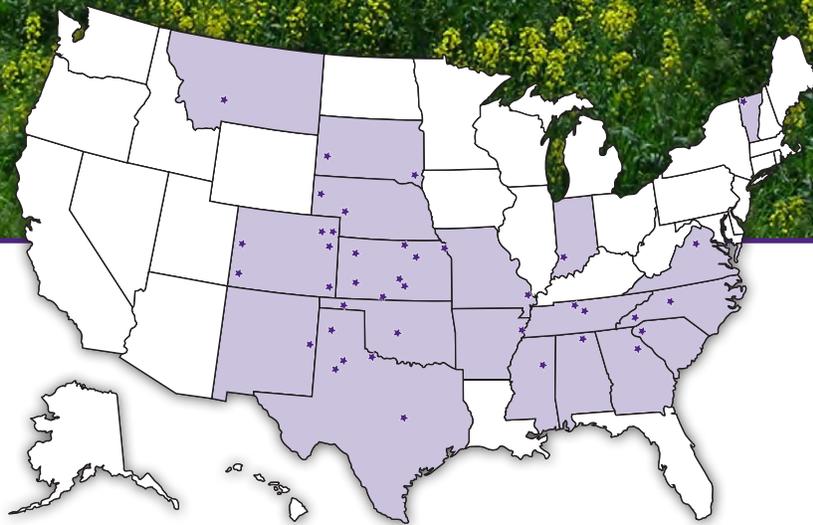


2018

National Winter Canola Variety Trial



Report of Progress 1150

K-STATE
Research and Extension

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

2018 National Winter Canola Variety Trial

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Contribution no. 19-252-S from the Kansas Agricultural Experiment Station

2018 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, Midwest, northern U.S., and Southeast.

Procedures

Seed for the NWCVT was distributed to 40 locations in 19 states for the 2017–2018 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 37 entries, 22 are commercial and 15 are experimental. These entries were provided by eight global 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 37 entries were planted. Results for each trial were analyzed individually and are presented in separate tables. Differences between open-pollinated and hybrid yields can be compared to the common checks in each trial. Two open-pollinated cultivars, Quartz and Wichita, were used as checks.

Management guidelines were provided to cooperators, but previous growing experience influenced final management decisions. All trials were planted in small research plots (approximately 100 ft²) 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.

The Brassica Breeding and Research Program at the University of Idaho performed

total oil and protein analysis for all sites using NIR spectroscopy.

The NWCVT continues in the 2018–2019 growing season and includes 30 entries. Eight seed suppliers contributed to the trial, and it was distributed to 36 locations in 18 states.

2017–2018 Growing Conditions

Temperature and precipitation data are shown at the top of the page for each location. Thick black lines on the temperature graphs represent long-term average high and low temperatures (°F) for the location. 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 “17-18” represents actual precipitation. If weather information was not provided, data were taken from a nearby town.

In general, the 2017–2018 growing season saw fluctuating temperatures and below-normal precipitation. Fall temperatures were moderate. Along with dry conditions, the canola crop had less biomass than previous years going into winter. This resulted in winterkill and crown damage where cold temperatures persisted. The spring remained dry with a colder-than-normal April and above-normal temperatures in May. Yields were respectable despite the challenges shown by the weather.

Test Sites and Results

Fifteen harvested locations in 11 states are included in this report: Meridianville, AL; Akron and Yellow Jacket, CO; Athens, GA; Vincennes, IN; Colby, Garden City, Manhattan, and Norwich, KS; Bozeman, MT; Clovis, NM; Clemson, SC; Springfield, TN; Bushland, TX; and Alburgh, VT. Fruita, CO; Ames, IA; and Salisbury, NC, were harvested but the data were not published. Twenty-two locations were not harvested because of poor stand establishment, winterkill, or too much rainfall before harvest.

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 more than 100% of the test average across multiple locations merit some consideration.

Overall, yield performance was below average because of challenging weather conditions across the United States. Open pollinated trial means ranged from 396 to 3,622 lb/acre. Hybrid trial means ranged from 330 to 4,377 lb/acre. Yields in the Great Plains were below average, mostly because of extreme drought conditions during the growing season.

Caution should be used when evaluating data from locations with coefficient of variation (CV) values greater than 20. Lower values suggest less error was observed at the location. Inestimable differences in soil type, weather, and environmental conditions play a part in increasing experimental error and CV values. Eight trial sites have CV values of greater than 20. Data other than yield may be used if provided by the cooperator.

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 locations. 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.

Table 26 provides information on the tolerance of varieties to blackleg fungus. The 2017–2018 blackleg nursery was planted at Stillwater, OK, by Oklahoma State University. Data is provided with permission. View Table 27 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 United States Department of Agriculture National Institute of Food and Agriculture Supplemental and Alternative Crops Competitive Grants Program, and the Kansas

Agricultural Experiment Station. Assistant scientist Scott Dooley assisted with organizing, packaging, planting, harvesting, and data collection. 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.

Meridianville, Alabama

Ernest Cebert
Alabama A&M University

Planted: 10/24/2017 in 7-in. rows
 Seeding Rate OP: 500,000 seeds/a
 Seeding Rate Hybrid: 300,000 seeds/a
 Harvested: 6/19/2018
 Herbicides: 2.5 pt/a Trifluralin
 Insecticides: None
 Irrigation: None
 Soil test: NA
 Fertilizer: 6.5-6.5-6.5 lb N-P-K fertilizer in fall
 120-0-0 lb N-P-K fertilizer in spring
 Elevation: 797 ft Latitude: 34° 55'N
 Comments: Variability in the trials was caused by an extremely dry fall and a wet spring. The hybrids overcame those challenges better than the open-pollinated cultivars.

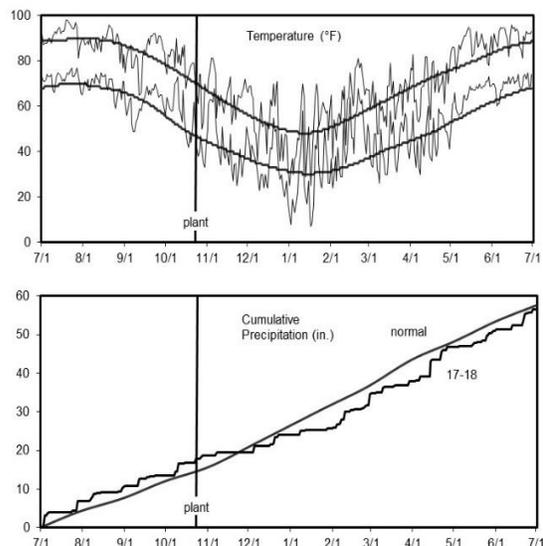


Table 1. Results for the 2018 National Winter Canola Variety Trial, open-pollinated cultivars, at Meridianville, AL

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)			Plant height (in.)	Moisture (%)	Test weight		Oil (%)	Protein (%)
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(lb/bu)	(%)						
CROPLAN by WinField																
CP115WRR	OP	267	---	---	60	---	---	---	---	---	---	---	---	39.5	26.1	
CP225WRR	OP	648	---	---	147	---	---	---	---	---	---	---	---	38.3	26.1	
CP320WRR	OP	572	---	---	130	---	---	---	---	---	---	---	---	39.3	25.4	
CP45-25WRR	OP	654	---	---	148	---	---	---	---	---	---	---	---	38.5	25.3	
Kansas State University																
KS4670	OP	424	---	---	96	---	---	---	---	---	---	---	---	39.2	25.0	
KS4675	OP	291	---	---	66	---	---	---	---	---	---	---	---	40.4	25.7	
KSR4723	OP	333	---	---	75	---	---	---	---	---	---	---	---	42.1	24.7	
KSR4724S	OP	281	---	---	64	---	---	---	---	---	---	---	---	38.3	25.8	
Riley	OP	472	---	---	107	---	---	---	---	---	---	---	---	39.2	26.3	
Sumner	OP	405	---	---	92	---	---	---	---	---	---	---	---	38.9	25.9	
Surefire	OP	316	---	---	72	---	---	---	---	---	---	---	---	38.7	26.0	
Wichita	OP	272	---	---	62	---	---	---	---	---	---	---	---	38.4	26.5	
KWS MOMONT																
Quartz	OP	624	---	---	141	---	---	---	---	---	---	---	---	41.3	24.6	
Ohlde Seed Farms																
Torrington	OP	240	---	---	54	---	---	---	---	---	---	---	---	39.5	24.9	
Star Specialty Seed, Inc.																
Star 915W	OP	460	---	---	104	---	---	---	---	---	---	---	---	39.2	26.4	
Star 930W	OP	597	---	---	135	---	---	---	---	---	---	---	---	38.7	25.3	
Grand Mean		441	---	---	---	---	---	---	---	---	---	---	---	39.3	25.6	
Common Check OP Mean		448	---	---	---	---	---	---	---	---	---	---	---	39.8	25.6	
Common Check Hybrid Mean		1231	---	---	---	---	---	---	---	---	---	---	---	39.7	25.2	
CV		54	---	---	---	---	---	---	---	---	---	---	---	2.9	4.6	
LSD (0.05)		NS	---	---	---	---	---	---	---	---	---	---	---	NS	NS	

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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 2. Results for the 2018 National Winter Canola Variety Trial, hybrid cultivars, at Meridianville, AL

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)			Plant height (in.)	Moisture (%)	Test	
		2018	2017	2-yr.	2018	2018	2017	2-yr.	weight (lb/bu)	Oil (%)			Protein (%)	
Bayer Crop Science Division														
CWH189D	H	2266	---	---	134	---	---	---	---	---	---	---	38.7	25.6
CWH190D	H	2053	---	---	122	---	---	---	---	---	---	---	40.1	25.6
CWH239D	H	1934	---	---	115	---	---	---	---	---	---	---	41.5	23.5
DGC173D	H	1823	---	---	108	---	---	---	---	---	---	---	39.3	24.8
DL Seeds Inc.														
Atora	H	1908	---	---	113	---	---	---	---	---	---	---	40.7	23.5
Event	H	2164	---	---	128	---	---	---	---	---	---	---	40.6	22.8
Phoenix CL	H	733	---	---	43	---	---	---	---	---	---	---	39.2	24.3
Plurax CL	H	2496	---	---	148	---	---	---	---	---	---	---	40.2	23.5
Temptation	H	1653	---	---	98	---	---	---	---	---	---	---	40.0	24.8
Kansas State University														
Wichita	OP	1218	---	---	72	---	---	---	---	---	---	---	38.3	27.8
KWS MOMONT														
HAMOUR	H	1601	---	---	95	---	---	---	---	---	---	---	37.3	25.6
HIDYLLE	H	1457	---	---	86	---	---	---	---	---	---	---	38.8	24.9
MH 15AY085	H	1567	---	---	93	---	---	---	---	---	---	---	38.6	25.6
MH 15HIB001	H	1363	---	---	81	---	---	---	---	---	---	---	37.7	24.3
MH 15HIB002	H	1900	---	---	113	---	---	---	---	---	---	---	38.3	25.9
MH 15HT229	H	1593	---	---	94	---	---	---	---	---	---	---	43.0	22.9
Quartz	OP	1244	---	---	74	---	---	---	---	---	---	---	41.1	22.6
Rubisco Seeds LLC														
Edimax CL	H	980	---	---	58	---	---	---	---	---	---	---	39.5	23.4
Inspiration	H	2388	---	---	142	---	---	---	---	---	---	---	39.5	23.4
Mercedes	H	1840	---	---	109	---	---	---	---	---	---	---	40.9	23.8
Popular	H	1388	---	---	82	---	---	---	---	---	---	---	38.4	25.2
Grand Mean		1686	---	---	---	---	---	---	---	---	---	---	39.6	24.5
Common Check Hybrid Mean		1231	---	---	---	---	---	---	---	---	---	---	39.7	25.2
Common Check OP Mean		448	---	---	---	---	---	---	---	---	---	---	39.8	25.6
CV		38	---	---	---	---	---	---	---	---	---	---	2.8	5.6
LSD (0.05)		558	---	---	---	---	---	---	---	---	---	---	2.3	NS

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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.

Athens, Georgia

Daniel Mailhot
University of Georgia

Planted: 10/20/2017 in 7-in. rows
 Seeding Rate: 5 lb/a
 Harvested: 6/15/2018
 Herbicides: Treflan
 Insecticides: None
 Irrigation: None
 Previous crop: Corn
 Soil test: P=Very high, K=Very high, pH=5.6
 Fertilizer: 70-177-354 lb N-P-K fertilizer in fall
 50-0-0 lb N-P-K fertilizer in spring
 Soil type: Wickam sandy loam
 Elevation: 500 ft Latitude: 33° 43'N
 Comments: Outstanding yields at this location.

