



COLORADO STATE UNIVERSITY

Agricultural Experiment Station

College of Agricultural Sciences – Department of Soil & Crop Sciences –
Extension

2025



SUNFLOWER HYBRID PERFORMANCE TRIALS

Making Better Decisions



**CROPS TESTING
PROGRAM**

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Cover design by London Breese.

2025 Colorado Sunflower Hybrid Performance Trials

Jason Webb and Sally Jones-Diamond

Colorado State University (CSU) conducts hybrid sunflower performance trials to provide research-based, unbiased, current, and reliable information to Colorado sunflower producers to make better planting decisions. Colorado State University promotes crop variety testing as a service to crop producers and seed companies who rely on us for accurate crop variety performance information. The sunflower trials are made possible by funding received from company entry fees, the Colorado Sunflower Administrative Committee, and Colorado State University.

Colorado State University personnel and collaborators planted two dryland oil sunflower trials in Colorado. The trials were located at Julesburg and Walsh. The dryland trial at Julesburg was lost in June due to severe weather (very high winds and rain). An irrigated oil trial was also planted at Walsh on a farmer's field. Twenty-one hybrids with diverse origins, maturities, and value-added traits were tested in the trials. Trial results are statistically analyzed and reported shortly after harvest on our website at www.csucrops.org/sunflower.

Testing Methods

Hybrids were included in the trial based on paid company entries, in which company representatives selected and entered hybrids and provided seed for planting. All trial entries were randomized within each replication using a randomized complete block design. Plot sizes for the dryland trial were four rows wide at 30-inch spacing and 35-feet long. The dryland trial had four replications. Cultural practices for each trial location are listed below the individual site tables when available, and in most cases, management practices in the trial area match those used in the rest of the grower's field.

Plots at Julesburg dryland and Walsh irrigated were planted using a four-row Seed Research Equipment Solutions (SRES) 2013 Classic Aire small plot vacuum planter equipped with Monosem Seed Meters. The dryland oil trials were planted at 19,000 seeds per acre. The irrigated oil trial was planted at 25,000 seeds per acre. Grain yields for all trial hybrids are reported in the tables.

Sunflower plots were harvested using a 2024 Zurn 150 plot combine, equipped with a H2 GrainGage weighing system, which records grain weight, moisture, and test weight. All yields are calculated and adjusted to 10% moisture content. Seed oil contents are also adjusted to 10% moisture.

Data Results

The least significant difference (LSD) is provided at the bottom of each results table. The LSD indicates whether differences in hybrid yields are statistically significant. If the yield difference between two hybrids equals or exceeds the LSD value, the difference is considered significant. Farmers should use the LSD ($P < 0.30$) when selecting superior hybrids to minimize economic loss from false-negative results. Scientists, academics, and others may use LSD ($P < 0.05$) to reduce the risk of false-positive results. If the yield difference between two entries is less than the LSD value, those entries are considered equal-yielding. Hybrid yields shown in bold are in the top LSD group. Hybrids in the table are sorted from highest to lowest yield.

Hybrid selection may be based on more than yield performance. Other factors to consider when selecting a hybrid may include maturity, herbicide or pest tolerance traits, disease resistance, standability, and seed quality parameters such as oil percentage and/or seed size.

2025 Dryland Oil Sunflower Hybrid Performance Trial at Walsh

Brand	Hybrid	Oil Type ^a	Technology Traits ^b	Grain		Moisture	Test Weight	Oil Content ^c
				Yield ^c	Yield ^c			
				lb/ac	% of test avg.	percent	lb/ac	percent
Dyna-Gro	H50HO20CP	HO	Clearfield Plus	1259	128%	8.7	27.8	45.2
Advanta	Hysun 182 IT	Traditional	Clearfield	1239	126%	9.0	26.6	39.1
Advanta	ADV 5310CL	Traditional	Clearfield	1232	125%	11.0	26.9	41.1
Advanta	ADV 5407CL	Traditional	Clearfield	1158	118%	9.8	27.3	44.6
Advanta	ADV 5205CLHO	HO	Clearfield	1116	113%	8.3	25.8	38.8
Advanta	V201810 (ADV 5420CL)	Traditional	Clearfield	1094	111%	9.8	27.9	44.0
Croplan	CP7919CL	HO	Clearfield	1094	111%	9.1	27.3	42.1
Croplan	CP5249CL	HO	Clearfield	1049	106%	7.4	26.1	44.5
Dyna-Gro	H49HO19CL	HO	Clearfield	1027	104%	7.9	26.0	43.0
Croplan	CP4490E	HO	ExpressSun	973	99%	7.4	26.0	40.6
Nuseed	N4H470 CLP	HO	Clearfield Plus	956	97%	7.9	27.5	42.6
Sunrich Products	4415HO/DMR/CLP	HO	Clearfield Plus, DMR	932	95%	8.0	26.7	38.7
Nuseed	N4H422 CL	HO	Clearfield	925	94%	9.0	27.6	42.0
Advanta	Hysun 302 IT	Traditional	Clearfield	903	92%	10.8	27.1	35.4
Dyna-Gro	XH41H54CL	HO	Clearfield	883	90%	9.2	26.8	41.9
Dyna-Gro	XH41H56CL	HO	Clearfield	870	88%	8.1	26.8	38.1
Nuseed	N4H490 E	HO	ExpressSun	858	87%	8.8	26.9	42.1
Sunrich Products	4425CL	NS	Clearfield	852	86%	9.0	25.8	36.3
Croplan	CP455E	HO	ExpressSun	822	83%	8.0	27.1	39.4
Nuseed	N4H205 E	HO	ExpressSun	734	75%	7.7	25.1	44.0
Croplan	CP4255E	HO	ExpressSun	718	73%	8.0	26.4	37.2
Average				985	100%	8.7	26.7	41.0
^d LSD (0.30)				177			0.7	
^d LSD (0.05)				338			1.3	
Coefficient of Variation (%)				17.1			1.8	

^aOil type designations: HO=High oleic; NS=NuSun/Mid-oleic.

