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North Dakota

Barley, Oat, Rye and Flax

Variety Trial Results for 2007 and Selection Guide

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Barley, oat, rye and flax varieties are tested each year at multiple sites throughout North Dakota. The relative performance of these varieties is shown in table form. Variety performance data are used to provide variety recommendations to producers.

Some varieties may not be included in the tables because of insufficient testing or lack of seed availability, or they offer no yield or disease advantage over similar varieties. Additional data from county sites are available at www.ag.ndsu.nodak.edu/aginfo/variety/index.htm and from each Research Extension Center. Descriptions of the most commonly grown varieties in the region are included for informational purposes.

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Barley, oat, rye and flax varieties currently grown in North Dakota are described in the following tables. Successful production of these crops depends on numerous factors, including selecting the right variety for a particular area. The information included in this publication is meant to aid in selecting that variety or group of varieties. Characteristics to evaluate in selecting a variety are yield potential in your area, test weight, straw strength and plant height, reaction to important diseases and maturity. Selecting varieties with good quality also is important to maintain market recognition.

When selecting a high-yielding and good quality variety, use data that summarizes several years and locations. Choose the variety that, on average, performs the best at multiple locations near you during several years.

Presentation of data for the entries tested does not imply approval or endorsement by the authors or agencies conducting the test. North Dakota State University approves the reproduction of any table in the publication only if no portion is deleted, if appropriate footnotes are given and if the order of the data is not rearranged.

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Table 1. 2007 North Dakota barley variety descriptions.

Variety	Use ¹	Origin ²	Year Released	Awn Type ³	Rachilla Hair Length ⁴	Aleurone Color	Height	Straw Strength	Relative Maturity	Reaction to Disease ⁵			
										Stem Rust	Loose Smut	Spot Blotch	Net Blotch
Six-rowed													
Azure	M/F	ND	1982	S	L	blue	med.	m.strg.	m.early	S	S	MR-R	MS-S
Drummond	M/F	ND	2000	S	L	white	m.short	v.strg.	med.	S	S	MR-R	MS-S
Excel	M/F	MN	1990	S	L	white	m.short	strg.	med.	S	S	MR-R	MS-S
Foster	M/F	ND	1995	S	L	white	m.short	strg.	med.	S	S	MR-R	MS-S
Hazen	F	ND	1984	S	L	white	med.	m.strg.	med.	S	S	MR-R	MS-S
Lacey	M/F [†]	MN	1999	S	S	white	m.short	strg.	med.	S	S	MR-R	MS-S
Legacy	M/F [†]	BARI	2000	S	L	white	med.	strg.	m.late	S	S	MR-R	MS-S
MNBrite*	F	MN	1997	S	S	white	tall	med.	early	S	S	MR-R	MS-S
Morex	M/F	MN	1978	S	S	white	tall	med.	early	S	S	MR	S
Robust	M/F	MN	1983	S	S	white	med.	m.strg.	med.	S	S	MR-R	MS-S
Stander	F	MN	1993	S	S	white	m.short	v.strg.	m.late	S	S	MR-R	MS-S
Stellar-ND	M/F [†]	ND	2005	S	L	white	m.short	v.strg.	med.	S	S	MR-R	MS-S
Tradition	M/F [†]	BARI	2003	S	L	white	m.short	v.strg.	med.	S	S	MR-R	MS-S
Two-rowed													
AC Metcalfe	M [†]	Can	1997	R	L	white	med.	med.	late	S	NA	MS	MS
Bowman	F	ND	1984	S	L	white	m.short	med.	early	S	S	MS-S	S-MS
CDC Copeland	M [†]	Can	1999	R	L	white	tall	med.	m.late	S	S	MS	MR
Conlon ⁶	M/F [†]	ND	1996	S	L	white	m.short	med.	early	S	S	MS	MR-R
Conrad	M	BARI	2007	R	L	white	tall	m.weak	late	S	NA	NA	NA
Eslick	F	MT	2003	R	L	white	med.	m.weak	m.late	S	NA	MS	NA
Gallatin	F	MT	1986	R	L	white	med.	med.	late	S	S	MS-S	MS
Harrington ⁷	F	Can	1981	R	L	white	med.	m.weak	v.late	S	S	S	MS
Haxby	F	MT	2003	R	L	white	med.	med.	med.	S	NA	MS	NA
Logan	F	ND	1995	S	L	white	med.	strg.	med.	S	S	MR	MR
Pinnacle	F	ND	2006	S	L	white	med.	strg.	m.late	S	S	MR	MS
Rawson	F	ND	2005	R	L	white	med.	med.	med.	S	S	MR	MS
Scarlett	M	Germany	1995	R	L	white	short	med.	late	S	NA	NA	NA
Stark	F	ND	1991	S	L	white	m.tall	med.	late	S	S	S-MS	MS-S
Valier	F	Can	1999	R	L	white	med.	m.weak	m.late	S	NA	MS	NA
Specialty													
Wanubet	SP	MT	1990	R	L	white	med.	weak	late	S	S	S	S

[†]Not being used by all major U.S. brewers.