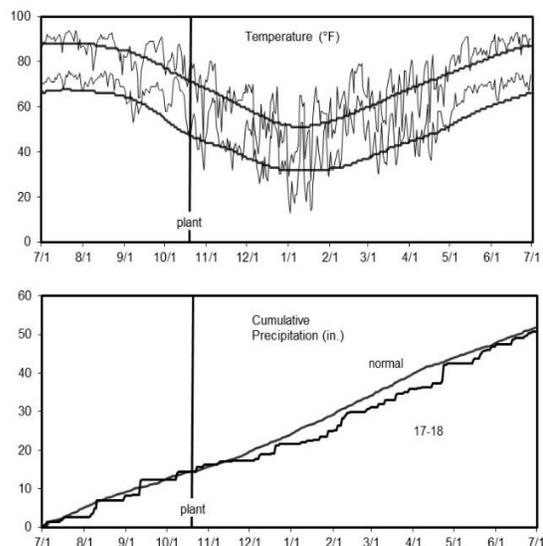


Table 3. Results for the 2018 National Winter Canola Variety Trial, open-pollinated cultivars, at Athens, GA

Name	Type ¹	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)		Plant height (in.)	50% bloom (DOY)	50% Maturity (DOY)	Oil (%)	Protein (%)
		2018	2017	2-yr.	2018	2018	2017	2-yr.						
CROPLAN by WinField														
CP115WRR	OP	3503	---	---	97	---	---	---	64	84	149	39.8	24.2	
CP225WRR	OP	3845	---	---	106	---	---	---	64	88	151	39.3	24.1	
CP320WRR	OP	3867	---	---	107	---	---	---	62	85	150	38.1	24.1	
CP45-25WRR	OP	3619	---	---	100	---	---	---	66	86	150	38.6	24.0	
Kansas State University														
KS4670	OP	3261	---	---	90	---	---	---	62	84	152	40.1	23.5	
KS4675	OP	3981	---	---	110	---	---	---	67	88	153	40.1	24.1	
KSR4723	OP	3536	---	---	98	---	---	---	65	89	150	39.4	23.6	
KSR4724S	OP	3246	---	---	90	---	---	---	64	84	149	39.1	24.0	
Riley	OP	3808	---	---	105	---	---	---	64	89	152	37.6	25.8	
Sumner	OP	3476	---	---	96	---	---	---	67	88	150	38.2	25.1	
Surefire	OP	3369	---	---	93	---	---	---	69	95	155	37.6	25.4	
Wichita	OP	3599	---	---	99	---	---	---	68	93	152	37.9	25.6	
KWS MOMONT														
Quartz	OP	4175	---	---	115	---	---	---	65	93	154	40.7	22.8	
Ohlde Seed Farms														
Torrington	OP	3322	---	---	92	---	---	---	71	89	153	40.3	23.4	
Star Specialty Seed, Inc.														
Star 915W	OP	3840	---	---	106	---	---	---	64	89	152	39.1	24.8	
Star 930W	OP	3710	---	---	102	---	---	---	66	88	149	38.3	24.3	
Grand Mean		3622	---	---	---	---	---	---	65	88	151	39.0	24.2	
Common Check OP Mean		3887	---	---	---	---	---	---	67	93	153	39.3	24.2	
Common Check Hybrid Mean		3947	---	---	---	---	---	---	67	92	153	37.8	23.9	
CV		12	---	---	---	---	---	---	4	1	1	1.4	2.7	
LSD (0.05)		369	---	---	---	---	---	---	4	2	3	1.3	1.5	

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.

¹Type: H=hybrid, OP=open pollinated

Table 4. Results for the 2018 National Winter Canola Variety Trial, hybrid cultivars, at Athens, GA

Name	Type ¹	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)		Plant height (in.)	50% bloom (DOY)	Maturity (DOY)	Oil (%)	Protein (%)
		2018	2017	2-yr.	2018	2018	2017	2-yr.						
Bayer Crop Science Division														
CWH189D	H	4661	---	---	107	---	---	---	69	93	152	38.3	24.8	
CWH190D	H	4362	---	---	100	---	---	---	68	93	152	37.9	24.9	
CWH239D	H	4810	---	---	110	---	---	---	64	90	154	40.2	22.9	
DGC173D	H	4782	---	---	109	---	---	---	68	93	153	38.6	24.2	
DL Seeds Inc.														
Atora	H	4098	---	---	94	---	---	---	69	90	155	40.1	22.7	
Event	H	3985	---	---	91	---	---	---	65	91	155	41.8	21.4	
Phoenix CL	H	4674	---	---	107	---	---	---	68	88	153	41.2	22.1	
Plurax CL	H	4623	---	---	106	---	---	---	62	84	152	39.8	24.5	
Temptation	H	4628	---	---	106	---	---	---	66	94	153	38.0	24.1	
Kansas State University														
Wichita	OP	3778	---	---	86	---	---	---	67	92	151	38.2	24.1	
KWS MOMONT														
HAMOUR	H	3637	---	---	83	---	---	---	70	91	153	41.1	22.4	
HIDYLLE	H	4876	---	---	111	---	---	---	68	91	153	40.1	23.4	
MH 15AY085	H	3752	---	---	86	---	---	---	68	91	155	40.2	23.0	
MH 15HIB001	H	4269	---	---	98	---	---	---	70	90	153	37.6	22.7	
MH 15HIB002	H	3737	---	---	85	---	---	---	70	87	153	35.2	25.7	
MH 15HT229	H	4427	---	---	101	---	---	---	69	92	155	41.0	23.2	
Quartz	OP	4117	---	---	94	---	---	---	66	93	155	37.5	23.6	
Rubisco Seeds LLC														
Edimax CL	H	5816	---	---	133	---	---	---	69	88	154	38.8	22.9	
Inspiration	H	4633	---	---	106	---	---	---	73	89	155	39.5	23.0	
Mercedes	H	3837	---	---	88	---	---	---	63	88	151	43.6	20.9	
Popular	H	3994	---	---	91	---	---	---	61	87	154	38.6	24.4	
Grand Mean		4377	---	---	---	---	---	---	67	90	153	39.3	23.4	
Common Check Hybrid Mean		3947	---	---	---	---	---	---	67	92	153	37.8	23.9	
Common Check OP Mean		3826	---	---	---	---	---	---	66	91	152	39.3	24.2	
CV		10	---	---	---	---	---	---	3	1	1	4.2	4.4	
LSD (0.05)		769	---	---	---	---	---	---	4	2	NS	NS	2.2	

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.

¹Type: H=hybrid, OP=open pollinated

Clemson, South Carolina

Brad Stancil
Clemson University

Harvested: 6/14/2018
Comments: The crop had poor stand establishment and the season was wetter than normal which reduced yields. Cultural practices were not provided.

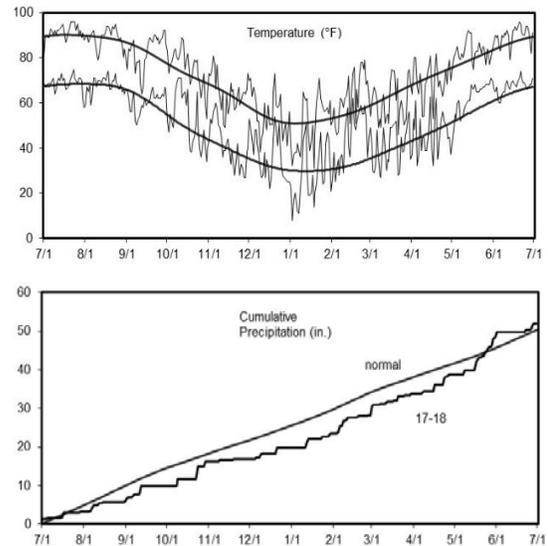


Table 5. Results for the 2018 National Winter Canola Variety at Clemson, SC

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)			Plant height (in.)	Moisture (%)	Test weight		Oil (%)	Protein (%)
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(lb/bu)	(%)						
Bayer Crop Science Division																
CWH189D	H	871	---	---	127	---	---	---	---	12.8	---	40.7	24.3			
CWH190D	H	844	---	---	123	---	---	---	---	11.7	---	41.3	24.2			
CROPLAN by WinField																
CP115WRR	OP	475	---	---	69	---	---	---	---	12.0	---	41.9	22.4			
DL Seeds Inc.																
Phoenix CL	H	1006	---	---	147	---	---	---	---	11.2	---	42.3	22.7			
Plurax CL	H	856	---	---	125	---	---	---	---	10.5	---	44.1	20.4			
Temptation	H	401	---	---	58	---	---	---	---	11.4	---	41.6	22.2			
Kansas State University																
Riley	OP	600	---	---	87	---	---	---	---	11.2	---	41.3	23.3			
KWS MOMONT																
HAMOUR	H	707	---	---	103	---	---	---	---	11.4	---	41.4	21.9			
HIDYLLE	H	748	---	---	109	---	---	---	---	12.8	---	42.2	22.5			
MH 15AY085	H	348	---	---	51	---	---	---	---	14.7	---	42.2	22.6			
MH 15HIB001	H	712	---	---	104	---	---	---	---	12.9	---	41.8	21.9			
MH 15HIB002	H	584	---	---	85	---	---	---	---	11.5	---	42.6	21.8			
MH 15HT229	H	641	---	---	93	---	---	---	---	13.4	---	43.9	21.7			
Quartz	OP	973	---	---	142	---	---	---	---	10.9	---	43.9	20.3			
Rubisco Seeds LLC																
Edimax CL	H	790	---	---	115	---	---	---	---	14.2	---	41.3	22.3			
Inspiration	H	748	---	---	109	---	---	---	---	12.1	---	42.9	21.0			
Mercedes	H	708	---	---	103	---	---	---	---	13.3	---	42.4	22.0			
Popular	H	654	---	---	95	---	---	---	---	11.6	---	46.0	18.5			
Star Specialty Seed, Inc.																
Star 915W	OP	431	---	---	63	---	---	---	---	12.7	---	41.6	22.9			
Mean		686	---	---	---	---	---	---	---	12.2	---	42.4	22.0			
CV		33	---	---	---	---	---	---	---	17.6	---	2.9	4.7			
LSD (0.05)		316	---	---	---	---	---	---	---	NS	---	NS	2.2			

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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.

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Vincennes, Indiana

Chuck Mansfield
Vincennes University

Planted: 9/22/2017 in 6-in. rows
Seeding Rate OP: 350,000 seeds/a
Seeding Rate Hybrid: 210,000 seeds/a
Desiccant: 1.5 pt/a Reglone on 6/7/2018
Harvested: 6/15/2018
Herbicides: 12 oz/a Dual, 4 oz/a Command
Insecticides: 1.9 oz/a Warrior, 2.75 oz/a Mavrik
Irrigation: 6 oz/a Aproach, 2.85 oz/a Proline
Previous crop: Tomatoes and watermelon
Soil test: P=68 lb/a, K=264 lb/a, pH=7.2
Fertilizer: 80-0-0-12-0.5 lb N-P-K-S-B fertilizer in March
80-0-0-12-0.5 lb N-P-K-S-B fertilizer in April
Soil type: Lomax loam
Elevation: 430 ft Latitude: 38° 44'N
Comments: Yields were good but lower than previous years.
Winterkill and disease negatively impacted yield of some plots.

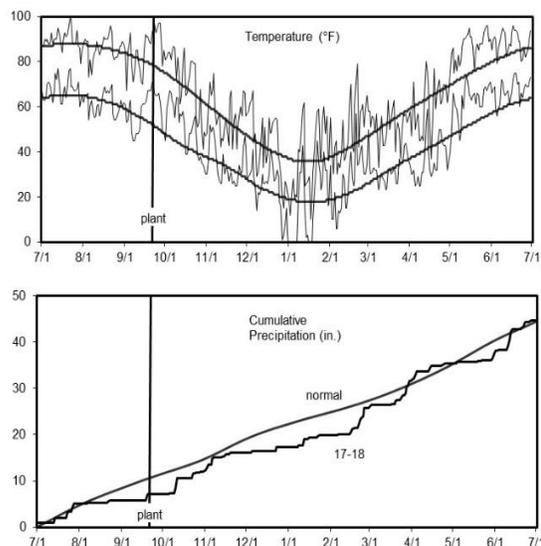


Table 6. Results for the 2018 National Winter Canola Variety Trial, open-pollinated cultivars, at Vincennes, IN

Name	Type ¹	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)		Fall vigor	Plant height	50% bloom	Oil	Protein
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(1-5)	(in.)	(DOY)	(%)	(%)	
CROPLAN by WinField														
CP115WRR	OP	1681	2722	2201	86	78	90	84	4.0	43	114	---	---	
CP225WRR	OP	1989	2772	2380	102	82	83	83	4.2	45	115	---	---	
CP320WRR	OP	2164	2829	2496	111	90	90	90	4.3	44	113	---	---	
CP45-25WRR	OP	1685	2450	2067	87	87	82	84	4.2	46	114	---	---	
Kansas State University														
KS4670	OP	2252	---	---	116	95	---	---	4.0	48	113	---	---	
KS4675	OP	2364	2929	2646	121	96	83	90	3.5	50	113	---	---	
KSR4723	OP	1917	---	---	98	90	---	---	3.8	47	115	---	---	
KSR4724S	OP	1553	---	---	80	85	---	---	3.5	46	114	---	---	
Riley	OP	2255	2706	2480	116	87	78	83	3.5	49	114	---	---	
Sumner	OP	1953	2293	2123	100	90	65	78	3.8	47	114	---	---	
Surefire	OP	1853	2343	2098	95	92	70	81	3.5	46	116	---	---	
Wichita	OP	2058	2928	2493	106	92	87	89	4.0	48	115	---	---	
KWS MOMONT														
Quartz	OP	1179	3143	2161	61	80	83	82	4.8	38	116	---	---	
Ohlde Seed Farms														
Torrington	OP	2380	3066	2723	122	83	83	83	3.7	52	115	---	---	
Star Specialty Seed, Inc.														
Star 915W	OP	2034	3407	2720	104	87	88	88	3.0	50	114	---	---	
Star 930W	OP	2114	2632	2373	109	88	88	88	3.8	47	114	---	---	
Grand Mean		1947	2675	---	---	88	80	---	3.8	46	114	---	---	
Common Check OP Mean		1618	2925	---	---	86	83	---	4.4	43	115	---	---	
Common Check Hybrid Mean		1976	2792	---	---	94	82	---	4.3	46	115	---	---	
CV		13	9	---	---	8	7	---	7.4	6	0	---	---	
LSD (0.05)		432	10	---	---	NS	403	---	0.5	5	1	---	---	

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.

