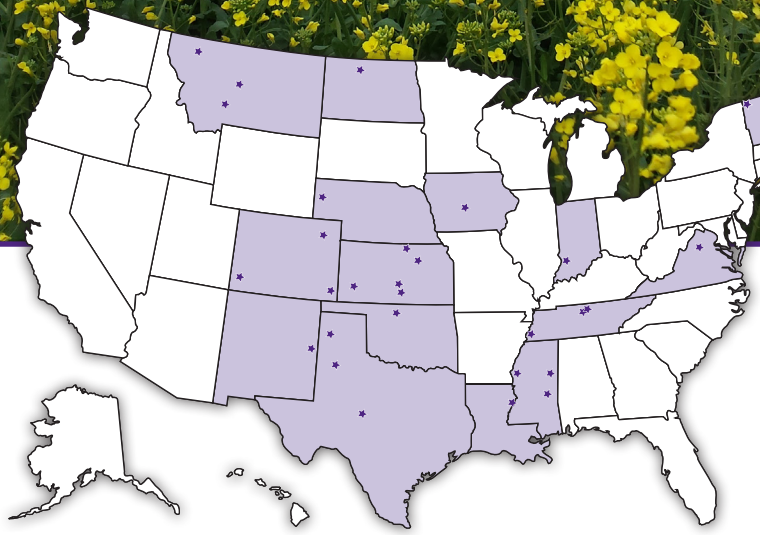
2023

National Winter Canola Variety Trial



Report of Progress 1185

K-STATE Research and Extension

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

2023 National Winter Canola Variety Trial and Roundup Ready Variety Trials

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Contribution no. 24-217-S from the Kansas Agricultural Experiment Station

2023 National Winter Canola Variety Trial

Objectives

The objectives of the National Winter Canola Variety Trial (NWCVT) are to evaluate the performance of released and experimental varieties, determine where these varieties are best adapted, and increase the visibility of winter canola across the United States. Breeders, marketers, and producers use data collected from the trials to make informed variety selections. The NWCVT is planted at locations in the Great Plains, Northern Plains, Midwest, and Southeast.

Procedures

Seed for the NWCVT was distributed to 32 test sites in 15 states for the 2022–2023 growing season. The locations receiving seed are illustrated on the map on the front cover. See the back cover for a listing of participating cooperators. Of the 42 entries, 18 are open pollinated and 24 are hybrid. These entries were provided by seven seed suppliers. All entries in the trial were treated with insecticide and fungicide seed treatments to control insects and seedling diseases through the late fall and early winter months.

Open-pollinated and hybrid cultivars were planted in separate, side-by-side trials at sites where all entries were planted. Results for each trial were analyzed individually and are presented in separate tables for each test site.

Management guidelines were provided to cooperators, but previous growing experience influenced final management decisions. All trials were planted in small research plots (approximately 100 ft^2) with three or four replications. Cultural practices, site descriptions, growing conditions, and performance data are provided for each harvested location. Results are presented alphabetically by seed supplier. Yield results for some locations include 2-year summaries.

Near infrared spectroscopy was used for total oil and protein analyses. The Kansas State University canola breeding program provided these analyses for all test sites.

The NWCVT continues in the 2023–2024 growing season and includes 61 entries. Eight seed suppliers contributed to the trial, and it was distributed to 27 locations in 15 states.

2022–2023 Growing Conditions

Temperature and precipitation data are shown at the top of the page for each test site. Thick black lines on the temperature graphs represent long-term average high and low temperatures (°F) for the test site. The upper thin line represents actual daily high temperatures, and the lower thin line represents actual daily low temperatures. On the precipitation graph, the line labeled “normal” represents long-term average precipitation, and the line labeled “22-23” represents actual precipitation. If weather information was not provided, data were taken from a nearby town.

In general, the 2022–2023 growing season was marked by poor establishment due to dry soils at planting and winterkill. Losses were especially common in the Great Plains and Southeast. As a whole, trials in the Midwest and Southeast fared better, but yields were lower than normal. High oil contents at harvested locations indicate conditions improved near the end of grain filling

Test Sites and Results

Seven harvested test sites in six states are included in this report: Vincennes, IN; Garden City, KS; Creston, MT; Ashland City and Springfield, TN; Orange, VA; and Alburgh, VT. Overall, yields were below average for the harvested locations. Trial averages ranged from 569 to 3,343 lb/acre.

Twenty-five locations were not harvested or had poor data quality because of inadequate stand establishment, winterkill, or heavy weed pressure.

The “percentage of test average” yield calculation is included in the results. This relative yield calculation allows for some comparison of performance across environments. Entries yielding greater than 100% of the test average across multiple test sites merit some consideration.

Caution should be used when evaluating data from test sites with coefficient of variation (CV) values greater than 20. Lower values suggest less error was observed at the test site.

Inestimable differences in soil type, weather, and environmental conditions play a part in increasing experimental error and CV values. Numerous test sites have CV values of greater than 20. Even if yield data are unreliable, other data collected by the cooperator may be useful.

Variety Selection

Winter hardiness is an important trait to consider when selecting a winter canola variety. This trait has been improved, but variability still exists where differential winterkill occurs. Winter canola varieties should show consistent survival across multiple years and sites. Other traits to consider include herbicide resistance, tolerance to carryover from sulfonylurea herbicides, maturity, disease tolerance, yield potential, and oil content. More than one year of data should be used to make an informed variety selection decision. Canola weighs 50 lb/bushel, so a 2,000 lb/acre yield is 40 bushels/acre.

View Table 13 for seed sources, contact information, brand names, and traits of the winter canola varieties, and hybrids grown in the NWCVT.

Acknowledgments

This work was funded in part by the fees paid by seed suppliers, the USDA-NIFA awards 2021-38624-35736 and 2021-67013-33782, and the Kansas Agricultural Experiment Station. Assistant scientist Allison Aubert assisted with organizing, packaging, planting, harvesting, data collection, and publication writing. Sincere appreciation is expressed to all participating researchers and seed suppliers who have a vested interest in expanding winter canola acres and increasing production in the United States. Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned.

Orange, Virginia

Greg Lillard
Virginia Tech University

Planted: 9/15/2022
Seeding Rate OP: 500,000 seeds/a
Seeding Rate Hybrid: 300,000 seeds/a
Desiccant: None
Harvested: 6/26/2023
Herbicides: 2 pt/a Trifluralin, 2 qt/a Roundup, 8 oz/a Stinger
Insecticides: None
Fungicide: None
Previous crop: Rye (cover)
Soil test: P=18 ppm, K=192 ppm, pH=6.2
Fertilizer: Fall: 30-100-30-10-1 lb/a N-P-K-S-B
Spring: 100-0-0 lb/a N-P-K split application
Soil type: Fauquier clay Latitude: 38.216667
Elevation: 510 ft. Longitude: -78.116667
Comments: Open-pollinated yields were greater than normal. Field variability contributed to larger differences in the hybrid trial. Use hybrid data with caution.