*Moderately resistant to Fusarium head blight.

¹ M = malting; F = feed; SP = special uses (hullless)

² BARI = Busch Agricultural Resources, Inc.; MN = University of Minnesota; MT = Montana State University; ND = North Dakota State University

³ R = rough, S = smooth.

⁴ S = short, L = long.

⁵ R = resistant; MR = moderately resistant; MS = moderately susceptible; S = susceptible; NA = not available.

⁶ Lower DON accumulations than other varieties tested.

⁷ Recommended as a malting barley in western U.S.

Table 2. Yield and test weight of barley varieties at two locations in eastern North Dakota, 2005-2007.

Variety	Carrington			Langdon			Average, Eastern N.D.		
	Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield	
	(lb/bu)	2007	3 Yr	(lb/bu)	2007	3 Yr	(lb/bu)	2007	3 Yr
		--(bu/A)--			--(bu/A)--			--(bu/A)--	
Six-rowed									
Drummond	44.1	49.4	73.9	49.0	96.7	91.0	46.6	73.1	82.5
Lacey	45.2	47.6	73.6	49.8	105.5	98.1	47.5	76.6	85.9
Legacy	45.7	45.6	69.0	47.9	89.6	89.8	46.8	67.6	79.4
MNBrite	46.1	54.0	70.0	--	--	--	--	--	--
Robust	--	--	--	50.2	92.7	89.2	--	--	--
Stellar-ND	45.2	45.0	74.9	48.6	93.7	94.8	46.9	69.4	84.9
Tradition	47.1	59.1	76.3	48.7	90.4	92.3	47.6	74.8	84.3
Ave.	45.6	50.1	73.0	49.0	94.8	92.5	47.1	72.3	83.4
Two-rowed									
AC Metcalfe	43.9	50.6	--	49.2	80.8	87.5	46.6	65.7	--
Bowman	49.1	57.1	64.3	48.6	78.2	89.3	48.9	67.7	76.8
CDC Copeland	46.0	55.2	--	48.5	84.7	--	47.3	70.0	--
Conlon	49.6	44.1	53.4	50.2	89.6	90.8	49.9	66.9	72.1
Conrad	45.7	54.2	--	49.2	72.5	--	47.5	63.4	--
Geraldine	45.2	38.8	--	--	--	--	--	--	--
Haxby	48.5	55.0	78.5	--	--	--	--	--	--
Haybet	41.8	47.6	44.5	--	--	--	--	--	--
Hockett	46.9	46.4	--	--	--	--	--	--	--
Pinnacle	44.1	46.9	70.2	48.8	82.5	91.5	46.5	64.7	80.9
Rawson	46.3	53.3	69.7	49.4	92.9	91.5	47.9	73.1	80.6
Scarlett	46.5	47.2	--	47.3	72.6	--	46.9	59.9	--
Ave.	45.7	49.8	62.0	48.9	81.7	90.1	47.7	66.4	77.6

Table 3. Plump and protein of barley varieties at two locations in eastern North Dakota, 2007.