¹Type: H=hybrid, OP=open pollinated

Table 7. Results for the 2018 National Winter Canola Variety Trial, hybrid cultivars, at Vincennes, IN

Name	Type ¹	Yield (lb/a)			Yield (% of Winter survival test avg.)			Fall Plant vigor height		50%	Oil (%)	Protein (%)	
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(1-5)	(in.)			bloom (DOY)
Bayer Crop Science Division													
CWH189D	H	2285	3356	2820	115	95	87	91	3.8	47	116	---	---
CWH190D	H	2060	3140	2600	104	96	83	90	3.5	50	116	---	---
CWH239D	H	1524	3216	2370	77	72	77	74	4.2	43	117	---	---
DGC173D	H	2060	3017	2538	104	90	83	87	3.8	49	116	---	---
DL Seeds Inc.													
Atora	H	1886	---	---	95	75	---	---	4.3	49	117	---	---
Event	H	2810	---	---	142	73	---	---	4.3	49	115	---	---
Phoenix CL	H	2565	---	---	129	90	---	---	4.3	51	114	---	---
Plurax CL	H	2239	3068	2653	113	78	80	79	5.0	47	115	---	---
Temptation	H	2286	---	---	115	55	---	---	3.7	49	117	---	---
Kansas State University													
Wichita	OP	2476	2701	2589	125	96	80	88	3.7	51	115	---	---
KWS MOMONT													
HAMOUR	H	1524	---	---	77	57	---	---	4.3	48	117	---	---
HIDYLLE	H	1658	---	---	84	33	---	---	4.8	47	117	---	---
MH15AY085	H	1205	---	---	61	33	---	---	4.5	47	118	---	---
MH15HIB001	H	1669	---	---	84	32	---	---	4.3	49	118	---	---
MH15HIB002	H	1071	---	---	54	38	---	---	4.3	44	118	---	---
MH15HT229	H	1604	---	---	81	30	---	---	4.3	43	117	---	---
Quartz	OP	1477	2997	2237	75	92	87	89	4.8	40	115	---	---
Rubisco Seeds LLC													
Edimax CL	H	2250	2629	2439	114	93	75	84	3.5	50	115	---	---
Inspiration	H	2369	2811	2590	120	62	55	58	4.5	51	116	---	---
Mercedes	H	2265	3192	2729	114	85	72	78	4.3	47	115	---	---
Popular	H	2332	2980	2656	118	72	80	76	4.5	46	116	---	---
Grand Mean		1982	2985	---	---	69	75	---	4.2	47	116	---	---
Common Check Hybrid Mean		1976	2792	---	---	94	82	---	4.3	46	115	---	---
Common Check OP Mean		1618	2925	---	---	86	83	---	4.4	43	115	---	---
CV		10	6	---	---	10	11	---	6.8	4	0	---	---
LSD (0.05)		339	310	---	---	11	13	---	0.5	3	1	---	---

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.

¹Type: H=hybrid, OP=open pollinated

Springfield, Tennessee

Dennis West
University of Tennessee

Planted: 9/25/2017 in 7-in. rows
 Seeding Rate OP: 500,000 seeds/a
 Seeding Rate Hybrid: 300,000 seeds/a
 Harvested: 6/14/2018
 Herbicides: 4 oz/a Stinger, 10 oz/a Assure II
 Fungicides: 4.3 oz/a Proline
 Irrigation: None
 Previous crop: Fallow
 Soil test: P=Med, K=Med, pH=7.2
 Fertilizer: 30-0-0 lb N-P-K fertilizer in fall
 140-0-0-23 lb N-P-K-S fertilizer in spring
 Soil type: Crider silt loam
 Elevation: 706 ft Latitude: 36° 32'N
 Comments: Consistent yields were reported at this location.

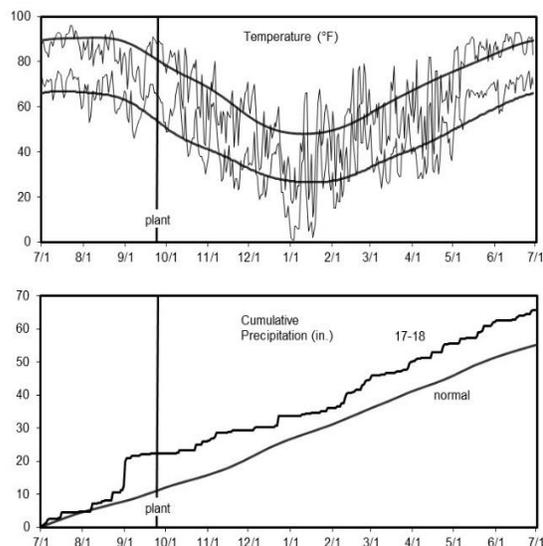


Table 8. Results for the 2018 National Winter Canola Variety Trial at Springfield, TN

Name	Type ¹	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)			Plant height (in.)	Moisture weight (%)	Test weight (lb/bu)	Oil (%)	Protein (%)
		2018	2017	2-yr.	2018	2018	2017	2-yr.							
Bayer Crop Science Division															
CWH189D	H	2754	---	---	102	---	---	---	---	---	---	51.0	37.1	27.3	
CWH190D	H	2087	---	---	78	---	---	---	---	---	---	50.8	39.8	26.6	
CWH239D	H	3132	---	---	116	---	---	---	---	---	---	50.2	41.1	23.2	
DGC173D	H	2953	---	---	110	---	---	---	---	---	---	50.0	38.6	26.2	
DL Seeds Inc.															
Atora	H	2533	---	---	94	---	---	---	---	---	---	51.4	42.3	23.8	
Event	H	2990	---	---	111	---	---	---	---	---	---	50.6	41.4	23.5	
Phoenix CL	H	3532	---	---	131	---	---	---	---	---	---	50.2	42.8	23.5	
Plurax CL	H	3028	2534	2781	113	---	---	---	---	---	---	49.2	43.0	23.6	
Temptation	H	2415	---	---	90	---	---	---	---	---	---	50.1	43.2	23.5	
Kansas State University															
KS4670	OP	2802	---	---	104	---	---	---	---	---	---	51.2	39.7	26.4	
KS4675	OP	2074	2449	2262	77	---	---	---	---	---	---	50.9	41.4	27.1	
Riley	OP	3064	2536	2800	114	---	---	---	---	---	---	47.5	40.1	25.7	
Sumner	OP	2130	2508	2319	79	---	---	---	---	---	---	47.2	40.5	26.9	
Surefire	OP	2239	2427	2333	83	---	---	---	---	---	---	48.3	39.6	27.4	
Wichita	OP	2520	2812	2666	94	---	---	---	---	---	---	49.3	39.4	27.3	
KWS MOMONT															
HAMOUR	H	2884	2805	2845	107	---	---	---	---	---	---	50.1	41.5	23.1	
HIDYLLE	H	3172	---	---	118	---	---	---	---	---	---	49.9	41.4	24.0	
MH 15AY085	H	2788	---	---	104	---	---	---	---	---	---	50.7	42.0	24.4	
MH 15HIB001	H	2639	---	---	98	---	---	---	---	---	---	49.7	41.3	23.7	
MH 15HIB002	H	2167	---	---	81	---	---	---	---	---	---	48.4	40.1	24.7	
MH 15HT229	H	2673	---	---	99	---	---	---	---	---	---	49.6	43.2	25.2	
Quartz	OP	2243	2781	2512	83	---	---	---	---	---	---	48.4	39.0	25.6	
Ohlde Seed Farms															
Torrington	OP	2463	2440	2451	92	---	---	---	---	---	---	50.3	41.4	25.4	
Rubisco Seeds LLC															
Edimax CL	H	2482	3536	3009	92	---	---	---	---	---	---	48.9	41.4	22.9	
Inspiration	H	3343	3275	3309	124	---	---	---	---	---	---	49.6	40.0	24.9	
Mercedes	H	2659	3111	2885	99	---	---	---	---	---	---	50.3	41.2	25.5	
Popular	H	2819	2497	2658	105	---	---	---	---	---	---	49.6	41.8	23.9	
Mean		2689	2874	---	---	---	---	---	---	---	---	49.8	40.9	25.0	
CV		17	13	---	---	---	---	---	---	---	---	3.7	2.8	3.4	
LSD (0.05)		745	603	---	---	---	---	---	---	---	---	3.0	2.3	1.7	

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.

¹Type: H=hybrid, OP=open pollinated

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Akron, Colorado

Jerry Johnson, Ed Asfeld, and Sally Jones-Diamond
Colorado State University

Planted: 9/8/2017
 Seeding Rate OP: 500,000 seeds/a
 Seeding Rate Hybrid: 300,000 seeds/a
 Harvested: 7/17-7/18/2018
 Herbicides: None
 Insecticides: None
 Irrigation: 0.5 in. preplant, 0.5 in. post emerge
 Previous crop: Wheat
 Soil test: NA
 Fertilizer: 120-50-0-0 lb N-P-K-S fertilizer in fall
 0-0-0 lb N-P-K fertilizer in spring
 Soil type: Weld silt loam
 Elevation: 4537 ft Latitude: 40° 9'N
 Comments: Good emergence and stand establishment. In general, the trial had good winter survival. No pest or weed issues after spring green-up.

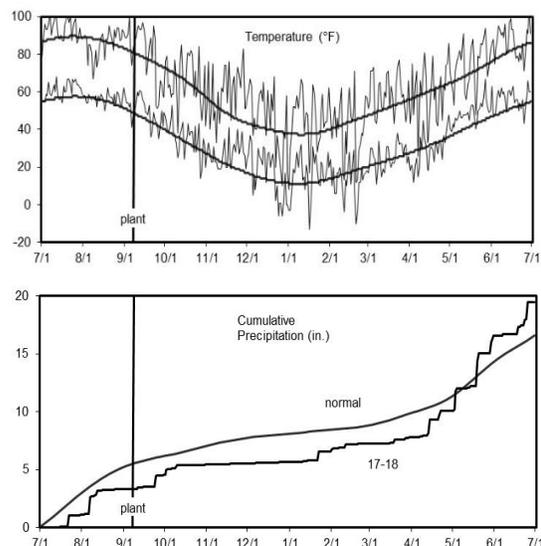


Table 9. Results for the 2018 National Winter Canola Variety Trial, open-pollinated cultivars, at Akron, CO

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)			Fall vigor (1-5)	Moisture (%)	Test	
		2018	2017	2-yr.	2018	2018	2017	2-yr.	Oil (%)	Protein (%)				
CROPLAN by WinField														
CP115WRR	OP	1172	1567	1370	90	67	---	---	3.3	---	---	28.5	26.7	
CP225WRR	OP	1648	1811	1730	127	63	---	---	3.3	---	---	35.3	26.1	
CP320WRR	OP	1415	1659	1537	109	73	---	---	4.0	---	---	32.9	25.9	
CP45-25WRR	OP	1452	1689	1571	112	67	---	---	3.7	---	---	31.1	26.6	
Kansas State University														
KS4670	OP	1810	---	---	139	82	---	---	4.0	---	---	35.7	26.0	
KS4675	OP	1448	1175	1312	112	76	---	---	3.9	---	---	34.0	25.8	
KSR4723	OP	1314	---	---	101	61	---	---	3.9	---	---	30.7	27.1	
KSR4724S	OP	1252	---	---	97	77	---	---	3.7	---	---	29.0	26.9	
Riley	OP	1175	1355	1265	91	67	---	---	3.7	---	---	33.8	26.2	
Sumner	OP	906	1302	1104	70	63	---	---	3.7	---	---	26.8	26.3	
Surefire	OP	905	1726	1315	70	67	---	---	3.3	---	---	31.1	26.7	
Wichita	OP	1550	1264	1407	119	73	---	---	3.3	---	---	35.0	26.2	
KWS MOMONT														
Quartz	OP	1415	989	1202	109	77	---	---	4.0	---	---	33.6	27.4	
Ohlde Seed Farms														
Torrington	OP	1377	1533	1455	106	73	---	---	3.7	---	---	33.0	26.5	
Star Specialty Seed, Inc.														
Star 915W	OP	783	1237	1010	60	60	---	---	3.0	---	---	27.9	27.6	
Star 930W	OP	1384	1540	1462	107	70	---	---	3.7	---	---	33.5	26.0	
Mean		1297	1432	---	---	69	---	---	3.6	---	---	31.8	26.4	
CV		40	19	---	---	12	---	---	15.3	---	---	6.9	3.4	
LSD (0.10)		NS	406	---	---	12	---	---	NS	---	---	4.9	NS	

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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 10. Results for the 2018 National Winter Canola Variety Trial, hybrid cultivars, at Akron, CO

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)		Fall vigor (1-5)	Moisture (%)	Test weight		Oil (%)	Protein (%)
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(lb/bu)			(%)			
Bayer Crop Science Division															
CWH189D	H	1333	1705	1519	72	57	---	---	3.7	---	---	33.7	26.3		
CWH190D	H	2213	1635	1924	119	50	---	---	4.0	---	---	33.5	25.6		
CWH239D	H	1969	1204	1587	106	30	---	---	3.7	---	---	35.8	26.1		
DGC173D	H	1635	1756	1695	88	57	---	---	3.7	---	---	35.3	25.1		
DL Seeds Inc.															
Atora	H	1902	---	---	102	27	---	---	3.7	---	---	34.0	24.7		
Event	H	1796	---	---	96	37	---	---	4.0	---	---	36.3	25.3		
Temptation	H	1831	---	---	98	33	---	---	3.3	---	---	34.6	25.6		
KWS MOMONT															
HIDYLLE	H	2386	---	---	128	40	---	---	3.3	---	---	34.6	26.2		
Rubisco Seeds LLC															
Edimax CL	H	1818	1102	1460	98	20	---	---	3.3	---	---	32.4	26.7		
Inspiration	H	2142	1795	1969	115	23	---	---	3.3	---	---	32.6	26.5		
Mercedes	H	1600	1612	1606	86	60	---	---	3.3	---	---	30.9	25.6		
Popular	H	1683	---	---	90	57	---	---	4.0	---	---	34.8	25.1		
Mean		1864	1482	---	---	41	---	---	3.6	---	---	34.1	25.7		
CV		37	27	---	---	36	---	---	14.0	---	---	6.6	1.7		
LSD (0.10)		NS	NS	---	---	21	---	---	NS	---	---	NS	1.0		

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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.