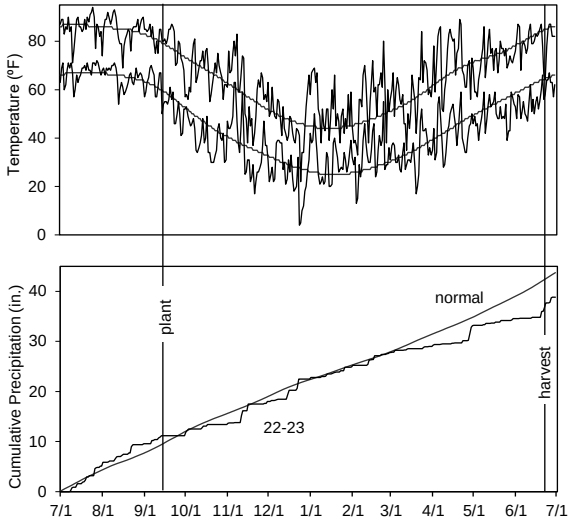

Table 1. Results for the 2023 National Winter Canola Variety Trial, open-pollinated cultivars, at Orange, VA

Name	Yield (lb/a)[1]			Yield (% of test avg.)	Winter survival (%)			Fall stand	Fall vigor	50% bloom	Plant height	Moisture	Test weight	Protein	Oil
	2023	2022	2-yr.	2023	2023	2022	2-yr.	(0-10)	(1-5)	(d)	(in.)	(%)	(lb/bu)	(%)	(%)
CROPLAN															
CP225WRR	3430	1693	2562	103	---	---	---	10.0	---	---	52	11.8	40.6	20.2	41.6
CP320WRR	3613	1467	2540	108	---	---	---	9.3	---	---	48	11.4	43.2	19.8	41.6
CP1022WC	3045	2034	2540	91	---	---	---	10.0	---	---	53	12.8	44.1	20.6	40.7
CP1066WC	3295	**2224**	2760	99	---	---	---	10.0	---	---	55	13.1	41.7	19.5	42.8
Kansas State University															
KS4662	3197	1932	2565	96	---	---	---	10.0	---	---	54	12.6	42.2	20.1	42.0
KS4685	2663	---	---	80	---	---	---	10.0	---	---	54	13.0	43.3	20.4	41.4
KS4737	3725	---	---	111	---	---	---	9.0	---	---	53	12.6	42.2	20.3	42.6
KSR4767	3707	**2124**	2915	111	---	---	---	9.3	---	---	51	12.1	42.8	20.5	41.7
KSR4839S	3367	1612	2490	101	---	---	---	9.3	---	---	54	10.9	41.3	19.9	43.3
KSR4848	3379	**2270**	2825	101	---	---	---	9.3	---	---	55	12.8	43.9	19.9	42.0
KSR4854S	2997	**2470**	2733	90	---	---	---	10.0	---	---	55	13.1	41.7	21.1	41.6
KSUR1212	3813	1960	2886	114	---	---	---	9.7	---	---	55	11.9	42.6	20.3	42.4
Griffin	3221	1940	2580	96	---	---	---	9.7	---	---	46	11.6	41.6	20.5	41.6
Riley	3437	**2063**	2750	103	---	---	---	8.7	---	---	51	11.6	42.4	20.6	42.0
Surefire	3353	**2565**	2959	100	---	---	---	9.3	---	---	54	12.6	42.5	20.2	42.0
Wichita	3322	**2225**	2774	99	---	---	---	8.3	---	---	51	11.7	43.1	21.9	40.2
Ohlde Seed Farms															
Torrington	3276	1736	2506	98	---	---	---	9.0	---	---	54	12.9	42.4	20.6	41.4
Star Specialty Seed															
Star 930W	3330	1436	2383	100	---	---	---	9.3	---	---	52	11.6	42.6	20.2	41.4
Grand Mean	3343	2005	---	---	---	---	---	9.5	---	---	53	12.2	42.5	20.4	41.8
CV	19	24	---	---	---	---	---	11.2	---	---	4	8.6	2.9	2.3	1.6
LSD	ns	522	---	---	---	---	---	ns	---	---	---	ns	ns	1.0	1.4
P-value	0.90	0.18	---	---	---	---	---	0.81	---	---	<0.05	0.26	0.11	<0.05	<0.05

Bold: Superior LSD group. Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ns=not significantly different. A p-value <0.05 is typically considered to be statistically significant.

[1]Use yield data with caution. A CV greater than 20 indicates higher experimental error. Make variety selection decisions based on more than one year's data. Yields adjusted to 9% moisture content.

Table 2. Results for the 2023 National Winter Canola Variety Trial, hybrid cultivars, at Orange, VA

Name	Yield (lb/a)[1]			Yield (% of test avg.)	Winter survival (%)			Fall stand	Fall vigor	50% bloom	Plant height	Moisture	Test weight	Protein	Oil
	2023	2022	2-yr.	2023	2023	2022	2-yr.	(0-10)	(1-5)	(d)	(in.)	(%)	(lb/bu)	(%)	(%)
Bayer Crop Science															
DK SEQUEL	**6485**	---	---	219	---	---	---	10.0	---	---	50	9.7	45.6	18.9	42.4
DK SEVERNYI	2683	---	---	91	---	---	---	9.0	---	---	49	11.1	43.9	19.2	43.4
DK SEAX	4060	---	---	137	---	---	---	9.7	---	---	48	10.5	45.0	19.1	43.4
DK SEPHOR	3780	---	---	128	---	---	---	8.7	---	---	47	9.9	45.4	17.6	43.7
DK EXPOWER	3906	---	---	132	---	---	---	10.0	---	---	53	10.6	41.0	19.2	43.5
DK EXSTORM	3273	---	---	111	---	---	---	9.0	---	---	54	11.4	43.0	19.7	43.3
DK EXTERRIER	3190	---	---	108	---	---	---	9.0	---	---	56	11.2	43.4	18.0	44.1
DK EXENTIEL	3480	---	---	118	---	---	---	9.0	---	---	52	11.6	42.1	18.5	44.8
DK EXCEPTION	4460	---	---	151	---	---	---	10.0	---	---	57	11.4	43.7	18.1	44.1
DK EXCLAIM	3555	---	---	120	---	---	---	9.3	---	---	55	11.1	45.5	18.1	45.1
DK EXSTAR	4182	---	---	141	---	---	---	9.3	---	---	51	10.7	43.6	18.5	44.2
Corteva Agriscience															
PT264	2389	3936	3163	81	---	100	---	9.3	---	---	53	13.4	41.7	19.1	44.2
PT271	2455	3734	3094	83	---	100	---	8.0	---	---	50	11.1	42.3	18.9	44.2
PT275	2752	4027	3389	93	---	100	---	8.7	---	---	52	11.4	43.5	18.7	44.0
PT293	2100	4407	3253	71	---	100	---	9.3	---	---	53	12.0	43.0	17.8	45.8
PT297	1780	3851	2816	60	---	98	---	10.0	---	---	49	12.4	40.9	19.5	44.0
PT299	1546	3958	2752	52	---	98	---	9.3	---	---	48	13.2	39.1	18.2	44.8
PT302	1700	4345	3022	57	---	100	---	9.0	---	---	51	14.3	40.7	18.7	44.7
PT303	2155	3478	2816	73	---	93	---	9.0	---	---	57	13.5	42.2	19.0	43.9
PT312	1914	---	---	65	---	---	---	8.7	---	---	55	13.2	41.4	18.8	44.6
PT314	1602	---	---	54	---	---	---	9.3	---	---	55	14.8	40.7	19.9	42.9
CROPLAN															
CP1055WC	1933	---	---	65	---		---	9.0	---	---	51	12.0	42.5	18.5	44.1
CP1077WC	3610	4490	4050	122	---	100	---	9.3	---	---	53.33	11.2	42.7	19.3	43.0
Rubisco Seeds															
Inspiration	1960	---	---	66	---	100	---	9.0	---	---	57	12.0	41.5	18.7	44.5
Grand Mean	2956	3976	---	---	---	100	---	9.2	---	---	52	11.8	42.7	18.7	44.0
CV	36	20	---	---	---	2	---	12.3	---	---	8	11.2	3.3	2.9	1.5
LSD	1729	ns	---	---	---	ns	---	ns	---	---	ns	2.2	2.4	1.1	1.3
P-value	<0.05	0.34	---	---	---	0.48	---	0.93	---	---	0.06	<0.05	<0.05	<0.05	<0.05

Bold: Superior LSD group. Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ns=not significantly different. A p-value <0.05 is typically considered to be statistically significant.

[1]Use yield data with caution. A CV greater than 20 indicates higher experimental error. Make variety selection decisions based on more than one year's data. Yields adjusted to 9% moisture content.

