

2019

Montana Statewide Spring Canola Variety Trial



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Montana Statewide Spring Canola Variety Trial 2019

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INTRODUCTION

Though unchanged from 2018 to 2019, canola acreage in Montana has increased nearly 2000% since 2009. The growing interest in canola among Montana farmers creates a need for hybrid performance assessments in areas of the state previously dominated by wheat-based systems. Performance of 18 canola hybrids was evaluated at six locations in Montana (Conrad, Corvallis, Havre, Kalispell, Moccasin, and Sidney) in both dryland and irrigated systems.

OBJECTIVES

The objective of the Montana Statewide Spring Canola Variety Trial was to evaluate the agronomic performance of available canola hybrids and breeding lines submitted by commercial entities at research locations across the state. The information obtained from these trials is intended to provide canola growers in Montana with reliable, unbiased information regarding which canola hybrids are best suited to their specific production environment.

METHODS

In spring 2019, 18 canola varieties (*Brassica napus*) with five herbicide resistance systems (including two cultivars with no herbicide resistance) were submitted by seven sponsors ([Table 1](#)). The seed was distributed to seven Montana State University agricultural research centers ([Figure 1a](#)): Central Ag near Moccasin (CARC), Eastern Ag near Sidney (EARC), Northern Ag near Havre (NARC), Northwestern Ag near Kalispell (NWARC), Southern Ag near Huntley (SARC), Western Ag near Corvallis (WARC), and Western Triangle Ag near Conrad (WTARC). Different combinations of hybrids were tested at each location. However, eleven cultivars were established at all locations.

Plots were seeded at 14 PLS/ft², with a goal of 12 established plants/ft². Seed was treated prior to seeding with Lumiderm[®] or Helix XTra[®] for control of flea beetle. Select varieties were also treated with Prosper[®] Evergol[®]. Varieties were grown in small plots ranging from 70 to 100 ft² and were replicated four times in a randomized complete block design, with the exception of the trial located at SARC. This location employed an alpha-lattice design. Hybrids were compared for establishment, height, days to flowering, lodging, shattering, grain yield, test weight, and percent oil. Grain yield and oil content were adjusted to 8.5% moisture. Seeding and harvest dates, fertilizer and pesticide applications, row spacing, tillage systems, and field crop histories were recorded for each location. ([Table 2](#)). Meteorological and soils data were also recorded ([Table 3](#)).

INTERPRETING RESULTS

Results are presented in tabular form ([Tables 4-10](#)). Note that varieties are sorted by herbicide tolerance system, despite weeds having been managed uniformly across herbicide tolerance types. In other words, imidazolinone herbicides were not used for in-crop weed control in plots containing Clearfield[®] hybrids; or glufosinates for in-crop weed control on Liberty Link[®] hybrids; or sulfonylurea herbicides on sulfonylurea-tolerant hybrids; or glyphosate on Roundup Ready[®] hybrids. Rather, glyphosate was applied for weed control either pre-plant or pre-emergence, depending on the location ([Table 2](#)) and weeds were controlled during the growing season by means of hand-weeding and/or alternative chemicals, not by means of herbicides paired to tolerance systems represented in the trial.

Performance data are presented by location in [Tables 5-10](#). The Least Significant Difference (LSD) values are presented for making pairwise comparisons between treatment means (varieties). If the difference

between two treatment values within a column exceeds the LSD value, the entries are considered statistically different from one another for that particular response variable. If the difference does not exceed the LSD value, the entries are considered statistically equivalent. The LSD value is replaced with 'NS' for 'non-significant' when the coefficient of variation (CV) value exceeds 15% and/or the probability value (*P*-Value) exceeds 0.05. A *P*-Value of 0.05 indicates that 19 times out of 20, a difference would be detected among treatment means if the study was repeated. A *P*-Value of 0.001 probability indicates that 999 times out of 1000, a difference would be detected among treatment means if the study was repeated.

RESULTS & DISCUSSION

The following results are for informational purposes only. The presentation of data for the hybrids evaluated does not imply approval or endorsement by Montana State University.

