A652-21

North Dakota Sunflower

Variety Trial Results for 2021 and Selection Guide

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Introduction

In North Dakota, an estimated 489,000 acres of sunflowers were planted in 2021. There were 244,000 fewer sunflower acres planted, compared with 2020. Table 1 contains acreage data for the past 21 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 2001-2021.

Year	Oil Type	Yield	Non-oil Type	Yield
	(1,000 acres)	(lb/a)	(1,000 acres)	(lb/a)
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	440	1,500	54	1,650
2020	630	1,880	85	1,810
2021	440[1]	1,600	32[1]	1,600

Source: National Agricultural Statistics Service (NASS).
[1]Estimate by NASS for all sunflowers, October 2021.

NDSU EXTENSION NDSU NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

Fargo, North Dakota
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2021 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 North Dakota Agricultural Experiment Station locations. A new variety selection tool is available at *https://vt.ag.ndsu.edu/*.

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.

Company	Abbreviated	Website
Brevant Seeds	Brevant	www.brevant.com
CHS Royal Hybrid	CHS Royal Hyb.	www.chssunflower.com/product/hybrid-seed/products
Dairyland Seed	Dairyland	www.dairylandseed.com
DuPont Pioneer Hi-Bred	Pioneer	www.pioneer.com
Dyna-Gro Seed	Dyna-Gro	www.dynagroseed.com
Nuseed Global/Americas	Nuseed	www.nuseed.com
Proseed Inc.	Proseed	www.proseed.net
RAGT Semences	RAGT	www.ragt-semences.fr/en-fr
Sunflower Partners S&W Seed Co.	Sun-Partners	www.sunflower-partners.com/
SunOpta	SunOpta	www.sunopta.com
U.S. Department of Agriculture	USDA	www.ars.usda.gov/plains-area/fargo-nd
Argensun/Valia Genetics	Valia	www.valiagenetics.com
WinField United - Croplan	Croplan	www.croplan.com

Table 3. April-September 2021 Average Temperature, Precipitation and Rankings for Select North Dakota Locations.

Location	Average Temperature (Ranking)	Total Precipitation (Ranking)
Bowman	62.2 F (third warmest period since 1915)	8.8 inches (21st driest period since 1915)
Bismarck	64.8 F (the warmest period since 1875)	7.3 inches (sixth driest period since 1875)
Cavalier	59.7 F (17th warmest period since 1934)	10.1 inches (17th driest period since 1927)
Fargo	63.7 F (fifth warmest period since 1881)	12.3 inches (27th driest period since 1881)
Minot Exp. Station	60.9 F (ninth warmest period since 1905)	9.1 inches (21st driest period since 1894)
Williston Exp. Station	62.4 F (sixth warmest period since 1894)	7.3 inches (18th driest period since 1894)
North Dakota Average[1]	61.2 F (fifth warmest period since 1895)	10.4 inches (12th driest period since 1895)

Source: Adnan Akyüz, NDSU, North Dakota state climatologist.
[1]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. 2021 Sunflower - Non-oilseed Hybrids With Traits and Locations Where Tested.

Company/			Location in which the hybrid has been tested			
Brand	**Hybrid**	**Hybrid Type[1]**	**Fargo**	**Carrington**	**Hettinger**	**Minot**
CHS Royal Hyb.	RH609CLP	CP	--	x	--	--
CHS Royal Hyb.	20-EXP03	--	x	x	--	--
CHS Royal Hyb.	21-EXP01	--	x	x	--	--
Nuseed	N6L377 CL	CL	x	x	--	x
SunOpta	9583CLP	CP	x	x	--	--
SunOpta	SS90	CL	x	x	x	x
SunOpta	SS91	--	x	x	x	x
Valia	D2101EXP	--	x	x	--	--
Valia	Valia 41	Trad.	x	**x**	**--**	**--**
Valia	Valia 92	Trad.	x	**x**	**--**	**--**
Valia	Valia 95	Trad.	x	**x**	**--**	**--**
USDA	Hybrid 924[2]	Trad.	x	x	--	x

[1]Hybrid type provided by companies.

CL = Clearfield, CP = Clearfield plus, Trad. = no herbicide tolerance trait.

[2]Long-term hybrid check.

Table 5. 2021 Sunflower - Oilseed Hybrids With Traits and Locations Where Tested (Page 1 of 2).