^bTechnology trait designations: Clearfield and Clearfield Plus=tolerant to Beyond herbicide; DMR=downy mildew resistance; ExpressSun=tolerant to Express herbicide.

^cYield and oil content were corrected to 10% moisture at harvest. Hybrids in the top yield and test weight groups (P<0.30) are bolded.

^dFarmers selecting a variety based on yield should use the LSD (.30) to protect themselves from false negative conclusions (concluding varieties are the same when they are actually different). Companies or researchers may use the LSD (.05) to avoid false positive conclusions (concluding varieties are different when they are actually the same).

Site Information

Collaborator: 3WC Farms

Planting Date: June 25, 2025

Harvest Date: October 30, 2025

Fertilizer: Starter: N at 3 lb/ac and P at 10 lb/ac

Pesticides: Pre-emerge: Paraquat at 32 oz/ac, Tigris 4SC at 2 oz/ac, and Anthem Flex at 4 oz/ac

Post-emerge: Clethodim

Vantacor insecticide applied in August for head moth control

Soil Type: Wiley loam

GPS: 37.4388254, -102.3095882

Trial Comments: Trial was planted into good moisture, no hail during the season. Radar estimates showed rainfall from planting in late June to harvest as 6.7" total.

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2025 Irrigated Oil Sunflower Hybrid Performance Trial at Walsh

Brand	Hybrid	Oil Type ^a	Technology Traits ^b	Grain		Moisture percent	Test	Oil
				Yield ^c lb/ac	Yield ^c % of test avg.		Weight lb/bu	Content ^c percent
Croplan	CP455E	HO	ExpressSun	1186	141%	4.2	20.8	34.8
Croplan	CP4255E	HO	ExpressSun	1158	138%	5.1	22.0	37.4
Croplan	CP5249CL	HO	Clearfield	1002	119%	3.6	19.7	35.8
Sunrich Products	4425CL	NS	Clearfield	987	118%	4.1	19.8	30.7
Advanta	ADV 5407CL	Traditional	Clearfield	959	114%	3.5	19.7	35.6
Nuseed	N4H490 E	HO	ExpressSun	949	113%	4.4	20.8	36.1
Advanta	Hysun 182 IT	Traditional	Clearfield	947	113%	3.3	18.4	31.6
Nuseed	N4H470 CLP	HO	Clearfield Plus	905	108%	4.4	20.2	36.3
Croplan	CP7919CL	HO	Clearfield	896	107%	3.2	18.4	38.3
Dyna-Gro	H50HO20CP	HO	Clearfield Plus	858	102%	3.6	20.1	38.9
Dyna-Gro	H49HO19CL	HO	Clearfield	851	101%	4.2	19.7	34.0
Advanta	ADV 5310CL	Traditional	Clearfield	821	98%	4.3	21.2	36.9
Sunrich Products	4415HO/DMR/CLP	HO	Clearfield Plus	820	98%	4.2	20.8	33.8
Dyna-Gro	XH41H54CL	HO	Clearfield	791	94%	4.6	20.9	35.0
Dyna-Gro	XH41H56CL	HO	Clearfield	699	83%	5.3	22.3	34.0
Advanta	ADV 5205CLHO	HO	Clearfield	662	79%	5.0	20.9	37.1
Nuseed	N4H422 CL	HO	Clearfield	653	78%	5.0	21.4	37.6
Nuseed	N4H205 E	HO	ExpressSun	639	76%	2.8	18.3	32.0
Advanta	Hysun 302 IT	Traditional	Clearfield	639	76%	5.0	21.0	31.0
Advanta	V201810 (ADV 5420CL)	Traditional	Clearfield	620	74%	5.7	22.5	39.0
Croplan	CP4490E	HO	ExpressSun	588	70%	4.3	-	33.3
Average				839	100%	4.3	20.4	35.2
^d LSD (0.30)				154			0.6	
^d LSD (0.05)				295			1.3	
Coefficient of Variation (%)				16.0			2.1	

^aOil type designations: HO=High oleic; NS=NuSun/Mid-oleic; Traditional=Linoleic.

^bTechnology trait designations: Clearfield and Clearfield Plus=tolerant to Beyond herbicide; ExpressSun=tolerant to Express herbicide.

^cYield and oil content were corrected to 10% moisture at harvest. Hybrids in the top yield and test weight groups (P<0.30) are bolded.

^dFarmers selecting a variety based on yield should use the LSD (.30) to protect themselves from false negative conclusions (concluding varieties are the same when they are actually different). Companies or researchers may use the LSD (.05) to avoid false positive conclusions (concluding varieties are different when they are actually the same).

Site Information

Collaborator: Tim Hume

Planting Date: June 17, 2025

Harvest Date: October 30, 2025

Soil Type: Baca Silt Loam

GPS: 37.532858, -102.212547

Trial Comments:

Trial was planted into good moisture. There was a severe hailstorm in late summer that caused severe bruising to the stalks and heads, leading to considerable yield reduction. Estimated precipitation during the growing season was 9.72".

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