Variety	Carrington		Langdon		Average, Eastern N.D.	
	Plump	Protein	Plump	Protein	Plump	Protein
	------(%)-----					
Six-rowed						
Drummond	57.8	13.7	86	12.6	71.9	13.2
Lacey	64.1	13.7	86	12.5	75.1	13.1
Legacy	66.2	13.4	81	12.9	73.6	13.2
MNBrite	69.4	14.9	--	--	--	--
Robust	--	--	88	13.4	--	--
Stellar-ND	76.2	12.9	89	13.0	82.6	13.0
Tradition	70.3	13.4	84	13.0	77.2	13.2
Ave.	67.3	13.7	86	12.9	76.1	13.1
Two-rowed						
AC Metcalfe	76.3	14.0	78	13.5	77.2	13.8
Bowman	85.5	13.6	81	13.9	83.3	13.8
CDC Copeland	75.8	13.5	81	12.8	78.4	13.2
Conlon	88.6	13.3	91	13.2	89.8	13.3
Conrad	74.2	14.6	81	14.4	77.6	14.5
Geraldine	66.3	14.2	--	--	--	--
Haxby	71.8	13.6	--	--	--	--
Haybet	53.6	14.4	--	--	--	--
Hayes	53.6	13.9	--	--	--	--
Hockett	68.3	13.5	--	--	--	--
Pinnacle	86.9	12.9	85	12.1	86.0	12.5
Rawson	86.7	12.4	93	12.2	89.9	12.3
Scarlett	71.9	13.1	83	13.4	77.5	13.3
Ave.	73.8	13.6	84.1	13.2	82.5	13.3

Table 4. Yield and test weight of barley varieties at four locations in western North Dakota, 2005-2007.

Variety	Minot			Williston			Dickinson			Hettinger			Average Western N.D.		
	Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield	
	(lb/bu)	--(bu/A)--	3	(lb/bu)	--(bu/A)--	3	(lb/bu)	--(bu/A)--	3	(lb/bu)	--(bu/A)--	3	(lb/bu)	--(bu/A)--	3 Yr.
Six-rowed															
Drummond	42.4	48.9	88.0	52.0	92.2	75.3	43.8	71.2	85.5	43.5	81.7	72.8	45.4	73.5	80.4
Lacey	43.8	61.4	89.0	52.4	95.4	80.3	44.5	79.3	88.5	43.6	88.9	77.9	46.1	81.3	83.9
Legacy	40.9	49.9	82.6	50.4	91.4	71.1	38.6	68.1	79.6	41.2	78.0	70.2	42.8	71.9	75.9
MNBrite	--	--	--	51.7	81.6	64.1	--	--	--	--	--	--	--	--	--
Robust	42.8	49.1	78.0	52.0	90.6	73.9	43.8	70.8	84.6	46.9	79.5	67.7	46.4	72.5	76.1
Stellar-ND	41.8	38.9	81.1	50.7	93.3	74.4	41.6	69.3	84.8	41.6	86.4	73.5	43.9	72.0	78.5
Tradition	43.2	48.9	87.1	52.4	102.6	80.4	44.2	75.4	81.9	44.8	87.1	72.6	46.2	78.5	80.5
Ave.	42.5	49.5	84.3	51.6	93.3	74.7	42.8	72.4	84.2	43.6	83.6	72.5	45.1	74.9	79.2
Two-rowed															
AC Metcalfe	45.2	42.3	71.9	50.2	94.3	73.1	43.2	70.9	81.5	43.0	75.9	70.4	45.4	70.9	74.2
Bowman	46.5	53.0	81.7	54.1	93.4	77.7	46.8	70.6	75.2	49.4	95.1	80.7	49.2	78.0	78.8
CDC Copeland	42.6	47.3	--	49.9	97.1	--	39.9	68.7	--	41.0	76.1	--	43.4	72.3	--
CDC Kendall	43.2	47.8	--	51.3	92.1	73.0	--	--	--	--	--	--	--	--	--
Conlon	45.2	41.7	65.5	54.1	100.5	85.3	46.2	63.9	74.1	48.9	78.0	73.4	48.6	71.0	74.6
Conrad	42.9	48.4	--	50.7	97.0	--	43.3	76.3	--	43.9	89.8	--	45.2	77.9	--
Eslick	45.6	54.9	93.9	51.9	98.0	78.2	44.5	78.7	92.5	43.8	90.7	77.2	46.5	80.6	85.5
Geraldine	43.7	36.1	--	52.3	94.1	--	42.0	70.8	--	43.0	85.7	--	45.3	71.7	--
Harrington	43.4	43.7	70.4	50.0	93.7	67.4	43.6	63.3	72.4	42.4	74.3	62.2	44.9	68.8	68.1
Haxby	45.4	33.8	87.7	54.4	102.0	81.5	48.1	76.7	84.9	49.2	97.6	86.3	49.3	77.5	85.1
Hockett	46.1	47.4	--	54.2	102.1	--	44.4	71.9	--	43.7	82.8	--	47.1	76.1	--
Pinnacle	42.6	43.5	90.9	53.9	96.0	77.2	46.3	69.3	--	43.9	75.6	76.6	46.7	71.1	--
Rawson	43.5	64.2	92.2	50.9	95.0	78.8	47.6	66.4	83.1	47.9	90.9	77.2	47.5	79.1	82.8
Scarlett	41.6	35.8	--	51.9	98.4	--	43.4	76.7	--	40.8	76.0	--	44.4	71.7	--
Ave.	44.1	45.7	81.8	52.1	96.7	76.9	44.6	71.1	80.5	44.7	83.7	75.5	46.4	74.4	78.4

Table 5. Plump and protein of barley varieties at four locations in western North Dakota, 2007.