Just 11 of the 18 cultivars included in the trials were tested at all six locations ([Table 1](#)). Only these 11 cultivars are used in the following descriptions of multi-location comparisons:

Average yield of the irrigated site at Corvallis (2,318.7 lb/ac) far surpassed that of the other irrigated site, Sidney (1,071.2 lb/ac). This difference can be explained, in part, by severe flea beetle damage early in the growing season at the latter site. Of the four dryland sites, Havre (3,948.1 lb/ac) achieved the highest average yield, followed by Kalispell (1,897.8 lb/ac), Conrad (1,309.9 lb/ac), and Moccasin (1,095.3 lb/ac). The average yield across dryland and irrigated sites was 1,940.2 lb/ac, average test weight was 49.6 lb/bu, and average height was 37 inches. Averaged across six locations, 1) CP930RR (2,131.2 lb/ac) was the highest yielder and 16MH6004 (1,811.1 lb/ac) was the lowest; 2) 16MH6001 (50.2 lb/bu) had the

highest test weight and 16CH4181 (48.9 lb/bu) along with NCC101S (48.9 lb/bu) had the lowest; and 3) CP955RR (39.5 in) was the tallest hybrid while NCC101S (34.8 in) was the shortest, though statistical differences were not assessed in these comparisons. Oil analyses are pending for two of the 6 locations. No shattering or lodging was observed in any of the 2019 trials, with the exception of minimal trial-wide shatter losses at Kalispell. Yield data are summarized for all locations in [Table 4](#). Cultivar performance at each location is summarized in [Tables 5-10](#).

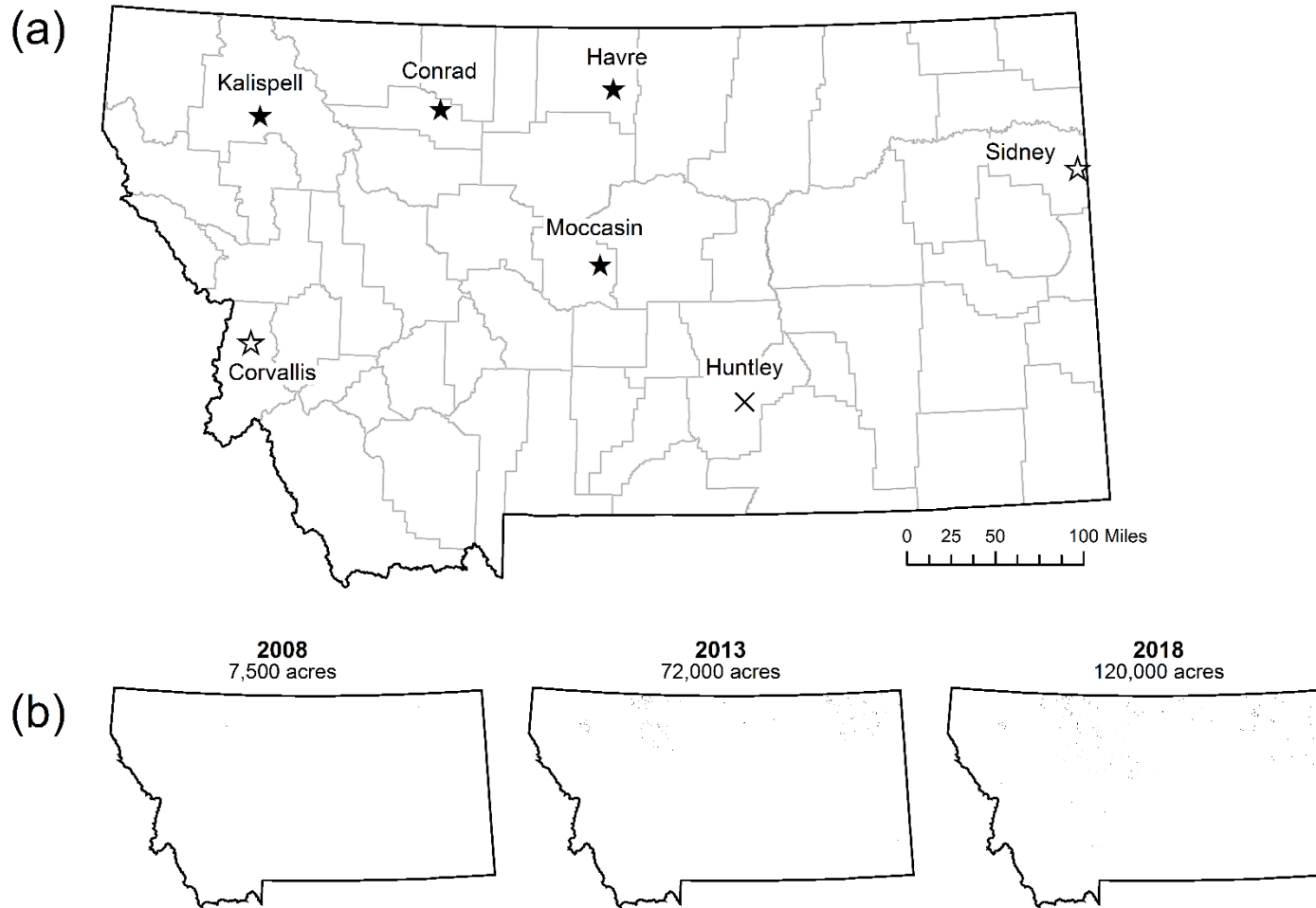
Pests, residual herbicide damage, and severe weather were factors in this year's trials, leading to unfavorably high yield CV% values and, in one case, total trial abandonment. Mid-season hail damage forced abandonment of the trial established at Huntley, while deer, bird, and flea beetle damage likely contributed to highly variable yields observed at Kalispell, Corvallis, and Sidney, respectively. Certain cultivars at Havre exhibited damage from Sharpen applications made in fall 2018, though performance impacts were minimal.