Yellow Jacket, Colorado

Katie Russell
Colorado State University

Planted: 8/31/2017
 Seeding Rate OP: 500,000 seeds/a
 Seeding Rate Hybrid: 300,000 seeds/a
 Harvested: 7/16/2018
 Herbicides: 5 oz/a Volunteer
 Insecticides: None
 Irrigation: None
 Previous crop: Wheat
 Soil test: P=45 lb/a, K=390 lb/a, pH=7.0
 Fertilizer: 0-0-0 lb N-P-K fertilizer in fall
 0-0-0 lb N-P-K fertilizer in spring
 Soil type: Wetherill silt loam
 Elevation: 6961 ft Latitude: 37° 32'N
 Comments: Drought conditions and some winterkill resulted in poorer yields. Open-pollinated cultivars generally had better survival, but that wasn't reflected in yields.

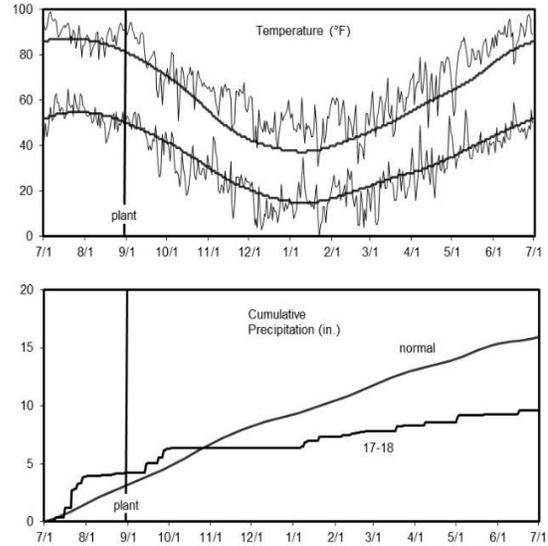


Table 11. Results for the 2018 National Winter Canola Variety Trial, open-pollinated cultivars, at Yellow Jacket, CO

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Plant height (in.)	50% bloom (DOY)	Moisture (%)	Oil (%)	Protein (%)
		2018	2017	2-yr.	2018	2018	2017					
CROPLAN by WinField												
CP115WRR	OP	383	---	---	97	63	---	24	127	4.9	36.6	26.0
CP225WRR	OP	344	---	---	87	65	---	28	127	4.9	36.6	24.6
CP320WRR	OP	537	---	---	136	67	---	27	127	4.8	36.5	25.4
CP45-25WRR	OP	364	---	---	92	60	---	28	131	4.9	36.2	25.5
Kansas State University												
KS4670	OP	417	---	---	105	70	---	28	127	4.7	37.6	24.2
KS4675	OP	415	---	---	105	53	---	26	127	4.9	38.6	25.5
KSR4723	OP	322	---	---	81	60	---	26	127	4.8	34.5	25.4
KSR4724S	OP	415	---	---	105	63	---	27	124	4.8	38.7	26.3
Riley	OP	448	---	---	113	65	---	27	131	4.8	37.4	26.2
Sumner	OP	281	---	---	71	63	---	23	134	5.2	38.5	26.3
Surefire	OP	430	---	---	108	77	---	30	127	4.9	35.5	25.5
Wichita	OP	382	---	---	96	67	---	26	124	4.9	38.4	26.4
KWS MOMONT												
Quartz	OP	427	---	---	108	60	---	25	134	4.9	36.1	24.8
Ohlde Seed Farms												
Torrington	OP	449	---	---	113	67	---	28	127	4.8	37.2	25.7
Star Specialty Seed, Inc.												
Star 915W	OP	269	---	---	68	57	---	26	130	4.7	36.6	24.7
Star 930W	OP	432	---	---	109	67	---	27	127	4.8	36.2	25.1
Grand Mean		396	---	---	---	64	---	27	---	4.8	37.0	25.4
Common Check OP Mean		404	---	---	---	63	---	26	---	4.9	37.2	25.6
Common Check Hybrid Mean		376	---	---	---	38	---	27	---	4.8	35.0	24.9
CV		37	---	---	---	14	---	9	---	3.4	5.2	2.8
LSD (0.05)		NS	---	---	---	7	---	1	---	0.1	NS	NS

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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 12. Results for the 2018 National Winter Canola Variety Trial, hybrid cultivars, at Yellow Jacket, CO

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)		Plant height (in.)	50% bloom (DOY)	Moisture (%)	Oil (%)	Protein (%)
		2018	2017	2-yr.	2018	2017	2-yr.	2018	2017					
Bayer Crop Science Division														
CWH189D	H	368	---	---	111	57	---	---	30	131	4.8	36.2	25.5	
CWH190D	H	255	---	---	77	55	---	---	29	128	4.8	36.4	24.5	
CWH239D	H	367	---	---	111	40	---	---	27	131	4.7	37.6	25.0	
DGC173D	H	376	---	---	114	55	---	---	28	131	4.8	37.6	26.1	
DL Seeds Inc.														
Atora	H	277	---	---	84	47	---	---	29	134	5.1	32.3	23.9	
Event	H	309	---	---	94	57	---	---	24	131	4.9	35.5	23.8	
Phoenix CL	H	206	---	---	62	42	---	---	25	134	5.1	37.1	24.4	
Plurax CL	H	443	---	---	134	72	---	---	25	128	5.2	38.0	24.9	
Temptation	H	497	---	---	151	37	---	---	26	131	5.0	35.9	23.4	
Kansas State University														
Wichita	OP	327	---	---	99	33	---	---	27	124	4.8	32.5	25.9	
KWS MOMONT														
HAMOUR	H	320	---	---	97	60	---	---	28	134	4.8	38.6	25.5	
HIDYLLE	H	509	---	---	154	53	---	---	25	131	4.6	35.4	24.8	
MH 15AY085	H	308	---	---	93	60	---	---	29	131	4.8	35.1	25.5	
MH 15HIB001	H	365	---	---	111	40	---	---	26	131	4.9	35.8	25.7	
MH 15HIB002	H	200	---	---	61	40	---	---	26	134	5.2	32.8	25.4	
MH 15HT229	H	371	---	---	112	70	---	---	28	134	5.0	34.4	24.9	
Quartz	OP	425	---	---	129	42	---	---	26	128	4.7	37.5	24.0	
Rubisco Seeds LLC														
Edimax CL	H	254	---	---	77	47	---	---	26	134	5.5	30.2	24.3	
Inspiration	H	194	---	---	59	53	---	---	27	134	5.2	36.1	25.1	
Mercedes	H	329	---	---	100	55	---	---	28	131	4.9	34.1	24.6	
Popular	H	280	---	---	85	53	---	---	25	131	5.1	35.8	24.4	
Grand Mean		330	---	---	---	51	---	---	27	---	4.9	35.4	24.8	
Common Check Hybrid Mean		376	---	---	---	38	---	---	27	---	4.8	35.0	24.9	
Common Check OP Mean		404	---	---	---	63	---	---	26	---	4.9	37.2	25.6	
CV		54	---	---	---	37	---	---	6	---	5.7	7.9	2.6	
LSD (0.05)		NS	---	---	---	NS	---	---	1	---	0.2	NS	1.4	

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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.

Colby, Kansas

Rob Aiken
Kansas State University

Planted: 9/8/2017 in 30-in. rows
 Seeding Rate OP: 500,000 seeds/a
 Seeding Rate Hybrid: 300,000 seeds/a
 Harvested: 6/29/2018
 Herbicides: 1 qt/a Treflan, 12 oz/a Select Max
 Insecticides: None
 Irrigation: 7.15 in.
 Previous crop: Wheat
 Soil test: NA
 Fertilizer: 240-35-0 lb N-P-K fertilizer in fall
 Soil type: Richfield silty clay loam
 Elevation: 3160 ft Latitude: 39° 23'N
 Comments: A severe hail storm on 6/22/2018 caused major pod loss and low yields. Use yield data with caution. Winter survival was excellent at this location.

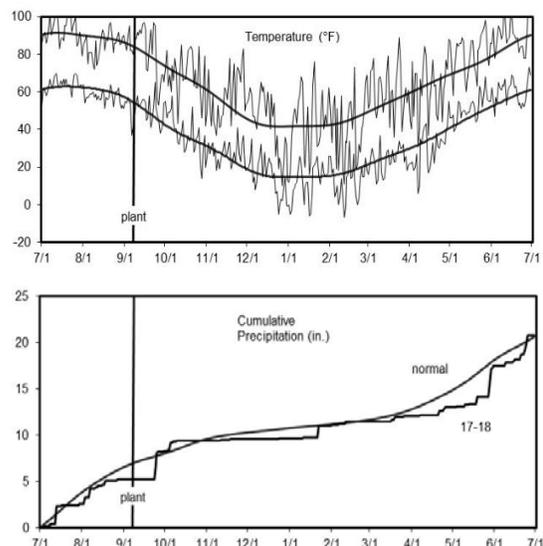


Table 13. Results for the 2018 National Winter Canola Variety Trial, open-pollinated cultivars, at Colby, KS

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)		Fall stand	Fall vigor	50% bloom	Oil (%)	Protein (%)
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(0-10)	(1-5)	(DOY)			
CROPLAN by WinField														
CP115WRR	OP	383	---	---	65	100	---	---	7.5	2.5	127	---	---	
CP225WRR	OP	575	---	---	98	75	---	---	4.0	2.0	129	---	---	
CP320WRR	OP	385	---	---	66	100	---	---	8.0	3.5	128	---	---	
CP45-25WRR	OP	538	---	---	92	98	---	---	6.5	3.5	128	---	---	
Kansas State University														
KS4670	OP	640	---	---	109	100	---	---	8.5	4.0	128	---	---	
KS4675	OP	696	---	---	119	100	---	---	8.0	3.5	128	---	---	
KSR4723	OP	391	---	---	67	100	---	---	7.5	4.0	128	---	---	
KSR4724S	OP	451	---	---	77	100	---	---	7.5	4.0	128	---	---	
Riley	OP	665	---	---	114	100	---	---	6.5	3.0	127	---	---	
Sumner	OP	674	---	---	115	100	---	---	5.5	3.0	127	---	---	
Surefire	OP	801	---	---	137	100	---	---	8.0	4.5	130	---	---	
Wichita	OP	572	---	---	98	100	---	---	7.0	2.5	128	---	---	
KWS MOMONT														
Quartz	OP	935	---	---	160	100	---	---	9.0	5.0	130	---	---	
Ohlde Seed Farms														
Torrington	OP	609	---	---	104	100	---	---	5.5	3.0	128	---	---	
Star Specialty Seed, Inc.														
Star 915W	OP	649	---	---	111	75	---	---	4.5	1.5	128	---	---	
Star 930W	OP	654	---	---	112	100	---	---	6.5	3.5	128	---	---	
Grand Mean		585	---	---	---	97	---	---	6.8	3.3	128	---	---	
Common Check OP Mean		753	---	---	---	100	---	---	8.0	3.8	129	---	---	
Common Check Hybrid Mean		660	---	---	---	100	---	---	7.0	3.3	129	---	---	
CV		30	---	---	---	12	---	---	24.2	21.6	1	---	---	
LSD (0.05)		201	---	---	---	NS	---	---	1.8	1.5	NS	---	---	

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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 14. Results for the 2018 National Winter Canola Variety Trial, hybrid cultivars, at Colby, KS

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)		Fall stand	Fall vigor	50% bloom	Oil	Protein
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(0-10)	(1-5)	(DOY)	(%)	(%)	
Bayer Crop Science Division														
CWH189D	H	952	---	---	105	100	---	---	6.5	3.0	128	---	---	
CWH190D	H	1122	---	---	123	100	---	---	7.0	3.5	127	---	---	
CWH239D	H	1092	---	---	120	100	---	---	8.0	4.5	128	---	---	
DGC173D	H	982	---	---	108	98	---	---	5.0	3.0	127	---	---	
DL Seeds Inc.														
Atora	H	844	---	---	93	98	---	---	5.5	3.5	129	---	---	
Event	H	1381	---	---	152	100	---	---	7.0	4.0	128	---	---	
Phoenix CL	H	927	---	---	102	100	---	---	6.0	3.0	130	---	---	
Plurax CL	H	850	---	---	93	100	---	---	6.5	3.5	127	---	---	
Temptation	H	1024	---	---	113	100	---	---	8.0	4.0	130	---	---	
Kansas State University														
Wichita	OP	501	---	---	55	100	---	---	5.0	2.5	127	---	---	
KWS MOMONT														
HAMOUR	H	714	---	---	78	98	---	---	4.5	3.0	130	---	---	
HIDYLLE	H	735	---	---	81	100	---	---	6.0	3.5	130	---	---	
MH 15AY085	H	561	---	---	62	100	---	---	5.5	3.5	130	---	---	
MH 15HIB001	H	848	---	---	93	100	---	---	6.5	3.5	130	---	---	
MH 15HIB002	H	780	---	---	86	98	---	---	7.0	4.5	130	---	---	
MH 15HT229	H	831	---	---	91	100	---	---	6.5	3.5	130	---	---	
Quartz	OP	819	---	---	90	100	---	---	9.0	4.0	130	---	---	
Rubisco Seeds LLC														
Edimax CL	H	948	---	---	104	100	---	---	7.5	4.5	129	---	---	
Inspiration	H	1395	---	---	153	100	---	---	6.5	3.5	127	---	---	
Mercedes	H	821	---	---	90	100	---	---	7.0	3.5	127	---	---	
Popular	H	996	---	---	109	100	---	---	7.0	4.0	130	---	---	
Grand Mean		911	---	---	---	100	---	---	6.5	3.6	129	---	---	
Common Check Hybrid Mean		660	---	---	---	100	---	---	7.0	3.3	129	---	---	
Common Check OP Mean		753	---	---	---	100	---	---	8.0	3.8	129	---	---	
CV		26	---	---	---	2	---	---	24.4	17.5	1	---	---	
LSD (0.05)		252	---	---	---	NS	---	---	NS	0.7	1	---	---	

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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.

