

A1124-23 (November 2023)

North Dakota Canola

Hybrid Trial Results for 2023 and Selection Guide

Mukhlesur Rahman (NDSU Main Station); Bryan Hanson, Lawrence Henry and Richard Duerr (Langdon Research Extension Center); Leandro Bortolon, Austin Kraklau and Jayden Hansen (North Central Research Extension Center); John Rickertsen and Michael Wells (Hettinger Research Extension Center)

Canola is a major oil crop in the northern Great Plains, particularly in North Dakota. In 2023, canola was planted on 1.93 million acres, slightly up from the acres plant last year and continuing a trend of increasing acres over the last few years. This publication summarizes canola hybrid performance at the various North Dakota State University Research Extension Centers. The relative performance of the hybrids is presented in table form.

Give special attention to yield results of those trials nearest to your production area when evaluating varieties or hybrids in these trials. Also, attempt to view yield averages of several years rather than using only one year's data as a determining factor. In addition, consider other agronomic characteristics, such as maturity, lodging score and oil percentages, if available.

Research specialists and technicians helped with the fieldwork and data compilation. The assistance given by many secretaries in entering data in respective portions of the document is very much appreciated.

2023 Growing Season Update

Canola planting was delayed by a cool, wet spring relative to the long-term average. However, by midsummer most canola fields flowered close to the average of previous years. Harvesting was somewhat delayed compared to average. Crop yields varied considerably throughout the state due to large differences in rainfall. However, in many areas of the state where canola was grown, there was adequate moisture, but the statewide average yield was slightly below trendline.

List of Tables

- Table 1. Canola Production, North Dakota 2008-2023.
- Table 2. Company Name, Short Name Used in the Tables and URL with Company Information.
- Table 3. 2023 Summary of LibertyLink and Clearfield Canola Hybrids in North Dakota.
- Table 4. 2023 Summary of Roundup Ready Canola Hybrids in North Dakota.
- Table 5. 2023 Canola - Roundup Ready - Hettinger.
- Table 6. 2023 Canola - LibertyLink - Hettinger.
- Table 7. 2023 Canola - Roundup Ready - Langdon.
- Table 8. 2023 Canola - Clearfield - Langdon.
- Table 9. 2023 Canola - LibertyLink - Langdon
- Table 10. 2023 Canola - LibertyLink - Minot.
- Table 11. 2023 Canola - Roundup Ready - Minot.

Table 1. Canola Production, North Dakota 2008-2023.

Year	Acres Planted	Acres Harvested	Yield Per Acre	Production
	------(1,000 Acres)-----		(lb.)	(1,000 lb.)
2008	910	895	1,460	1,306,700
2009	730	725	1,840	1,334,000
2010	1,280	1,270	1,720	2,184,400
2011	890	850	1,500	1,275,000
2012	1,460	1,455	1,380	2,007,900
2013	920	915	1,820	1,665,300
2014	1,200	1,190	1,800	2,142,000
2015	1,410	1,400	1,780	2,492,000
2016	1,460	1,450	1,840	2,668,000
2017	1,590	1,560	1,600	2,496,000
2018	1,590	1,580	1,960	3,096,800
2019	1,700	1,610	1,800	2,898,000
2020	1,510	1,490	1,960	2,920,400
2021	1,750	1,720	1,340	2,304,800
2022	1,800	1,780	1,920	3,417,600
2023	1,930	1,900	1,790	3,401,000
Average	1,347	1,326	1,715	2,280,593

Source: North Dakota Agricultural Statistics Service – USDA.

