 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.

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. **Oil content is intended to differentiate between hybrids at one location, LSD values should be used to determine differences between hybrids.** The oilseed crushing market pays a premium for more than 40% oil (at 10% moisture) and discounts for less than 40% oil.

Another factor to consider is the oil type. Hybrids are available with “traditional” (linoleic), midoleic (NuSun) and high-oleic 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 maturing hybrid, thus reducing drying costs.

The most economical and effective means of managing sunflower diseases and other pests is to plant resistant or tolerant hybrids and keep a minimum of four years of 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 entering data in respective portions of the 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.**

<b>Company</b>	<b>Abbreviated</b>	<b>Website</b>
CHS Royal Hybrid	CHS Royal Hyb.	www.chssunflower.com/product/hybrid-seed/products
DuPont Pioneer	Pioneer	www.pioneer.com
Dyna-Gro Seed	Dyna-Gro	www.dynagroseed.com
Farmers Business Network	Farmers B. N.	www.fbn.com
Mycogen Seeds	Mycogen	www.mycogen.com
Nuseed Global/Americas	Nuseed	www.nuseed.com
Proseed Inc.	Proseed	www.proseed.net
Red River Commodities	Red River Comm.	www.redriv.com
SunOpta	SunOpta	www.sunopta.com
U.S. Department of Agriculture	USDA	www.ars.usda.gov/plains-area/fargo-nd
Valia Genetics	Valia	www.valiagenetics.com
WinField United - Croplan	WinField	www.croplan.com

**Table 3. April-September 2019 Average Temperature, Precipitation and Rankings for Select North Dakota Locations.**

<b>Location</b>	<b>Average Temperature (Ranking)</b>	<b>Total Precipitation (Ranking)</b>
Bowman	57.5 F (9th Coolest Period Since 1915)	16.03 inches (11th Wettest Period Since 1915)
Bismarck	60.7 F (56th Warmest Period Since 1875)	21.79 inches (4th Wettest Period Since 1875)
Cavalier	57.2 F (24th Coolest Period Since 1934)	14.43 inches (46th Wettest Period Since 1927)
Fargo	60.4 F (40th Warmest Period Since 1881)	20.87 inches (12th Wettest Period Since 1881)
Minot Exp. Station	57.6 F (47th Coolest Period Since 1905)	17.84 inches (16th Wettest Period Since 1905)
Williston Exp. Station	59.3 F (63rd Coolest Period Since 1894)	17.77 inches (2nd Wettest Period Since 1894)
<b>North Dakota Average<sup>1</sup></b>	<b>58.2 F (55th Coolest Period Since 1895)</b>	<b>18.4 inches (6th Wettest Period Since 1895)</b>

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

<sup>1</sup>Statewide 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. 2019 Sunflower - Non-oilseed Hybrids With Traits and Locations Where Tested.**

Company/ Brand	Hybrid	Hybrid Type <sup>1</sup>	Location in which the hybrid has been tested		
			Fargo	Carrington	Minot
CHS Royal Hyb.	17VTL0067EX	EX	x	---	--
CHS Royal Hyb.	17VTL0084EX	EX	x	--	--
CHS Royal Hyb.	17VTL0188IMI	CL	x	--	--
CHS Royal Hyb.	19EXP1	EX	x	--	--
Nuseed	4334	CL	x	x	--
Nuseed	Jaguar II	CL	x		
Nuseed	NSKM53777	CL, DM	x	x	--
Red River Comm.	2215	Trad.	x	x	--
Red River Comm.	2310	Trad.	x	x	--
Red River Comm.	2414	Trad.	x	x	--
Red River Comm.	2215CL	CL	x	x	--
Sunopta	9583CLP	CP	x	x	x
Valia	H9811EXP	Trad.	x	x	--
Valia	H9814EXP	Trad.	x	x	--
Valia	Valia 41	Trad.	x	x	--
USDA	Hybrid 924 <sup>2</sup>	Trad.	x	x	x

<sup>1</sup>Hybrid type provided by companies.

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

<sup>2</sup>Long-term hybrid check.

