

2014 Montana Statewide Spring Canola Variety Trial




MONTANA
STATE UNIVERSITY
College of
AGRICULTURE
&
MONTANA AGRICULTURAL
EXPERIMENT STATION

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Montana Statewide Spring Canola Variety Trial, 2014

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Table 1. Sponsor contact information for the varieties tested in the 2014 Montana Statewide Spring Canola Variety

SPONSOR	VARIETY	TYPE	HERBICIDE RESISTANCE	CONTACT
Bayer CropScience	InVigor L130	H	LL	Jordan Varberg
	InVigor L140P	H	LL	1524 Walnut Street, Grand Forks, ND 58201
	InVigor L252	H	LL	PH: 701-755-2700
	InVigor 5440	H	LL	EM: jordan.varberg@bayer.com
Brett Young	6070 RR	H	RR	Rene Mabon
	6044 RR	H	RR	Box 99 ST Norbert Postal Station Winnipeg, MB Canada R3V1L5 PH: 204-261-7932 EM: rene.mabon@brettyoung.ca
Croplan by Winfield	HyClass 930	H	RR	Paul S. Gregor
	HyClass 955	H	RR	10515 115th St NW
	HyClass 969	H	RR	Thief River Falls, MN 56701 PH: 218-964-5168 EM: psgregor@landolakes.com
Monsanto	DKL 30-03	H	RR	Jeff Herrmann
	DKL 30-42	H	RR	800 N. Lindbergh Boulevard, Mailzone E3NC
	DKL 38-48	H	RR	St. Louis, MO 63167
	DKL 55-55	H	RR	PH: 314-694-2723
	DKL 70-07	H	RR	EM: jeffrey.e.herrmann@monsanto.com
Green and Grow	HyClass 930 + CTRL 000	H	RR	Gary Nijak Jr
	AGR 100	H	RR	6793 W. Wills Road
	AGR 200	H	RR	Chandler, AZ 85226
	AGR 300	H	RR	PH: 574-386-6128 EM: gnijak@greenandgrow.com

Montana State University, College of Agriculture, Montana Agricultural Experiment Station, Department of Research Centers Locations

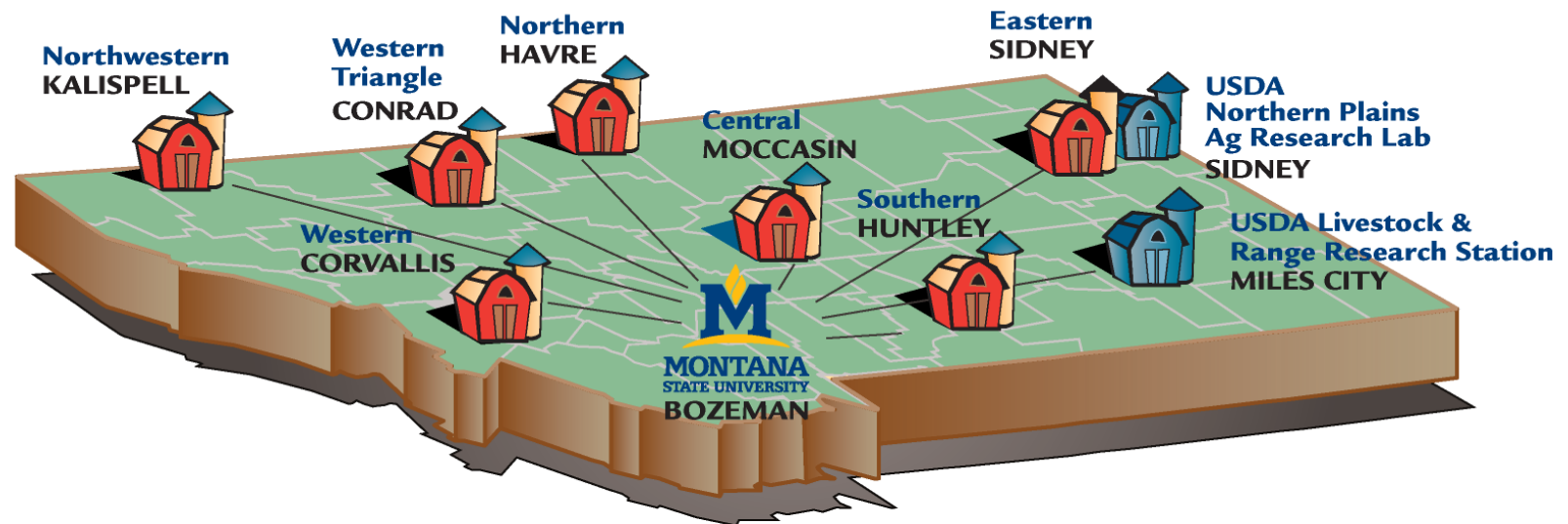


Table 2. Summary of climatic data by location for the 2013-2014 crop year (September thru August).

	NARC Havre	NWARC Kalispell	CARC Moccasin	WTARC Conrad	SARC Huntley
Precipitation (inches)	13.3	21.9	14.0	12.8	17.88
Mean Temperature (°F)	41.4	42.4	42.3	40.8	45.0
Last killing frost in spring 2014	5/13	5/13	5/23	5/12	5/9
First killing frost fall 2014	9/12	9/11	9/10	9/10	9/12
Frost free period 2014	122	121	110	121	126
Maximum summer temperature	96 °F July 31, 2014	90 °F Aug 2, 2014	97 °F Aug 13, 2014	91 °F Aug 12, 2014	98 °F Aug 13, 2014
Minimum winter temperature	-33 °F Dec 7-9, 2013	-23 °F Feb 6, 2014	-31 °F Feb 6, 2014	-29 °F Dec 7, 2013	-31 °F Dec 7, 2013

In this summary 32° is considered a killing frost.