About This Publication

Variety trial data from all NDSU Research Extension Centers for all crops can be found at www.ag.ndsu.edu/varietytrials and the variety selection tool at <https://vt.ag.ndsu.edu/>. The agronomic data presented in this publication are from replicated research plots using experimental designs that enable the use of statistical analysis. The LSD (least significant difference) numbers beneath the columns in tables are derived from the statistical analyses and only apply to the numbers in the column in which they appear. If the difference between two varieties exceeds the LSD value, it means that with 95% or 90% probability (0.05 or 0.10 level), the higher-yielding variety has a significant yield advantage. If the difference between two varieties is less than the LSD value, then the variety yields are considered similar. The abbreviation NS is used to indicate “no significant difference” for that trait among any of the varieties. The CV (coefficient of variation) is a measure of variability in the trial and is expressed as a percentage. Large CVs mean a large amount of variation that could not be attributed to differences in the varieties. In the tables, the mean indicates the average of the observations in the column. Only compare values within the table and look for trends for the desired trait among different experimental sites and years.

Oil and harvest yield were adjusted to 8.5% moisture. Oil content is intended to differentiate among hybrids at one location. LSD values should be used to determine differences among hybrids. **The oil content data are not intended to be compared between locations.**

Presentation of data for the varieties tested does not imply approval or endorsement by the authors or agencies conducting the tests. NDSU approves the reproduction of any table in this publication only if no portion is deleted, appropriate footnotes are given, the order of the data is not rearranged and NDSU is credited for the data.

Table 2. Company Name, Short Name Used in the Tables and URL With Company Information.

Company/Brand	Short	URL
BASF	BASF	https://agriculture.basf.us/crop-protection/products/seeds/invigor.html
Bayer/Dekalb	Dekalb	www.dekalbasgrowdeltapine.com/
BrettYoung	BrettYoung	www.brettyoung.ca/agricultural-seed-crop-inputs-usa-portal/canola-usa/
DuPont/Pioneer	Pioneer	www.pioneer.com/us
Dyna-Gro Seed	Dyna-Gro	www.dynagroseed.com
Integra Fortified Seed	Integra	www.wilburellisagribusiness.com/integra-seed/
Meridian Seeds/Canterra	Canterra	www.meridianseeds.com/bulk-seed-for-sale/oil-seed/canola-seed/
Nuseed SA	Nuseed	https://nuseed.com/us/crop/canola/
Photosyntech	Photosyntech	www.photosyntech.com/crop/winter-spring-canola/
Rubisco	Rubisco	www.rubiscoseeds.com/canola-hybrids/
Star Specialty	Star	www.starspecialtyseed.com
WinField/Croplan	Croplan	www.winfieldunited.com/products/winfield-united-seed/

Table 3. 2023 Summary of LibertyLink and Clearfield Canola Hybrids in North Dakota.

Company/ Brand	Hybrid	Type ¹	Blackleg Rating ²	Clubroot Resistance ³	REC Hettinger	REC Langdon	REC Minot
BASF	L233P	LL	R	No	--	x	x
BASF	L340PC	LL	R	Yes	x	x	x
BASF	L343PC	LL	R	Yes	--	x	x
BASF	L345PC	LL	R	Yes	--	x	x
BASF	L350PC	LL	R	Yes	--	x	x
BASF	LR354PC	TF/LL	R	Yes	--	x	x
BrettYoung	BY 7204LL	LL	R	Yes	x	--	--
Canterra	CS4000 LL	LL	R	Yes	x	x	x
Croplan	CP7250LL	LL	R	Yes	x	x	x
Dekalb	DKLL 82 SC	LL	R	No	--	x	x
Dekalb	DKLL 83 SC	LL	R	No	--	x	x
Dekalb	DKTFLL 21 SC	TF/LL	R	No	--	x	x
Dyna-Gro	DG 661 LCM	LL	R	Yes	--	x	x
Dyna-Gro	DG280CLC	CL	R	Yes	--	x	x
Photosyntech	PST SC 0742 CL	CL	MR	NA	--	x	--
Photosyntech	PST SC 1159 CL	CL	MR	NA	--	x	--
Pioneer	P505MSL	LL	R	Yes	--	x	x
Pioneer	P612L	LL	R	Yes	--	x	x
Rubisco	RUB368-D	CL	R	NA	--	x	--
Rubisco	RUB378-M	CL	R	NA	--	x	--

¹LL = LibertyLink, TF = Roundup Ready TruFlex, CL = Clearfield.

²Blackleg rating provided by company, R = Resistant, MR = Moderate Resistance.