**Table 5. 2019 Sunflower - Oilseed Hybrids With Traits and Locations Where Tested (Page 1 of 2).**

Company/ Brand	Hybrid	Hybrid Type <sup>1</sup>	Location in which the hybrid has been tested				
			Fargo	Hettinger	Minot	Williston	Williston Irrigated
Dyna-Gro	H42HO18CL	HO, CL	x	x	x	x	x
Dyna-Gro	H44HO12CL	HO, CL	x	x	x	x	x
Dyna-Gro	H45HO10EX	HO, EX	x	x	x	x	x
Dyna-Gro	H45NS16CIL	NS, CL	x	x	x	x	x
Dyna-Gro	H48HO15CL	HO, CL	x	x	--	x	x
Dyna-Gro	H49HO19CL	HO, CL	x	x	x	x	x
Dyna-Gro	H49NS14CL	NS, CL	x	x	x	x	x
Dyna-Gro	XH81H52CP	HO, CP	--	x	--	--	--
Dyna-Gro	XH91H54CL	HO, CL	--	x	--	--	--
Dyna-Gro	XH91H55CL	HO, CL	--	x	--	--	--
Dyna-Gro	XH93H75CL	HO, CL	--	x	--	--	--
Dyna-Gro	XH93H76CL	HO, CL	--	x	--	--	--
Dyna-Gro	XH93H77CL	HO, CL	--	x	--	--	--
Dyna-Gro	XH93H78CL	HO, CL	--	x	--	--	--
Dyna-Gro	XH93H79CL	HO, CL	--	x	--	--	--
Farmers B. N.	F2FS1	NS	x	x	--	--	--
Farmers B. N.	F2FS2	Trad., EX	x	x	--	--	--
Farmers B. N.	F2FS3	HO	x	x	--	--	--
Farmers B. N.	F2FS4	Trad., EX	x	x	--	--	--
Mycogen	MY8H270CL	HO, CL, DM	--	x	--	--	--
Mycogen	MY8H400E	HO, EX	--	x	--	--	--
Mycogen	MY8H131CL	HO, CL	--	x	--	--	--
Mycogen	MY8M380E	NS, EX	--	x	--	--	--
Mycogen	MY8H460CP	HO, CP	--	x	--	--	--
Mycogen	MY8H477CL	HO, CL	--	x	--	--	--
Nuseed	Badger DMR	NS, CON, CL, DM	x	--	--	--	--
Nuseed	Camaro II	NS, CL, DM	x	x	x	x	x
Nuseed	Falcon	NS, EX	x	x	x	x	x
Nuseed	Hornet	HO, CL, DM	x	x	x	--	--
Nuseed	N4H302 E	HO, EX	x	--	x	x	x
Nuseed	N4H470 CL Plus	HO, CP, DM	x	x	x	x	x
Nuseed	N4HE302 E	HO, EX	--	x	--	--	--
Nuseed	N4HM354	NS, CL, DM	x	x	x	x	x
Nuseed	N4H521 CL	HO, CL, DM	x	x	--	--	--
Nuseed	N5LM307	NS, CON, CL, DM	x	--	x	--	--
Pioneer	P63HE90	HO, EX, DM	x	--	--	--	--
Pioneer	P64HE101	HO, EX, DM	x	--	--	--	--
Pioneer	P64ME01	NS, EX, DM	x	--	--	--	--
Proseed	E-21 CL	NS, HO, CL, DM	x	--	x	--	--
Proseed	E-31 CL	NS, CL, DM	x	--	x	--	x
Proseed	E-362436	NS, HO, DM	x	--	x	x	x
Proseed	E-50016 CL	NS, CL, DM	x	--	--	--	--
Proseed	E-91 E	NS, EX, DM	x	--	x	x	x

**Table 5. 2019 Sunflower - Oilseed Hybrids With Traits and Locations Where Tested (Page 2 of 2).**

Company/ Brand	Hybrid	Hybrid Type <sup>1</sup>	Location in which the hybrid has been tested				
			Fargo	Hettinger	Minot	Williston	Williston Irrigated
Proseed	E-92 E	NS, EX, DM	x	--	x	x	x
SunOpta	4415HO/CLP/DM	HO, CP, DM	x	x	x	--	--
SunOpta	4425 CL	NS, CON, CL	x	x	x	--	--
SunOpta	9583CLP	Trad., CLP	--	x	--	--	--
SunOpta	EX725 CL	NS, CL	x	x	--	--	--
WinField	3845 HO	HO, DM	x	x	--	--	--
WinField	432 E	NS, EX, DM	x	x	x	--	--
WinField	450 E HO	HO, EX, DM	x	x	x	--	--
WinField	455 E HO	HO, EX, DM	x	x	x	--	--
WinField	4909E	EX	x	x	x	--	--
WinField	545 CL	NS, CL, DM	x	x	x	--	--
Winfield	CP450E	EX, DM	--	--	--	x	--
Winfield	CP455E	EX, DM	--	--	--	x	--
WinField	CPX57919CLP	CP	x	x	--	--	--
WinField	CPX59619CLP	CP	x	x	--	--	--
Mycogen	8N270CLDM <sup>2</sup>	NS, CL, DM	--	x	--	--	--
WinField	559CL <sup>3</sup>	NS, CL, DM	--	x	x	--	--
USDA	Hybrid 894 <sup>4</sup>	Trad.	x	x	x	--	--

<sup>1</sup>Hybrid type provided by companies; some hybrids may have additional traits.