Introduction

Canola acreage in Montana is on the rise and in 2014 62,000 acres were harvested yielding 62,000,000 lbs. Currently, Montana is ranked third nationally, behind North Dakota and Oklahoma, for the number of acres harvested. This report summarizes canola performance from six Montana Agricultural Research Centers and is presented in table form. It is advised to pay special attention to the results of those trials grown with similar practices and environments to your own. In addition to location, it is important to review variety performance over time. Results are also located at www.ag.montana.edu/nwarc/research/.

Objective

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

Procedures

In 2014, sixteen spring canola varieties (*Brassica napus*) and four seed treatments applied to one variety (HyClass 930) were submitted by five sponsors (Table 1). The seed was distributed to six agricultural research centers: Northern (Havre), Eastern (Sidney), Northwestern (Kalispell), Central

(Moccasin), Southern (Huntley) and Western Triangle (Conrad), for testing during the 2014 growing season (Figure 1).

Test protocol and management guidelines were provided to personnel at each location. Seeding rates were calculated using the following formula: (10 plants per sqft x TKW x 9.6) / 70 % survival. The entries were replicated four times using a randomized complete block design.

Seeding date, field crop history, tillage, fertility program, pesticide application, and harvest date are noted in each location's table.

Data was collected on: number of plants per square foot, date of 50 percent flower and physiological maturity, plant height, percent shatter and lodging (visually estimated on a score from 0 to 100 with 0 equal to none and 100 equal to completely shattered or lodged), yield, percent oil and test weight.

The variety data are presented by location in tables 7 through 16. The Green and Grow seed treatment data by location are presented in tables 19 through 23. The Least Significant Difference (LSD) values are presented for making pairwise comparisons between treatment means (entries). If the difference between two treatment values within a column does not exceed the LSD value, it means that the entries are statistically equal for that particular response variable. If the difference exceeds the LSD value, then the entries are statistically different for that particular response variable. When using the LSD values to make pairwise comparison of treatment means, it is recommended to do so only if the probability values for treatment is less than 5% ($Pr>F=0.05$). This is referred to as "Fisher's" protected LSD.

Using a probability level of 5 percent means that there is a 5 percent probability that the treatment differences are not statistically significant. Or stated another way, there is a 95 percent probability that the treatment differences are statistically significant. A large coefficient of variation (CV) indicates a large amount of variation that could not be attributed to differences in the varieties.

Eastern research center experienced unfavorable weather conditions, resulting in the abandonment of this trial location.

The following results and summaries are for informational purposes only. The presentation of data for the entries evaluated does not imply approval or endorsement by MSU-MAES.

Statewide summaries of variety yield and oil content are presented in Tables 3 through 6 and the Green and Grow seed treatment summaries are in tables 17 and 18.

Results and Summary

Northern Agricultural Research Center (NARC), Havre

Dry conditions at seeding resulted in low stand densities. Yields averaged 1597 lb/A and ranged from 1,343 to 1771 lb/A (Table 7) with ten varieties yielding statistically equivalent to the highest yielding variety 'InVigor L252'. Test weight averaged 50.5 lb/bu and oil content averaged 46.0 percent.

Significant differences were observed in the Green and Grow trial for fifty percent flowering and yield (Table 19).

Northwestern Agricultural Research Center (NWARC), Kalispell

With 21.9 inches of annual precipitation, the Kalispell location produced an average yield of 3,658 lb/A and ranged from 2,069 to 4,212 lb/A. Eleven varieties yielded statistically equivalent to the highest yielding variety, 'InVigor L140P'. Test weight averaged 49.0 lb/bu and oil content averaged 47.6 percent (Table 9).

The Green and Grow seed treatments had no effect on any of the measured response variables (Table 20).

Central Agricultural Research Center (CARC), Moccasin

Yields averaged 1,086 lb/A, and ranged from 818 to 1,258 lb/A. However, no significant differences were observed for yield. Average test weight and oil content were 50.0 lb/bu and 44.7 percent, respectively (Table 11).

No significant differences were observed with the Green and Grow seed treatments, (Table 21).

Western Triangle Agricultural Research Center (WTARC), Conrad

Heavy kochia pressure caused erratic stand establishment resulting in a high CV for yield (Table 13). Yields averaged 1,107 lb/A and ranged from 680 to 2,026 lb/A. Test weight averaged 46.6 lb/bu.

The Green and Grow seed treatments did have a significant effect on plant density (Table 22).

Southern Agricultural Research Center
(SARC), Huntley

Yields averaged 1,536 lb/A and ranged from 1,221 to 1886 lb/A. However, there were no statistical differences for yield. Test weight and oil content averaged 49.4 lb/bu and 39.8 percent respectively (Table 15).

The Green and Grow seed treatments had no effect on any of the response variables (Table 23).

Future Plans

With global canola demand increasing and Montana acreage increasing, coupled with continued support from the canola industry and research center personnel, multi-location canola evaluations will continue in 2015.