³Hybrid Clubroot resistance rating provided by company.

Table 4. 2023 Summary of Roundup Ready Canola Hybrids in North Dakota.

Company/ Brand	Hybrid	Type ¹	Blackleg Rating ²	Clubroot Resistance ³	REC Hettinger	REC Langdon	REC Minot
BASF	LR354PC	TF/LL	R	Yes	--	x	x
Bayer	DK900TF	TF	R	Yes	--	x	x
Bayer	DK902TF	TF	R	Yes	--	--	x
BrettYoung	BY 6211TF	TF	R	No	x	x	x
Canterra	CS2300	TF	R	Yes	--	--	x
Canterra	CS2600 CR-T	TF	R	Yes	x	x	x
Canterra	CS3000 TF	TF	R	Yes	x	x	x
Canterra	CS3100 TF	TF	R	Yes	x	x	x
Croplan	CP9221TF	TF	R	Yes	x	x	x
Croplan	CP9978TF	TF	R	No	x	x	x
Dekalb	DKTF 99 SC	TF	R	No	--	--	x
Dekalb	DKTFLL 21 SC	TF/LL	R	No	x	--	--
Dyna-Gro	DG 760TM	TF	R	No	--	x	x
Dyna-Gro	DG 781 TCM	TF	R	Yes	--	x	x
Integra	7361RC	TF	R	Yes	--	--	x
Nuseed	NC155 TF	TF	R	No	x	x	--
Nuseed	NC471 TF	TF	R	No	x	x	--
Nuseed	NC527CR TF	TF	R	Yes	x	x	--
Pioneer	P511G	GLY	R	Yes	--	x	x
Pioneer	P515G	GLY	R	Yes	--	x	x
Proseed	TR23127	TF	R	Yes	x	x	--
Star	StarFlex	TF	R	No	x	x	--

¹Hybrids are traditional oil type, TF = Roundup Ready TruFlex and LL = LibertyLink and GLY = Optimum GLY (glyphosate).

²Blackleg rating provided by company, R = Resistant.

³Hybrid Clubroot resistance rating provided by company.

Table 5. 2023 Canola - Roundup Ready - Hettinger - Author, J. Rickertsen and M. Wells.

Company/ Brand	Hybrid	Days to Flower (DAP) ²	Flower Duration (days)	Maturity (DAP) ²	Plant Height (inch)	Plant Lodge ¹ (0-9)	Oil Content (%)	Seed Yield 2023 (lb/a)
BrettYoung	BY 6211TF	40	27	85	53	0.0	41.2	2,304
Canterra	CS2600 CR-T	40	24	82	52	0.0	41.6	2,300
Canterra	CS3000 TF	38	25	82	47	0.0	42.1	2,227
Canterra	CS3100 TF	38	31	88	50	0.0	41.7	2,350
Croplan	CP9978TF	37	29	84	50	0.0	40.9	2,366
Croplan	CP9221TF	40	22	80	46	3.3	41.2	1,973
Dekalb	DKTFLL 21 SC	38	26	81	47	0.0	41.6	2,307
Nuseed	NC155 TF	40	27	86	50	0.0	41.5	2,195
Nuseed	NC471 TF	43	23	84	52	0.0	42.8	1,949
Nuseed	NC527CR TF	39	28	85	51	0.0	42.2	2,140
Proseed	TR 23127	39	29	85	52	0.0	41.1	2,279
Star	StarFlex	40	27	85	51	0.0	42.2	2,486
Mean		39	27	84	51	0.2	41.7	2,251
CV %		4.1	6.9	1.1	4.4	125	1.5	5.1
LSD 0.05		1.9	2.3	1.1	2.7	0.3	0.8	138
LSD 0.10		1.5	1.7	0.8	2.1	0.2	0.6	107

Trial was planted on May 18 and harvested on Sept. 1. Previous crop was oats.

¹Lodging: 0 = none, 9 = lying flat on the ground.

²DAP = Days after planting.

Table 6. 2023 Canola - LibertyLink - Hettinger - Author, J. Rickertsen and M. Wells.