			Location in which the hybrid has been tested				
Company/ Brand	**Hybrid**	**Hybrid Type[1]**	**Fargo**	**Carrington**	**Hettinger**	**Williston**	**Williston Irrigated**
Brevant	B8H131CL	HO, CL	--	--	x	--	--
Brevant	B8H395E	HO, EX	--	--	x	--	--
Brevant	B8H460CP	HO, CP	--	--	x	--	--
Brevant	B8M390E	MO, EX	--	--	x	--	--
CHS Royal Hyb.	20-EXP5	HO, CL	x	x	--	--	--
CHS Royal Hyb.	8D310CL	HO, CL	x	--	--	--	--
Croplan	CP3845	HO	x	x	x	--	--
Croplan	CP4157E	HO, EX	--	x	--	--	--
Croplan	CP432E	NS, EX	x	x	x	x	--
Croplan	CP450E	HO, EX	x	x	x	--	--
Croplan	CP455E	HO, EX	x	x	x	x	--
Croplan	CP4909E	NS, EX	x	x	x	--	--
Croplan	CP5045CL	HO, CL	--	x	--	--	--
Croplan	CP545CL	NS, CL	x	--	--	--	--
Croplan	CP559CL	CL	--	x	--	--	--
Croplan	CP7919CL	HO, EX	x	--	--	--	--
Dairyland	D643HO	HO, EX	--	--	x	--	--
Dairyland	D683MO	MO, EX	--	--	x	--	--
Dairyland	D690MO	MO, EX	--	--	x	--	--
Dyna-Gro	H42HO18CL	HO, CL	x	x	x	x	x
Dyna-Gro	H44HO12CL	HO, CL	x	--	x	x	x
Dyna-Gro	H45HO10EX	HO, EX	x	x	x	x	x
Dyna-Gro	H45NS16ClL	NS, CL	x	x	x	x	x
Dyna-Gro	H47HO11EX	HO, EX	x	x	x	x	x
Dyna-Gro	H49HO19CL	HO, CL	x	x	x	--	--
Dyna-Gro	H49NS14CL	NS, CL	x	x	x	--	--
Dyna-Gro	XH81H52CP	HO, CP	x	x	x	--	--
Dyna-Gro	XH81H59EX	HO, EX	x	--	x	--	--
Dyna-Gro	XH81H60EX	HO, EX	x	x	x	--	--
Dyna-Gro	XH81H61EX	HO, EX	x	--	x	--	--
Dyna-Gro	XH81N58EX	NS, EX	x	--	x	--	--
Dyna-Gro	XH81N62EX	HO, EX	x	x	x	--	--
Dyna-Gro	XH82H63EX	HO, EX	x	x	x	--	--
Nuseed	Badger DMR	NS, CON, CL	x	x	--	--	--
Nuseed	Falcon	NS, EX	x	x	x	x	x
Nuseed	Hornet	HO, CL	x	x	x	x	--
Nuseed	N4H302 E	HO, EX	x	x	x	--	x
Nuseed	N4H422 CL	HO, CL	x	x	x	x	x
Nuseed	N4H470 CLP	HO, CP	x	x	x	x	x
Nuseed	N4H521 CL	HO, CL	x	--	x	--	--
Nuseed	N4HM354	NS, CL	x	x	x	x	x
Nuseed	N5H493 CL	HO, EX	x	x	--	--	--
Nuseed	NHKE53359	HO, EX	x	--	x	--	--
Nuseed	NLKE04002	NS, EX	x	x	x	--	--
Nuseed	NLKP74437	NS, CP	x	x	x	--	--

Table 5. 2021 Sunflower - Oilseed Hybrids With Traits and Locations Where Tested (Page 2 of 2).

			Location in which the hybrid has been tested				
Company/ Brand	**Hybrid**	**Hybrid Type[1]**	**Fargo**	**Carrington**	**Hettinger**	**Williston**	**Williston Irrigated**
Pioneer	P63HE501	HO, EX	x	x	--	--	--
Pioneer	P64HE101	HO, EX	x	x	--	--	--
Pioneer	P64ME01	MO, EX	x	--	--	--	--
Proseed	12G25 CL	HO, CL	x	x	x	x	x
Proseed	E-31 CL	NS, CL	x	x	x	x	x
Proseed	E-50016	HO, CL	x	x	x	x	x
Proseed	E-91 E	HO, EX	x	x	x	x	x
Proseed	E-93 E	NS, EX	x	x	x	x	x
RAGT	AC2101	HO, CP	--	x	x	--	--
SunOpta	4415 HODMCLP	HO, CP	x	x	x	x	x
SunOpta	4425CL	NS, CON, CL	x	x	x	x	x
SunOpta	EX725 CL	HO, CL	x	x	x	--	--
Sun-Partners	NSW21460	HO, CL	--	x	x	--	--
Sun-Partners	SF440 HO/CL	HO, CL	--	x	x	--	--
Sun-Partners	SW1H63CL	HO, CL	--	x	x	--	--
Sun-Partners	SW1H81CLP	HO, CP	--	--	x	--	--
USDA	Honeycomb NS[2]	NS	x	x	x	--	--
Mycogen	8N270CLDM[3]	NS, CL	x	x	--	--	--
Croplan	559CL[4]	NS, CL	x	--	x	--	--
Nuseed	Falcon[4]	NS, EX	x	--	--	--	--
USDA	Hybrid 894[5]	Trad.	x	x	x	--	--

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

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

EX = ExpressSun, CL = Clearfield, CP = Clearfield plus.

[2]Honeycomb NS = early-maturing check

[3]8N270CLDM = medium-maturing check.

[4]559CL and Falcon = Late-maturing checks.

[5]Hybrid 894 = long-term hybrid check.

Table 6. 2021 Sunflower - Oilseed - Fargo, N.D. - Author, B. Hulke.