FUTURE PLANS

With continued support from the canola industry and research center personnel, multi-location canola evaluations will continue in 2020.

TRIAL LOCATIONS

Figure 1. (a) Spring canola variety testing locations in 2019 and (b) canola acreage distribution in Montana, 2008-2018. Trials were established in irrigated (open symbols) and dryland (closed symbols) systems. The trial in Huntley was abandoned (x) due to hail damage (Source: USDA National Agricultural Statistics Service Cropland Data Layer. 2019. Published crop-specific data layer. Online. Available at <https://nassgeodata.gmu.edu/CropScape/> (accessed November 26, 2019; verified 2019). USDA-NASS, Washington, DC.) [\[TOC\]](#)



CULTIVAR LIST

Table 1. 2019 cultivar list grouped by source, with herbicide system, genetic modification status, shatter/disease resistance status, and testing locations. [\[TOC\]](#)

CULTIVAR	HERB RESIST	GM STATUS	SHATTER	BLACKLEG	CLUBROOT	2019 TESTING LOCATIONS
BASF Corporation						
InVigor L233P	LL	GM	R	R	-	Conrad, Kalispell, Sidney
InVigor L234P	LL	GM	R	R	R	Conrad, Kalispell, Sidney
InVigor L255P	LL	GM	R	R	R	Conrad, Kalispell, Sidney
BrettYoung						
4187 RR	RR	GM	-	R	R	All
5545 CL	CL	Non-GM	R	R	-	All
6090 RR	RR	GM	R	R	R	All
Cargill Inc.						
16CH4181	Conventional	Non-GM	-	R	-	All
16MH6001	CL	Non-GM	-	R	-	All
16MH6004	CL	Non-GM	-	R	-	All
CROPLAN by Winfield United						
CP930RR	RR	GM	R	R	-	All
CP955RR	RR	GM	R	R	R	All
CP9978TF	TruFlex RR	GM	R	R	-	Moccasin
Dekalb/Bayer						
DKTF91SC	TruFlex RR	GM	R	R	-	All
DKTF92SC	TruFlex RR	GM	R	R	-	All
Meridian Seeds, LLC						
CS2100	RR	GM	R	R	-	Conrad, Havre, Kalispell, Moccasin
CS2300	RR	GM	-	R	-	Conrad, Havre, Kalispell, Moccasin
CS2500 CL	CL	Non-GM	-	R	-	Conrad, Havre, Kalispell, Moccasin
PHOTOSYNTECH, LLC						
NCC101S	Conventional	Non-GM	R	MR	-	All

LL = Liberty Link; RR = Roundup Ready; CL = Clearfield; R = Resistance; MR = Moderate Resistance

MULTI- LOCATION SUMMARIES

Management Information

Table 2. 2019 spring canola variety trial management information by location. [\[TOC\]](#)