Brand	Hybrid	Days to Flower (DAP) ¹	Flower Duration (days)	Days to Maturity (DAP) ¹	Plant Height (inch)	Oil Content (%)	Seed Yield 2023 (lb/a)
BASF	InVigor L340PC	41	26	84	52	40.3	2,533
BrettYoung	BY 7204LL	40	27	85	51	43.1	2,512
Canterra	CS4000 LL	41	25	85	52	41.7	2,497
Croplan	CP7250LL	41	27	86	54	41.0	2,589
Mean		43	25	87	53	41.7	2,498
CV %		1.2	2.1	0.3	3.1	2.1	7.4
LSD 0.05		0.7	0.7	0.3	2.0	1.1	227
LSD 0.10		0.5	0.5	0.2	1.5	0.9	174

Trial was planted on May 18 and harvested on Sept. 1. Previous crop was oats.

¹DAP = Days after planting.

Table 7. 2023 Canola - Roundup Ready - Langdon - Authors, B. Hanson, L. Henry and R. Duerr.

Company/ Brand	Hybrid	Days to Flower	Flower Duration	Days to Maturity	Plant Height	Cover ¹	Oil Content	Seed Yield	
		(DAP) ²	(days)	(DAP) ²	(inch)	(%)	(%)	-----lb/a-----	
BASF	LR354PC	47	17	89	55	83	41.1	2,344	--
Bayer	DK900TF	42	21	85	52	88	42.4	2,757	--
BrettYoung	BY 6211TF	40	21	85	51	87	40.4	2,515	2,905
Canterra	CS2600 CR-T	39	21	83	50	88	42.6	2,608	2,508
Canterra	CS3000 TF	37	22	83	49	85	41.6	2,578	2,754
Canterra	CS3100 TF	43	25	92	53	83	42.7	2,609	2,996
Croplan	CP9221TF	38	22	83	46	78	40.6	2,412	--
Croplan	CP9978TF	38	24	86	51	90	41.1	2,932	2,821
Dyna-Gro	DG 760 TC	39	21	83	49	90	41.7	2,818	--
Dyna-Gro	DG 781 TCM	42	18	89	53	88	42.2	2,526	--
Nuseed	NC155 TF	39	25	89	53	82	40.8	2,412	2,687
Nuseed	NC471 TF	41	22	89	53	65	41.8	2,072	2,216
Nuseed	NC527CR TF	39	22	86	52	90	41.3	2,471	2,634
Pioneer	P511G	43	21	87	55	72	42.2	2,391	--
Pioneer	P515G	41	21	84	50	83	41.3	2,551	--
Proseed	TR 23127	42	22	88	53	80	42.1	2,709	--
Star	StarFlex	38	25	86	52	92	42.7	2,676	2,913
Mean		41	22	87	52	84	41.6	2,516	--
CV %		2.9	6.9	2.4	5.1	10.6	2.3	5.1	--
LSD 0.05		2.0	2.5	3.5	4.4	14.8	1.6	341	--
LSD 0.10		1.7	2.0	2.9	3.7	12.3	1.3	--	--

Trial was planted on May 25 and harvested on Sept. 18. Previous crop: soybean.

¹Cover - visual rating of percent area of plot covered by plant growth. This is a measure of stand and vigor.

Plants were at 5- to 6-leaf stage.

²DAP = Days after planting.

Table 8. 2023 Canola - Clearfield - Langdon - Authors, B. Hanson, L. Henry and R. Duerr.