Vincennes, Indiana

Kenneth Eck
Purdue University

Planted:	9/15/2022 in 6-in. rows
Seeding Rate OP:	500,000 seeds/a
Seeding Rate Hybrid:	300,000 seeds/a
Desiccant:	6/10/2023 Reglone 1.5 pt/a
Harvested:	6/20/2023
Herbicides:	12 oz/a Dual Magnum, 4 oz/a Command 3ME
Insecticides:	None
Fungicide:	12 oz/a Quadris Top, 5.7 oz/a Proline 480SC
Previous crop:	Sweet corn
Soil test:	P= 25ppm, K= 106ppm, pH= 7.6
Fertilizer:	Fall: 21-0-0-24 lb/a N-P-K-S
	Spring: 159-0-0-24-1 lb/a N-P-K-S-B split application
Soil type:	Lomax loam Latitude: 38.741269
Elevation:	430 ft. Longitude: -87.486541
Comments:	Excellent yields reported at this site. No winter stand loss or major pest pressures were observed.

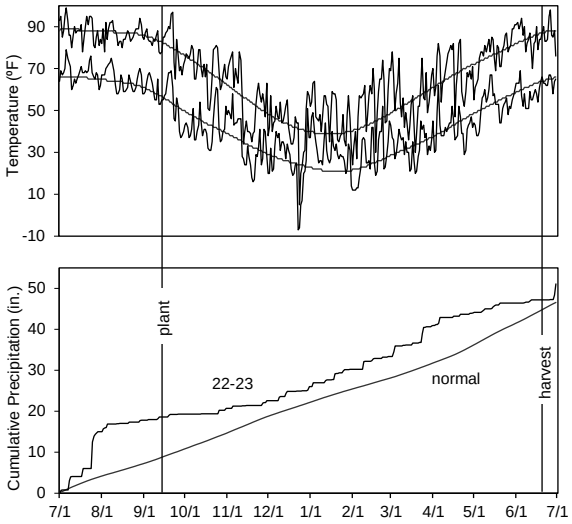

Table 3. Results for the 2023 National Winter Canola Variety Trial, open-pollinated cultivars, at Vincennes, IN

Name	Yield (lb/a)			Yield (% of test avg.)	Winter survival (%)			Fall stand	Fall vigor	50% bloom	Plant height	Moisture	Test weight	Protein	Oil
	2023	2022	2-yr.	2023	2023	2022	2-yr.	(0 to	(1-5)	(d)	(in.)	(%)	(lb/bu)	(%)	(%)
CROPLAN															
CP225WRR	2706	1787	2246	97	---	99	---	10.0	5.0	102	52	7.8	51.2	19.2	44.6
CP320WRR	2647	1672	2159	95	---	98	---	10.0	5.0	102	51	7.9	51.3	19.1	43.0
CP1022WC	2476	765	1621	89	---	100	---	10.0	5.0	106	56	7.9	51.6	18.4	45.3
CP1066WC	2991	**2623**	2807	107	---	98	---	10.0	5.0	105	59	8.0	51.0	18.4	46.0
Kansas State University															
KS4662	2793	1759	2276	100	---	99	---	10.0	5.0	103	54	7.8	50.8	19.3	44.3
KS4685	3086	---	---	110	---	99	---	10.0	5.0	104	59	7.7	50.8	17.7	46.2
KS4737	2629	---	---	94	---	99	---	10.0	5.0	103	55	7.9	50.4	18.2	46.7
KSR4767	2805	1315	2060	100	---	98	---	10.0	5.0	103	58	7.8	51.3	18.8	44.0
KSR4839S	2811	1072	1942	101	---	97	---	10.0	5.0	103	58	7.5	50.8	17.9	46.9
KSR4848	2685	1811	2248	96	---	99	---	10.0	4.7	104	57	8.5	51.1	19.1	44.8
KSR4854S	2773	1284	2028	99	---	98	---	9.7	4.7	104	59	7.8	50.5	18.0	45.8
KSUR1212	2482	1856	2169	89	---	99	---	10.0	5.0	103	56	8.0	51.1	18.6	45.2
Griffin	2995	1159	2077	107	---	99	---	10.0	5.0	99	54	7.5	51.2	18.8	44.5
Riley	3021	1699	2360	108	---	99	---	10.0	5.0	101	56	7.8	51.0	19.0	45.4
Surefire	2850	1273	2061	102	---	97	---	10.0	5.0	104	58	7.9	51.0	18.1	45.9
Wichita	2886	1482	2184	103	---	99	---	10.0	5.0	103	57	7.8	51.5	18.4	45.3
Ohlde Seed Farms															
Torrington	2907	1750	2328	104	---	99	---	10.0	5.0	103	57	7.9	50.9	18.6	45.2
Star Specialty Seed															
Star 930W	2767	1457	2112	99	---	97	---	10.0	5.0	101	55	7.8	51.0	18.2	44.7
Grand Mean	2795	1547	---	---	---	98	---	0.5	5.0	103	56	7.8	51.0	18.5	45.2
CV	11	18	---	---	---	1	---	1.4	3.9	1	3	3.8	0.6	3.8	1.8
LSD	ns	491	---	---	---	ns	---	ns	ns	1	3	ns	0.5	ns	1.7
P-value	0.55	<0.05	---	---	---	0.35	---	0.48	0.56	<0.05	<0.05	0.11	<0.05	0.57	<0.05

Bold: Superior LSD group. Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ns=not significantly different. A p-value <0.05 is typically considered to be statistically significant.

Table 4. Results for the 2023 National Winter Canola Variety Trial, hybrid cultivars, at Vincennes, IN

Name	Yield (lb/a)			Yield (% of test avg.)	Winter survival (%)			Fall stand	Fall vigor	50% bloom	Plant height	Moisture	Test weight	Protein	Oil
	2023	2022	2-yr.	2023	2023	2022	2-yr.	(0 to	(1-5)	(d)	(in.)	(%)	(lb/bu)	(%)	(%)
Bayer Crop Science															
DK SEQUEL	**3202**	---	---	102	---	---	---	10.0	4.7	102	55	9.1	50.4	17.7	44.9
DK SEVERNYI	2829	---	---	90	---	---	---	9.3	5.0	104	55	8.1	50.1	17.1	46.4
DK SEAX	3002	---	---	96	---	---	---	10.0	5.0	108	57	8.5	50.5	17.2	45.8
DK SEPHOR	**3074**	---	---	98	---	---	---	10.0	5.0	103	56	8.8	50.2	16.8	46.9
DK EXPOWER	**3073**	---	---	98	---	---	---	10.0	5.0	100	59	8.2	49.6	16.7	47.0
DK EXSTORM	**3291**	---	---	105	---	---	---	10.0	5.0	103	58	8.2	50.2	16.4	47.4
DK EXTERRIER	**3281**	---	---	105	---	---	---	10.0	5.0	102	60	8.7	50.1	16.1	46.9
DK EXENTIEL	3006	---	---	96	---	---	---	10.0	5.0	102	58	9.1	49.7	16.4	47.1
DK EXCEPTION	**3248**	---	---	104	---	---	---	10.0	5.0	101	61	9.1	50.0	16.6	45.4
DK EXCLAIM	**3084**	---	---	99	---	---	---	10.0	5.0	103	59	8.8	49.6	16.6	47.0
DK EXSTAR	**3237**	---	---	103	---	---	---	10.0	5.0	100	59	8.5	49.8	16.5	46.5
Corteva Agriscience															
PT264	**3246**	**2957**	3101	104	---	---	---	10.0	5.0	105	59	8.0	50.0	16.4	49.3
PT271	2975	1617	2296	95	---	---	---	10.0	5.0	104	59	8.3	50.2	16.4	48.4
PT275	**3175**	**3278**	3227	101	---	---	---	10.0	5.0	103	60	8.2	50.1	16.3	48.3
PT293	**3253**	**3095**	3174	104	---	---	---	10.0	5.0	104	61	7.8	50.4	17.0	47.9
PT297	**3445**	**2906**	3175	110	---	---	---	10.0	5.0	102	59	7.9	49.7	16.5	48.9
PT299	**3262**	2286	2774	104	---	---	---	10.0	4.8	101	60	8.3	48.5	16.9	48.5
PT302	**3056**	2372	2714	98	---	---	---	10.0	5.0	102	58	8.5	50.2	17.1	48.3
PT303	**3296**	**2994**	3145	105	---	---	---	10.0	5.0	106	61	8.1	49.2	16.4	49.1
PT312	**3378**	---	---	108	---	---	---	10.0	4.7	103	56	8.1	50.3	16.7	48.8
PT314	**3282**	---	---	105	---	---	---	10.0	5.0	102	61	8.4	49.8	16.8	48.2
CROPLAN															
CP1055WC	**3425**	---	---	109	---	---	---	10.0	5.0	102	60	8.6	49.1	16.5	45.8
CP1077WC	2828	**3025**	2926	90	---	---	---	10.0	5.0	101	58	8.2	49.7	16.8	46.9
Rubisco Seeds															
Inspiration	2966	---	---	95	---	---	---	10.0	4.3	102	60	8.2	50.4	17.4	46.6
Grand Mean	3129	2758	---	---	---	---	---	10.0	4.9	103	59	8.4	50.0	16.8	47.2
CV	9	15	---	---	---	---	---	2.3	4.8	1	3	5.8	1.0	1.7	1.0
LSD	439	692	---	---	---	---	---	ns	0.4	1	2	0.8	0.8	0.6	1.0
P-value	<0.05	<0.05	---	---	---	---	---	0.48	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Bold: Superior LSD group. Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ns=not significantly different. A p-value <0.05 is typically considered to be statistically significant.