MANAGEMENT	MOCCASIN (CARC)	SIDNEY (EARC)	HAVRE (NARC)	KALISPELL (NWARC)	HUNTLEY (SARC)	CONRAD (WTARC)	CORVALLIS (WARC)
Irrigation (inches)	None	6.49	None	None	-	-	8.4
Tillage	No-till	Conventional	No-till	Conventional	-	-	Conventional
Row Spacing (inches)	12	8	12	6.85	-	-	6.5
Seeding Date	4/23/2019	5/16/2019	4/18/2019	4/29/2019	-	-	4/29/2019
Harvest Date	8/15/2019	8/26/2019	8/9/2019	-	-	-	9/4/2019
Harvest Type	Direct	Direct	Direct	Direct	-	-	Direct
Previous Crop	Flax	Sugarbeet	Spring wheat	Spring wheat	-	-	Chickpea
Fertilizer	21-0-0-24 @ 250 lb/ac on 4/22; 20-30- 20-10 @ 50 lb/ac on 4/23	100 lbs N/A + 30 lbs P/A	50-15-0-20 @ 173.2 lb/ac	50-35-35	-	-	40 lbs N/A
Pesticide	RT3 @ 36 floz/ac on 4/19; Stinger @ 8 floz/ac and Assure II at 12 floz/ac on 5/30	Sevin @ 16 oz/A three times on 7/3/2019, 6/4/2019, and 6/18/2019	RT3 & Sonolan; pre- plant; Mustang Max in-crop	None	-	-	Gly Star Plus @ 2 qt/ac - preplant, Stinger @ .5 pt/ac on 5/16, and Poast @ 2.5 pt/acre on 6/4
Pests	None	Early season flea beetle (controlled)	Early season flea beetle (controlled)	Deer	-	-	Birds

Meteorological and Soils Information

Table 3. 2019 soil and meteorological data by location. [\[TOC\]](#)

METEOROLOGICAL & SOILS	MOCCASIN (CARC)	SIDNEY (EARC)	HAVRE (NARC)	KALISPELL (NWARC)	HUNTLEY (SARC)	CONRAD (WTARC)	CORVALLIS (WARC)
2019 Apr thru Aug Precip (inches)	12.12	10.4	7.06	6.34	-	-	6.47
Long-Term Avg. Precip & Period of Record	10.22 in, 111-yr	9.6 in	8.0 in, 104-yr		-	-	5.65 in, 32-yr
Last Killing Frost in Spring (< 32°F)	5/19/2019	5/12/2019	5/20/2019	5/1/2019	-	-	5/23/2019
First Killing Frost in Fall (< 32°F)	9/29/2019	10/9/2019	9/28/2019	9/30/2019	-	-	9/22/2019
Frost-free Period (days)	133	149	131	152	-	-	121
2-wk Avg. Air Temp (°F) Beginning at First Flower	56.5	70	61.2	-	-	-	58.6
Max Summer Temp (°F)	92	96	98	92	-	-	92.9
Date of Max Summer Temp	7/23/2019 & 8/3/2019	8/3/2019	8/3/2019	8/21/2019	-	-	8/7/19 & 8/21/19
Soil Type	Danvers-Judith Clay Loam	Williams Clay Loam	Fort Benton Fine Sandy Loam	Creston Silt Loam	-	-	Burnt Fork Loam
Elevation (feet)	4250	1949	2668	3000	-	-	3597
Note(s)	-	Early flea beetle damage; Flowering dates are approximate	Early season residual chemical leaf burn from previous year Sharpen application	-	Hail damage forced trial abandonment	Management, meteorological and soils data are pending	-

Yield Summary

Table 4. 2019 yield summary by location. [\[TOC\]](#)