Company/ Brand	Hybrid	Days to Flower	Days to PM	Height	Test Wt.	Seed Moisture	Oil Content	Seed Yield	Hulling Screen[1]
		(DAP)[2]	(DAP)[2]	(inch)	(lb/bu)	(%)	(%)	(lb/a)	
CHS Royal Hyb.	20-EXP05	68	116	88	30.3	9	39.6	2,718	Exc
CHS Royal Hyb.	8D310CL	69	115	90	30.4	8	35.4	2,801	Exc
Croplan	CP3845	67	110	78	33.1	8	46.9	3,258	Poor
Croplan	CP432E	64	110	74	33.2	8	38.9	3,305	Average
Croplan	CP450E	68	115	82	33.0	8	41.9	3,154	Average
Croplan	CP455E	66	114	81	33.2	8	42.8	3,086	Poor
Croplan	CP4909E	68	112	75	34.5	8	45.4	3,353	Poor
Croplan	CP545CL	69	114	78	33.9	9	43.7	3,698	Poor
Croplan	CP7919CL	69	115	83	32.5	9	45.5	3,607	Average
Dyna-Gro	H42HO18CL	65	113	74	34.9	8	42.5	2,926	--
Dyna-Gro	H44HO12CL	65	111	78	32.4	8	45.2	2,851	--
Dyna-Gro	H45HO10EX	67	111	77	30.6	7	42.9	2,521	--
Dyna-Gro	H45NS16CL	65	113	76	35.2	8	44.4	2,908	--
Dyna-Gro	H47HO11EX	67	114	88	34.9	9	40.6	3,396	--
Dyna-Gro	H49HO19CL	70	111	82	32.9	9	44.9	3,682	--
Dyna-Gro	H49NS14CL	68	113	78	33.9	8	43.3	3,440	--
Dyna-Gro	XH81H52CP	69	115	80	33.5	8	47.9	3,453	--
Dyna-Gro	XH81H59EX	66	113	80	32.2	8	40.4	2,892	--
Dyna-Gro	XH81H60EX	69	113	82	33.4	8	45.5	3,165	--
Dyna-Gro	XH81N58EX	69	113	73	35.6	7	45.8	3,240	--
Dyna-Gro	XH81N61EX	69	112	81	32.6	10	43.9	3,325	--
Dyna-Gro	XH81N62EX	69	113	80	35.8	8	41.6	3,078	--
Dyna-Gro	XH82H63EX	65	112	84	32.3	7	43.0	3,289	--
Nuseed	Badger DMR	65	112	83	31.2	8	32.4	3,042	Exc
Nuseed	Falcon	69	113	80	34.9	7	43.3	3,591	--
Nuseed	Hornet	70	114	80	33.0	8	43.3	3,860	--
Nuseed	N4H302 E	65	111	80	31.6	7	43.4	2,778	--
Nuseed	N4H422 CL	66	115	88	33.1	9	41.7	3,572	--
Nuseed	N4H470 CLP	69	115	81	34.0	8	47.0	3,502	--
Nuseed	N4H521 CL	70	116	78	32.6	9	46.0	3,630	--
Nuseed	N4HM354	65	113	74	35.1	7	44.6	3,408	--
Nuseed	N5H493 CL	70	111	83	29.7	8	32.0	3,766	Exc
Nuseed	NHKE53359	68	113	86	32.0	9	42.2	2,779	--
Nuseed	NLKE04002	70	114	80	35.2	9	41.2	2,999	--
Nuseed	NLKP74437	67	117	77	32.5	9	39.8	3,511	--
Pioneer	P63HE501	66	111	79	33.3	8	41.1	3,266	Average
Pioneer	P64HE101	68	118	82	34.5	9	40.2	3,433	Average
Pioneer	P64ME01	68	119	83	34.0	9	39.2	3,224	Average
Proseed	12G25CL	66	108	81	34.1	7	46.7	2,978	--
Proseed	E-31 CL	67	110	82	31.5	7	37.2	3,026	--
Proseed	E-50016 CL	68	113	82	31.7	8	41.7	3,509	--
Proseed	E-91	69	114	86	32.2	7	41.5	1,823	--
Proseed	E-93	68	112	87	31.3	7	38.9	2,293	--
SunOpta	4415HODMCLP	67	112	84	33.0	8	40.3	3,354	Poor
SunOpta	4425CL	67	112	90	32.2	8	37.1	3,105	Exc
SunOpta	EXP725CL	67	114	86	31.1	9	40.8	2,916	Exc
USDA	Honeycomb NS[3]	60	103	70	31.9	7	37.2	2,237	--
USDA	Hybrid 894[4]	67	111	86	33.3	7	41.5	2,740	--
Mean		67	113	81	33.0	8	41.9	3,156	--
CV %		1.0	1.1	3.9	1.5	8.3	2.5	11.4	--
LSD 0.05		1	2	5	0.8	1.1	1.7	582	--
LSD 0.10		1	2	4	0.7	0.9	1.4	487	--

Planted: May 19. Harvested: Oct. 22. Previous crop: spring wheat.

[1]Hulling screen: Exc. = 65% of seed over a 14/64 inch screen; Average = 75% of seed over a 13/64 inch screen; Poor = meets neither criteria.

[2]Days after planting. Maturity checks: Honeycomb NS = 103 DAP, 8N270CLDM = 109 DAP, Falcon = 113 DAP, 559CL = 113 DAP.

[3]Early maturing check.

[4]Long-term hybrid check.

Table 7. 2021 Sunflower - Non-oilseed - Fargo, N.D. - Author, B. Hulke.