Ashland City, Tennessee

Jason de Koff
Tennessee State University

Planted:	9/15/2022	
Seeding Rate OP:	500,000 seeds/a	
Seeding Rate Hybrid:	300,000 seeds/a	
Desiccant	None	
Harvested:	6/8/2023	
Herbicides:	1.5 pt/a Trust	
Insecticides:	None	
Irrigation:	As needed from 9/20 to 10/11	
Previous crop:	N/A	
Soil test:	N/A	
Fertilizer:	Fall: 26-0-0-30 lb/a N-P-K-S Spring: 74-0-40 lb/a N-P-K	
Soil type:	N/A	Latitude: N/A
Elevation:	400 ft.	Longitude: N/A
Comments:	Yields were much lower than normal, but oil contents were excellent.	

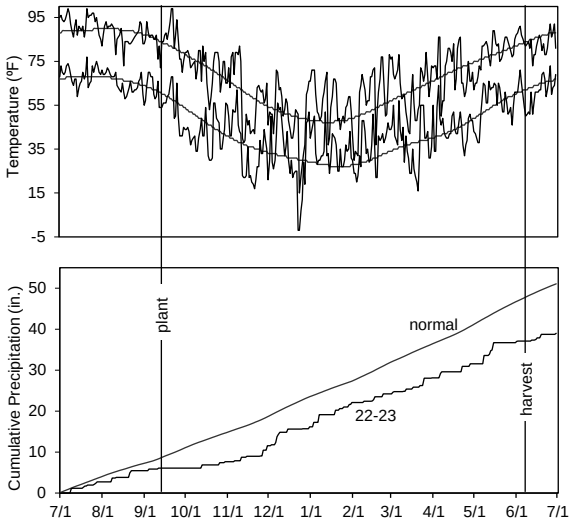

Table 5. Results for the 2023 National Winter Canola Variety Trial, open-pollinated cultivars, at Ashland City, TN

Name	Yield (lb/a)[1]			Yield (% of test avg.)	Winter survival (%)			Fall stand	Fall vigor	50% bloom	Plant height	Moisture	Test weight	Protein	Oil
	2023	2022	2-yr.	2023	2023	2022	2-yr.	(0-10)	(1-5)	(d)	(in.)	(%)	(lb/bu)	(%)	(%)
CROPLAN															
CP1022WC	506	1643	1074	83	---	---	---	---	---	---	---	---	---	20.0	43.3
CP1066WC	703	2091	1397	116	---	---	---	---	---	---	---	---	---	19.8	43.4
Kansas State University															
KS4662	503	**2577**	1540	83	---	---	---	---	---	---	---	---	---	19.4	43.5
KS4685	404	---	---	66	---	---	---	---	---	---	---	---	---	19.6	43.3
KS4737	763	---	---	126	---	---	---	---	---	---	---	---	---	19.2	44.1
KSUR1212	322	1983	1152	53	---	---	---	---	---	---	---	---	---	20.2	42.3
Griffin	644	2348	1496	106	---	---	---	---	---	---	---	---	---	19.8	42.2
Riley	740	**2818**	1779	122	---	---	---	---	---	---	---	---	---	19.5	43.0
Surefire	493	2146	1319	81	---	---	---	---	---	---	---	---	---	19.6	43.1
Wichita	796	**3033**	1915	131	---	---	---	---	---	---	---	---	---	20.1	42.5
Ohlde Seed Farms															
Torrington	813	1975	1394	134	---	---	---	---	---	---	---	---	---	19.3	44.2
Grand Mean	608	2314	---	---	---	---	---	---	---	---	---	---	---	19.7	43.2
CV	39	16	---	---	---	---	---	---	---	---	---	---	---	1.2	1.0
LSD	ns	519	---	---	---	---	---	---	---	---	---	---	---	0.5	1.0
P-value	0.50	0.11	---	---	---	---	---	---	---	---	---	---	---	<0.05	<0.05

Bold: Superior LSD group. Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ns=not significantly different. A p-value <0.05 is typically considered to be statistically significant.

[1]Use yield data with caution. A CV greater than 20 indicates higher experimental error. Make variety selection decisions based on more than one year's data.

Table 6. Results for the 2023 National Winter Canola Variety Trial, hybrid cultivars, at Ashland City, TN

Name	Yield (lb/a)[1]			Yield (% of test avg.)	Winter survival (%)			Fall stand	Fall vigor	50% bloom	Plant height	Moisture	Test weight	Protein	Oil
	2023	2022	2-yr.	2023	2023	2022	2-yr.	(0-10)	(1-5)	(d)	(in.)	(%)	(lb/bu)	(%)	(%)
Bayer Crop Science															
DK SEQUEL	**1403**	---	---	282	---	---	---	---	---	---	---	---	---	19.0	42.4
DK SEVERNYI	93	---	---	19	---	---	---	---	---	---	---	---	---	19.4	42.9
DK SEAX	226	---	---	45	---	---	---	---	---	---	---	---	---	18.8	43.9
DK SEPHOR	**1501**	---	---	301	---	---	---	---	---	---	---	---	---	19.1	42.9
DK EXPOWER	530	---	---	106	---	---	---	---	---	---	---	---	---	19.1	44.1
DK EXSTORM	634	---	---	127	---	---	---	---	---	---	---	---	---	19.0	44.2
DK EXTERRIER	**1123**	---	---	226	---	---	---	---	---	---	---	---	---	18.7	43.8
DK EXENTIEL	354	---	---	71	---	---	---	---	---	---	---	---	---	19.4	43.2
DK EXCEPTION	622	---	---	125	---	---	---	---	---	---	---	---	---	19.5	42.3
DK EXCLAIM	436	---	---	88	---	---	---	---	---	---	---	---	---	18.7	44.0
DK EXSTAR	773	---	---	155	---	---	---	---	---	---	---	---	---	19.3	43.0
Corteva Agriscience					---	---	---	---	---	---	---	---	---		
PT264	479	2799	1639	96	---	---	---	---	---	---	---	---	---	18.5	45.9
PT271	204	3107	1656	41	---	---	---	---	---	---	---	---	---	19.5	44.8
PT275	245	3236	1741	49	---	---	---	---	---	---	---	---	---	19.1	44.1
PT293	153	3233	1693	31	---	---	---	---	---	---	---	---	---	20.6	43.5
PT297	160	3040	1600	32	---	---	---	---	---	---	---	---	---	19.5	43.3
PT299	263	3187	1725	53	---	---	---	---	---	---	---	---	---	18.9	45.5
PT302	348	2719	1533	70	---	---	---	---	---	---	---	---	---	18.7	44.6
PT303	288	2870	1579	58	---	---	---	---	---	---	---	---	---	19.0	44.8
PT312	262	---	---	53	---	---	---	---	---	---	---	---	---	19.4	44.2
PT314	409	---	---	82	---	---	---	---	---	---	---	---	---	19.3	45.0
CROPLAN															
CP1055WC	100	---	---	20	---	---	---	---	---	---	---	---	---	20.2	41.1
CP1077WC	535	3584	2059	107	---	---	---	---	---	---	---	---	---	19.3	43.5
Rubisco Seeds															
Inspiration	807	---	---	162	---	---	---	---	---	---	---	---	---	18.3	45.1
Grand Mean	498	2926	---	---	---	---	---	---	---	---	---	---	---	19.2	43.9
CV	58	21	---	---	---	---	---	---	---	---	---	---	---	3.1	2.3
LSD	596	ns	---	---	---	---	---	---	---	---	---	---	---	ns	2.1
P-value	<0.05	0.31	---	---	---	---	---	---	---	---	---	---	---	0.23	<0.05