Garden City, Kansas

Johnathon Holman and Scott Maxwell
Kansas State University

Planted: 9/5/2017 in 8-in. rows
Seeding Rate OP: 500,000 seeds/a
Seeding Rate Hybrid: 300,000 seeds/a
Harvested: 6/26/2018
Herbicides: 3 pt/a Prowl
Insecticides: None
Irrigation: 10.67 in.
Previous crop: Wheat
Soil test: NA
Fertilizer: 0-0-0-0 lb N-P-K-S fertilizer in fall
100-0-0 lb N-P-K fertilizer in spring
Soil type: Ulysses Richfield silt loam
Elevation: 2869 ft Latitude: 37° 58'N
Comments: Plants overwintered very well but hail before harvest severely reduced yields. Cultivars showed variability in tolerance to shatter.

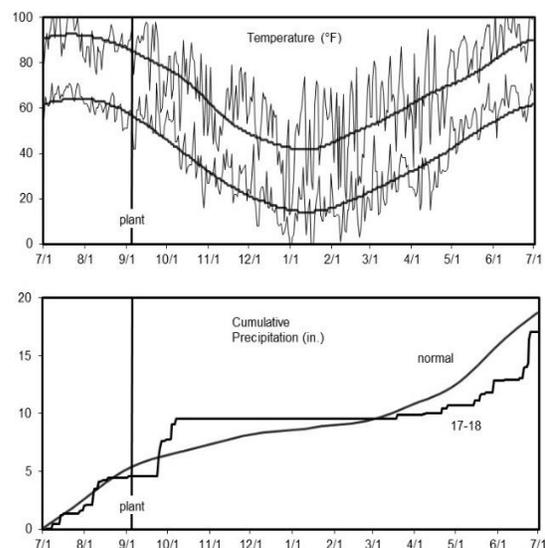


Table 15. Results for the 2018 National Winter Canola Variety Trial, open-pollinated cultivars, at Garden City, KS

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)		Fall vigor	Plant height	Shatter	Oil	Protein
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(1-5)	(in.)	(%)	(%)	(%)	
CROPLAN by WinField														
CP115WRR	OP	353	1146	750	46	75	93	84	2.9	36	54.5	33.0	30.9	
CP225WRR	OP	633	1221	927	82	48	83	65	3.3	37	45.0	34.4	29.4	
CP320WRR	OP	777	1168	972	100	82	90	86	3.0	36	53.3	34.4	29.4	
CP45-25WRR	OP	574	1235	905	74	93	88	91	3.1	41	45.5	34.6	29.7	
Kansas State University														
KS4670	OP	888	---	---	115	70	---	---	3.3	39	43.3	34.9	29.8	
KS4675	OP	908	1691	1299	117	94	92	93	3.5	41	45.0	34.6	30.2	
KSR4723	OP	729	---	---	94	66	---	---	3.3	39	50.0	34.9	29.9	
KSR4724S	OP	1130	---	---	146	65	---	---	4.0	39	26.7	36.0	29.1	
Riley	OP	896	1700	1298	116	81	90	86	3.0	38	38.3	35.0	30.3	
Sumner	OP	954	830	892	123	73	68	71	3.3	37	30.0	34.6	30.6	
Surefire	OP	888	1742	1315	115	60	82	71	3.0	42	35.0	34.5	31.0	
Wichita	OP	750	1509	1130	97	90	90	90	3.0	39	50.0	34.7	30.5	
KWS MOMONT														
Quartz	OP	1436	1756	1596	185	67	95	81	3.3	36	30.0	33.5	28.3	
Ohlde Seed Farms														
Torrington	OP	776	1266	1021	100	85	75	80	3.0	41	40.0	34.9	29.9	
Star Specialty Seed, Inc.														
Star 915W	OP	932	1433	1183	120	60	92	76	3.1	34	28.0	35.4	30.4	
Star 930W	OP	877	1206	1041	113	70	90	80	3.0	39	33.3	34.5	29.3	
Grand Mean		801	1265	---	---	71	83	---	3.2	38	41.6	34.5	30.0	
Common Check OP Mean		1093	1655	---	---	79	92	---	3.2	38	40.0	34.1	29.4	
Common Check Hybrid Mean		1021	1817	---	---	79	90	---	3.3	39	32.5	33.9	29.2	
CV		42	22	---	---	19	14	---	13.6	7	43.5	2.0	2.1	
LSD (0.05)		NS	459	---	---	24	19	---	NS	NS	NS	1.4	1.3	

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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 16. Results for the 2018 National Winter Canola Variety Trial, hybrid cultivars, at Garden City, KS

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)			Fall vigor	Plant height	Shatter	Oil	Protein
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(1-5)	(in.)	(%)	(%)	(%)	(%)	
Bayer Crop Science Division															
CWH189D	H	2206	1963	2084	147	72	77	74	3.0	37	0.0	34.5	29.1		
CWH190D	H	1908	1173	1540	127	90	53	72	3.0	41	13.3	35.6	28.2		
CWH239D	H	2130	996	1563	141	71	25	48	3.0	36	0.0	35.5	28.7		
DGC173D	H	1994	1880	1937	132	65	50	57	3.3	40	10.0	34.1	29.6		
DL Seeds Inc.															
Atora	H	1283	---	---	85	66	---	---	3.3	44	21.7	32.6	29.5		
Event	H	1258	---	---	84	69	---	---	3.7	37	28.3	33.1	28.8		
Phoenix CL	H	2093	---	---	139	57	---	---	3.3	35	0.0	34.7	28.9		
Plurax CL	H	910	1683	1297	60	68	93	81	4.0	41	33.3	33.5	29.9		
Temptation	H	1451	---	---	96	65	---	---	3.3	41	18.3	33.9	29.5		
Kansas State University															
Wichita	OP	742	1737	1239	49	79	85	82	3.0	39	38.3	34.8	30.5		
KWS MOMONT															
HAMOUR	H	1181	---	---	78	65	---	---	4.0	42	31.7	34.6	29.8		
HIDYLLE	H	1088	---	---	72	42	---	---	3.7	39	26.7	31.8	31.0		
MH 15AY085	H	1672	---	---	111	47	---	---	4.0	46	3.3	33.9	30.9		
MH 15HIB001	H	1243	---	---	83	57	---	---	3.0	36	10.0	31.5	31.2		
MH 15HIB002	H	1616	---	---	107	24	---	---	3.7	37	3.3	33.1	31.2		
MH 15HT229	H	1867	---	---	124	55	---	---	3.3	39	10.0	35.6	30.4		
Quartz	OP	1300	2122	1711	86	79	90	84	3.7	38	26.7	33.1	28.0		
Rubisco Seeds LLC															
Edimax CL	H	1768	1093	1431	117	73	30	52	3.0	38	6.7	34.1	29.3		
Inspiration	H	1842	394	1118	122	70	10	40	3.7	41	0.0	32.8	30.1		
Mercedes	H	1105	1359	1232	73	68	50	59	3.7	39	33.3	35.6	29.2		
Popular	H	956	1648	1302	64	79	83	81	3.3	37	41.7	35.1	29.1		
Grand Mean		1505	1251	---	---	65	51	---	3.4	39	17.0	34.0	29.7		
Common Check Hybrid Mean		1021	1817	---	---	79	90	---	3.3	39	32.5	33.9	29.2		
Common Check OP Mean		1093	1655	---	---	79	92	---	3.2	38	40.0	34.1	29.4		
CV		13	39	---	---	21	53	---	12.5	6	49.7	3.3	1.9		
LSD (0.05)		314	869	---	---	22	44	---	0.7	4	13.9	2.4	1.2		

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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.

Manhattan, Kansas

Michael Stamm and Scott Dooley
Kansas State University

Planted: 9/20/2017 in 10-in. rows
Seeding Rate OP: 500,000 seeds/a
Seeding Rate Hybrid: 300,000 seeds/a
Swathed: 6/7/2018 (OP), 6/11/2018 (H)
Harvested: 6/11/2018 (OP), 6/16/2018 (H)
Herbicides: 1 qt/a Treflan, 10 oz/a Assure II
Insecticides: None
Irrigation: None
Previous crop: Wheat
Soil test: NA
Fertilizer: 35-0-0-30 lb N-P-K-S fertilizer in fall
100-0-0 lb N-P-K fertilizer in spring
Soil type: Rossville silt loam
Elevation: 1064 ft Latitude: 39° 12'N
Comments: Dry soils reduced fall growth. Crown damage was observed. Extremely dry growing season. Yields were respectable for the conditions.

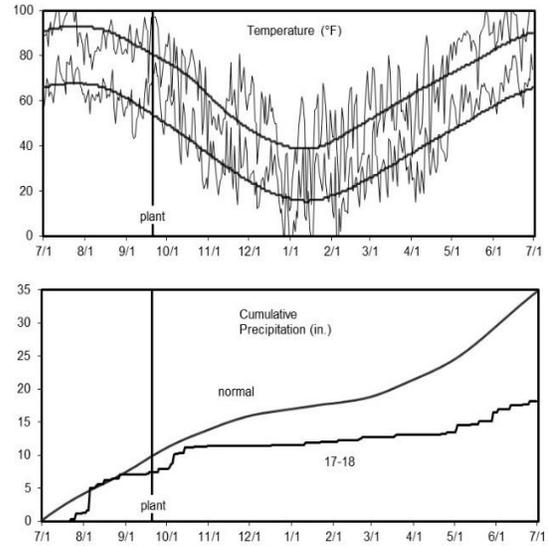


Table 17. Results for the 2018 National Winter Canola Variety Trial, open-pollinated cultivars, at Manhattan, KS

Name	Type ¹	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)			50% bloom	Plant height	Test weight	Oil	Protein
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(DOY)	(in.)	(lb/bu)	(%)	(%)		
CROPLAN by WinField															
CP115WRR	OP	1640	1997	1818	91	95	99	97	115	36	45.2	32.5	29.6		
CP225WRR	OP	1764	2006	1885	98	90	98	94	117	37	45.5	36.0	26.9		
CP320WRR	OP	1411	1929	1670	79	88	100	94	114	37	41.8	33.5	28.2		
CP45-25WRR	OP	1910	1842	1876	106	90	97	94	116	39	45.0	34.9	27.7		
Kansas State University															
KS4670	OP	2108	---	---	117	98	---	---	113	42	45.4	38.3	26.2		
KS4675	OP	2298	1926	2112	128	97	99	98	117	41	46.2	37.7	27.6		
KSR4723	OP	1847	---	---	103	93	---	---	117	38	43.2	35.8	28.4		
KSR4724S	OP	1610	---	---	90	97	---	---	114	39	42.5	35.6	27.3		
Riley	OP	1943	2036	1990	108	95	99	97	116	37	45.2	36.6	28.3		
Sumner	OP	1760	1602	1681	98	98	100	99	115	37	45.4	36.6	29.3		
Surefire	OP	2320	2093	2206	129	93	99	96	120	45	46.6	34.6	27.6		
Wichita	OP	1790	1756	1773	100	92	97	94	118	40	45.8	35.2	28.1		
KWS MOMONT															
Quartz	OP	1109	1886	1498	62	84	99	92	118	32	35.0	35.6	26.0		
Ohlde Seed Farms															
Torrington	OP	1721	2007	1864	96	89	100	95	117	41	46.5	35.5	27.6		
Star Specialty Seed, Inc.															
Star 915W	OP	1359	1705	1532	76	83	98	90	117	39	44.1	36.4	28.0		
Star 930W	OP	1997	1796	1897	111	95	99	97	117	39	46.3	34.9	27.8		
Grand Mean		1797	1816	---	---	92	97	---	116	38	44.3	35.4	27.9		
Common Check OP Mean		1449	1893	---	---	88	98	---	118	36	40.4	35.4	27.0		
Common Check Hybrid Mean		1673	1818	---	---	92	98	---	118	37	44.5	37.2	26.0		
CV		18	10	---	---	8	3	---	1	6	6.0	4.6	3.3		
LSD (0.05)		576	305	---	---	NS	6	---	2	4	4.6	NS	NS		

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.