Table 3. Yield (lb/A) summary from the Montana statewide spring canola variety trial - 2014

Variety	NARC Havre	NWARC Kalispell	CARC Moccasin	WTARC Conrad	SARC Huntley
DKL 30-03	1597	3791	959	931	1886
DKL 30-42	1616	3826	1059	1865	1497
DKL 38-48	1631	4133	1138	646	1490
DKL 55-55	1731	4047	1256	1327	1545
DKL 70-07	1509	3777	1258	1419	1449
HyClass 955	1535	3737	1132	2062	1645
HyClass 969	1489	3532	1226	793	1436
HyClass 930	1731	4102	1206	1058	1796
InVigor L130	1699	3917	913	739	1434
InVigor L140P	1655	4212	978	843	1746
InVigor L252	1771	3987	1192	867	1489
InVigor 5440	1671	3809	1152	680	1642
6070 RR	1585	3954	1131	713	1221
6044 RR	1607	3310	997	1134	1316
Cara	1343	2323	818	800	1552
Arriba	1381	2069	917	1837	1433
Trial Mean	1597	3658	1086	1107	1536
CV	9.4	12.3	22.4	49.2	17.3
LSD	214.3	645.2	ns	792.9	ns
Pr>F	0.0062	0.0001	0.2578	0.0094	0.0839

Table 4. Yield (lb/A) summary 2011 - 2014 from the Montana statewide spring canola variety trial

Year	NARC	NWARC	CARC	WTARC	EARC	SARC
2011	1994	2490	.	1861	969	1356
2012	1654	2214	176	1796	306	383
2013	1180	2109	1302	1928	.	.
2014	1597	3658	1086	1107	.	1536
Mean	1606	2618	855	1673	638	1092

Table 5. Percent oil content summary from the Montana statewide spring canola variety trial - 2014

Variety	NARC Havre	NWARC Kalispell	CARC Moccasin	WTARC Conrad	SARC Huntley
DKL 30-03	46.5	49.5	45.2	.	40.7
DKL 30-42	45.0	48.1	44.3	.	39.6
DKL 38-48	45.3	47.9	43.9	.	39.5
DKL 55-55	46.4	48.3	47.5	.	40.4
DKL 70-07	46.0	48.6	45.4	.	39.4
HyClass 955	47.6	48.6	45.1	.	40.2
HyClass 969	47.2	48.6	45.7	.	40.5
HyClass 930	50.0	50.5	46.2	.	42.2
InVigor L130	44.8	46.5	45.3	.	39.1
InVigor L140P	46.2	47.2	42.6	.	38.9
InVigor L252	45.6	47.8	46.1	.	39.0
InVigor 5440	45.0	46.5	43.5	.	39.0
6070 RR	46.2	46.5	44.4	.	40.3
6044 RR	44.9	46.5	43.5	.	38.7
Cara	44.9	46.0	43.5	.	40.1
Arriba	43.8	44.9	43.1	.	39.4
Trail Mean	46.0	47.6	44.7	.	39.8
CV	2.7	2.5	2.4	.	2.9
LSD	1.8	1.7	1.6	.	1.7
Pr>F	0.0001	0.0001	0.0001	.	0.0128

Table 6. Percent oil content 2011 - 2014 from the Montana statewide spring canola variety trial

Year	NARC	NWARC	CARC	WTARC	EARC	SARC
2011	46.5	45.7	44.0	.	45.4	50.6
2012	42.6	41.6	47.2	37.9	36.9	49.0
2013	46.4	46.0	41.0	44.0	.	.
2014	46.0	47.6	44.7	.	.	39.8
Mean	45.4	45.2	44.2	41.0	41.1	46.5

2014 Montana Statewide Canola Variety Trial, Northern Agricultural Research Center, Havre, MT

Seeding Date: 4/30/2014	Harvest Date: 8/4/2014
Julian Date: 120	Julian Date: 216
Seeding Rate: 10 plnt/sqft 12" rows	Soil Type: Clay Loam
Previous Crop: Winter Wheat	Soil Test: 43-50-516-116
Tillage: No-Till / Chem Fallow	Fertilizer: 50-15-0-20
Irrigation: None	Insecticide: Mustang Max 4 oz/A

Table 7. Agronomic data from the statewide canola variety trial, Havre, MT - 2014

Variety	PLNT sqft	FLWR Julian	HT in	LOD %	SHTTR %	PM Julian	YLD lb/A	YLD bu/A	OIL %	TWT lb/bu
DKL 30-03	4.0	165	43.8	0.0	0.0	207	1597.4	31.9	46.5	50.0
DKL 30-42	5.0	168	44.0	0.0	0.0	207	1616.5	32.3	45.0	50.7
DKL 38-48	5.2	170	42.8	0.0	0.0	210	1631.2	32.6	45.3	50.8
DKL 55-55	3.8	167	43.6	0.0	0.0	209	1731.0	34.6	46.4	50.1
DKL 70-07	5.1	169	45.1	0.0	0.0	209	1509.1	30.2	46.0	50.4
HyClass 955	4.7	168	45.0	0.0	0.0	208	1535.2	30.7	47.6	49.5
HyClass 969	6.0	169	45.4	0.0	0.0	210	1489.5	29.8	47.2	49.8
HyClass 930	5.8	167	45.1	0.0	0.0	208	1731.3	34.6	50.0	50.0
InVigor L130	4.7	168	44.8	0.0	0.0	207	1699.2	34.0	44.8	50.4
InVigor L140P	5.2	171	47.5	0.0	0.0	208	1655.1	33.1	46.2	50.0
InVigor L252	5.4	172	45.0	0.0	0.0	208	1770.7	35.4	45.6	50.9
InVigor 5440	3.9	171	46.2	0.0	0.0	208	1671.4	33.4	45.0	50.5
6070 RR	4.6	167	47.1	0.0	0.0	209	1585.4	31.7	46.2	50.2
6044 RR	4.3	172	39.2	0.0	0.0	210	1607.1	32.1	44.9	51.0
Cara	3.1	169	44.5	0.0	0.0	210	1342.7	26.9	44.9	51.4
Arriba	3.2	168	43.1	0.0	0.0	207	1381.0	27.6	43.8	52.2
Mean	4.6	169	44.5	0.0	0.0	208	1597.1	31.9	46.0	50.5
CV	34.0	0.3	4.8	0.0	0.0	0.4	9.4	9.4	2.7	0.8
LSD	ns	0.8	3.1	0.0	0.0	1.3	214.3	4.3	1.8	0.5
Pr>F	0.3249	0.0001	0.0013	1.0000	1.0000	0.0001	0.0062	0.0063	0.0001	0.0001