Bold: Superior LSD group. Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ns=not significantly different. A p-value <0.05 is typically considered to be statistically significant.

[1]Use yield data with caution. A CV greater than 20 indicates higher experimental error. Make variety selection decisions based on more than one year's data.

Springfield, Tennessee

Mitchell Richmond and Brad Fisher
University of Tennessee

Planted:	9/20/2022 in 7-in. rows	
Seeding Rate OP:	500,000 seeds/a	
Seeding Rate Hybrid:	300,000 seeds/a	
Desiccant:	None	
Harvested:	6/13/2023	
Herbicides:	40 fl zo/a Ranger Pro	
Insecticides:	None	
Fungicide:	7 fl oz/a Quadris, 4.3 fl oz/a Proline	
Previous crop:	Soybean	
Soil test:	P= 17 ppm, K= 77 ppm, S= 4 ppm, pH= 6.23	
Fertilizer:	Fall: 40-0-0-23-1 lb/a N-P-K-S-B	
	Spring: 160-30-30-23-1 lb/a N-P-K-S-B split application	
Soil type:	Dickson silt loam	Latitude: 36.472199
Elevation:	706 ft.	Longitude: -86.843886
Comments:	Yields were slightly lower than normal but oil contents were very high at this site.	

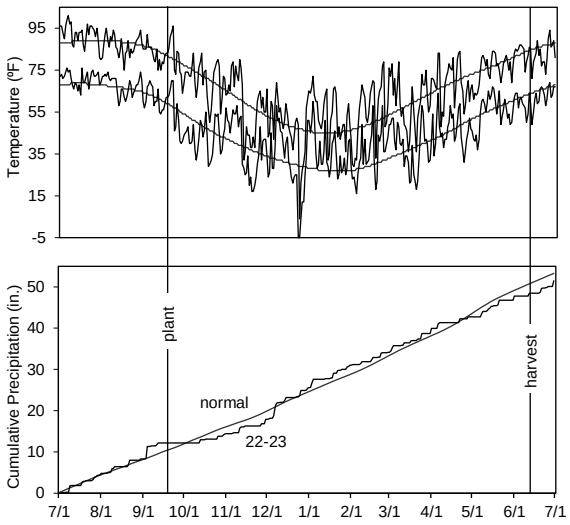

Table 7. Results for the 2023 National Winter Canola Variety Trial, open-pollinated cultivars, at Springfield, TN

Name	Yield (lb/a)			Yield (% of test avg.)	Winter survival (%)			Fall stand	50% bloom	Plant height	Moisture	Test weight	Protein	Oil
	2023	2022	2-yr.	2023	2023	2022	2-yr.	(0-10)	(d)	(in.)	(%)	(lb/bu)	(%)	(%)
CROPLAN														
CP1022WC	1687	2585	2136	82	100	---	---	10.0	99	49	13.5	---	19.5	43.9
CP1066WC	**2481**	2527	2504	120	100	---	---	10.0	89	46	9.4	---	20.0	43.1
Kansas State University														
KS4662	**2154**	2318	2236	104	98	---	---	9.7	90	45	8.0	---	19.6	44.5
KS4685	1803	---	---	87	100	---	---	9.0	94	52	8.7	---	18.5	44.6
KS4737	**2203**	---	---	107	100	---	---	9.0	87	44	8.5	---	19.2	44.9
KSUR1212	**2052**	2037	2044	99	100	---	---	9.7	91	52	8.8	---	19.5	44.4
Griffin	**2147**	2562	2355	104	100	---	---	9.7	85	39	6.9	---	19.6	43.7
Riley	**2250**	2293	2271	109	100	---	---	9.3	88	47	8.2	---	18.4	45.8
Surefire	1610	2608	2109	78	100	---	---	9.0	94	45	8.4	---	18.7	44.5
Wichita	**2340**	2738	2539	113	100	---	---	8.7	93	46	7.8	---	19.3	44.5
Ohlde Seed Farms														
Torrington	**2004**	2430	2217	97	100	---	---	10.0	89	50	8.2	---	18.2	45.0
Grand Mean	2066	2457	---	---	100	---	---	9.5	91	47	8.8	---	19.1	44.4
CV	16	16	---	---	1	---	---	6.3	2	5	10.6	---	3.0	1.6
LSD	567	ns	---	---	ns	---	---	ns	3	4.4	1.6	---	ns	ns
P-value	0.09	0.63	---	---	0.48	---	---	0.10	<0.05	<0.05	<0.05	---	0.13	0.16

Bold: Superior LSD group. Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ns=not significantly different. A p-value <0.05 is typically considered to be statistically significant. Yields adjusted to 9% moisture.

Table 8. Results for the 2023 National Winter Canola Variety Trial, hybrid cultivars, at Springfield, TN

Name	Yield (lb/a)			Yield (% of test avg.)	Winter survival (%)			Fall stand	50% bloom	Plant height	Moisture	Test weight	Protein	Oil
	2023	2022	2-yr.	2023	2023	2022	2-yr.	(0-10)	(d)	(in.)	(%)	(lb/bu)	(%)	(%)
Bayer Crop Science														
DK SEQUEL	**2993**	---	---	114	98	---	---	9.3	85	35	5.7	---	19.2	43.0
DK SEVERNYI	**2868**	---	---	109	100	---	---	10.0	90	36	6.6	---	17.7	45.0
DK SEAX	**3050**	---	---	116	100	---	---	10.0	96	49	9.1	---	16.6	46.1
DK SEPHOR	**3318**	---	---	127	100	---	---	10.0	93	42	9.1	---	17.0	45.8
DK EXPOWER	2617	---	---	100	100	---	---	9.0	90	43	6.3	---	17.0	45.9
DK EXSTORM	**2795**	---	---	107	98	---	---	9.7	91	44	6.2	---	16.4	46.8
DK EXTERRIER	**3076**	---	---	117	100	---	---	9.7	92	50	6.0	---	16.6	46.5
DK EXENTIEL	**2821**	---	---	108	92	---	---	9.3	89	43	4.9	---	17.1	46.2
DK EXCEPTION	**2941**	---	---	112	100	---	---	10.0	92	46	5.7	---	17.1	45.2
DK EXCLAIM	2452	---	---	94	100	---	---	9.3	94	46	7.2	---	16.3	47.6
DK EXSTAR	2425	---	---	93	98	---	---	9.7	87	39	4.9	---	17.2	46.7
Corteva Agriscience														
PT264	**2929**	3271	3100	112	100	---	---	10.0	92	47	7.6	---	16.2	48.1
PT271	1832	2735	2283	70	97	---	---	9.3	95	43	5.5	---	15.7	48.1
PT275	2130	2641	2385	81	97	---	---	9.7	96	49	14.3	---	16.9	47.3
PT293	2354	2815	2584	90	97	---	---	9.3	94	42	6.3	---	15.9	48.9
PT297	2296	2394	2345	88	92	---	---	9.7	94	45	10.3	---	16.0	48.0
PT299	2569	2603	2586	98	98	---	---	9.7	88	42	5.5	---	16.0	48.9
PT302	**2755**	2397	2576	105	100	---	---	9.7	94	47	9.9	---	17.1	47.5
PT303	2415	2861	2638	92	97	---	---	9.7	93	49	7.8	---	16.6	47.4
PT312	2029	---	---	77	98	---	---	9.7	94	45	7.8	---	16.6	48.0
PT314	2522	---	---	96	97	---	---	9.0	90	45	6.0	---	16.8	48.3
CROPLAN														
CP1055WC	**2654**	---	---	101	98	---	---	9.7	90	42	5.0	---	16.3	46.8
CP1077WC	2432	2686	2559	93	93	---	---	10.0	93	41	6.2	---	16.4	47.0
Rubisco Seeds														
Inspiration	2587	---	---	99	98	---	---	9.3	87	44	4.9	---	16.9	46.8
Grand Mean	2619	2664	---	---	98	---	---	9.6	92	44	7.0	---	16.7	46.9
CV	16	20	---	---	4	---	---	5.1	3	8	24.1	---	5.0	2.0
LSD	670	ns	---	---	ns	---	---	ns	4	6	2.8	---	ns	1.9
P-value	<0.05	0.92	---	---	0.28	---	---	0.34	<0.05	<0.05	<0.05	---	0.18	<0.05