HO = high oleic, NS = NuSun, CON = ConOil, Trad. = traditional (linoleic),

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

<sup>2</sup>8N270CLDM = medium-maturing check.

<sup>3</sup>Late-maturing check.

<sup>4</sup>Hybrid 894 = long-term hybrid check.

**Table 6. 2019 Sunflower - Oilseed - Fargo, N.D. - Author, B. Hulke.**

Company/ Brand	Hybrid	Days to Flower (DAP) <sup>1</sup>	Days to PM (DAP) <sup>1</sup>	Height (inch)	Lodging (1-9) <sup>2</sup>	Test Wt. (lb/bu)	Seed Moisture (%)	Oil Content (%)	2019 Seed Yield (lb/a)	Hulling Screen <sup>3</sup>
Dyna-Gro	H42HO18CL	67	111	69	2	29.6	10.0	41.7	1,670	--
Dyna-Gro	H44HO12CL	68	112	64	3	27.9	9.5	43.9	1,641	--
Dyna-Gro	H45HO10EX	69	109	69	6	27.2	9.0	41.9	1,486	--
Dyna-Gro	H45NS16CL	66	107	63	2	30.0	9.9	42.1	1,793	--
Dyna-Gro	H48HO15CL	73	115	71	3	28.8	10.3	46.6	2,082	--
Dyna-Gro	H49HO19CL	71	112	70	3	27.8	11.3	42.7	2,310	--
Dyna-Gro	H49NS14CL	70	113	68	3	29.5	11.1	41.8	2,351	--
Farmers B. N.	F2FS1	71	113	73	3	30.5	9.7	41.2	1,777	--
Farmers B. N.	F2FS2	70	113	77	3	28.3	9.8	37.3	1,939	--
Farmers B. N.	F2FS3	70	114	73	2	32.0	8.8	38.1	1,621	--
Farmers B. N.	F2FS4	73	112	78	7	27.1	7.8	40.8	898	--
Nuseed	Badger DMR	66	107	70	6	27.0	8.8	30.8	1,433	exc.
Nuseed	Camaro II	69	110	72	3	29.7	10.9	41.9	2,385	--
Nuseed	Falcon	70	111	68	5	31.6	9.3	41.4	1,712	--
Nuseed	Hornet	72	112	73	4	28.5	10.6	43.0	2,156	--
Nuseed	N4H302 E	69	112	66	7	26.9	9.1	41.7	1,415	--
Nuseed	N4H470 CL Plus	71	111	72	5	27.5	9.7	42.9	1,395	--
Nuseed	N4H521 CL	71	115	69	4	28.8	11.3	44.9	2,409	--
Nuseed	N4HM354	68	108	63	3	30.7	10.2	42.4	1,879	--
Nuseed	N5LM307	66	107	64	2	24.2	10.0	34.4	1,639	exc.
Pioneer	P63HE90	69	111	75	4	27.7	10.7	40.9	1,992	exc.
Pioneer	P64HE101	71	115	75	2	31.1	10.8	40.0	2,394	exc.
Pioneer	P64ME01	71	115	71	2	30.5	11.5	39.4	2,744	exc.
Proseed	E-21 CL	69	113	74	3	27.5	9.4	37.8	1,837	exc.
Proseed	E-31 CL	70	111	72	4	28.9	9.7	38.0	2,005	exc.
Proseed	E-362436	68	112	75	4	30.0	9.8	40.0	1,924	exc.
Proseed	E-50016 CL	70	111	73	4	28.4	9.8	40.4	2,108	exc.
Proseed	E-91 E	70	113	75	7	30.3	7.7	41.3	1,041	exc.
Proseed	E-92 E	72	112	81	7	27.1	7.2	40.6	716	exc.
SunOpta	4415 HO/CLP/DM	70	112	75	4	30.1	10.0	40.7	2,263	--
SunOpta	4425CL	69	111	76	2	28.4	10.4	37.0	2,466	--
SunOpta	EX725	70	112	77	2	25.9	10.9	39.9	2,075	--
WinField	CL4909E	70	111	68	6	30.8	9.2	40.1	1,521	exc.
WinField	CP3845	71	110	68	5	29.0	8.6	44.4	1,678	exc.
WinField	CP432E	67	110	66	2	29.4	10.6	37.2	2,050	exc.
WinField	CP450E	68	113	75	3	28.6	9.7	40.0	1,936	exc.
WinField	CP455E	69	114	69	3	29.0	10.7	39.5	2,356	exc.
WinField	CP545CL	70	113	69	4	30.2	10.9	42.3	2,406	avg.
WinField	CPX57919CLP	72	114	76	5	31.7	10.5	41.5	2,151	below avg.
WinField	CPX59619CLP	71	112	78	4	31.2	9.6	44.3	1,985	exc.
USDA	Hybrid 894 <sup>4</sup>	67	105	69	3	29.2	8.9	39.8	1,450	--
Mean		70	112	71	4	29.0	9.8	40.6	1,880	--
CV %		1.2	1.4	2.9	27.5	2.3	5.7	2.5	12.5	--
LSD 0.05		1	2	3	2	1.1	0.9	1.6	381	--
LSD 0.10		1	2	3	1	0.9	0.8	1.4	319	--

Planted: May 29. Harvested: Nov. 19.