¹Type: H=hybrid, OP=open pollinated

Table 18. Results for the 2018 National Winter Canola Variety Trial, hybrid cultivars, at Manhattan, KS

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)			50% bloom	Plant height	Test weight	Oil	Protein
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(DOY)	(in.)	(lb/bu)	(%)	(%)		
Bayer Crop Science Division															
CWH189D	H	2301	2148	2225	123	97	100	99	117	40	46.0	37.8	26.4		
CWH190D	H	2291	2044	2168	122	91	100	96	117	43	45.8	38.7	27.6		
CWH239D	H	2076	1982	2029	111	88	99	94	118	37	41.5	38.8	25.9		
DGC173D	H	1875	2013	1944	100	94	99	97	118	42	37.5	37.5	26.7		
DL Seeds Inc.															
Atora	H	1888	---	---	101	85	---	---	119	43	45.1	36.8	27.0		
Event	H	2251	---	---	120	94	---	---	117	37	46.7	38.0	25.5		
Phoenix CL	H	1751	---	---	93	83	---	---	117	39	44.3	38.1	26.8		
Plurax CL	H	2188	1938	2063	117	90	98	94	116	39	46.5	38.4	26.4		
Temptation	H	1889	---	---	101	85	---	---	119	39	47.1	39.6	25.8		
Kansas State University															
Wichita	OP	2081	1747	1914	111	98	99	98	117	40	48.9	38.5	26.8		
KWS MOMONT															
HAMOUR	H	2303	---	---	123	80	---	---	119	43	45.2	35.8	28.6		
HIDYLLE	H	1503	---	---	80	67	---	---	120	40	44.2	37.3	26.3		
MH 15AY085	H	1316	---	---	70	60	---	---	120	39	42.8	34.9	28.0		
MH 15HIB001	H	1230	---	---	66	62	---	---	121	43	41.5	34.3	29.1		
MH 15HIB002	H	947	---	---	51	47	---	---	122	41	38.2	37.1	26.9		
MH 15HT229	H	2055	---	---	110	88	---	---	119	41	45.0	41.3	26.0		
Quartz	OP	1266	1867	1566	68	87	96	91	119	33	40.0	35.8	25.2		
Rubisco Seeds LLC															
Edimax CL	H	2026	2014	2020	108	85	94	90	118	44	45.7	37.1	26.3		
Inspiration	H	1999	2118	2059	107	67	90	78	119	41	45.7	38.2	26.0		
Mercedes	H	2018	2351	2185	108	92	99	95	118	39	47.0	38.8	26.0		
Popular	H	2104	2010	2057	112	87	97	92	118	37	48.0	38.5	25.8		
Grand Mean		1874	2055	---	---	82	97	---	118	40	45.2	37.7	26.6		
Common Check Hybrid Mean		1673	1818	---	---	92	98	---	118	37	44.5	37.2	26.0		
Common Check OP Mean		1449	1893	---	---	88	98	---	118	36	40.4	35.4	27.0		
CV		15	8	---	---	13	4	---	1	4	5.4	3.3	2.8		
LSD (0.05)		462	269	---	---	18	NS	---	1	3	4.1	2.6	1.5		

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.

¹Type: H=hybrid, OP=open pollinated

Norwich, Kansas

Cody and David Swinehart

Planted: 10/2/2017 in 10-in. rows
 Seeding Rate OP: 500,000 seeds/a
 Seeding Rate Hybrid: 300,000 seeds/a
 Harvested: 6/15/2018
 Herbicides: 1 qt/a Treflan
 Insecticides: None
 Irrigation: None
 Previous crop: Wheat
 Soil test: NA
 Fertilizer: 35-0-0-30 lb N-P-K-S fertilizer in fall
 100-0-0 lb N-P-K fertilizer in spring
 Soil type: Renfrow clay loam
 Elevation: 1496 ft Latitude: 37° 24'N
 Comments: Yields are representative of local producers' fields.
 Dry conditions post establishment resulted in smaller than normal plants. Winterkill was observed in the spring.

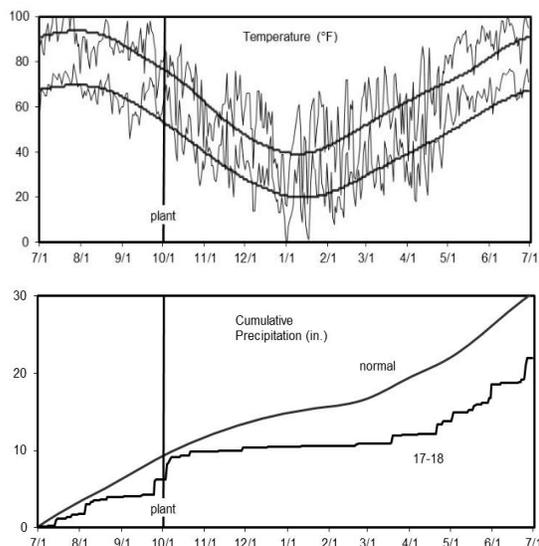


Table 19. Results for the 2018 National Winter Canola Variety Trial, open-pollinated cultivars, at Norwich, KS

Name	Type ¹	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)	Fall stand (0-10)	50% bloom (DOY)	Test weight (lb/bu)	Oil (%)	Protein (%)
		2018	2017	2-yr.	2018	2017	2-yr.	2018	2017	2-yr.	(0-10)	(lb/bu)	(%)
CROPLAN by WinField													
CP115WRR	OP	814	---	---	56	60	---	---	7.0	117	47.3	37.2	30.4
CP225WRR	OP	1516	---	---	105	80	---	---	9.0	116	49.0	38.2	28.9
CP320WRR	OP	1632	---	---	113	70	---	---	8.5	116	51.1	37.3	29.4
CP45-25WRR	OP	1550	---	---	107	65	---	---	8.5	117	51.1	36.9	29.0
Kansas State University													
KS4670	OP	1615	---	---	112	70	---	---	9.0	116	48.9	38.1	28.6
KS4675	OP	1541	---	---	107	70	---	---	8.5	116	49.8	38.5	29.1
KSR4723	OP	1435	---	---	99	70	---	---	7.5	116	50.4	38.3	29.4
KSR4724S	OP	1402	---	---	97	65	---	---	7.0	116	48.6	39.3	28.2
Riley	OP	1685	---	---	117	80	---	---	8.0	116	50.0	38.9	28.8
Sumner	OP	1527	---	---	106	75	---	---	8.0	116	50.1	38.0	29.5
Surefire	OP	1639	---	---	114	75	---	---	7.5	117	52.3	37.4	29.9
Wichita	OP	1708	---	---	118	80	---	---	8.5	116	50.1	38.0	29.4
KWS MOMONT													
Quartz	OP	1520	---	---	105	70	---	---	8.5	118	48.6	38.1	26.4
Ohlde Seed Farms													
Torrington	OP	1612	---	---	112	75	---	---	7.5	116	50.9	37.5	29.2
Star Specialty Seed, Inc.													
Star 915W	OP	892	---	---	62	70	---	---	7.5	117	47.1	38.9	29.8
Star 930W	OP	1485	---	---	103	75	---	---	9.0	117	52.1	37.9	29.6
Grand Mean		1443	---	---	---	71	---	---	8.1	116	49.6	38.1	29.0
Common Check OP Mean		1614	---	---	---	75	---	---	8.5	117	49.3	38.1	27.9
Common Check Hybrid Mean		1547	---	---	---	77	---	---	8.0	117	49.7	37.8	28.3
CV		11	---	---	---	13	---	---	7.5	1	4.0	2.3	2.4
LSD (0.05)		321	---	---	---	NS	---	---	1.3	1	NS	NS	1.5

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.

¹Type: H=hybrid, OP=open pollinated

Table 20. Results for the 2018 National Winter Canola Variety Trial, hybrid cultivars, at Norwich, KS

Name	Type ¹	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)		Fall stand	50% bloom	Test weight		Oil	Protein
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(0-10)	(DOY)	(lb/bu)	(%)	(%)		
Bayer Crop Science Division															
CWH189D	H	1687	---	---	106	73	---	---	6.7	116	50.9	38.7	29.7		
CWH190D	H	1482	---	---	93	73	---	---	7.3	117	49.3	39.3	30.0		
CWH239D	H	1897	---	---	119	77	---	---	7.3	116	47.8	39.8	28.4		
DGC173D	H	1660	---	---	104	80	---	---	6.7	116	49.6	38.6	29.5		
DL Seeds Inc.															
Atora	H	1064	---	---	67	60	---	---	7.0	118	46.2	39.0	28.7		
Event	H	1900	---	---	119	80	---	---	7.3	115	50.4	40.6	26.2		
Phoenix CL	H	1198	---	---	75	67	---	---	7.3	116	47.8	38.8	29.8		
Plurax CL	H	1902	---	---	119	80	---	---	8.0	117	49.7	39.4	27.8		
Temptation	H	1578	---	---	99	67	---	---	7.7	118	48.2	39.1	27.1		
Kansas State University															
Wichita	OP	1440	---	---	90	77	---	---	7.7	117	50.0	37.8	29.9		
KWS MOMONT															
HAMOUR	H	1788	---	---	112	73	---	---	8.0	117	48.1	38.7	28.6		
HIDYLLE	H	1408	---	---	88	73	---	---	7.7	118	49.4	36.7	30.2		
MH 15AY085	H	1236	---	---	78	60	---	---	7.7	118	40.8	37.7	29.9		
MH 15HIB001	H	1235	---	---	78	50	---	---	7.3	118	44.0	35.1	30.8		
MH 15HIB002	H	1421	---	---	89	60	---	---	8.0	118	44.1	37.1	30.2		
MH 15HT229	H	1758	---	---	110	73	---	---	7.7	117	46.7	40.0	29.5		
Quartz	OP	1653	---	---	104	77	---	---	8.3	118	49.4	37.9	26.7		
Rubisco Seeds LLC															
Edimax CL	H	1292	---	---	81	63	---	---	7.3	116	45.9	37.2	27.5		
Inspiration	H	1571	---	---	99	70	---	---	7.7	116	49.0	37.6	28.9		
Mercedes	H	1818	---	---	114	77	---	---	8.0	115	50.5	41.4	26.6		
Popular	H	1850	---	---	116	80	---	---	7.7	115	50.7	40.0	28.1		
Grand Mean		1572	---	---	---	71	---	---	7.5	117	48.0	38.6	28.8		
Common Check Hybrid Mean		1547	---	---	---	77	---	---	8.0	117	49.7	37.8	28.3		
Common Check OP Mean		1614	---	---	---	75	---	---	8.5	117	49.3	38.1	27.9		
CV		14	---	---	---	12	---	---	7.4	1	4.6	2.0	2.3		
LSD (0.05)		367	---	---	---	12	---	---	NS	2	3.8	1.6	1.4		

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.

¹Type: H=hybrid, OP=open pollinated

Clovis, New Mexico

Sangu Angadi and Sultan Begna
New Mexico State University

Planted: 9/20/2017 in 6-in. rows
Seeding Rate OP: 500,000 seeds/a
Seeding Rate Hybrid: 300,000 seeds/a
Desiccant: 2 pt/a Reglone on 6/14/2018
Harvested: 6/20/2018
Herbicides: 1.5 pt/a Treflan HFP, 5.3 oz/a Select
Insecticides: 14 oz/a Prevethan in fall
1 pt/a Dimethoate in spring
Irrigation: 11.3 in.
Previous crop: Wheat
Soil test: 6-26-531 ppm N-P-K, pH=8.1
Fertilizer: 125-20-0-35 lb N-P-K-S fertilizer in fall
Soil type: Olton clay loam
Elevation: 4437 ft Latitude: 34° 36'N
Comments: The crop persisted through a significant drought and yields were slightly below average for this location.

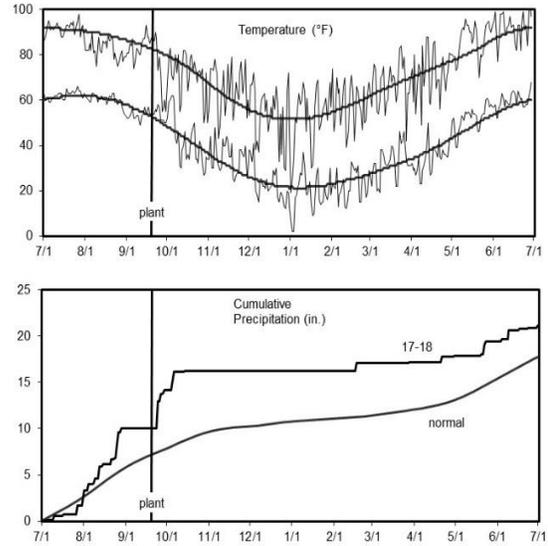


Table 21. Results for the 2018 National Winter Canola Variety Trial, open-pollinated cultivars, at Clovis, NM