PLNT: plant, FLWR: 50% flowering, HT: height, LOD: lodging, SHTTR: shatter, PM: physiological maturity,

YLD: yield, TWT: test weight, ns: nonsignificant

Yield and test weight have been adjusted to 8% moisture.

Table 8. Canola yield (lb/A) summary 2011 - 2014, Havre, MT

Variety	2014	2013	2012	2011	Avg.
DKL 30-03	1597	1253	1844	.	1565
DKL 30-42	1616	1283	1727	2067	1673
DKL 38-48	1631	1269	.	.	1450
DKL 55-55	1731	1438	1887	2072	1782
DKL 70-07	1509	1378	1674	2169	1682
HyClass 930	1731	1553	.	.	1642
HyClass 955	1535	1512	1774	2174	1749
HyClass 969	1489	1392	.	.	1441
InVigor 5440	1671	1282	.	1758	1570
InVigor L130	1699	1230	1552	2068	1637
6070 RR	1585	1246	.	.	1416
Arriba	1381	785	.	1864	1343
Cara	1343	910	.	.	1127

2014 Montana Statewide Canola Variety Trial, Northwestern Agricultural Research Center, Kalispell

Seeding Date: 4/22/2014	Harvest Date: 9/5/2014
Julian Date: 112	Julian Date: 248
Seeding Rate: 10 plnt/sqft 6" rows	Soil Type: Creston SiL
Previous Crop: Spring Wheat	Soil Test: 246-24-178
Tillage: Conventional	Fertilizer: 50-30-40-20
Irrigation: None	Insecticide: Warrior 1.5 floz/A
	Fungicide: Endura 6 oz/A

Table 9. Agronomic data from the statewide canola variety trial, Kalispell, MT - 2014

Variety	PLNT sqft	FLWR Julian	HT in	LOD %	SHTTR %	PM Julian	YLD lb/A	YLD bu/A	OIL %	TWT lb/bu
DKL 30-03	12.5	173	61.1	55.0	7.5	221	3791.2	75.8	49.5	48.3
DKL 30-42	7.5	175	58.3	52.5	4.5	223	3826.4	76.5	48.1	49.7
DKL 38-48	13.3	176	60.5	53.8	5.3	225	4133.0	82.7	47.9	49.7
DKL 55-55	12.8	174	61.0	57.5	5.5	227	4047.4	80.9	48.3	49.1
DKL 70-07	10.8	175	62.8	56.3	8.0	226	3777.0	75.5	48.6	49.4
HyClass 955	12.5	175	60.8	61.3	8.0	226	3736.9	74.7	48.6	48.9
HyClass 969	16.5	176	59.2	47.5	7.8	227	3532.2	70.6	48.6	49.4
HyClass 930	13.5	175	61.3	58.8	5.5	225	4101.6	82.0	50.5	48.7
InVigor L130	10.5	175	63.5	51.3	3.0	224	3917.4	78.3	46.5	48.6
InVigor L140P	17.5	178	65.7	63.8	2.8	228	4212.3	84.2	47.2	48.7
InVigor L252	11.0	178	64.3	50.0	2.8	227	3986.5	79.7	47.8	50.0
InVigor 5440	14.0	177	68.4	40.0	5.0	226	3808.8	76.2	46.5	48.6
6070 RR	12.3	176	62.9	51.3	5.3	230	3953.7	79.1	46.5	48.8
6044 RR	10.5	177	63.5	23.8	6.0	226	3309.6	66.2	46.5	50.6
Cara	6.3	178	59.9	56.3	6.3	226	2323.3	46.5	46.0	47.8
Arriba	10.8	175	56.5	57.5	9.3	226	2068.8	41.4	44.9	47.8
Mean	12.0	176	61.9	52.3	5.8	226	3657.9	73.2	47.6	49.0
CV	30.9	0.7	3.7	27.9	69.3	0.7	12.3	12.3	2.5	1.1
LSD	5.3	1.7	3.3	ns	ns	2.1	645.2	12.9	1.7	0.8
Pr>F	0.0136	0.0001	0.0001	0.0881	0.5017	0.0001	0.0001	0.0001	0.0001	0.0001

PLNT: plant, FLWR: 50% flowering, HT: height, LOD: lodging, SHTTR: shatter, PM: physiological maturity,

YLD: yield, TWT: test weight, ns: nonsignificant.

Yield and test weight have been adjusted to 8% moisture.