CULTIVAR	HERB RESIST	DRYLAND YIELD				IRRIGATED YIELD	
		MOCCASIN	HAVRE	KALISPELL	CONRAD	CORVALLIS	SIDNEY
----- (lb/ac) -----							
BASF Corporation							
InVigor L233P	LL	-	-	2318.2	1177	-	998
InVigor L234P	LL	-	-	2493.2	908	-	908.5
InVigor L255P	LL	-	-	2424.2	1684.8	-	873.2
BrettYoung							
5545CL	CL	1136.8	3868.5	1914	1384.5	2499.2	1028.8
4187RR	RR	1184.5	3774.8	2520.2	1569	2558	1550.8
6090RR	RR	1120.2	3932.5	2111.5	956	2205.5	698
Cargill, Inc.							
16MH6001	CL	1156.5	3660.2	2070.8	1185.5	2150.8	1165.5
16MH6004	CL	1025.8	3468	1615.8	1242.2	2080.2	1434.8
16CH4181	Conventional	1175.2	3790.8	1737.2	1174	2157.8	1293.5
CROPLAN by Winfield United							
CP930RR	RR	1098.5	4037	1981	1624.5	2631.8	1414.2
CP955RR	RR	1071.5	4334.2	1847.8	1576.5	2316	1392.2
CP9978TF	TruFlex RR	851.8	-	-	-	-	-
Dekalb/Bayer							
DKTF91SC	TruFlex RR	1165	3975	2000	1356.5	1931	911.2
DKTF92SC	TruFlex RR	915.8	4404	1965.3	1286.2	2402.8	598
Meridian Seeds, LLC.							
CS2500 CL	CL	866	3451.2	1646.5	1175.8	-	-
CS2100	RR	1229	3663.2	1947.2	1124	-	-
CS2300	RR	1253.5	4060.8	2231.5	1165.8	-	-
PHOTOSYNTECH, LLC.							
NCC101S	Conventional	1154.2	3915.2	1964.8	1034	2878.8	360.2
Mean		1091.3	3881.1	2047.6	1272	2346.5	1051.1
CV%		13.5	5.3	18.1	27.7	16.1	25.6
LSD		226.3	296.1	NS	NS	NS	NS
P-Value		0.0038	<0.001	0.0194	0.0748	0.0498	<0.001

Underlined = maximum yield within a column; **Bold** = statistically equivalent to maximum yield; Yield adjusted to 8.5% moisture.

INDIVIDUAL LOCATIONS AND MULTI-YEAR SUMMARIES

Central Ag Research Center, Moccasin, MT

Table 5. 2019 Spring canola variety trial, CARC, Moccasin, MT. [\[TOC\]](#)

CULTIVAR	SOURCE	HERB RESIST	COUNT (sqft)	FLWR DATE (julian)	CNPY (in)	LDGE (1-9)	SHTR (1-9)	YIELD (lb/ac)	TEST WT (lb/bu)	OIL (%)
5545CL	BrettYoung	CL	9.5	177	46	1	1	1136.8	48.9	PENDING
16MH6001	Cargill Inc	CL	8.9	176	41.5	1	1	1156.5	45.9	PENDING
16MH6004	Cargill Inc	CL	9.4	176.2	40.8	1	1	1025.8	44	PENDING
CS2500 CL	Meridian Seeds, LLC.	CL	9.2	177.5	47	1	1	866	45.2	PENDING
16CH4181	Cargill Inc	Conventional	10.6	174	42.8	1	1	1175.2	44.1	PENDING
NCC101S	PHOTOSYNTECH, LLC.	Conventional	9.9	171.8	39.8	1	1	1154.2	41.4	PENDING
4187RR	BrettYoung	RR	9.5	179	45.2	1	1	1184.5	49.2	PENDING
6090RR	BrettYoung	RR	7.7	177.2	47.5	1	1	1120.2	46.7	PENDING
CS2100	Meridian Seeds, LLC.	RR	10	174.7	43.7	1	1	1229	48.9	PENDING
CS2300	Meridian Seeds, LLC.	RR	8.7	177.2	45	1	1	1253.5	47.5	PENDING
CP930RR	Winfield United	RR	9.7	174	42	1	1	1098.5	45.9	PENDING
CP955RR	Winfield United	RR	10.6	174.5	41.2	1	1	1071.5	47.1	PENDING
DKTF91SC	Dekalb/Bayer	TruFlex RR	10.1	173.8	42.5	1	1	1165	47	PENDING
DKTF92SC	Dekalb/Bayer	TruFlex RR	10.4	173	41.8	1	1	915.8	43.3	PENDING
CP9978TF	Winfield United	TruFlex RR	11.5	175	43.2	1	1	851.8	43.5	PENDING
Mean			9.7	175.4	43.3	1	1	1091.3	45.9	PENDING
CV%			13.4	0.4	4.3			13.5	3.5	
LSD			NS	1	2.7			226.3	2.4	
P-Value			0.0514	<0.001	<0.001			0.0038	<0.001	