<sup>1</sup>Days after planting. Maturity checks: 8N270CLDM = 108 DAP, Falcon = 111 DAP, 559CL = 112 DAP.<sup>2</sup>Description 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.

<sup>3</sup>Hulling screen test: Exc. = 65% of seed over a 14/64 inch screen; Average = 75% of seed over a 13/64 inch screen.<sup>4</sup>Long-term hybrid check.

**Table 7. 2019 Sunflower - Fatty Acid - Fargo, N.D. - Author, B. Hulke.**

Company/ Brand	Hybrid	Type <sup>1</sup>	Palmitic	Stearic	Oleic	Linoleic
----- % ± SEM -----						
Farmers B. N.	F2FS1	NS	5.6 ± 0.1	5.2 ± 0.1	21.0 ± 0.6	67.3 ± 0.6
Farmers B. N.	F2FS2	Trad	5.5 ± 0.1	4.8 ± 0.1	20.5 ± 0.7	68.5 ± 0.7
Farmers B. N.	F2FS3	HO	5.8 ± 0.1	4.0 ± 0.1	20.0 ± 0.7	69.4 ± 0.7
Farmers B. N.	F2FS4	Trad	2.8 ± 0.1	2.2 ± 0.1	88.9 ± 0.5	5.1 ± 0.5
Nuseed	N4H302 E	HO	2.8 ± 0.1	2.8 ± 0.1	89.3 ± 0.4	3.6 ± 0.4
Pioneer	P63HE90	HO	3.1 ± 0.2	4.4 ± 0.2	79.7 ± 2.5	11.3 ± 2.5
Pioneer	P64HE101	HO	2.8 ± 0.1	3.3 ± 0.1	89.5 ± 0.1	3.0 ± 0.1
SunOpta	4415 HO/CLP/DM	HO	2.9 ± 0.0	2.8 ± 0.1	89.0 ± 0.4	4.3 ± 0.3
SunOpta	4425CL	NS	3.1 ± 0.1	3.4 ± 0.1	74.8 ± 1.8	17.5 ± 1.8
SunOpta	EX725	NS	2.3 ± 0.0	2.8 ± 0.1	89.4 ± 0.3	4.4 ± 0.2

<sup>1</sup>HO = high oleic, NS = NuSun, Trad. = traditional linoleic.

**Table 8. 2019 Sunflower - Non-oilseed - Fargo, N.D. - Author, B. Hulke.**

Company/ Brand	Hybrid	Days	Days	Test Height	Lodging	Seed Wt.	Seed Moisture	Seed Yield	2019 Seed over screen			Seed size		Nut- meat
		to Flower	to PM						22/64	20/64	18/64	L	W	
		(DAP) <sup>1</sup>	(DAP) <sup>1</sup>	(inch)	(1-9) <sup>2</sup>	(lb/bu)	(%)	(lb/a)	----- % -----			-- (mm)--		(%)
CHS Royal Hyb.	17VTL0067EX	69	111	72	3	22.0	9.7	1,959	85	90	93	21	10	45.2
CHS Royal Hyb.	17VTL0084EX	69	112	68	3	20.9	9.3	2,046	86	94	97	21	8	46.3
CHS Royal Hyb.	17VTL0188IMI	73	111	74	3	22.3	10.4	2,179	79	90	94	18	9	55.1
CHS Royal Hyb.	19EXP1	75	115	72	2	22.5	9.8	2,159	89	92	94	19	10	50.2
Nuseed	4334	73	114	74	4	21.3	9.6	1,923	86	93	96	19	9	47.6
Nuseed	Jaguar II	69	107	73	3	21.2	8.9	1,734	86	93	96	17	9	49.0
Nuseed	NSKM53777	67	107	61	2	21.9	9.1	2,123	82	93	96	18	9	49.3
Red River Comm.	2215	70	111	76	3	23.0	9.5	2,110	69	82	88	17	8	47.7
Red River Comm.	2215 CL	75	114	81	3	21.9	9.9	2,135	77	89	93	18	9	49.3
Red River Comm.	2310	72	112	77	4	22.2	9.3	1,682	80	86	88	19	10	50.7
Red River Comm.	2414	76	114	86	4	19.1	9.7	1,454	88	91	93	19	11	43.8
SunOpta	9583CLP	69	111	71	2	22.1	8.8	2,015	88	93	96	19	9	47.0
Valia	Valia 41	75	112	76	4	21.6	8.3	1,356	80	91	93	18	8	45.9
Valia	H9811EXP	74	112	76	4	22.3	8.3	1,560	69	83	91	16	9	47.2
Valia	H9814EXP	74	112	76	5	19.8	8.1	1,362	80	87	90	18	10	44.2
USDA	Hybrid 924 <sup>3</sup>	69	103	76	5	23.0	8.0	1,261	59	77	86	15	9	51.3
Mean		72	111	74	3	21.8	9.2	1,816	80	89	93	18	9	48.1
CV %		1.8	1.3	3.3	21.4	4.0	6.6	16.8	--	--	--	--	--	--
LSD 0.05		2	2	4	1	1.7	1.0	508	--	--	--	--	--	--
LSD 0.10		2	2	3	1	1.4	0.8	422	--	--	--	--	--	--