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)			50% bloom	Plant height	Test weight	Oil	Protein
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(DOY)	(in.)	(lb/bu)	(%)	(%)		
CROPLAN by WinField															
CP115WRR	OP	2821	975	1898	100	---	---	---	97	39	47.1	35.9	29.5		
CP225WRR	OP	2844	1014	1929	101	---	---	---	96	41	48.4	36.4	29.4		
CP320WRR	OP	2947	1397	2172	104	---	---	---	98	41	48.8	36.1	30.6		
CP45-25WRR	OP	2531	1122	1827	89	---	---	---	98	39	48.2	35.1	30.2		
Kansas State University															
KS4670	OP	2977	---	---	105	---	---	---	94	39	49.0	36.3	29.8		
KS4675	OP	2930	955	1943	104	---	---	---	95	39	47.1	37.6	29.0		
KSR4723	OP	2561	---	---	90	---	---	---	99	39	47.6	36.9	29.5		
KSR4724S	OP	2806	---	---	99	---	---	---	94	39	47.9	37.4	29.6		
Riley	OP	3208	869	2038	113	---	---	---	100	40	46.2	35.5	30.2		
Sumner	OP	3136	671	1904	111	---	---	---	96	39	46.6	36.1	30.2		
Surefire	OP	3100	1489	2294	110	---	---	---	97	39	49.2	34.4	30.5		
Wichita	OP	2679	1463	2071	95	---	---	---	99	41	46.0	35.7	30.7		
KWS MOMONT															
Quartz	OP	2373	1819	2096	84	---	---	---	102	42	46.7	34.6	29.3		
Ohlde Seed Farms															
Torrington	OP	3016	1093	2055	107	---	---	---	96	39	48.6	36.6	29.7		
Star Specialty Seed, Inc.															
Star 915W	OP	1995	984	1490	71	---	---	---	96	38	48.0	38.0	29.9		
Star 930W	OP	2904	1269	2086	103	---	---	---	96	41	47.8	33.8	31.1		
Grand Mean		2830	1122	---	---	---	---	---	97	39	47.7	36.1	29.9		
Common Check OP Mean		2526	1384	---	---	---	---	---	100	42	46.4	35.2	30.0		
Common Check Hybrid Mean		3198	1705	---	---	---	---	---	100	42	50.1	35.6	30.2		
CV		19	27	---	---	---	---	---	1	6	3.8	2.6	3.4		
LSD (0.05)		869	501	---	---	---	---	---	2	4	3.0	2.0	NS		

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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 22. Results for the 2018 National Winter Canola Variety Trial, hybrid cultivars, at Clovis, NM

Name	Type ¹	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)		50% bloom	Plant height	Test weight	Oil	Protein
		2018	2017	2-yr.	2018	2018	2017	2-yr.	(DOY)	(in.)	(lb/bu)	(%)	(%)	
Bayer Crop Science Division														
CWH189D	H	3013	1803	2408	89	---	---	---	98	43	49.8	36.4	30.1	
CWH190D	H	3292	1729	2511	98	---	---	---	98	41	51.5	35.6	30.4	
CWH239D	H	3357	1227	2292	100	---	---	---	99	38	50.7	36.9	29.4	
DGC173D	H	3396	1271	2333	101	---	---	---	99	43	50.9	35.8	30.7	
DL Seeds Inc.														
Atora	H	3314	---	---	98	---	---	---	98	44	51.2	37.9	29.3	
Event	H	3451	---	---	102	---	---	---	99	43	50.5	37.1	29.2	
Phoenix CL	H	3295	---	---	98	---	---	---	98	43	50.4	38.0	29.3	
Plurax CL	H	3428	1887	2658	102	---	---	---	94	42	50.2	37.2	29.3	
Temptation	H	3571	---	---	106	---	---	---	99	44	50.1	36.6	29.8	
Kansas State University														
Wichita	OP	2957	1744	2350	88	---	---	---	98	41	49.9	36.0	30.9	
KWS MOMONT														
HAMOUR	H	3364	1543	2453	100	---	---	---	100	44	50.9	35.6	30.0	
HIDYLLE	H	3560	---	---	106	---	---	---	99	44	50.8	36.1	29.2	
MH 15AY085	H	3302	---	---	98	---	---	---	99	45	50.5	37.4	29.1	
MH 15HIB001	H	3688	---	---	110	---	---	---	93	43	49.4	36.0	31.3	
MH 15HIB002	H	2851	---	---	85	---	---	---	91	41	49.0	35.5	30.8	
MH 15HT229	H	3363	---	---	100	---	---	---	98	43	48.9	38.4	30.2	
Quartz	OP	3440	1872	2656	102	---	---	---	102	43	50.3	35.1	29.5	
Rubisco Seeds LLC														
Edimax CL	H	3238	1061	2149	96	---	---	---	97	44	50.6	37.0	28.8	
Inspiration	H	3511	1089	2300	104	---	---	---	95	45	50.3	37.4	29.5	
Mercedes	H	3713	1632	2673	110	---	---	---	100	40	50.9	36.4	29.4	
Popular	H	3605	1641	2623	107	---	---	---	94	41	50.9	37.2	29.2	
Grand Mean		3367	1401	---	---	---	---	---	98	43	50.4	36.7	29.8	
Common Check Hybrid Mean		3198	1705	---	---	---	---	---	100	42	50.1	35.6	30.2	
Common Check OP Mean		2526	1384	---	---	---	---	---	100	42	46.4	35.2	30.0	
CV		8	16	---	---	---	---	---	1	7	1.8	2.6	2.3	
LSD (0.05)		450	367	---	---	---	---	---	2	5	1.5	NS	NS	

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.

¹Type: H=hybrid, OP=open pollinated

Bushland, Texas

Jourdan Bell
Texas A&M University

Planting date 1: 9/6/2017
 Planting date 2: 9/19/2017
 Harvested: 6/26/2018
 Herbicides: 1.5 pt/a Treflan
 Insecticides: 2 oz/a Beseige
 Irrigation: 5 in.
 Previous crop: Fallow
 Soil test: NA
 Fertilizer: 68-20-0-0 lb N-P-K-S fertilizer
 Soil type: Pantex silty clay loam
 Elevation: 3825 ft Latitude: 35° 11'N
 Comments: Planted into good soil moisture but a severe winter drought limited yields.

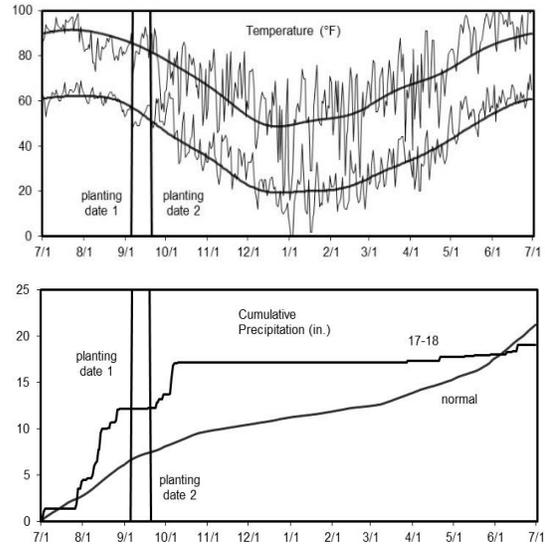


Table 23. Results for the 2018 National Winter Canola Variety Trial at Bushland, TX

Name	Type ¹	Yield (lb/a)			Yield (% of test avg.)			Yield (lb/a) ²			Yield (% of test avg.)						
		2018	2016	2-yr.	2018	(%)	(%)	2018	2016	2-yr.	2018	(%)	(%)				
Planting date 1³						Planting date 2³											
CROPLAN by WinField																	
CP115WRR	OP	410	1619	1015	63	30.0	26.3	521	865	693	84	33.1	28.5				
CP225WRR	OP	557	995	776	85	32.0	27.0	558	1001	779	90	32.5	27.3				
CP45-25WRR	OP	464	1652	1058	71	32.7	26.7	439	1428	934	71	33.2	27.5				
DL Seeds Inc.																	
Phoenix CL	H	768	---	---	117	28.3	25.5	698	---	---	112	32.4	26.7				
Plurax CL	H	396	---	---	61	29.8	26.2	840	---	---	135	34.8	27.5				
Kansas State University																	
Riley	OP	711	---	---	109	28.4	25.8	312	---	---	50	30.8	26.4				
KWS MOMONT																	
Quartz	OP	595	2615	1605	91	31.9	25.2	857	1916	1387	138	33.6	25.9				
Rubisco Seeds LLC																	
Edimax CL	H	1061	2288	1674	162	29.1	25.5	754	1791	1273	121	31.6	26.3				
Inspiration	H	1391	1559	1475	213	30.9	26.6	1382	1857	1620	222	33.4	27.0				
Mercedes	H	783	1706	1244	120	31.1	25.6	350	2316	1333	56	33.6	26.7				
Popular	H	546	1698	1122	83	27.6	25.1	447	1687	1067	72	28.6	25.2				
Star Specialty Seed, Inc.																	
Star 915W	OP	731	1361	1046	112	29.8	27.3	715	966	841	115	34.8	29.1				
Star 930W	OP	706	---	---	108	31.1	26.3	729	---	---	117	34.3	27.6				
Mean		654	1595	---	---	30.6	26.2	623	1443	---	---	32.9	27.0				
CV		18	---	---	---	7.5	2.9	23	---	---	---	5.4	2.2				
LSD (0.05)		404	370	---	---	NS	NS	455	370	---	---	NS	1.3				

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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.

³For the 2015-16 season, planting date 1 was on 8/17/2015 and planting date 2 was on 10/2/2015.

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Bozeman, Montana

Perry Miller and Jeff Holmes
Montana State University

Planted: 8/23/2017
 Harvested: 8/22/2018
 Herbicides: 32 oz/a Glyphosate
 Insecticides: Warrior
 Irrigation: None
 Previous crop: Fallow
 Soil test: NA
 Fertilizer: 121-0-0-0 lb N-P-K-S fertilizer in fall
 0-0-0 lb N-P-K fertilizer in spring
 Soil type: Amsterdam silt loam
 Elevation: 4775 ft Latitude: 45° 40'N
 Comments: Only two replications were harvested because of stand losses. Tied for second wettest crop year in the last 50 years. Winter canola stand was thin.

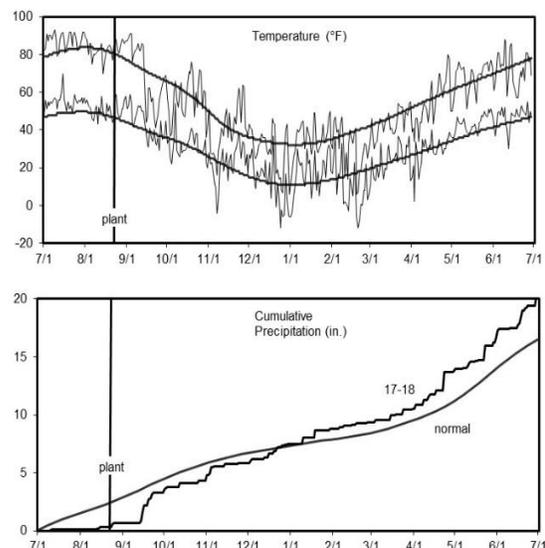


Table 24. Results for the 2018 National Winter Canola Variety Trial at Bozeman, MT

Name	Type ¹	Yield (lb/a)			Yield (% of test avg.)			Winter survival (%)		Plant height (in.)	Moisture (%)	Test		
		2018	2016	2-yr.	2018	2018	2017	2-yr.	weight (lb/bu)			Oil (%)	Protein (%)	
CROPLAN by WinField														
CP115WRR	OP	2740	2757	2748	93	---	---	---	---	---	---	---	41.4	23.0
CP225WRR	OP	2609	2694	2651	88	---	---	---	---	---	---	---	42.4	21.4
CP320WRR	OP	3605	2436	3021	122	---	---	---	---	---	---	---	43.5	21.1
CP45-25WRR	OP	2975	2346	2661	101	---	---	---	---	---	---	---	42.0	22.3
Kansas State University														
KSR4723	OP	3568	---	---	121	---	---	---	---	---	---	---	43.6	21.5
KSR4724S	OP	2243	---	---	76	---	---	---	---	---	---	---	43.8	21.4
Star Specialty Seed, Inc.														
Star 915W	OP	2626	2329	2477	89	---	---	---	---	---	---	---	42.5	22.9
Star 930W	OP	3292	2632	2962	111	---	---	---	---	---	---	---	41.1	23.5
Mean		2957	2439	---	---	---	---	---	---	---	---	---	42.6	22.1
CV		14	---	---	---	---	---	---	---	---	---	---	2.3	3.7
LSD (0.3)		454	381	---	---	---	---	---	---	---	---	---	NS	NS

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.

¹Type: H=hybrid, OP=open pollinated

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Alburgh, Vermont

Heather Darby and Sara Ziegler
University of Vermont

Planted: 8/24/2017 in 6-in. rows
Seeding Rate OP: 500,000 seeds/a
Seeding Rate Hybrid: 300,000 seeds/a
Harvested: 7/16/2018
Herbicides: None
Insecticides: None
Irrigation: None
Previous crop: Spring barley
Soil test: P=25 lb/a, K=86 lb/a, pH=7.0
Fertilizer: 60-0-0 lb N-P-K fertilizer in spring
Soil type: Benson rocky silt loam
Elevation: 124 ft Latitude: 45° 0'N
Comments: Winter stand losses reduced yields, but overall performance was similar to previous years.