Bold = top-performing cultivar

Bold = statistically equivalent to top-performer

Fisher's protected LSD not significant when CV% > 15 (YIELD only) and/or P-Value > 0.05

Yield adjusted to 8.5% moisture

Eastern Ag Research Center, Sidney, MT

Table 6. 2019 Spring canola variety trial, EARC, Sidney, MT. [troc](#)

CULTIVAR	SOURCE	HERB RESIST	COUNT (sqft)	FLWR DATE (julian)	CNPY HT (in)	LDGE (1-9)	SHTTR (1-9)	YIELD (lb/ac)	TEST WT (lb/bu)	OIL (%)
5545CL	BrettYoung	CL	14.5	196	19	1	1	1028.8	54	46
16MH6001	Cargill Inc	CL	12	194	17	1	1	1165.5	54.1	45
16MH6004	Cargill Inc	CL	9.8	193	18.8	1	1	1434.8	53.3	44.5
16CH4181	Cargill Inc	Conventional	12	193	24.8	1	1	1293.5	52.2	44
NCC101S	PHOTOSYNTECH, LLC.	Conventional	16	193	17.2	1	1	360.2	48.5	35.4
InVigor L233P	BASF Corporation	LL	12.2	194	17.5	1	1	998	52.4	42.4
InVigor L234P	BASF Corporation	LL	15	196	15.2	1	1	908.5	52.4	42
InVigor L255P	BASF Corporation	LL	14	195	15.5	1	1	873.2	54.5	44.6
4187RR	BrettYoung	RR	14.5	193	19.8	1	1	1550.8	53.7	46.6
6090RR	BrettYoung	RR	11.6	195.7	16	1	1	698	53	43.5
CP930RR	Winfield United	RR	12.5	193.2	24.2	1	1	1414.2	53.9	46.7
CP955RR	Winfield United	RR	13.2	193	26.8	1	1	1392.2	54.1	46.2
DKTF91SC	Dekalb/Bayer	TruFlex RR	12.5	194	18.8	1	1	911.2	52.7	42.4
DKTF92SC	Dekalb/Bayer	TruFlex RR	10.2	193	16	1	1	598	50.7	41
Mean			12.8	194	19.1	1	1	1051.1	53	43.6
CV%			21.9	0.7	13.8			25.6	1.7	2.9
LSD ²			NS	-	4.1			NS	-	1.9
P-Value			0.1490	-	<0.001			<0.001	-	<0.001

Bold = top-performing cultivar

Bold = statistically equivalent to top-performer

Fisher's protected LSD not significant when CV% > 15 (YIELD only) and/or P-Value > 0.05

Yield adjusted to 8.5% moisture

Northern Ag Research Center, Havre, MT

Table 7. 2019 Spring canola variety trial, NARC, Havre, MT. [\[TOC\]](#)

CULTIVAR	SOURCE	HERB RESIST	COUNT (sqft)	FLWR DATE (julian)	CNPY HT (in)	LDGE (1-9)	SHTTR (1-9)	YIELD (lb/ac)	TEST WT (lb/bu)	OIL (%)
5545CL	BrettYoung	CL	6.4	168	41.8	1	1	3868.5	51.7	43.8
16MH6001	Cargill Inc	CL	5.5	168	40	1	1	3660.2	51.3	43.2
16MH6004	Cargill Inc	CL	4.3	167	38.3	1	1	3468	51.6	42.1
CS2500 CL	Meridian Seeds, LLC.	CL	6	168	44.2	1	1	3451.2	52	43.8
16CH4181	Cargill Inc	Conventional	5	166.8	41.3	1	1	3790.8	50.8	44
NCC101S	PHOTOSYNTECH, LLC.	Conventional	6.7	162	34.9	1	1	3915.2	52.8	39
4187RR	BrettYoung	RR	6.3	169	44.8	1	1	3774.8	51.4	44.1
6090RR	BrettYoung	RR	5.8	168	44.7	1	1	3932.5	51.2	43.8
CS2100	Meridian Seeds, LLC.	RR	6.7	166.2	42.4	1	1	3663.2	52.5	42.2
CS2300	Meridian Seeds, LLC.	RR	6.2	168.2	49.5	1	1	4060.8	51.7	43.7
CP930RR	Winfield United	RR	6.3	164.8	41	1	1	4037	50.7	46.8
CP955RR	Winfield United	RR	6.6	166.2	42.5	1	1	4334.2	51.6	44.4
DKTF91SC	Dekalb/Bayer	TruFlex RR	6	164.5	39.6	1	1	3975	51.5	42.7
DKTF92SC	Dekalb/Bayer	TruFlex RR	7	164	39.2	1	1	4404	52.2	41.9
Mean			6.1	166.5	41.7	1	1	3881.1	51.6	43.2
CV%			10.9	0.3	6.5			5.3	0.7	2
LSD			0.9	0.7	3.9			296.1	0.5	1.2
P-Value			<0.001	<0.001	<0.001			<0.001	<0.001	<0.001