Table 10. Canola yield (lb/A) summary 2011 - 2014, Kalispell, MT

Variety	2014	2013	2012	2011	Avg.
DKL 30-03	3791	2115	2107	.	2671
DKL 30-42	3826	2296	1611	2636	2592
DKL 38-48	4133	2025	.		3079
DKL 55-55	4047	2388	2462	2940	2960
DKL 70-07	3777	2432	2552	2965	2931
HyClass 930	4102	2642	.		3372
HyClass 955	3737	2470	2197	2579	2746
HyClass 969	3532	2100	.	.	2816
InVigor 5440	3809	3166	.	2856	3277
InVigor L130	3917	2335	2528	2606	2847
6070 RR	3954	2048	.	.	3001
Arriba	2069	1016	.	2016	1700
Cara	2323	1462	.	.	1893

2014 Montana Statewide Canola Variety Trial, Central Agricultural Research Center, Moccasin

Seeding Date:	4/14/2014	Harvest Date:	8/20/2014
Julian Date:	104	Julian Date:	232
Seeding Rate:	10 plnt/sqft 12" rows	Soil Type:	Fine-loamy, carbonatic, frigid Typic Calciborolls
Previous Crop:	Winter Wheat	Soil Test:	N/A
Tillage:	Till	Fertilizer:	60-0-0-34
Irrigation:	None	Herbicide:	10 lbs TR-10 fall 2013, Assure II spring 2014

Table 11. Agronomic data from the statewide canola variety trial, Moccasin , MT - 2014

Variety	PLNT sqft	FLWR Julian	HT in	LOD %	SHTTR %	PM Julian	YLD lb/A	YLD bu/A	OIL %	TWT lb/bu
DKL 30-03	5.0	181	36.0	0.0	0.0	.	958.8	19.3	45.2	49.4
DKL 30-42	5.5	183	34.0	0.0	0.0	.	1059.3	21.0	44.3	49.6
DKL 38-48	6.5	186	33.1	0.0	0.0	.	1137.8	22.8	43.9	50.2
DKL 55-55	5.0	177	34.5	0.0	0.0	.	1255.5	25.3	47.5	49.4
DKL 70-07	4.8	182	36.1	0.0	0.0	.	1258.3	25.0	45.4	49.6
HyClass 955	5.5	180	36.7	0.0	0.0	.	1226.0	24.5	45.1	49.5
HyClass 969	5.5	184	36.4	0.0	0.0	.	1206.0	24.0	45.7	49.5
HyClass 930	5.5	179	35.0	0.0	0.0	.	1132.3	22.8	46.2	49.5
InVigor L130	5.3	178	35.2	0.0	0.0	.	1139.3	23.0	45.3	50.1
InVigor L140P	6.5	184	39.2	0.0	0.0	.	1026.8	20.5	42.6	50.6
InVigor L252	6.8	183	35.7	0.0	0.0	.	1228.0	24.5	46.1	50.3
InVigor 5440	6.0	181	36.1	0.0	0.0	.	1117.5	22.3	43.5	50.9
6070 RR	4.8	181	37.1	0.0	0.0	.	913.0	18.3	44.4	49.8
6044 RR	5.8	184	35.2	0.0	0.0	.	977.8	19.8	43.5	50.6
Cara	3.8	184	34.2	0.0	0.0	.	818.0	16.5	43.5	50.2
Arriba	5.5	184	31.0	0.0	0.0	.	917.3	18.5	43.1	50.1
Mean	5.5	182	35.4	0.0	0.0	.	1085.7	21.7	44.7	50.0
CV	23.2	1.0	5.2	0.0	0.0	.	22.4	22.4	2.4	0.5
LSD	ns	2.5	2.6	0.0	0.0	.	ns	ns	1.6	0.3
Pr>F	0.1744	0.0001	0.0001	1.0000	1.0000	.	0.2578	0.2870	0.0001	0.0001

PLNT: plant, FLWR: 50% flowering, HT: height, LOD: lodging, SHTTR: shatter, PM: physiological maturity, YLD: yield, TWT: test weight, ns: nonsignificant.

Yield and test weight have been adjusted to 8% moisture.

Table 12. Canola yield (lb/A) summary 2012 - 2014, Moccasin, MT

Variety	2014	2013	2012	Avg.
DKL 30-03	959	1353	170	827
DKL 30-42	1059	1657	199	972
DKL 38-48	1138	1294	.	1216
DKL 55-55	1256	1444	231	977
DKL 70-07	1258	1418	173	950
HyClass 930	1132	1174	.	1153
HyClass 955	1226	1462	190	959
HyClass 969	1206	1388	.	1297
InVigor 5440	1118	1354	.	1236
InVigor L130	1139	1178	161	826
6070 RR	913	1398	.	1156
Arriba	917	1117	.	1017
Cara	818	1252	.	1035

2014 Montana Statewide Canola Variety Trial, Western Triangle Agricultural Research Center, Conrad

Seeding Date: 5/20/2014	Harvest Date: 9/24/20104
Julian Date: 140	Julian Date: 267
Seeding Rate: 10 plnt/sqft 12" rows	Soil Type: Scooby CL
Previous Crop: Winter Wheat	Soil Test: 17.6 N-18 P
Tillage: No-Till	Fertilizer: 120-22-20-20
Irrigation: None	Herbicide: RT3 24oz/A

Table 13. Agronomic data from the Montana statewide canola variety trial, Conrad, MT - 2014