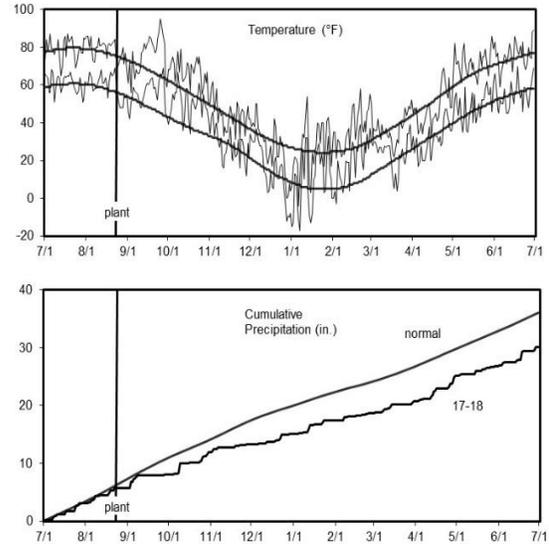


Table 25. Results for the 2018 National Winter Canola Variety Trial at Alburgh, VT

Name	Type ¹	Yield (lb/a) ²			Yield (% of test avg.)			Winter survival (%)		Fall vigor (1-5)	50% bloom (DOY)	Test weight (lb/bu)	Oil (%)	Protein (%)
		2018	2017	2-yr.	2018	2017	2-yr.	2018	2017					
Bayer Crop Science Division														
CWH189D	H	1792	---	---	150	77	---	---	3.3	130	48.3	43.4	21.6	
CWH190D	H	1634	---	---	137	68	---	---	3.3	130	48.2	43.1	21.5	
DGC173D	H	929	---	---	78	52	---	---	3.3	130	45.2	41.5	22.1	
DL Seeds Inc.														
Atora	H	1033	---	---	87	53	---	---	4.0	132	45.6	44.3	20.9	
Phoenix CL	H	556	---	---	47	23	---	---	5.0	133	43.1	42.1	22.4	
Plurax CL	H	880	1151	1015	74	48	---	---	4.0	131	45.1	42.8	21.3	
Kansas State University														
Riley	OP	1581	1519	1550	133	52	---	---	4.3	130	46.6	43.8	23.1	
Surefire	OP	1580	---	---	133	60	---	---	4.0	130	46.6	42.1	22.7	
KWS MOMONT														
HAMOUR	H	1140	---	---	96	53	---	---	3.7	130	47.5	43.3	20.7	
HIDYLLE	H	1095	---	---	92	38	---	---	4.7	130	48.5	44.5	20.6	
Quartz	OP	1905	1356	1631	160	82	---	---	2.7	130	47.2	45.5	18.6	
Rubisco Seeds LLC														
Edimax CL	H	778	1278	1028	65	38	---	---	4.7	134	45.0	42.6	20.7	
Inspiration	H	1269	1332	1300	107	45	---	---	4.3	131	44.5	44.7	20.8	
Mercedes	H	577	1323	950	48	28	---	---	5.0	135	46.5	45.2	21.0	
Popular	H	1111	1278	1194	93	52	---	---	4.3	132	45.8	45.0	20.0	
Mean		1191	1239	---	---	51	---	---	4.0	131	46.2	43.6	21.2	
CV		33	28	---	---	31	---	---	13.6	1	3.6	2.8	4.4	
LSD (0.05)		660	NS	---	---	26	---	---	0.9	3	2.8	NS	2.0	

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.

¹Type: H=hybrid, OP=open pollinated

²Use 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.

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Table 26. Results for the 2018 Blackleg (*Leptosphaeria maculans*) Trial at Stillwater, OK.

National Winter Canola Variety Trial

J.P. Damicone, D.L. Teeter, F. Cevallos, B. Johnson, and J.J. Lofton, Oklahoma State University

M.J. Stamm, Kansas State University

Entry	Yield¹ (lb/a)	Fall stand² (%)	Aphid damage³ (%)	Blackleg leaf spot⁴ (%)	Blackleg incidence⁵ (%)	Blackleg incidence⁶ (≥3)	Blackleg severity⁷ (0-5)
Checks							
Bristol	651 no	62 c	7 a	0.3 a	100 a	80 abc	3.87 a-d
Eurol	405 o	35 d	32 a	0.3 a	83 abc	47 e-j	2.80 g-m
Bayer Crop Science Division							
CWH189D	1703 g-l	98 a	3 a	0.0 a	57 ef	30 ij	2.20 lmn
CWH190D	1862 e-k	100 a	10 a	0.7 a	83 abc	70 b-e	3.37 b-h
CWH239D	1923 d-k	100 a	8 a	0.0 a	60 def	40 g-j	2.50 i-n
DGC173D	2381 b-f	83 b	5 a	0.7 a	63 c-f	27 ij	2.23 k-n
CROPLAN by WinField							
CP115WRR	1653 h-m	83 b	5 a	0.0 a	100 a	70 b-e	3.53 a-g
CP225WRR	1148 lmn	87 ab	10 a	0.0 a	90 ab	70 b-e	3.43 b-h
CP320WRR	1649 h-m	100 a	8 a	0.3 a	93 ab	80 abc	3.80 a-e
CP45-25WRR	1379 j-m	90 a	15 a	0.3 a	100 a	77 abc	3.77 a-e
DL Seeds Inc.							
Atora	2177 b-h	100 a	5 a	0.3 c	60 def	23 j	2.03 mn
Event	3164 a	100 a	2 a	0.0 a	57 ef	37 g-j	2.50 i-n
Phoenix CL	1827 f-k	100 a	18 a	0.3 a	77 b-e	47 e-j	2.87 f-m
Plurax CL	2714 ab	92 ab	8 a	0.3 a	83 abc	27 ij	2.50 i-n
Temptation	2509 bcd	95 ab	8 a	0.0 a	60 def	30 ij	2.23 k-n
Kansas State University							
KS4670	2140 b-h	97 ab	10 a		90 ab	57 c-h	3.07 d-k
KS4675	1654 h-m	93 ab	5 a	0.0 a	83 abc	70 b-e	3.57 a-g
KSR4723	1499 i-m	100 a	5 a	1.7 a	97 ab	80 abc	4.07 ab
KSR4724S	1448 i-m	97 ab	12 a	0.0 a	93 ab	60 b-g	3.20 c-j
Riley	1685 h-l	93 ab	18 a	0.0 a	93 ab	73 bcd	3.67 a-f
Sumner	1418 j-m	90 ab	7 a	0.7 a	90 ab	73 bcd	3.73 a-e
Surefire	2220 b-h	100 a	8 a	0.0 a	80 a-d	43 f-j	2.77 g-m
Wichita	2312 b-g	100 a	3 a	0.7 a	100 a	47 e-j	3.03 d-l
KWS MOMONT							
HAMOUR	2485 bcd	100 a	8 a	0.7 a	83 abc	43 f-j	2.80 g-m
HIDYLLE	2170 b-h	100 a	3 a	0.3 a	77 b-e	50 d-i	2.97 e-l
MH 15AY085	1974 d-j	93 ab	7 a	0.3 a	60 def	37 g-j	2.33 k-n
MH 15HIB001	2645 abc	97 ab	2 a	0.0 a	60 def	47 e-j	2.63 h-n
MH 15HIB002	2466 b-e	100 a	7 a	0.0 a	50 fg	30 ij	2.20 lmn
MH 15HT229	2668 ab	100 a	3 a	0.0 a	30 g	23 j	1.87 n
Quartz	2048 c-i	100 a	2 a	0.3 a	80 a-d	67 b-f	3.23 b-j

Table 26, continued. Results for the 2018 Blackleg (*Leptosphaeria maculans*) Trial at Stillwater, OK. National Winter Canola Variety Trial

Entry	Yield¹ (lb/a)	Fall stand² (%)	Aphid damage³ (%)	Blackleg leaf spot⁴ (%)	Blackleg incidence⁵ (%)	Blackleg incidence⁶ (≥3)	Blackleg severity⁷ (0-5)
Ohlde Seed Farms							
Torrington	1834 f-k	92 ab	7 a	0.0 a	82 abc	50 d-i	2.97 e-l
Rubisco Seeds LLC							
Edimax CL	2385 b-f	100 a	18 a	0.3 a	63 c-f	33 hij	2.47 j-n
Inspiration	2378 b-f	100 a	8 a	0.0 a	80 a-d	43 f-j	2.73 g-m
Mercedes	2311 b-g	100 a	5 a	0.3 a	80 a-d	57 c-h	3.03 d-l
Popular	2304 b-g	100 a	10 a	0.0 a	90 ab	43 f-j	2.97 e-l
Star Specialty Seed, Inc.							
Star 915W	1054 mn	88 ab	12 a	0.3 a	100 a	100 a	4.30 a
Star 930W	1682 h-l	97 ab	35 a	0.0 a	93 ab	60 b-g	3.33 b-i
P>F	<0.01	<0.01	0.33	0.06	<0.01	<0.01	<0.01
CV	19.8	9.3	248.9	115.5	16.4	27.9	17.2

¹Values in a column followed by the same letter are not statistically different at P=0.05 according to t-tests

²Percentage of plot coverage with foliage on 17 Apr 2018.

³Percentage of plot with aphid damage on 25 May 2018.

⁴Percentage of leaves with the blackleg leaf spot on 20 Dec 2018.

⁵Percentage of plants with blackleg after swathing on 5 Jun 2018.

⁶Percentage of plants with severe blackleg (severity rating of ≥3) after swathing on 5 Jun 2018.

⁷Severity of internal stem decay from blackleg on a 1 to 5 scale where 1 = no disease, 2 = >0 to ≤25% stem

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Table 27. Seed sources for entries in the 2017-2018 National Winter Canola Variety Trial

Source	Type ¹	Trait ²	Available date	Maturity ³	Source	Type ¹	Trait ²	Available date	Maturity ³
CROPLAN by WinField Mark Torno (mtorno@landolakes.com)					KWS MOMONT Thierry Momont (thierry.momont@kws.com)				
CP115WRR	OP	RR/SURT	2008	ME	Photosyntech Bob Amstrup (bob.amstrup@photosyntech.com)				
CP225WRR	OP	RR/SURT	2014	M	HAMOUR	H	---	---	F
CP320WRR	OP	RR	2017	E	HIDYLLE	H	---	---	F
CP45-25WRR	OP	RR/SURT	2013	M	MH 15HIB001	H	CL	---	M
DL Seeds Inc. Kevin McCallum (kevin.mccallum@dlseeds.ca)					MH 15HIB002	H	CL	---	ME
Atora	H	---	---	M	MH 15AY085	H	---	---	F
Event	H	---	---	M	MH 15HT229	H	---	---	F
Phoenix CL	H	CL	---	M	Quartz	OP	---	2015	M
Plurax CL	H	CL	2018	E	Bayer Crop Science Division David Kelner (david.kelner@bayer.com)				
Temptation	H	---	---	F	CWH189D	H	SD/CL	---	M
Kansas State University Canola Breeding Program Michael J. Stamm (mjstamm@ksu.edu)					CWH190D	H	SD/CL	---	M
KS4670	OP	---	---	M	CWH239D	H	SD	---	M
KS4675	OP	---	---	M	DGC173D	H	SD	---	M
KSR4723	OP	RR	---	M	Rubisco Seeds LLC Claire Caldbeck (info@rubiscoseeds.com)				
KSR4724S	OP	RR/SURT	---	E	Edimax CL	H	CL	2012	M
Riley	OP	---	2010	M	Inspiration	H	---	2014	M
Sumner	OP	SU	2003	ME	Mercedes	H	---	2014	M
Surefire	OP	SU	2017	F	Popular	H	---	2016	E
Wichita	OP	---	1999	M	Star Specialty Seed, Inc. Jim Johnson (jimj_star@hotmail.com)				
Ohlde Seed Farms Shane Ohlde (shane@ohldeseed.com)					Star 915W	OP	RR/SURT	2014	M
Torrington	OP	---	2016	M	Star 930W	OP	RR	2013	ME

¹ OP = open pollinated, H = hybrid

² SU and SURT = sulfonyleurea carryover tolerant; CL = Clearfield (imidazolinone resistant); RR = Roundup Ready; SD = semi dwarf

³ E = Early; ME = Medium/Early; M = Medium; MF = Medium/Full; F = Full

Senior Authors

Michael Stamm and Scott Dooley

Department of Agronomy, Kansas State University, Manhattan

Other Contributors

Rob Aiken, Kansas State University, Colby

Sangu Angadi and Sultan Begna, New Mexico State University,
Clovis

Brian Baldwin and Jesse Morrison, Mississippi State University,
Starkville

Jourdan Bell, Texas AgriLife Research and Extension Service,
Amarillo

Matthew Blair, Tennessee State University, Nashville

Indi Braden, Southeast Missouri State University,
Cape Girardeau

Jack Brown, Jim Davis, and Ashley Job, University of Idaho,
Moscow

Perry Cabot and Reza Keshavarz Afshar, Colorado State
University, Fruita

Ernst Cebert, Alabama A&M University, Normal

John Damicone, Oklahoma State University, Stillwater

Heather Darby and Sara Ziegler, University of Vermont,
St. Albans

Andrew Esser, Kansas State University, Belleville

Johnathon Holman and Scott Maxwell, Kansas State University,
Garden City

Jerry Johnson, Edward Asfeld, and Sally Jones-Diamond,
Colorado State University, Ft. Collins

Emi Kimura, Texas AgriLife Research and Extension Center,
Vernon

Bruce Kirksey, Agricenter International, Memphis, Tennessee

Kevin Larson, Colorado State University, Walsh

Josh Lofton, Oklahoma State University, Stillwater

Daniel Mailhot, University of Georgia, Griffin

Charles Mansfield, Purdue University, Vincennes

Perry Miller and Jeff Holmes, Montana State University,
Bozeman

Clark Neely and Daniel Hathcoat, Texas A&M University,
College Station

Angela Post, North Carolina State University, Raleigh

Katie Russell, Colorado State University, Yellow Jacket

Dipak Santra, University of Nebraska-Lincoln, Scottsbluff

Bob Schrock, Kiowa, Kansas

Peter Sexton, South Dakota State University, Brookings

Bradley Stancil, Clemson University, Clemson, South Carolina

Cody and David Swinehart, Norwich, Kansas

Tyler Thomas, Fly Over States Ag Research, Troy, Kansas

Wade Thomason, Virginia Tech University, Blacksburg

Calvin Trostle, Texas AgriLife Extension Service, Lubbock

Dennis West, University of Tennessee, Knoxville

Mary Wiedenhoeft and Gunnar Dinkla, Iowa State University,
Ames

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