Company/ Brand	Hybrid	Days to Flower	Flower Duration	Days to Maturity	Plant Height	Cover ¹	Oil Content	Yield
		(DAP) ²	(days)	(DAP) ²	(inch)	(%)	(%)	lb/a
Dyna-Gro	DG 280 CLC	44	17	85	51	92	44.4	2,603
Photosyntech	PST SC 0742 CL	50	19	92	59	84	41.4	2,636
Photosyntech	PST SC 1159 CL	53	17	94	60	89	41.1	2,282
Rubisco	RUB378-M	43	20	89	55	87	44.8	3,040
Rubisco	RUB368-D	39	23	85	51	88	42.0	2,734
	LL Check	40	21	86	51	85	41.6	3,279
	RR Check	39	22	87	48	84	42.7	3,018
Mean		43	20	88	53	81	42.0	2,604
CV %		2.7	5.7	1.8	5.0	6.2	1.3	10.6
LSD 0.05		1.7	1.6	2.3	3.8	7.2	0.8	397
LSD 0.10		1.4	1.4	1.9	3.1	6.0	0.7	329

Trial was planted on May 25 and harvested on Sept. 19. Previous crop: soybean.

¹Cover - visual rating of percent area of plot covered by plant growth. This is a measure of stand and vigor.

Plants were at 5- to 6-leaf stage.

²DAP = Days after planting.

Table 9. 2023 Canola - LibertyLink - Langdon - Authors, B. Hanson, L. Henry and R. Duerr.

Company/		Type ¹	Days to	Flower	Days to	Plant	Cover ²	Oil	Seed Yield	
Brand	Hybrid		Flower	Duration	Maturity	Height		Content	2023	2-yr Avg.
			(DAP) ³	(days)	(DAP) ³	(inch)	(%)	(%)	-----lb/a-----	
BASF	InVigor L233P	LL	42	18	84	53	86	41.0	2,892	3,031
BASF	InVigorL340PC	LL	43	18	85	51	85	40.1	2,644	3,108
BASF	InVigor L343PC	LL	43	17	86	52	82	41.2	2,541	3,084
BASF	InVigor L345PC	LL	46	17	87	55	88	41.0	2,454	3,094
BASF	InVigor L350PC	LL	48	17	90	58	88	41.4	2,668	3,141
BASF	InVigor LR354PC	TFLL	47	17	88	57	86	41.7	2,429	2,890
Bayer	DKLL82SC	LL	41	21	86	46	86	40.8	2,428	2,761
Bayer	DKLL83SC	LL	39	21	84	48	78	41.3	2,314	2,748
Bayer	DKTFLL21SC	TFLL	40	21	84	48	81	41.0	2,473	2,633
Canterra	CS4000 LL	LL	42	19	85	53	85	41.5	2,907	3,072
Croplan	CP7250LL	LL	44	20	89	52	87	41.2	2,554	--
Dyna-Gro	DG 661 LCM	LL	43	19	88	52	85	41.4	2,243	--
Pioneer	P505MSL	LL	44	17	85	56	88	40.9	2,346	2,496
Pioneer	P612L	LL	47	18	89	58	83	42.0	2,584	--
Mean			44	19	87	53	85	41.3	2,530	2,914
CV %			3.4	7.6	2.0	4.3	5.7	1.3	9.85	--
LSD 0.05			2.1	2.0	2.5	3.3	6.9	0.8	360	--
LSD 0.10			1.8	1.7	2.1	1.7	5.8	0.6	299	--

Trial was planted on May 25 and harvested on Sept. 1. Previous crop: soybean.

¹LL = LibertyLink and TF = Roundup Ready TruFlex.

²Cover - visual rating of percent area of plot covered by plant growth. This is a measure of stand and vigor. Plants were at 5- to 6-leaf stage.

³DAP = Days after planting.

Table 10. 2023 Canola - LibertyLink - Minot - Authors, L. Bortolon, A. Kraklau and J. Hansen.