Planted: May 29. Harvested: Nov. 16.

<sup>1</sup>Days after planting. Maturity checks: 8N270CLDM = 108 DAP, Falcon = 111 DAP, 559CL = 112 DAP.

<sup>2</sup>Description 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.

<sup>3</sup>Long-term hybrid check.



**Table 9. 2019 Sunflower - Oilseed - Hettinger N.D. - Authors, J. Rickertsen and M. Wells.**

Company/ Brand	Hybrid	Days to Flower (DAP) <sup>1</sup>	Plant Height (inch)	Test Weight (lb/bu)	Oil Content (%)	Seed Yield		
						2019	2-yr. Avg.	3-yr. Avg.
						-----lb/a-----		
Dyna-Gro	H42HO18CL	65	63	25.9	39.0	1,885	--	--
Dyna-Gro	H44HO12CL	65	65	25.6	41.5	2,140	--	--
Dyna-Gro	H45HO10EX	68	67	23.4	37.8	2,027	--	--
Dyna-Gro	H45NS16CL	65	61	26.5	38.8	2,485	--	--
Dyna-Gro	H48HO15CL	71	69	23.5	42.4	2,275	--	--
Dyna-Gro	H49HO19CL	69	68	24.7	38.9	2,567	--	--
Dyna-Gro	H49NS14CL	69	63	24.9	35.3	2,311	--	--
Dyna-Gro	XH81H52CP	70	68	24.2	39.5	2,210	--	--
Dyna-Gro	XH91H54CL	67	76	25.3	35.5	2,206	--	--
Dyna-Gro	XH91H55CL	72	69	24.3	38.4	2,534	--	--
Dyna-Gro	XH93H75CL	69	67	24.2	34.0	2,109	--	--
Dyna-Gro	XH93H76CL	68	68	25.5	35.8	1,698	--	--
Dyna-Gro	XH93H77CL	68	70	23.5	31.4	1,679	--	--
Dyna-Gro	XH93H78CL	66	64	24.9	36.1	1,943	--	--
Dyna-Gro	XH93H79CL	71	69	24.1	38.4	2,675	--	--
Farmers B. N.	F2FS1	70	68	23.8	38.1	1,873	--	--
Farmers B. N.	F2FS2	70	77	23.2	34.2	1,949	--	--
Farmers B. N.	F2FS3	70	71	24.1	33.1	1,622	--	--
Farmers B. N.	F2FS4	73	77	22.2	32.2	1,526	--	--
Mycogen	MY8H131CL	60	58	25.4	37.2	1,251	--	--
Mycogen	MY8H270CL	64	63	27.2	37.8	2,084	--	--
Mycogen	MY8H400E	69	73	25.7	35.5	1,697	--	--
Mycogen	MY8H460CP	71	72	24.0	40.5	1,638	2,442	--
Mycogen	MY8H477CL	73	74	23.0	37.2	2,026	--	--
Mycogen	MY8M380E	68	68	24.7	33.7	1,403	--	--
Nuseed	Camaro II	67	68	26.0	35.9	2,591	2,748	2,573
Nuseed	Falcon	68	67	25.7	36.1	2,053	2,534	2,515
Nuseed	Hornet	71	70	24.1	37.1	2,372	2,895	2,857
Nuseed	N4H302 E	68	61	23.3	35.6	2,022	2,281	--
Nuseed	N4H470 CL Plus	70	72	24.1	39.5	2,212	2,889	2,997
Nuseed	N4H521 CL	71	66	24.8	37.6	2,474	2,917	--
Nuseed	N4HM354	66	68	25.9	37.5	1,909	2,339	2,406
SunOpta	4415 HO/CLP/DM	68	69	25.3	36.3	2,454	2,722	--
SunOpta	4425CL	68	72	24.4	32.6	1,979	2,493	--
SunOpta	9583CLP	71	78	18.7	21.6	1,591	--	--
SunOpta	EXOIL725CL	68	76	22.7	36.8	2,257	--	--
WinField	CP3845	68	63	26.5	41.2	2,530	--	--
WinField	CP432E	65	66	27.2	31.6	1,658	2,540	2,635
WinField	CP450E	69	67	23.9	33.1	1,824	--	--
WinField	CP455E	68	70	24.9	35.7	1,959	2,837	2,705
WinField	CP4909E	68	63	26.1	34.6	1,899	--	--
WinField	CP545CL	69	67	24.8	35.9	2,420	--	--
WinField	CPX57919CLP	70	72	25.4	35.6	2,499	--	--
WinField	CPX59619CLP	71	70	24.7	37.2	1,590	--	--
Mycogen	8N270CLDM <sup>2</sup>	64	64	27.0	37.1	1,949	2,105	2,008
WinField	559 CL <sup>3</sup>	68	74	26.0	39.7	2,500	--	--
USDA	Hybrid 894 <sup>4</sup>	67	69	26.2	35.0	1,622	2,215	2,307
Mean		68	69	24.7	36.3	2,046	2,568	2,556
CV %		1.2	6.4	3.9	4.8	13.9	--	--
LSD 0.05		1.2	6.2	1.3	2.4	380	--	--
LSD 0.10		1.0	5.2	1.1	2.0	318	--	--