Company/ Brand	Hybrid	Days to Flower	Days to PM	Height	Test Wt.	Seed Yield	Seed over screen 22/64	20/64	18/64	Seed size L	W	Nut-meat
		(DAP)[1]	(DAP)[1]	(inch)	(lb/bu)	(lb/a)	-------- % --------			-- (mm)--		(%)
CHS Royal Hyb.	20-EXP03	65	113	78	24.1	2,143	66	76	80	20	10	49.2
CHS Royal Hyb.	21-EXP01	66	115	81	24.5	2,154	69	79	82	23	10	47.8
Nuseed	N6L377 CL	67	115	74	24.0	1,967	54	69	76	18	9	50.5
SunOpta	9583CLP	67	113	83	24.3	2,626	70	81	84	20	9	47.1
SunOpta	SS90	64	115	76	26.6	2,648	15	51	66	15	8	59.2
SunOpta	SS91	68	118	82	25.8	2,487	40	65	73	18	9	53.0
Valia	D2101EXP	72	118	93	29.2	2,928	0	1	14	13	6	63.4
Valia	Valia 41	71	119	86	25.1	2,658	65	80	88	19	9	47.6
Valia	Valia 92	71	113	85	25.2	2,078	51	62	71	20	10	48.1
Valia	Valia 95	68	118	77	24.0	2,479	65	71	72	21	10	48.9
USDA	Hybrid 924[2]	67	114	86	27.5	2,333	24	51	64	14	9	56.1
Mean		68	116	82	25.5	2,409	--	--	--	--	--	--
CV %		1.5	1.1	4.1	4.1	12.9	--	--	--	--	--	--
LSD 0.05		2	2	6	1.8	531	--	--	--	--	--	--
LSD 0.10		1	2	5	1.5	439	--	--	--	--	--	--

Planted: May 19. Harvested: Oct. 22. Previous crop: spring wheat.

[1]Days after planting. Maturity checks: Honeycomb NS = 103 DAP, 8N270CLDM = 109 DAP, Falcon = 113 DAP, 559CL = 113 DAP.

[2]Long-term hybrid check.

Table 8. 2021 Sunflower - Fatty Acid Trial - Fargo, N.D. - Author, B. Hulke.

Company/ Brand	Hybrid	Type[1]	Palmitic			Stearic			Oleic			Linoleic		
			---------- % ± SEM ----------											
CHS Royal Hyb.	20-EXP05	HO	3.1	±	0.3	2.2	±	0.1	86.6	±	4.9	6.5	±	4.6
CHS Royal Hyb.	8D310CL	HO	3.4	±	0.1	2.2	±	0.1	82.7	±	1.7	10.5	±	1.7
Croplan	CP3845	HO	3.3	±	0.1	1.9	±	0.1	91.7	±	0.1	1.6	±	0.1
Croplan	CP432E	NS	4.1	±	0.1	3.5	±	0.1	63.2	±	4.1	27.3	±	4.0
Croplan	CP450E	HO	3.2	±	0.1	4.3	±	0.2	88.2	±	0.3	1.9	±	0.1
Croplan	CP455E	HO	3.3	±	0.1	2.9	±	0.1	90.6	±	0.2	1.6	±	0.1
Croplan	CP4909E	NS	4.7	±	0.3	2.6	±	0.1	51.9	±	6.0	39.3	±	5.6
Croplan	CP545CL	NS	4.5	±	0.3	2.0	±	0.1	65.7	±	4.7	26.0	±	4.5
Croplan	CP7919CL	HO	3.3	±	0.1	2.6	±	0.1	88.1	±	1.5	4.1	±	1.5
Nuseed	N4H302 E	HO	3.5	±	0.1	2.5	±	0.1	90.3	±	0.4	1.8	±	0.3
Nuseed	N5H493 CL	HO	3.5	±	0.1	2.2	±	0.1	85.9	±	1.9	6.5	±	1.7
SunOpta	4415HODMCLP	HO	3.5	±	0.1	2.6	±	0.1	90.3	±	0.2	1.9	±	0.1
SunOpta	4425CL	NS	3.5	±	0.2	3.5	±	0.2	74.8	±	5.9	16.4	±	5.7
SunOpta	EXP725CL	HO	2.7	±	0.1	2.7	±	0.1	91.4	±	0.3	1.6	±	0.1

[1]HO = high oleic, NS = NuSun.

Table 9. 2021 Sunflower - Oilseed - Carrington, N.D. - Authors, M. Ostlie, B. Schatz and S. Yuja. (Page 1 of 2)