Variety	PLNT sqft	FLWR Julian	HT in	LOD %	SHTTR %	PM Julian	YLD lb/A	YLD bu/A	OIL %	TWT lb/bu
DKL 30-03	6.9	194	34.5	.	.	.	930.8	18.6	.	47.4
DKL 30-42	5.8	194	39.5	.	.	.	1864.5	37.3	.	39.5
DKL 38-48	6.1	195	34.0	.	.	.	646.4	13.0	.	50.1
DKL 55-55	5.6	193	37.8	.	.	.	1326.5	26.5	.	44.8
DKL 70-07	6.9	193	36.3	.	.	.	1418.5	28.4	.	47.8
HyClass 955	7.4	193	35.7	.	.	.	2062.0	41.2	.	47.5
HyClass 969	7.8	195	32.3	.	.	.	793.3	15.9	.	46.9
HyClass 930	5.5	194	32.3	.	.	.	1058.1	21.2	.	46.7
InVigor L130	12.2	199	34.0	.	.	.	738.8	14.8	.	47.3
InVigor L140P	7.5	198	37.7	.	.	.	842.8	16.9	.	49.0
InVigor L252	6.6	199	32.5	.	.	.	867.0	17.4	.	45.6
InVigor 5440	10.3	196	33.3	.	.	.	679.8	13.6	.	48.3
6070 RR	7.9	194	33.0	.	.	.	713.3	14.3	.	48.8
6044 RR	6.9	194	36.3	.	.	.	1134.3	22.7	.	48.1
Cara	7.5	194	34.3	.	.	.	800.4	16.0	.	45.6
Arriba	6.4	194	37.0	.	.	.	1836.7	36.7	.	42.8
Mean	7.3	195	35.0	.	.	.	1107.1	22.1	.	46.6
CV	42.4	0.7	9.8	.	.	.	49.2	49.2	.	8.8
LSD	ns	1.9	ns	.	.	.	792.9	15.9	.	ns
Pr>F	0.2636	0.0001	0.1251	.	.	.	0.0094	0.0095	.	0.1452

PLNT: plants, FLWR: 50% flowering, PM: physiological maturity, HT: height, LOD: lodging, SHTTR: shatter, YLD: yield, TWT: test weight, ns: nonsignificant.

Yield and test weight have been adjusted to 8% moisture using a nursery average value of 4.7%.

Table 14. Canola yield (lb/A) summary 2011 - 2014, Conrad, MT

Variety	2014	2013	2012	2011	Avg.
DKL 30-03	931	1970	1947	.	1616
DKL 30-42	1865	2325	1792	2036	2004
DKL 38-48	646	1903	.	.	1275
DKL 55-55	1327	2385	2001	2052	1941
DKL 70-07	1419	2207	1774	2033	1858
HyClass 930	1058	2285	.	.	1671
HyClass 955	2062	2279	2073	1912	2082
HyClass 969	793	2175	.	.	1484
InVigor 5440	680	2273	.	2019	1657
InVigor L130	739	2083	1856	2038	1679
6070 RR	713	1828	.	.	1271
Arriba	1837	1723		1547	1702
Cara	800	1491	.	.	1146

2014 Montana Statewide Canola Variety Trial, Southern Agricultural Research Center, Huntley

Seeding Date: 5/2/2014	Harvest Date: 8/13/2014
Julian Date: 122	Julian Date: 220
Seeding Rate: 10 plnts/sqft 6" rows	Soil Type: NA
Previous Crop: Chem Fallow	Soil Test: NA
Tillage: No-Till	Fertilizer: 30 lb N
Irrigation: None	Herbicide: RT3 & Prowl
	Insecticide: Mustange Max

Table 15. Agronomic data from the Montana statewide canola variety trial, Huntley, MT - 2014

Variety	PLNT sqft	FLWR Julian	HT in	LOD %	SHTTR %	PM Julian	YLD lb/A	YLD bu/A	OIL %	TWT lb/bu
DKL 30-03	8.0	167	47.4	0.0	0.0	208	1885.7	37.7	40.7	49.5
DKL 30-42	7.9	169	47.1	0.0	0.0	208	1497.4	29.9	39.6	49.0
DKL 38-48	5.9	171	49.1	0.0	0.0	210	1489.5	29.8	39.5	49.7
DKL 55-55	7.0	168	49.7	0.0	0.0	209	1544.9	30.9	40.4	49.3
DKL 70-07	9.4	170	49.7	0.0	0.0	209	1448.9	29.0	39.4	49.0
HyClass 955	8.5	170	47.8	0.0	0.0	208	1644.8	32.9	40.2	48.9
HyClass 969	8.6	170	50.1	0.0	0.0	210	1436.3	28.7	40.5	49.3
HyClass 930	8.9	168	48.4	0.0	0.0	209	1795.9	35.9	42.2	48.6
InVigor L130	7.9	170	51.8	0.0	0.0	209	1433.5	28.7	39.1	51.0
InVigor L140P	6.8	174	54.2	0.0	0.0	209	1745.9	34.9	38.9	50.3
InVigor L252	7.3	175	53.8	0.0	0.0	210	1488.8	29.8	39.0	49.8
InVigor 5440	8.6	174	53.0	0.0	0.0	210	1641.5	32.8	39.0	50.4
6070 RR	7.6	169	51.8	0.0	0.0	210	1221.0	24.4	40.3	49.3
6044 RR	9.6	175	50.7	0.0	0.0	210	1316.0	26.3	38.7	49.4
Cara	6.1	170	45.5	0.0	0.0	209	1551.8	31.0	40.1	49.1
Arriba	9.2	168	39.9	0.0	0.0	208	1432.7	28.7	39.4	47.0
Mean	7.9	170	49.4	0.0	0.0	209	1535.9	30.7	39.8	49.4
CV	26.8	0.5	3.3	0.0	0.0	0.7	17.3	17.3	2.9	1.1
LSD	ns	1.1	2.4	0.0	0.0	ns	ns	ns	1.7	0.8
Pr>F	0.3734	0.0001	0.0001	1.0000	1.0000	0.1543	0.0839	0.0839	0.0128	0.0001