Planted: June 7. Harvested: Nov. 21. Previous crop: wheat.

<sup>1</sup>Days after planting.<sup>2</sup>Medium-maturing check.<sup>3</sup>Late-maturing check.<sup>4</sup>Long-term hybrid check.

**Table 10. 2019 Sunflower - Non-oilseed - Carrington N.D. - Authors, M. Ostlie, B. Schatz, E. Aberle and K. Bjerke.**

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	2019	3-yr. Avg.
		(DAP) <sup>1</sup>	(DAP) <sup>1</sup>	(inch)	(%)	(%)	(%)	(%)	(lb/bu)	------(lb/a)-----	
Nuseed	NSKM53777	67	113	65.2	62	82	91	15.3	19	1,330	1,501
Nuseed	X4334	70	116	61.2	77	89	94	15.8	19	1,549	1,525
Red River Comm.	2215	71	114	66.0	57	82	91	15.6	19	1,243	1,732
Red River Comm.	2310	71	115	71.6	88	94	97	16.5	20	1,737	--
Red River Comm.	2414	71	121	70.0	83	91	96	16.9	19	1,477	--
Red River Comm.	2215 CL	71	117	63.0	63	85	93	16.4	20	1,233	1,562
Sunopta	9583CLP	70	120	65.6	80	88	94	16.0	21	1,999	--
Valia	H9811 EXP	70	113	64.6	67	83	92	16.5	19	1,134	--
Valia	H9814 EXP	71	120	64.8	83	88	93	17.3	17	1,876	--
Valia	Valia 41	71	119	66.0	73	86	93	18.6	19	1,857	1,784
USDA	Hybrid 924 <sup>2</sup>	71	116	63.7	33	66	82	15.8	20	889	1,355
Mean		70	117	65.6	70	85	92	16.4	19	1,484	1,576
CV (%)		1.4	2.1	9.6	15.1	6.6	3.7	8.7	6.9	20	--
LSD 0.05		1.4	3.6	NS	18.4	9.7	5.9	NS	NS	502	--
LSD 0.10		1.2	3.0	NS	15.2	8.0	4.9	NS	NS	415	--

Planted: May 30. Harvested: Nov. 14. Previous crop: durum.

<sup>1</sup>Days after planting.<sup>2</sup>Long-term hybrid check.**Table 11. 2019 Sunflower - Non-oilseed - Minot, N.D. - Authors, E. Eriksmoen, A. Kraklau and J. Effertz.**

Company/ Brand	Hybrid	Days to	Days to	Plant	Test	Seed Over Screen			Seed
		Flower	Maturity	Height	Weight	22/64	20/64	18/64	Yield
		(DAP) <sup>1</sup>	(DAP) <sup>1</sup>	(inch)	(lb/bu)	------(%)-----			(lb/a)
SunOpta	9583CLP	31	25	52	24.7	66	69	73	1,790
USDA	Hybrid 924 <sup>2</sup>	30	27	51	26.1	51	63	71	1,057
Mean		30	26	52	25.4	59	66	72	1,424
CV %		1.3	4.7	8.3	2.3	33	30	22.0	7.2
LSD 0.05		NS	NS	NS	NS	NS	NS	NS	362
LSD 0.10		NS	NS	NS	NS	NS	NS	NS	303

Planted: May 20. Harvested: Nov. 5. Previous crop: spring wheat.