Company/ Brand	Hybrid	Days to Flower	Days to Maturity	Plant Height	Plant Lodge[1]	Test Weight	Oil Content	Seed Yield	
								2021	2-yr. Avg.
		(DAP)[2]	(DAP)[2]	(inch)	(0-9)	(lb/bu)	(%)	----------(lb/a)----------	
Croplan	CP3845	67	113	44	1	33.3	46.9	958	1,158
Croplan	CP4157E	68	117	40	0	33.0	47.1	1,060	--
Croplan	CP432E	65	116	40	0	32.3	44.6	1,148	1,571
Croplan	CP450E	69	129	39	0	30.5	44.1	1,312	1,592
Croplan	CP455E	68	127	43	0	31.8	47.7	1,154	1,547
Croplan	CP4909E	69	123	38	0	34.5	48.5	1,238	1,385
Croplan	CP5045CL	69	124	38	0	34.7	49.3	1,254	1,347
Croplan	CP7919CL	69	128	39	0	33.3	48.2	1,198	1,393
Dyna-Gro	H42H018 CL	65	115	36	0	34.0	46.5	832	1,369
Dyna-Gro	H44H012 CL	64	111	40	0	32.9	49.2	978	1,322
Dyna-Gro	H45H010EX	67	121	40	0	31.1	47.1	975	1,362
Dyna-Gro	H45NS16 CL	65	117	40	0	33.2	48.0	995	1,390
Dyna-Gro	H47H011 EX	69	129	41	0	32.3	46.4	1,296	--
Dyna-Gro	H49H019 CL	70	117	35	0	35.1	50.2	961	1,344
Dyna-Gro	H49NS14 CL	69	118	36	0	34.4	49.6	1,044	1,465
Dyna-Gro	XH81H52CP	69	126	38	0	33.7	50.3	1,039	1,329
Dyna-Gro	XH81H60EX	70	127	36	0	33.6	48.7	1,055	--
Dyna-Gro	XH81N62EX	70	128	36	0	33.2	46.2	1,169	--
Dyna-Gro	XH82H63EX	66	117	42	0	31.5	49.9	839	1,475
Nuseed	Badger DMR	65	123	42	1	31.5	41.0	821	1,356
Nuseed	Falcon	69	119	39	0	33.6	48.7	1,109	1,327
Nuseed	Hornet	71	123	35	0	35.2	48.8	1,029	1,295
Nuseed	N4H302 E	67	119	40	0	30.6	48.0	915	1,177
Nuseed	N4H422 CL	69	128	40	0	32.9	46.4	1,189	1,430
Nuseed	N4H470 CLP	69	125	36	0	33.9	49.2	932	949
Nuseed	N4HM354	65	116	40	0	33.7	49.4	781	1,170
Nuseed	N5H493 CL	69	123	41	0	30.0	36.7	1,006	--
Nuseed	NLKE04002	70	127	38	0	32.8	45.6	1,354	--
Nuseed	NLKP74437	69	129	42	1	30.5	44.3	1,418	--
Pioneer	P63HE501	65	110	44	0	31.4	44.4	781	1,402
Pioneer	P64HE101	70	129	40	0	29.5	42.6	1,241	1,752
Proseed	12G25CL	68	121	44	0	34.4	48.8	1,130	1,409
Proseed	E-31 CL	69	127	45	0	30.5	43.0	1,216	1,436
Proseed	E-50016 CL	70	122	41	0	34.9	47.8	795	1,442
Proseed	E-91 E	70	126	47	1	31.4	45.9	926	1,267
Proseed	E-93 E	69	124	46	2	27.7	45.1	783	1,366
RAGT	AC2101	68	117	45	0	32.0	46.8	949	--
Royal Hybrid	20-EXP05	69	121	46	0	26.5	44.3	819	1,201
Sun-Partners	NSW21460	68	128	36	0	33.1	46.9	1,086	--
Mean		68	121	40	0.2	32.2	46.4	1,031	1,368
CV %		1.6	2.7	8.7	373	3.0	2.5	16.8	16
LSD 0.05		1.5	4.6	4.9	0.8	1.4	1.6	220	448
LSD 0.10		1.3	3.8	4.1	0.7	1.1	1.5	185	373

Table 9. 2021 Sunflower - Oilseed - Carrington, N.D. - Authors, M. Ostlie, B. Schatz and S. Yuja. (Page 2 of 2)

Company/ Brand	Hybrid	Days to Flower	Days to Maturity	Plant Height	Plant Lodge[1]	Test Weight	Oil Content	Seed Yield 2021	Seed Yield 2-yr. Avg.
		(DAP)[2]	(DAP)[2]	(inch)	(0-9)	(lb/bu)	(%)	----------(lb/a)----------	
Sun-Partners	SF1H63CL	69	121	43	0	32.9	47.8	1,094	--
Sun-Partners	SF440 HO/CL	71	125	38	0	35.5	48.7	1,140	--
SunOpta	4415HOCLP	68	116	41	1	33.4	45.9	826	1,329
SunOpta	4425CL	70	129	40	1	30.2	42.6	1,168	1,518
SunOpta	EX725CL	69	126	44	0	28.2	43.8	1,085	1,268
USDA	Honeycomb NS[3]	60	107	42	0	29.7	42.9	832	--
Mycogen	8N270CLDM[4]	62	109	39	0	31.5	45.3	744	--
Croplan	559CL[5]	66	118	36	0	31.2	46.6	1,069	--
USDA	Hybrid 894[6]	64	113	41	0	32.0	46.3	728	--
Mean		68	121	40	0.2	32.2	46.4	1,031	1,368
CV %		1.6	2.7	8.7	373	3.0	2.5	16.8	16.1
LSD 0.05		1.5	4.6	4.9	0.8	1.4	1.6	220	448
LSD 0.10		1.3	3.8	4.1	0.7	1.1	1.5	185	373

Planted: May 26. Harvested: Oct. 19. Previous crop: spring wheat.

[1]Lodging score: 0 = no lodging; 9 = plants lying flat.

[2]Days after planting.

[3]Early maturing check, [4]Medium-maturing check, [5]Late-maturing check and [6]Long-term hybrid check.

Table 10 2021 Sunflower - Non-oilseed - Minot, N.D. - Authors, E. Eriksmoen, A. Kraklau and J. Hansen.