Bold: Superior LSD group. Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ns=not significantly different. A p-value <0.05 is typically considered to be statistically significant. Yields adjusted to 9% moisture.

Garden City, Kansas

John Holman
Kansas State University

Planted: 9/7/2022
Seeding Rate OP: 500,000 seeds/a
Seeding Rate Hybrid: 300,000 seeds/a
Swathed: N/A
Harvested: 6/26/2023
Herbicides: 3 pt/a Prowl
Insecticides: None
Fungicide: None
Irrigation: 11 in.
Soil test: N/A
Fertilizer: N/A

Soil type: Ulysses Richfield silt loam
Elevation: 2835 ft.
Comments: Challenging winter conditions and spotty establishment contributed to lower than normal yields.

Latitude: 37.928725
Longitude: -98.024028

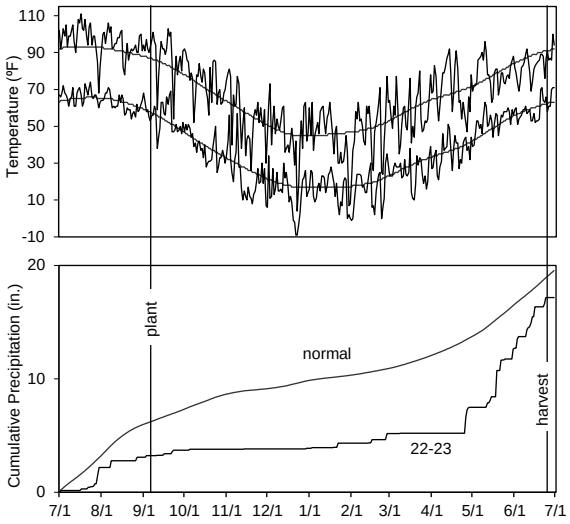

Table 9. Results for the 2023 National Winter Canola Variety Trial, open-pollinated cultivars, at Garden City, KS

Name	Yield (lb/a)[1]			Yield (% of test avg.)	Winter survival (%)			Fall stand	Fall vigor	g vigor	Plant height	Moisture	Test weight	Protein	Oil
	2023	2022	2-yr.	2023	2023	2022	2-yr.	(0-10)	(1-5)	(1-5)	(in.)	(%)	(lb/bu)	(%)	(%)
CROPLAN															
CP225WRR	1071	---	---	96	64	---	---	9.3	5.0	4.3	29	12.4	47.8	22.7	38.0
CP320WRR	1112	---	---	100	66	---	---	9.7	5.0	4.7	29	12.3	49.1	22.5	38.4
CP1022WC	911	---	---	82	39	---	---	9.3	4.7	3.0	30	12.9	44.6	24.4	38.4
CP1066WC	**1365**	---	---	123	93	---	---	8.7	5.0	5.0	32	11.1	49.0	22.0	40.0
Kansas State University															
KS4662	976	---	---	88	69	---	---	8.7	4.7	4.3	31	13.0	48.0	22.9	38.7
KS4685	**1686**	---	---	151	73	---	---	8.3	5.0	3.7	33	12.4	47.8	22.4	39.4
KS4737	**1485**	---	---	133	60	---	---	9.0	5.0	4.3	31	12.3	48.7	20.8	42.1
KSR4767	1117	---	---	100	84	---	---	8.0	4.7	5.0	32	11.8	47.6	22.0	40.0
KSR4839S	820	---	---	74	44	---	---	8.3	4.3	3.3	28	12.2	46.9	22.6	40.1
KSR4848	1222	---	---	110	59	---	---	8.0	4.0	3.0	31	12.9	46.7	22.8	38.5
KSR4854S	1173	---	---	105	61	---	---	8.3	4.3	4.0	32	12.8	47.9	22.6	39.6
KSUR1212	983	---	---	88	58	---	---	8.7	4.7	4.0	27	12.0	48.0	24.0	38.3
Griffin	709	---	---	64	56	---	---	7.7	4.7	3.3	25	11.9	46.4	23.4	38.6
Riley	920	---	---	83	45	---	---	8.7	4.7	3.7	27	12.9	48.2	23.7	39.6
Surefire	1196	---	---	107	72	---	---	7.3	4.7	4.0	32	11.8	48.0	24.4	37.9
Wichita	1169	---	---	105	61	---	---	8.7	4.7	4.7	31	12.6	49.8	24.1	37.2
Ohlde Seed Farms															
Torrington	1188	---	---	107	82	---	---	8.7	5.0	5.0	33	11.8	48.5	21.6	40.3
Star Specialty Seed															
Star 930W	947	---	---	85	65	---	---	8.3	4.7	4.0	28	11.3	48.1	23.7	38.5
Grand Mean	1114	---	---	---	64	---	---	8.5	4.7	4.1	30	12.2	47.8	22.9	39.1
CV	28	---	---	---	23	---	---	9.5	9.1	21.6	11	9.5	3.0	4.3	2.6
LSD	430	---	---	---	25	---	---	ns	ns	ns	ns	ns	2.3	ns	2.2
P-value	0.08	---	---	---	<0.05	---	---	0.14	0.28	0.10	0.14	0.78	<0.05	0.08	<0.05

Bold: Superior LSD group. Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ns=not significantly different. A p-value <0.05 is typically considered to be statistically significant.

[1]Use yield data with caution. A CV greater than 20 indicates higher experimental error. Make variety selection decisions based on more than one year's data. Yields adjusted to 9% moisture content.