Bold = top-performing cultivar

Bold = statistically equivalent to top-performer

Fisher's protected LSD not significant when CV% > 15 (YIELD only) and/or P-Value > 0.05

Yield adjusted to 8.5% moisture

Northwestern Ag Research Center, Kalispell, MT

Table 8. 2019 Spring canola variety trial, NWARC, Kalispell, MT. [\[TOC\]](#)

CULTIVAR	SOURCE	HERB RESIST	COUNT (sqft)	FLWR DATE (julian)	CNPY (in)	LDGE (1-9)	SHTTR (1-9)	YIELD (lb/ac)	TEST WT (lb/bu)	OIL (%)
5545CL	BrettYoung	CL	13.5	177	53.8	1	2	1914	49.7	48.1
16MH6001	Cargill Inc	CL	14	177	47.2	1	2	2070.8	49.8	47.5
16MH6004	Cargill Inc	CL	12	176.5	47.5	1	2	1615.8	49.7	47.9
CS2500 CL	Meridian Seeds, LLC.	CL	13.2	175.5	52.8	1	2	1646.5	49	48.4
16CH4181	Cargill Inc	Conventional	13.8	175.5	51.2	1	2	1737.2	47.3	49.1
NCC101S	PHOTOSYNTECH, LLC.	Conventional	13.8	169	48	1	2	1964.8	49.3	47
InVigor L233P	BASF Corporation	LL	14.2	177	52.8	1	2	2318.2	48	48.4
InVigor L234P	BASF Corporation	LL	14.8	179.2	54	1	2	2493.2	47.4	47.8
InVigor L255P	BASF Corporation	LL	14.5	180.8	54	1	2	2424.2	49.1	50.6
4187RR	BrettYoung	RR	14.2	177.2	55.8	1	2	2520.2	48.1	49.4
6090RR	BrettYoung	RR	13.8	177	59.5	1	2	2111.5	48.1	48.6
CS2100	Meridian Seeds, LLC.	RR	13	175.5	52.8	1	2	1947.2	49.1	48.8
CS2300	Meridian Seeds, LLC.	RR	11	178.2	60.8	1	2	2231.5	48.3	49.3
CP930RR	Winfield United	RR	14	173	50.5	1	2	1981	48.2	51.1
CP955RR	Winfield United	RR	13.5	176	50.8	1	2	1847.8	48.6	50.3
DKTF91SC	Dekalb/Bayer	TruFlex RR	13.8	171.5	47.5	1	2	2000	49	49.6
DKTF92SC	Dekalb/Bayer	TruFlex RR	16	172	49.5	1	2	1965.3	49.4	48.5
Mean			13.7	175.8	52.2	1	2	2047.6	48.7	48.8
CV%			21.8	1	6.1			18.1	0.5	1.7
LSD			NS	2.6	4.5			NS	0.4	1.3
P-Value			0.9560	<0.001	<0.001			0.0194	<0.001	<0.001

Underline = top-performing cultivar

Bold = statistically equivalent to top-performer

Fisher's protected LSD not significant when CV% > 15 (YIELD only) and/or P-Value > 0.05

Yield adjusted to 8.5% moisture

Western Ag Research Center, Corvallis, MT

Table 9. 2019 Spring canola variety trial, WARC, Corvallis, MT. [TOC](#)