Company/ Brand	Hybrid	Days to Flower	Days to Maturity	Plant Height	Test Weight	Seed Over Screen 22/64	Seed Over Screen 20/64	Seed Over Screen 18/64	Seed Yield 2021
		(DAP)[1]	(DAP)[1]	(inch)	(lb/bu)	----------(%)----------			(lb/a)
Nuseed	N6L377 CL	64	102	38	25.0	8	25	60	1,311
SunOpta	SS90	64	105	45	24.8	12	33	64	1,563
SunOpta	SS91	66	110	38	29.1	10	31	64	1,549
USDA	Hybrid 924[2]	63	101	41	25.5	15	43	69	1,316
Mean		64	104	41	26.1	11	33	64	1,435
CV %		2.1	1.1	5.2	3.6	55.0	43.0	10.6	10.5
LSD 0.05		NS	2	4	1.9	NS	NS	NS	NS
LSD 0.10		NS	2	3	1.6	NS	NS	NS	NS

Planted: May 27. Harvested: Oct. 21. Previous crop: chickpea.

[1]Days after planting.

[2]Long-term hybrid check.

Table 11. 2021 Sunflower - Non-oilseed - Carrington N.D. - Authors, M. Ostlie, B. Schatz and S. Yuja.

Company/		Days to	Days	Plant	Plant	Seed Over Screen			Test	Seed Yield	
Brand	Hybrid	Flower	to PM	Height	Lodge[1]	22/64	20/64	18/64	Weight	2021	3-yr. Avg.
		(DAP)[2]	(DAP)[2]	(inch)	(0-9)	(%)	(%)	(%)	(lb/bu)	---------(lb/a)---------	
Nuseed	N6L377 CL	66	129	39	0	1	21	42	29	1,233	--
CHS Royal Hyb.	20-EXP03	66	135	41	0	2	29	31	30	1,237	--
CHS Royal Hyb.	21-EXP01	69	138	41	0	5	27	31	28	1,062	--
CHS Royal Hyb.	RH609CLP	69	132	51	0	3	15	36	30	1,479	--
SunOpta	9583CLP	69	132	48	1	1	12	40	30	1,729	2,059
SunOpta	SS90	64	115	47	1	0	2	27	28	1,135	--
SunOpta	SS91	70	140	39	2	0	8	36	30	1,264	--
Valia	D2101EXP	70	136	39	0	0	0	1	35	1,607	--
Valia	Valia 41	69	136	40	1	2	20	30	30	1,415	1,964
Valia	Valia 92	69	128	46	1	2	19	28	30	1,337	--
Valia	Valia 95	70	138	45	1	15	26	19	30	1,490	--
USDA	Hybrid 924[3]	63	115	39	0	2	12	32	30	1,234	1,384
Mean		68	131	43	1	3	16	29	30	1,352	1,802
CV (%)		1.0	1.5	8.1	126	90	51.8	30.9	3.2	13.5	--
LSD 0.05		1.0	2.7	5.0	1.1	3.3	11.5	13.1	1.4	267	--
LSD 0.10		0.8	2.3	4.2	0.9	2.8	9.6	10.9	1.1	222	--

Planted: May 26. Harvested: Oct. 21. Previous crop: spring wheat.

[1]Lodging score: 0 = no lodging; 9 = plants lying flat.

[2]Days after planting.

[3]Long-term hybrid check.

Table 12. 2021 Sunflower - Non-oilseed - Hettinger, N.D. - Authors, J. Rickertsen and M. Wells.

Company/		Days to	Plant	Seed Over Screen			Test	Seed Yield	
Brand	Hybrid	Flower	Height	22/64	20/64	18/64	Weight	2021	2-yr. Avg.
		(DAP)[1]	(inch)	(%)	(%)	(%)	(lb/bu)	---------(lb/a)---------	
SunOpta	SS90	58	68	13	53	95	22	2,581	1,962
SunOpta	SS91	61	62	18	63	96	21	2,759	--
Mean		60	65	15	58	95	21	2,670	1,962
CV (%)		1.0	5.2	13.8	7.4	0.3	2.6	11.7	--
LSD 0.05		1.3	7.6	4.8	9.6	0.6	1.2	NS	--
LSD 0.10		1.0	5.6	3.5	7.2	0.4	0.9	NS	--

Planted: June 3. Harvested: Oct. 30. Previous crop: wheat.

[1]Days after planting.