PLNT: plant, FLWR: 50% flowering, HT: height, LOD: lodging, SHTTR: shatter, PM: physiological maturity, YLD: yield, TWT: test weight, ns: nonsignificant.

Yield and test weight have been adjusted to 8% moisture.

Table 16. Canola yield (lb/A) summary 2011 - 2014, Huntley, MT

Variety	2014	2013	2012	2011	Avg.
DKL 30-03	1886	.	603	.	1244
DKL 30-42	1497	.	649	1657	1268
DKL 38-48	1490	.	.	1579	1535
DKL 55-55	1545	.	703	1390	1213
DKL 70-07	1449	.	304	1552	1102
HyClass 930	1796	.	.	1246	1521
HyClass 955	1645	.	471	1452	1189
HyClass 969	1436	.	.	.	1436
InVigor 5440	1642	.	.	1611	1627
InVigor L130	1434	.	243	.	838
6070 RR	1221	.	.	.	1221
Arriba	1433	.	.	1281	1357
Cara	1552	.	.	.	1552

Table 17. Yield (lb/A) summary from the Montana statewide Green and Grow spring canola variety trial - 2014

Variety	NARC	NWARC	CARC	WTARC	SARC
	Havre	Kalispell	Moccasin	Conrad	Huntley
HyClass 930 + CTRL 000	1666	4283	1139	925.1	1949.0
HyClass 930 + AGR 100	1516	3932	1027	1277.7	1928.5
HyClass 930 + AGR 200	1749	4586	1228	1160.5	1870.4
HyClass 930 +AGR 300	1803	3907	1118	1382.5	1937.1
Trial Mean	1683.6	4176.9	1117.8	1186.5	1921.2
CV	7.5	16.7	23.0	31.4	18.5
LSD	202.6	ns	ns	ns	ns
Pr>F	0.0489	0.4982	0.7347	0.4063	0.9891

AGR: Agriplier seed treatment, ns: nonsignificant

Table 18. Percent oil content summary from the Montana statewide Green and Grow spring canola variety trial - 2014

Variety	NARC	NWARC	CARC	WTARC	SARC
	Havre	Kalispell	Moccasin	Conrad	Huntley
HyClass 930 + CTRL 000	48.8	49.7	46.8	.	41.6
HyClass 930 + AGR 100	48.2	49.0	47.0	.	41.4
HyClass 930 + AGR 200	49.3	49.8	47.2	.	40.9
HyClass 930 +AGR 300	49.6	50.0	45.8	.	41.0
Trail Mean	49.0	49.6	46.7	.	41.2
CV	3.5	1.7	2.7	.	3.3
LSD	ns	ns	ns	.	ns
Pr>F	0.6862	0.3339	0.4318	.	0.8318

AGR: Agriplier seed treatment, ns: nonsignificant

Table 19. Agronomic data from statewide Green and Grow canola trial, NARC, Havre, MT - 2014

Treatment	PLNT	FLWR	HT	LOD	SHTTR	PM	YLD	YLD	OIL	TWT
	sqft	Julian	in	%	%	Julian	lb/A	bu/A	%	lb/bu
HyClass 930 + CTRL 000	4.4	167	45.6	0.0	0.0	209	1665.5	33.3	48.8	49.5
HyClass 930 + AGR 100	3.8	167	44.4	0.0	0.0	208	1516.4	30.3	48.2	49.7
HyClass 930 + AGR 200	3.9	166	43.5	0.0	0.0	207	1748.8	35.0	49.3	49.6
HyClass 930 +AGR 300	4.7	166	46.2	0.0	0.0	208	1803.4	36.1	49.6	49.5
Mean	4.2	166.4	44.9	0.0	0.0	207.9	1683.6	33.7	49.0	49.6
CV	27.1	0.4	3.5	0.0	0.0	0.5	7.5	7.5	3.5	0.3
LSD	ns	1.0	ns	0.0	0.0	ns	202.6	4.1	ns	ns
Pr>F	0.6307	0.0283	0.1370	1.0000	1.0000	0.1143	0.0489	0.0490	0.6862	0.1202

AGR: Agriplier seed treatment, PLNT: plant, FLWR: 50% flowering, HT: height, LOD: lodging, SHTTR: shatter, PM: physiological maturity, YLD: yield, TWT: test weight, ns: nonsignificant.

Yield and test weight have been adjusted to 8% moisture.