<sup>1</sup>Days after planting.<sup>2</sup>Long-term hybrid check.

**Table 12. 2019 Sunflower - Oilseed - Minot, N.D. - Authors, E. Eriksmoen, A. Kraklau and J. Effertz.**

Company/ Brand	Hybrid	Days to Flower (DAP) <sup>1</sup>	Days to Maturity (DAP) <sup>1</sup>	Plant Height (inch)	Test Oil (%)	Test Weight (lb/bu)	Seed Yield		
							2019	2-yr. Avg.	3-yr Avg.
							------(lb/a)-----		
Dyna-Gro	H42HO18CL	65	120	46	46.9	31.9	1,625	1,820	--
Dyna-Gro	H44HO12CL	65	119	47	46.4	31.5	1,764	2,005	--
Dyna-Gro	H45HO10EX	66	121	50	46.1	30.2	2,128		--
Dyna-Gro	H45NS16CL	65	118	47	45.3	33.4	1,499	2,003	--
Dyna-Gro	H48HO15CL	72	124	44	48.7	29.6	1,581	2,230	--
Dyna-Gro	H49HO19CL	69	120	42	48.2	31.7	1,601	2,074	--
Dyna-Gro	H49NS14CL	69	123	49	48.9	32.5	2,311	--	--
Nuseed	Camaro II	68	122	52	48.8	33.6	2,283	2,302	2,535
Nuseed	Falcon	68	120	48	47.7	31.6	1,752	2,069	2,310
Nuseed	Hornet	70	124	56	48.2	30.4	2,215	2,432	2,505
Nuseed	N4H302 E	67	124	45	46.8	29.6	2,012	2,327	--
Nuseed	N4H470 CL Plus	70	124	50	49.8	31.2	2,518	2,812	--
Nuseed	N4HM354	65	123	48	46.1	32.6	1,916	1,900	2,122
Nuseed	N5LM307	65	120	52	40.6	28.7	2,004	1,827	--
Proseed	E-21 CL	72	124	51	39.0	28.2	1,536	1,653	1,780
Proseed	E-31 CL	69	119	54	39.7	28.7	1,345	1,832	2,129
Proseed	E-362436	69	123	50	41.7	31.9	1,575	1,782	1,984
Proseed	E-91 E	68	118	58	41.2	30.6	1,767	--	--
Proseed	E-92 E	72	124	65	43.3	28.4	1,339	--	--
SunOpta	4415 HO/CLP/DM	68	123	46	42.8	31.7	1,647	1,916	2,117
SunOpta	4425CL	67	121	54	39.9	30.4	1,874	2,061	2,197
WinField	CP432E	65	120	52	40.2	30.4	1,993	2,044	2,112
WinField	CP450E	69	124	52	40.5	28.8	1,895	2,133	--
WinField	CP455E	67	125	50	44.6	31.5	2,965	3,045	2,944
WinField	CP4909E	68	124	48	44.7	31.0	2,033	--	--
WinField	CP545CL	70	124	50	46.6	30.9	2,088	2,179	2,501
WinField	559CL <sup>2</sup>	68	125	59	46.7	32.3	2,072	2,146	2,024
USDA	Hybrid 894 <sup>3</sup>	65	120	47	43.9	31.4	1,640	1,818	1,818
Mean		68	122	50	44.8	30.9	1,892	2,105	2,220
CV %		1.1	1.6	5.3	1.6	2.9	14.4	--	--
LSD 0.05		1	3	5	1.2	1.5	442	--	--
LSD 0.10		1	3	4	1.0	1.2	370	--	--

Planted: May 22. Harvested: Nov. 5. Previous crop: spring wheat.

<sup>1</sup>Days after planting.<sup>2</sup>Late-maturing check.<sup>3</sup>Long-term hybrid check.