Table 10. Results for the 2023 National Winter Canola Variety Trial, hybrid cultivars, at Garden City, KS

Name	Yield (lb/a)[1]			Yield (% of test avg.)	Winter survival (%)			Fall stand	Fall vigor	g vigor	Plant height	Moisture	Test weight	Protein	Oil
	2023	2022	2-yr.	2023	2023	2022	2-yr.	(0-10)	(1-5)	(1-5)	(in.)	(%)	(lb/bu)	(%)	(%)
Bayer Crop Science															
DK SEQUEL	**1844**	---	---	152	68	---	---	8.3	5.0	5.0	31	11.4	50.0	22.4	37.9
DK SEVERNYI	1142	---	---	94	45	---	---	7.7	5.0	3.0	29	11.9	48.0	23.0	38.8
DK SEAX	1292	---	---	107	48	---	---	9.7	5.0	5.0	31	12.5	49.9	20.8	40.3
DK SEPHOR	**1503**	---	---	124	58	---	---	8.7	4.7	5.0	27	12.0	46.7	22.8	38.8
DK EXPOWER	---	---	---	---	8	---	---	8.0	4.7	1.0	24	---	---	---	---
DK EXSTORM	**1352**	---	---	112	56	---	---	8.0	5.0	4.0	30	12.1	48.4	20.2	41.9
DK EXTERRIER	1233	---	---	102	55	---	---	8.7	5.0	4.7	30	12.5	48.4	19.9	41.6
DK EXENTIEL	**1322**	---	---	109	51	---	---	8.3	5.0	4.3	30	12.4	49.1	18.4	42.7
DK EXCEPTION	**1573**	---	---	130	57	---	---	8.0	5.0	4.7	31	10.9	48.8	21.7	39.1
DK EXCLAIM	737	---	---	61	19	---	---	8.3	5.0	2.3	28	12.8	43.2	22.6	38.7
DK EXSTAR	1104	---	---	91	44	---	---	8.7	5.0	4.3	27	12.3	47.6	22.5	38.5
Corteva Agriscience															
PT264	**1373**	---	---	113	47	---	---	9.0	5.0	4.7	33	11.7	48.0	20.7	42.4
PT271	**1787**	---	---	147	54	---	---	9.3	5.0	5.0	31	12.3	48.9	21.7	40.5
PT275	1128	---	---	93	33	---	---	8.0	5.0	3.0	26	12.2	46.0	24.7	37.4
PT293	**1423**	---	---	117	44	---	---	8.0	5.0	4.3	30	12.5	47.5	22.8	40.4
PT297	502	---	---	41	16	---	---	8.3	4.7	2.3	24	12.7	45.0	24.1	38.0
PT299	1281	---	---	106	47	---	---	8.3	5.0	4.7	27	13.1	46.6	21.0	42.6
PT302	1284	---	---	106	41	---	---	9.7	5.0	4.3	27	12.2	47.0	21.8	40.9
PT303	995	---	---	82	31	---	---	8.3	5.0	3.7	28	12.5	48.2	22.2	39.6
PT312	**1330**	---	---	110	50	---	---	7.7	5.0	5.0	28	12.5	47.3	21.6	41.1
PT314	564	---	---	47	19	---	---	8.7	5.0	3.3	23	12.9	45.0	22.5	39.9
CROPLAN															
CP1055WC	1131	---	---	93	45	---	---	9.7	5.0	4.7	25	12.8	47.5	21.1	40.1
CP1077WC	**1649**	---	---	136	55	---	---	9.7	5.0	4.7	31	13.2	46.6	21.4	40.5
Rubisco Seeds															
Inspiration	430	---	---	35	13	---	---	7.7	5.0	2.0	25	13.4	42.5	24.9	35.8
Grand Mean	1212	---	---	---	42	---	---	8.4	4.9	4.0	28	12.3	47.4	22.0	39.8
CV	27	---	---	---	38	---	---	8.1	4.5	24.2	7	7.1	5.0	8.7	4.6
LSD	548	---	---	---	26	---	---	1.1	0.4	1.6	3	ns	3.9	ns	3.2
P-value	<0.05	---	---	---	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	0.27	<0.05	0.37	0.08

Bold: Superior LSD group. Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ns=not significantly different. A p-value <0.05 is typically considered to be statistically significant.

[1]Use yield data with caution. A CV greater than 20 indicates higher experimental error. Make variety selection decisions based on more than one year's data. Yields adjusted to 9% moisture content.

Creston, Montana

Jessica Torrion
Montana State University

Planted: 8/18/2022
Seeding Rate OP: 500,000 seeds/a
Seeding Rate Hybrid: 300,000 seeds/a
Desiccant: None
Harvested: 8/18/2023
Herbicides: Glyphosate
Insecticides: Lambda-cy
Irrigation: N/A
Previous crop: Barley
Soil test: NO_3^-=95.5 lb/a, P=12 lb/a, K=133 lb/a
Fertilizer: 60-25-60 lb/a N-P-K

Soil type: Creston silt loam Latitude: 48.187028
Elevation: 2950 ft. Longitude: -114.140861
Comments: Winter conditions challenged this site resulting in lower yields than the previous year. Oil contents were very good.

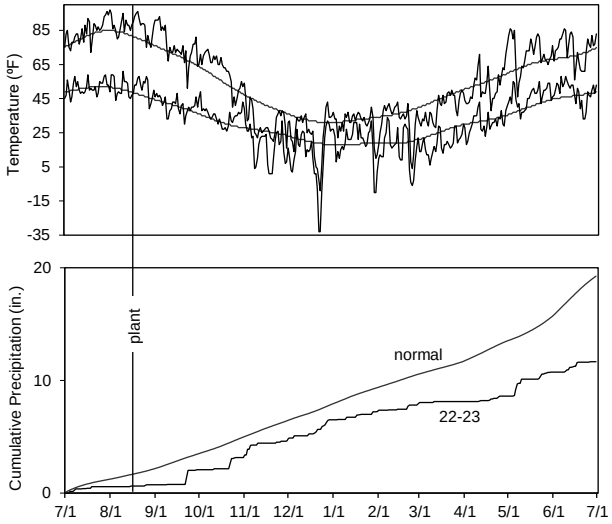

Table 11. Results for the 2023 Roundup Ready Variety Trial, open-pollinated cultivars, at Creston, MT

Name	Yield (lb/a)			Yield (% of test avg.)	Winter survival (%)			Fall stand	50% bloom	Maturity	Plant height	Protein	Oil
	2023	2022	2-yr.	2023	2023	2022	2-yr.	(# plts/0.5 m^2)	(d)	(d)	(in.)	(%)	(%)
CROPLAN													
CP225WRR	299	2267	1283	53	9	85	47	14	143	209	46	24.9	40.5
CP320WRR	621	2390	1506	109	26	86	56	16	143	208	35	26.0	40.3
Kansas State University													
KSR4767	316	2382	1349	55	29	77	53	16	144	210	42	25.5	40.4
KSR4837	666	2334	1500	117	25	75	50	14	143	212	43	25.9	39.8
KSR4839S	698	2003	1350	123	22	82	52	15	144	208	42	24.3	43.0
KSR4848	431	2353	1392	76	33	81	57	13	144	212	45	25.6	40.0
KSR4852S	984	2320	1652	173	30	83	57	18	143	208	46	24.5	41.6
KSR4854S	561	2473	1517	99	14	88	51	14	144	210	40	26.4	39.8
KSR4925	899	2428	1664	158	33	75	54	15	144	208	42	24.8	40.7
KSR4926S	567	2282	1425	100	23	77	50	13	143	212	40	24.5	41.1
KSR4927S	655	2442	1549	115	21	80	50	15	142	214	42	26.2	40.0
KSR4928	687	2322	1504	121	24	79	52	13	144	208	43	25.3	40.2
KSR4966S	652	2238	1445	115	20	76	48	16	142	213	46	25.7	40.3
KSR4967	241	2102	1172	42	16	73	44	13	143	206	41	24.7	40.6
KSR4976S	637	---	---	112	30	---	---	14	145	207	44	27.1	39.2
KSR4977	606	---	---	107	23	---	---	10	144	208	43	24.7	40.2
KSR4974S	603	---	---	106	17	---	---	11	146	210	41	26.6	40.0
KSR4975S	475	---	---	84	12	---	---	14	146	216	47	26.1	40.2
KSR4980	642	---	---	113	46	---	---	9	143	208	44	25.7	39.3
KSR4981	137	---	---	24	2	---	---	9	143	210	48	27.1	39.5
Mean	569	2366	---	---	23	78	---	13	144	210	43	25.6	40.3
CV	49	7	---	---	61	6	---	18	1	2	10	4.1	1.8
LSD	382	287	---	---	ns	8	---	4	ns	ns	ns	ns	1.5
P-value	0.09	<0.05	---	---	0.14	<0.05	---	<0.05	0.25	0.17	0.10	0.24	<0.05

Bold: Superior LSD group. Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ns=not significantly different. A p-value <0.05 is typically considered to be statistically significant.