Table 20. Agronomic data from statewide Green and Grow canola trial, NWARC, Kalispell, MT - 2014

Treatment	PLNT sqft	FLWR Julian	HT in	LOD %	SHTTR %	PM Julian	YLD lb/A	YLD bu/A	OIL %	TWT lb/bu
HyClass 930 + CTRL 000	14.3	175	60.2	50.0	2.3	225	4282.5	85.7	49.7	49.3
HyClass 930 + AGR 100	13.8	174	60.4	55.0	6.3	225	3932.1	78.6	49.0	48.8
HyClass 930 + AGR 200	13.5	175	58.3	42.5	3.3	225	4586.0	91.7	49.8	48.9
HyClass 930 + AGR 300	12.5	174	60.0	50.0	3.0	224	3906.9	78.1	50.0	49.0
Mean	13.5	174.4	59.7	49.4	3.7	224.8	4176.9	83.5	49.6	49.0
CV	27.1	0.6	3.3	26.6	68.6	0.4	16.7	16.7	1.7	0.9
LSD	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Pr>F	0.9189	0.9030	0.4324	0.6227	0.1940	0.4655	0.4982	0.4982	0.3339	0.5594

AGR: Agriplier seed treatment, PLNT: plant, FLWR: 50% flowering, HT: height, LOD: lodging, SHTTR: shatter, PM: physiological maturity, YLD: yield, TWT: test weight, ns: nonsignificant.
Yield and test weight have been adjusted to 8% moisture.

Table 21. Agronomic data from statewide Green and Grow canola trial, CARC, Moccasin, MT - 2014

Variety	PLNT sqft	FLWR Julian	HT in	LOD %	SHTTR %	PM Julian	YLD lb/A	YLD bu/A	OIL %	TWT lb/bu
HyClass 930 + CTRL 000	5.5	181	33.9	0.0	0.0	.	1191.5	23.5	46.8	49.3
HyClass 930 + AGR 100	5.0	181	34.4	0.0	0.0	.	1152.0	23.0	47.0	49.2
HyClass 930 + AGR 200	5.0	183	35.3	0.0	0.0	.	1131.0	22.5	47.2	49.3
HyClass 930 + AGR 300	6.5	183	32.7	0.0	0.0	.	996.5	19.8	45.8	49.3
Mean	5.5	181.9	34.1	0.0	0.0	.	1117.8	22.2	46.7	49.3
CV	32.6	1.25	5.4	0.0	0.0	.	23.0	23.3	2.7	0.5
LSD	ns	ns	ns	0.0	0.0	.	ns	ns	ns	ns
Pr>F	0.6191	0.6310	0.2876	1.0000	1.0000	.	0.7347	0.7431	0.4318	0.9818

AGR: Agriplier seed treatment, PLNT: plant, FLWR: 50% flowering, HT: height, LOD: lodging, SHTTR: shatter, PM: physiological maturity, YLD: yield, TWT: test weight, ns: nonsignificant.
Yield and test weight have been adjusted to 8% moisture.

Table 22. Agronomic data from statewide Green and Grow canola trial, WTARC, Conrad, MT - 2014

Variety	PLNT sqft	FLWR Julian	HT in	LOD %	SHTTR %	PM Julian	YLD lb/A	YLD bu/A	OIL %	TWT lb/bu
HyClass 930 + CTRL 000	6.5	195	33.0	.	.	.	925.1	18.5	.	45.1
HyClass 930 + AGR 100	5.9	196	35.3	.	.	.	1277.7	25.6	.	46.5
HyClass 930 + AGR 200	9.2	195	34.5	.	.	.	1160.5	23.2	.	46.6
HyClass 930 +AGR 300	5.6	196	36.7	.	.	.	1382.5	27.6	.	47.9
Mean	6.8	195.1	34.9	.	.	.	1186.5	23.7	.	46.5
CV	17.2	0.8	4.8	.	.	.	31.4	31.4	.	5.9
LSD	1.9	ns	ns	.	.	.	ns	ns	.	ns
Pr>F	0.0076	0.6306	0.0745	.	.	.	0.4063	0.4063	.	0.5798

AGR: Agriplier seed treatment, PLNT: plant, FLWR: 50% flowering, HT: height, LOD: lodging, SHTTR: shatter, PM: physiological maturity, YLD: yield, TWT: test weight, ns: nonsignificant.

Yield and test weight have been adjusted to 8% moisture.

Table 23. Agronomic data from the statewide Green and Grow canola variety trial, SARC, Huntley, MT - 2014

Variety	PLNT sqft	FLWR Julian	HT in	LOD %	SHTTR %	PM Julian	YLD lb/A	YLD bu/A	OIL %	TWT lb/bu
HyClass 930 + CTRL 000	7.1	167	47.3	0.0	0.0	208	1949.0	39.0	41.6	49.6
HyClass 930 + AGR 100	8.0	167	49.8	0.0	0.0	207	1928.5	38.6	41.4	49.8
HyClass 930 + AGR 200	6.5	168	48.3	0.0	0.0	208	1870.4	37.4	40.9	49.6
HyClass 930 +AGR 300	8.6	168	47.8	0.0	0.0	207	1937.1	38.7	41.0	49.5
Mean	7.6	167.4	48.3	0.0	0.0	207.4	1921.2	38.4	41.2	49.6
CV	27.3	0.3	4.3	0.0	0.0	0.8	18.5	18.5	3.3	0.6
LSD	ns	ns	ns	0.0	0.0	ns	ns	ns	ns	ns
Pr>F	0.5249	0.1649	0.4016	1.0000	1.0000	0.7277	0.9891	0.9891	0.8318	0.4984

AGR: Agriplier seed treatment, PLNT: plant, FLWR: 50% flowering, HT: height, LOD: lodging, SHTTR: shatter, PM: physiological maturity, YLD: yield, TWT: test weight, ns: nonsignificant.

Yield and test weight have been adjusted to 8% moisture.