CULTIVAR	SOURCE	HERB RESIST	COUNT (sqft)	FLWR DATE (julian)	CNPY HT (in)	LDGE (1-9)	SHTTR (1-9)	YIELD (lb/ac)	TEST WT (lb/bu)	OIL (%)
5545CL	BrettYoung	CL	21.5	177.2	41	1	1	2499.2	49.9	44.1
16MH6001	Cargill Inc	CL	19.1	180.5	36.6	1	1	2150.8	49.8	42.3
16MH6004	Cargill Inc	CL	17.7	180.8	35.5	1	1	2080.2	49.2	43.9
16CH4181	Cargill Inc	Conventional	22.5	178.2	37.2	1	1	2157.8	49	45.1
NCC101S	PHOTOSYNTECH, LLC.	Conventional	21.6	175.5	34.7	1	1	2878.8	50.3	39.7
4187RR	BrettYoung	RR	21.3	183	39.5	1	1	2558	50.1	45.5
6090RR	BrettYoung	RR	21.5	182	40.9	1	1	2205.5	50.3	46.2
CP930RR	Winfield United	RR	22	178.2	35.6	1	1	2631.8	49.9	46
CP955RR	Winfield United	RR	18	180.8	35.9	1	1	2316	49.1	45.6
DKTF91SC	Dekalb/Bayer	TruFlex RR	23.7	175.2	35.1	1	1	1931	49.4	45.2
DKTF92SC	Dekalb/Bayer	TruFlex RR	21.2	175.2	36.7	1	1	2402.8	49.1	43.2
Mean			20.9	178.8	37.2	1	1	2346.5	49.6	44.2
CV%			17.4	1.4	5.9			16.1	2.2	6.4
LSD			NS	3.6	3.2			NS	NS	-
P-Value			0.429	<0.001	0.001			0.0498	0.6454	-

Bold = top-performing cultivar

Bold = statistically equivalent to top-performer

Fisher's protected LSD not significant when CV% > 15 (YIELD only) and/or P-Value > 0.05

Yield adjusted to 8.5% moisture

Western Triangle Ag Research Center, Conrad, MT

Table 10. 2019 Spring canola variety trial, WTARC, Conrad, MT. [TOC](#)

CULTIVAR	SOURCE	HERB RESIST	CNPY HT (in)	LDGE (1-9)	SHTTR (1-9)	YIELD (lb/ac)	TEST WT (lb/bu)	OIL (%)
5545CL	BrettYoung	CL	41.9	1	1	1384.5	51.2	PENDING
16MH6001	Cargill Inc	CL	36.8	1	1	1185.5	50.4	PENDING
16MH6004	Cargill Inc	CL	33.4	1	1	1242.2	50.5	PENDING
CS2500 CL	Meridian Seeds, LLC.	CL	42	1	1	1175.8	50.8	PENDING
16CH4181	Cargill Inc	Conventional	36.5	1	1	1174	50	PENDING
NCC101S	PHOTOSYNTECH, LLC.	Conventional	34.1	1	1	1034	51.1	PENDING
InVigor L233P	BASF Corporation	LL	36.1	1	1	1177	51.2	PENDING
InVigor L234P	BASF Corporation	LL	38.8	1	1	908	51.3	PENDING
InVigor L255P	BASF Corporation	LL	38.8	1	1	1684.8	51.9	PENDING
4187RR	BrettYoung	RR	38.6	1	1	1569	50.3	PENDING
6090RR	BrettYoung	RR	40.9	1	1	956	50.4	PENDING
CS2100	Meridian Seeds, LLC.	RR	34.6	1	1	1124	51.4	PENDING
CS2300	Meridian Seeds, LLC.	RR	38	1	1	1165.8	49.4	PENDING
CP930RR	Winfield United	RR	34.8	1	1	1624.5	49.9	PENDING
CP955RR	Winfield United	RR	39.5	1	1	1576.5	50.3	PENDING
DKTF91SC	Dekalb/Bayer	TruFlex RR	35.4	1	1	1356.5	50.7	PENDING
DKTF92SC	Dekalb/Bayer	TruFlex RR	35.4	1	1	1286.2	50.4	PENDING
Mean			37.4	1	1	1272	50.7	PENDING
CV%			12			27.7	0.8	
LSD			NS			NS	0.6	
P-Value			0.1635			0.0748	<0.001	

Underline = top-performing cultivar

Bold = statistically equivalent to top-performer

Fisher's protected LSD not significant when CV% > 15 (YIELD only) and/or P-Value > 0.05

Yield adjusted to 8.5% moisture