Alburgh, Vermont

Heather Darby
University of Vermont

Planted: 8/25/2022 in 6-in. rows
Seeding Rate OP: 500,000 seeds/a
Seeding Rate Hybrid: 300,000 seeds/a
Desiccant: None
Harvested: 7/20/2023
Herbicides: None
Insecticides: None
Fungicide: None
Previous crop: Meadow fescue and alfalfa
Soil test: P= Med, K= Med, pH= 6.7
Fertilizer: Spring: 60-60-60 lb/a N-P-K

Latitude: 45.008280
Longitude: -73.307385

Soil type: Covington silty clay loam, 0-3% slopes
Elevation: 125 ft.
Comments: Better winter survival resulted in greater yields than the year before. Very high oil contents were reported.

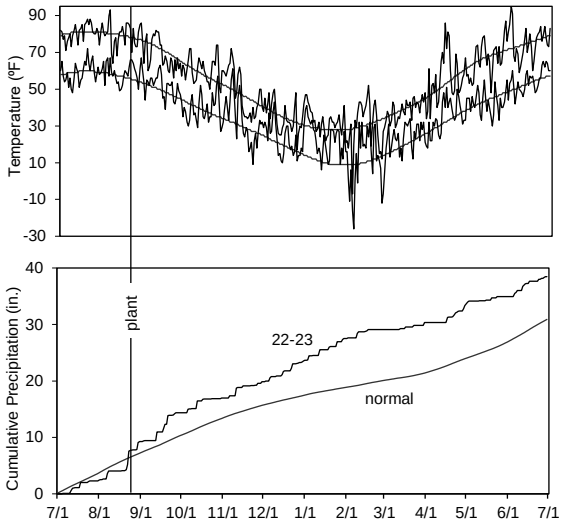

Table 12. Results for the 2023 National Winter Canola Variety Trial at Alburgh, VT

Name	Type[1]	Yield (lb/a)[2]			Yield (% of test avg.)	Winter survival (%)			Fall stand	Fall vigor	50% bloom	Plant height	Moisture	Test weight	Protein	Oil
		2022	2021	2-yr.	2022	2022	2021	2-yr.	(0-10)	(1-5)	(d)	(in)	(%)	(lb/bu)	(%)	(%)
Bayer Crop Science																
DK SEQUEL	H	2173	---	---	99	92	---	---	5.6	3.1	127	49	13.7	44.1	17.1	43.8
DK EXCEPTION	H	2311	---	---	106	92	---	---	6.7	3.7	129	55	14.6	41.8	15.1	46.9
DK EXCLAIM	H	2495	---	---	114	90	---	---	7.7	4.3	129	58	14.2	44.6	16.5	46.2
Corteva Agriscience																
PT264	H	2224	852	---	102	98	40	69	7.3	3.7	130	60	11.6	47.0	14.9	48.1
PT293	H	2728	1737	---	125	98	93	96	7.7	4.7	127	60	13.9	44.3	15.8	47.9
PT297	H	1886	897	---	86	87	75	81	5.7	3.3	130	58	13.3	45.0	15.3	48.5
CROPLAN																
CP1055WC	H	1907	---	---	87	100	---	---	8.3	4.0	127	57	12.5	43.2	16.1	44.9
CP1066WC	OP	1678	1482	1482	77	92	77	84	4.0	2.3	131	59	12.6	45.6	16.2	45.2
CP1077WC	H	2650	---	---	121	82	---	---	8.7	4.7	129	61	13.2	45.6	16.7	46.4
Kansas State University																
KS4662	OP	2414	1358	1886	110	93	78	86	6.0	3.3	129	62	12.9	43.7	18.2	44.0
Griffin	OP	2240	1093	---	102	95	82	88	8.3	4.0	125	54	12.0	46	17.0	44.6
Riley	OP	2133	1389	1761	97	93	67	80	8.7	4.3	127	55	12.5	45.3	16.5	46.0
Surefire	OP	1765	---	---	81	93	85	89	7.7	3.3	130	58	13.1	44.3	17.8	44.5
Ohlde Seed Farms																
Torrington	OP	2311	1119	1715	106	93	92	92	7.3	3.7	128	60	12.7	44.3	17.4	44.9
Rubisco Seeds																
Inspiration	H	2014	---	---	92	92	---	---	4.7	3.3	125	61	12.5	44.0	15.7	46.4
Mean		2189	1544	---	---	93	75	---	6.9	3.7	128	58	13.0	44.5	16.4	45.9
CV		21	---	---	---	6	33	---	20.9	18.6	1	4	9.9	4.2	5.5	2.9
LSD		ns	---	---	---	8	ns	---	2.4	1.2	1.6	4	ns	ns	1.6	2.8
P-value		0.27	---	---	---	0.09	0.52	---	<0.05	<0.05	<0.05	<0.05	0.32	0.27	0.05	<0.05

Bold: Superior LSD group. Unless two entries differ by more than the LSD, little confidence can be placed in one being superior to the other. ns=not significantly different. A p-value <0.05 is typically considered to be statistically significant.

[1]Type: H=hybrid, OP=open pollinated

[2]Use yield data with caution. A CV greater than 20 indicates higher experimental error. Make variety selection decisions based on more than one year's data. Yields adjusted to 9% moisture.

Table 13. Seed sources for entries in the 2022-2023 National Winter Canola Variety Trial

Source	Type[1]	Trait[2]	Release Date	Maturity[3]
Corteva Agrisciences				
Andrew Hopkins (andrew.hopkins@corteva.com)				
PT264	H	---	---	F
PT271	H	---	---	M
PT275	H	---	---	F
PT293	H	---	---	M
PT297	H	---	---	M
PT299	H	---	---	M
PT302	H	---	---	M
PT303	H	---	---	M
PT312	H	---	---	M
PT314	H	---	---	E
Bayer Crop Science				
Vincent Lombard (vincent.lombard@bayer.com)				
DK SEQUEL	H	SD	---	M
DK SEVERNYI	H	SD	---	M
DK SEAX	H	SD	---	M
DK SEPHOR	H	SD	---	M
DK EXPOWER	H	---	---	M
DK EXSTORM	H	---	---	M
DK EXTERRIER	H	---	---	M
DK EXENTIEL	H	---	---	M
DK EXCEPTION	H	---	---	M
DK EXCLAIM	H	---	---	M
DK EXSTAR	H	---	---	M
CROPLAN				
Mick Miller (MMiller5@landolakes.com)				
CP225WRR	OP	RR/SURT	2010	M
CP320WRR	OP	RR	2017	E
CP1022WC	OP	G2FLEX	2020	F
CP1055WC	H	CL	---	M
CP1066WC	OP	---	2020	MF
CP1077WC	H	PS	---	M
Kansas State University Canola Breeding Program				
Michael J. Stamm (mjstamm@ksu.edu)				
KS4662	OP	---	---	M
KS4685	OP	---	---	M
KS4737	OP	---	---	M
KSR4767	OP	RR	---	M
KSR4839S	OP	RR/SURT	---	M
KSR4848	OP	RR	---	M
KSR4854S	OP	RR/SURT	---	M
KSUR1212	OP	SU	---	M
Griffin	OP	---	2011	M
Riley	OP	---	2010	M
Surefire	OP	SU	2017	MF
Wichita	OP	---	1999	M
Ohlde Seed Farms				
Shane Ohlde (shane@ohldeseed.com)				
Torrington	OP	---	2016	M
Rubisco Seeds LLC				
Claire Caldbeck (info@rubiscoseeds.com)				
Inspiration	H	---	---	M
Star Specialty Seeds, Inc.				
Jim Johnson (jimj_star@hotmail.com)				
Star 930W	OP	RR	2013	ME

[1]OP=open pollinated. H=hybrid.

[2]CL=Clearfield (imidazolinone resistant). RR=Roundup Ready (glyphosate resistant). SD=semi-dwarf hybrid. SU, SURT=sulfonylurea carryover tolerant. G2FLEX=tolerance to Group 2 soil residual. PS=pod shatter

[3]E=Early. ME=Medium early. M=Medium. MF=Medium full. F=Full.

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