**Table 13. 2019 Sunflower - Oilseed - Williston, N.D. - Authors, J. Bergman, G. Pradhan, M. Miller and C. Wahlstrom.**

Company/ Brand	Hybrid	Days to	Days to	Plant	Test		Seed Yield		
		Flower	Maturity	Height	Oil	Weight	2019	2-yr. Avg.	3-yr Avg.
		(DAP) <sup>1</sup>	(DAP) <sup>1</sup>	(inch)	(%)	(lb/bu)	------(lb/a)-----		
Dyna-Gro	H42HO18CL	68	130	39	45.2	31.9	807	--	--
Dyna-Gro	H44HO12CL	66	133	44	43.5	32.5	1,340	--	--
Dyna-Gro	H45HO10EX	70	133	46	42.1	30.8	686	--	--
Dyna-Gro	H45NS16CL	67	132	43	43.9	34.7	1,397	--	--
Dyna-Gro	H48HO15CL	72	133	49	48.4	31.7	1,329	--	--
Dyna-Gro	H49HO19CL	71	131	48	46.2	32.0	1,294	--	--
Dyna-Gro	H49NS14CL	70	133	45	43.5	33.9	1,247	--	--
Nuseed	Camaro II	67	131	44	42.9	32.5	1,052	1,782	1,856
Nuseed	Falcon	70	131	45	42.3	32.4	987	1,765	1,803
Nuseed	N4H302 E	69	132	46	44.7	30.4	1,138	--	--
Nuseed	N4H470 CL Plus	71	133	46	48.3	33.9	1,428	--	--
Nuseed	N4HM354	70	130	46	42.3	32.6	1,002	1,743	1,868
Proseed	E-362436	69	133	52	41.7	34.7	1,196	--	--
Proseed	E-91 E	69	131	52	37.0	29.2	862	--	--
Proseed	E-92 E	73	132	59	40.2	30.0	923	--	--
WinField	CP450E	71	133	42	37.9	30.6	1,189	--	--
WinField	CP455E	70	133	43	42.3	32.3	989	--	--
Mean		70	132	46	43.1	32.1	1,110	1,763	1,842
CV %		1.5	0.7	4.4	4.4	2.1	14.5	--	--
LSD 0.05		1	1	3	2.6	1.0	232	--	--
LSD 0.10		1	1	2	2.2	0.8	193	--	--

Planted: May 28. Harvested: Oct. 8. Previous crop: cover crop.

<sup>1</sup>Days after planting.**Table 14. 2019 Sunflower - Irrigated - Oilseed - Williston, N.D. - Authors, J. Jacobs and T. Tjelde.**

Company/ Brand	Hybrid	Days to	Plant	Harvest	Test		Seed Yield
		Flower	Height	Moisture	Oil	Weight	2019
		(DAP) <sup>1</sup>	(inch)	(%)	(%)	(lb/bu)	(lb/a)
Dyna-Gro	H42HO18CL	71	44	12.4	38.8	30.8	2,289
Dyna-Gro	H44HO12CL	68	46	12.8	40.1	30.3	2,109
Dyna-Gro	H45HO10EX	73	49	12.7	39.5	28.5	2,241
Dyna-Gro	H45NS16CL	70	47	12.2	38.6	31.3	2,365
Dyna-Gro	H48HO15CL	76	46	15.1	43.0	29.0	2,379
Dyna-Gro	H49HO19CL	76	42	15.9	38.1	28.3	2,358
Dyna-Gro	H49NS14CL	76	41	15.8	38.2	31.2	2,674
Nuseed	Camaro II	75	46	13.7	40.0	31.3	2,605
Nuseed	Falcon	75	46	12.4	40.3	32.3	3,078
Nuseed	N4H302 E	73	51	12.6	38.2	26.2	2,513
Nuseed	N4H470 CL Plus	76	45	15.2	41.8	28.2	2,830
Nuseed	N4HM354	71	46	12.1	40.0	31.8	1,870
Proseed	E-31 CL	75	49	12.3	33.6	29.0	1,954
Proseed	E-362436	71	51	13.6	36.5	31.2	2,154
Proseed	E-91 E	75	56	11.8	35.6	30.0	2,095
Proseed	E-92 E	77	62	12.4	35.8	26.5	1,755
Mean		73	48	13	38.6	29.7	2,329
CV %		1.1	10.0	6.2	4.4	5.3	19.5
LSD 0.05		7	7	1.2	2.4	2.3	648
LSD 0.10		6	6	1.0	2.0	1.9	541

Planted: May 21. Harvested: Nov. 26. Previous crop: soybean.

<sup>1</sup>Days after planting.**For more information on this and other topics, see [www.ag.ndsu.edu](http://www.ag.ndsu.edu)**NDSU encourages you to use and share this content, but please do so under the conditions of our Creative Commons license. You may copy, distribute, transmit and adapt this work as long as you give full attribution, don't use the work for commercial purposes and share your resulting work similarly. For more information, visit [www.ag.ndsu.edu/agcomm/creative-commons](http://www.ag.ndsu.edu/agcomm/creative-commons).County commissions, North Dakota State University and U.S. Department of Agriculture cooperating. NDSU does not discriminate in its programs and activities on the basis of age, color, gender expression/identity, genetic information, marital status, national origin, participation in lawful off-campus activity, physical or mental disability, pregnancy, public assistance status, race, religion, sex, sexual orientation, spousal relationship to current employee, or veteran status, as applicable. Direct inquiries to Vice Provost for Title IX/ADA Coordinator, Old Main 201, NDSU Main Campus, 701-231-7706, [ndsu.eoaa.ndsu.edu](mailto:ndsu.eoaa.ndsu.edu). This publication will be made available in alternative formats for people with disabilities upon request, 701-231-7881.