Company/ Brand	Hybrid	Days to Flower (DAP) ¹	Flower Duration (days)	Days to Maturity (DAP) ¹	Plant Height (inch)	Oil Content (%)	Yield 2023 (lb/a)
BASF	L233P	42	20	95	52	38.9	2,196
BASF	L340PC	40	19	94	47	37.6	2,380
BASF	L343PC	40	22	97	44	38.7	2,266
BASF	L345PC	40	21	94	52	38.6	2,432
BASF	L350PC	43	21	97	54	38.9	2,173
BASF	LR354PC	42	21	95	53	38.6	2,360
Canterra	CS4000LL	40	21	94	50	39.3	2,246
Croplan	CP7250LL	43	23	94	49	38.9	1,942
Dekalb	DKLL82SC	38	24	94	48	38.5	2,141
Dekalb	DKLL83SC	36	23	92	46	39.1	2,442
Dekalb	DKTFLL21SC	39	25	95	47	39.0	1,999
Dyna-Gro	DG280CLC	39	24	98	46	39.7	1,835
Dyna-Gro	DG661LCM	40	21	93	49	39.2	2,280
Pioneer	P505MSL	41	21	94	52	38.8	2,465
Pioneer	P612L	42	23	97	55	39.1	2,070
Mean		40	22	95	50	38.9	2,215
CV %		4.7	10.2	2.0	7.0	2.3	16.9
LSD 0.05		3.2	3.7	4.0	6.0	1	NS
LSD 0.10		2.7	3.1	3.0	5.0	1.2	NS

Trial was planted on June 1 and harvested on Sept. 15. Previous crop: fallow.

¹DAP = Days after planting.

Table 11. 2023 Canola - Roundup Ready - Minot - Authors, L. Bortolon, A. Kraklau and J. Hansen.

Company/ Brand	Hybrid	Days to Flower (DAP) ¹	Flower Duration (days)	Days to Maturity (DAP) ¹	Plant Height (inch)	Oil Content (%)	Yield 2023 (lb/a)
BASF	LR354PC	--	--	98	42	36.1	--
Bayer	DK900TF	37	22	90	42	40.2	2,369
Bayer	DK902TF	35	23	90	39	40.4	2,459
BrettYoung	BY6211TF	39	22	94	45	40.4	1,996
Canterra	CS2300	40	26	98	46	38.9	2,328
Canterra	CS2600CR-T	35	23	90	40	40.6	2,312
Canterra	CS3000TF	34	24	89	39	39.9	2,204
Canterra	CS3100TF	39	5	95	43	39.6	2,041
Croplan	CP9221TF	37	22	90	35	39.2	1,777
Croplan	CP9978TF	37	22	93	38	38.8	1,874
Dekalb	DKTF99SC	37	22	92	40	39.1	2,200
Dyna-Gro	DG760TM	36	22	90	41	39.3	2,365
Dyna-Gro	DG781TCM	38	21	94	39	38.9	2,088
Integra	7361RC	39	21	90	42	39.5	2,112
Pioneer	P511G	37	22	93	46	39.7	2,409
Pioneer	P515G	38	21	93	44	40.2	2,390
Proseed	TR23127	38	24	94	46	39.6	2,539
Mean		37	23	93	42	39.4	2,216
CV %		2.9	7.6	2.2	6.0	2.5	13.7
LSD 0.05		1.8	7.6	3.4	4.1	1.6	495
LSD 0.10		1.5	6.3	2.8	3.4	1.3	412

Trial was planted on June 1 and harvested on Sept. 15. Previous crop: fallow

¹DAP = Days after planting.

NDSU does not endorse commercial products or companies even though reference may be made to tradenames, trademarks or service names.

For more information on this and other topics, see www.ag.ndsu.edu

NDSU encourages you to use and share this content, but please do so under the conditions of our Creative Commons license. You may copy, distribute, transmit and adapt this work as long as you give full attribution, don't use the work for commercial purposes and share your resulting work similarly. For more information, visit www.ag.ndsu.edu/agcomm/creative-commons.

County commissions, North Dakota State University and U.S. Department of Agriculture cooperating. NDSU does not discriminate in its programs and activities on the basis of age, color, gender expression/identity, genetic information, marital status, national origin, participation in lawful off-campus activity, physical or mental disability, pregnancy, public assistance status, race, religion, sex, sexual orientation, spousal relationship to current employee, or veteran status, as applicable. Direct inquiries to Vice Provost for Title IX/ADA Coordinator, Old Main 201, NDSU Main Campus, 701-231-7708, ndsuoaa.ndsu.edu. This publication will be made available in alternative formats for people with disabilities upon request, 701-231-7881.