Table 13. 2021 Sunflower - Oilseed - Hettinger N.D. - Authors, J. Rickertsen and M. Wells.								(1 of 2)
Company/		Days to	Plant	Test	Oil	Seed Yield		
Brand	Hybrid	Flower	Height	Weight	Content	2021	2-yr. Avg.	3-yr. Avg.
		(DAP)[1]	(inch)	(lb/bu)	(%)	----------(lb/a)----------		
Brevant	B8H131CL	59	64	27.5	40.2	2,349	--	--
Brevant	B8H395E	61	63	25.4	38.3	2,958	--	--
Brevant	B8H460CP	64	64	27.2	43.7	2,920	--	--
Brevant	B8M390E	64	66	27.2	39.1	3,516	--	--
Croplan	CP3845	61	60	30.5	43.0	3,481	2,414	2,453
Croplan	CP432E	57	61	23.1	34.3	1,609	1,663	1,661
Croplan	CP450E	62	57	28.6	38.8	3,266	2,670	2,388
Croplan	CP455E	62	62	28.2	39.9	3,557	2,888	2,579
Croplan	CP4909E	61	52	29.3	39.9	2,965	2,482	2,288
Dairyland	D643HO	60	62	28.0	39.6	2,933	2,418	--
Dairyland	D683MO	61	62	26.7	39.1	3,097	2,548	--
Dairyland	D690MO	63	68	27.7	39.6	3,663	2,713	--
Dyna-Gro	H42HO18CL	61	55	26.6	39.7	2,696	2,210	2,102
Dyna-Gro	H44HO12CL	58	59	27.5	39.7	2,581	2,295	2,243
Dyna-Gro	H45HO10EX	60	59	25.2	38.8	2,910	2,295	2,206
Dyna-Gro	H45NS16CL	61	58	29.6	41.5	2,753	2,360	2,402
Dyna-Gro	H47HO11EX	63	65	27.7	38.4	3,014	--	--
Dyna-Gro	H49HO19CL	64	62	28.5	42.6	3,492	2,749	2,688
Dyna-Gro	H49NS14CL	63	59	28.1	40.1	3,478	2,605	2,507
Dyna-Gro	XH81H52CP	64	65	28.5	44.8	3,671	2,744	2,566
Dyna-Gro	XH81H59EX	61	58	29.1	37.6	3,000	--	--
Dyna-Gro	XH81H60EX	62	63	28.8	41.3	3,837	--	--
Dyna-Gro	XH81H61EX	64	66	28.6	41.6	3,504	--	--
Dyna-Gro	XH81N58EX	63	55	30.0	41.2	3,230	--	--
Dyna-Gro	XH81N62EX	65	60	29.5	38.1	3,073	--	--
Dyna-Gro	XH82H63EX	60	62	28.2	40.2	2,885	--	--
Nuseed	Falcon	62	56	27.5	39.3	2,984	2,483	2,340
Nuseed	Hornet	64	64	28.3	40.5	3,707	2,703	2,593
Nuseed	N4H302 E	61	58	25.7	40.6	3,044	2,431	2,295
Nuseed	N4H422 CL	62	66	28.1	39.4	3,469	2,618	--
Nuseed	N4H470 CL Plus	63	67	32.6	43.5	3,852	2,836	2,628
Nuseed	N4H521 CL	63	57	29.6	40.3	3,364	2,838	2,717
Nuseed	N4HM354	60	60	30.9	41.5	2,725	2,204	2,106
Nuseed	NHKE53359	63	70	25.5	37.5	2,874	--	--
Nuseed	NLKE04002	64	60	28.9	38.0	3,045	--	--
Nuseed	NLKP74437	61	62	26.3	35.7	3,444	--	--
Proseed	12G25 CL	61	62	28.9	42.0	3,220	2,683	--
Proseed	E-31 CL	62	63	27.5	35.4	2,592	--	--
Proseed	E-50016 CL	62	59	28.6	41.4	3,254	2,566	--
Proseed	E-91 E	62	72	27.9	37.7	2,858	2,290	--
Proseed	E-93 E	62	69	25.7	37.7	3,026	2,432	--
RAGT	AC2101	61	66	26.7	39.4	3,293	--	--
Sun-Partners	NSW21460	62	68	28.4	39.7	3,550	--	--
Sun-Partners	SF440 HO/CL	65	64	28.6	42.0	3,644	--	--
Sun-Partners	SW1H63CL	64	55	27.1	41.9	3,031	--	--
Sun-Partners	SW1H81CLP	62	63	28.3	42.0	3,485	--	--
SunOpta	4415	61	65	27.9	35.6	2,950	2,358	2,390
Mean		62	62	27.8	39.7	3,097	2,427	2,316
CV %		1.3	6.3	5.3	4.4	8.1	19.4	19.0
LSD 0.05		0.9	4.6	1.6	2.0	415	959	723
LSD 0.10		0.7	3.5	1.3	1.6	227	797	603

Table 13. 2021 Sunflower - Oilseed - Hettinger N.D. - Authors, J. Rickertsen and M. Wells. **(2 of 2)**

Company/ Brand	Hybrid	Days to Flower	Plant Height	Test Weight	Oil Content	Seed Yield		
						2021	2-yr. Avg.	3-yr. Avg.
		(DAP)[1]	(inch)	(lb/bu)	(%)	----------(lb/a)----------		
SunOpta	4425 CL	61	70	27.4	36.6	3,836	2,817	2,538
SunOpta	EXP725 CL	61	69	25.0	37.1	3,534	2,701	2,559
USDA	Honeycomb NS[2]	55	56	23.0	37.1	770	1,154	1,602
Mycogen	8N270CLDM[3]	57	54	26.6	38.2	1,853	1,722	1,798
Croplan	559CL[4]	62	69	29.3	41.7	3,466	2,127	--
USDA	Hybrid 894[5]	61	67	27.6	38.7	2,838	2,076	1,925
Mean		62	62	27.8	39.7	3,097	2,427	2,316
CV %		1.3	6.3	5.3	4.4	8.1	19.4	19.0
LSD 0.05		0.9	4.6	1.6	2.0	415	959	723
LSD 0.10		0.7	3.5	1.3	1.6	227	797	603

Planted: June 3. Harvested: Oct. 29. Previous crop: wheat.

[1]Days after planting.

[2]Early maturing check, [3]Medium-maturing check, [4]Late-maturing check and [5]Long-term hybrid check.

Table 14. 2021 Sunflower - Oilseed - Express - Williston, N.D. - Authors, J. Bergman, G. Pradhan and C. Wahlstrom.

Company/		Days to	Plant	Oil	Test	Seed Yield		
Brand	Hybrid	Flower	Height	Content	Weight	2021	2-yr. Avg.	3-yr Avg.
		(DAP)[1]	(inch)	(%)	(lb/bu)	----------(lb/a)----------		
Croplan	CP432E	59	48	37.0	32.0	1,256	--	--
Croplan	CP455E	61	28	36.5	30.9	1,408	1,710	1,470
Dyna-Gro	H45HO10EX	60	39	37.8	31.5	1,227	1,326	1,113
Dyna-Gro	H47HO11EX	64	48	38.1	32.0	1,078	--	--
NuSeed	Falcon	65	41	38.8	33.8	1,266	1,210	1,135
NuSeed	N4H302 E	62	40	38.1	31.7	1,420	1,366	1,290
Proseed	E-91 E	66	47	37.2	32.7	1,577	1,597	1,352
Proseed	E-93 E	66	50	38.7	31.7	1,434	1,625	--
Mean		63	42	37.8	32.1	1,341	1,472	1,272
CV %		1.5	20.6	5.7	3.2	10.6	13.7	16.7
LSD 0.05		1.6	15.1	3.7	1.8	246	NS	NS
LSD 0.10		1.3	12.4	3.1	1.5	203	407	322

Planted: June 1. Harvested: Oct. 8. Previous crop: wheat.

[1]Days after planting.

Table 15. 2021 Sunflower - Oilseed - Clearfield - Williston, N.D. - Authors, J. Bergman, G. Pradhan and C. Wahlstrom.

Company/		Days to	Plant	Oil	Test	Seed Yield		
Brand	Hybrid	Flower	Height	Content	Weight	2021	2-yr. Avg.	3-yr Avg.
		(DAP)[1]	(inch)	(%)	(lb/bu)	----------(lb/a)----------		
Dyna-Gro	H42H018CL	63	35	37.4	32.3	1,065	1,195	1,066
Dyna-Gro	H44HO12CL	60	39	40.2	33.3	1,206	1,298	1,312
Dyna-Gro	H45NS16CL	63	41	39.0	32.7	1,623	1,409	1,405
NuSeed	N4H422 CL	64	42	38.9	31.7	1,636	1,411	--
NuSeed	N4H470 CLP	66	39	41.7	33.2	1,148	1,086	1,200
NuSeed	N4HM354	64	38	38.5	32.9	1,506	--	--
Proseed	12G25CL	63	46	40.1	33.1	1,335	--	--
Proseed	E-31CL	66	48	32.3	29.3	1,339	--	--
Proseed	E-50016CL	64	43	36.4	31.2	1,398	1,326	--
Sunopta	4415HODMCLP	65	47	36.7	31.0	1,122	--	--
Sunopta	4425CL	66	46	32.8	31.2	1,458	--	--
Mean		64	42	37.5	31.9	1,362	1,288	1,246
CV %		1.7	5.7	5.0	2.5	14.3	--	--
LSD 0.05		1.8	4.1	3.2	1.4	331	--	--
LSD 0.10		1.5	3.4	2.6	1.1	274	--	--

Planted: June 1. Harvested: Oct. 8. Previous crop: wheat.

[1]Days after planting.

Table 16. 2021 Sunflower - Oilseed - Irrigated - Williston, N.D. - Authors, J. Bergman, T. Tjelde, J. Jacobs and A. Turnquist.

Company/		Days to	Harvested	Oil	Test	Seed Yield	
Brand	Hybrid	Flower	Population	Content	Weight	2021	2-yr. Avg.
		(DAP)[1]		(%)	(lb/bu)	----------(lb/a)----------	
Dyna-Gro	H42HO18CL	63	18,855	31.9	31.5	2,265	2,660
Dyna-Gro	H44HO12CL	62	17,516	34.8	32.2	1,959	2,582
Dyna-Gro	H45HO10EX	64	17,359	34.6	29.0	2,367	2,731
Dyna-Gro	H45NS16CL	63	22,019	34.3	33.0	2,712	2,713
Dyna-Gro	H47HO11EX	65	16,172	29.6	32.3	2,467	--
NuSeed	Falcon	65	23,675	31.7	31.8	2,626	2,601
NuSeed	N4H302 E	62	17,047	33.2	28.7	2,174	2,728
NuSeed	N4H422 CL	63	15,930	31.5	30.0	2,535	--
NuSeed	N4H470 CLP	66	23,754	35.5	29.8	3,135	--
NuSeed	N4HM354	63	20,562	34.2	32.7	2,598	2,469
Proseed	12G25 CL	64	16,537	34.7	31.4	2,206	2,414
Proseed	E-31 CL	64	20,400	29.5	30.3	2,901	2,513
Proseed	E-50016 CL	64	22,612	32.5	31.8	3,013	--
Proseed	E-91 E	65	17,943	31.3	29.4	2,600	2,809
Proseed	E-93 E	65	13,867	28.5	28.6	2,182	2,545
Sunopta	4415HODMCLP	64	22,703	32.4	32.4	2,590	--
Sunopta	4425CL	64	18,682	30.1	30.9	3,180	--
Mean		64	19,155	32.4	30.9	2,559	2,615
CV %		--	15.0	3.6	2.7	17.2	--
LSD 0.05		--	4,498	1.7	1.2	701	--
LSD 0.10		--	3,753	1.4	1.0	584	--

Planted: June 1. Harvested: Nov. 4. Previous crop: barley

[1]Days after planting.

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

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