Variety	Minot		Williston		Dickinson		Hettinger		Avg. Western N.D.	
	Plump	Protein	Plump	Protein	Plump	Protein	Plump	Protein	Plump	Protein
------(%)-----										
Six-rowed										
Drummond	76	13.2	82	13.1	72	12.6	51	15.2	70.3	13.5
Lacey	77	13.5	77	12.6	71	11.9	47	15.2	68.0	13.3
Legacy	70	13.2	65	12.5	56	12.3	39	15.2	57.5	13.3
MNBrite	--	--	73	14.8	--	--	--	--	--	--
Robust	72	13.5	76	13.9	67	12.8	51	15.1	66.5	13.8
Stellar-ND	74	13.1	82	12.4	66	12.6	60	13.2	70.5	12.8
Tradition	74	13.2	82	12.3	67	12.4	57	14.8	70.0	13.2
Ave.	73.8	13.3	76.7	13.1	66.5	12.4	50.8	14.8	60.1	12.0
Two-Rowed										
AC Metcalfe	79	14.7	86	13.4	77	12.5	38	17.9	70.0	14.6
Bowman	82	13.8	95	14.5	92	13.0	87	14.6	89.0	14.0
CDC Copeland	77	14.3	79	14.4	77	12.6	40	16.9	68.3	14.6
CDC Kendall	83	14.7	90	12.9	--	--	--	--	--	--
Conlon	86	13.5	97	13.9	74	12.8	86	14.5	85.8	13.7
Conrad	78	14.2	91	13.8	83	12.7	67	15.8	79.8	14.1
Eslick	78	13.3	75	13.9	70	11.3	54	14.5	69.3	13.3
Geraldine	68	14.8	73	12.5	58	12.6	47	15.4	61.5	13.8
Harrington	57	14.6	77	14.5	71	12.2	42	16.9	61.8	14.6
Haxby	73	13.7	85	12.8	81	11.7	66	15.6	76.3	13.5
Hockett	81	13.5	91	12.4	82	11.8	65	14.8	79.8	13.1
Pinnacle	81	12.5	95	11.4	90	11.8	73	13.8	84.8	12.4
Rawson	91	12.2	97	12.0	95	12.2	91	13.4	93.5	12.5
Scarlett	71	13.6	82	14.0	84	12.1	61	15.6	74.5	13.8
Ave.	77.5	13.8	86.6	13.3	79.5	12.3	62.8	15.4	74.1	13.2

Table 6. 2007 North Dakota oat variety descriptions.

Variety	Origin	Year Released	Grain Color	Height	Straw Strength	Maturity ¹	Reaction to Diseases				
							Stem Rust ²	Crown Rust ²	Barley Y.Dw ³	Bu/Wt	Protein ⁴
AC Assiniboia	Can. Proven Seed	1997	red	med	strong	L	S	S	T	good	ML
AC Gwen	Can. SeCan	2000	hulless	tall	strong	L	S	S	R	good	L
AC Kaufman	Can.	2000	yellow	tall	strong	L	S	S	MT	v.good	ML
AC Medallion	Can. Cargill	1997	white	tall	med.	L	S	S	MT	good	ML
AC Morgan	Can. SeCan	1999	white	med.	strong	L	S	S	S	v.good	ML
AC Pinnacle	Can. QAS	1999	white	tall	med.	L	S	S	S	v.good	L
AC Ronald	Can. SeCan	2001	white	m. short	v. strong	L	S	S	T	v.good	M
Beach	ND	2004	white	tall	m.strg.	ML	S	MR/MS	MS	v.good	M
Buff	SD	2002	hulless	med.	m.strg.	L	S	MR/MS	MT	good	H
CDC Boyer	Sask. Value Added	1994	white	tall	m.strg.	L	S	MS	S	v.good	ML
CDC Dancer	Can. Cargill	2000	white	tall	strong	L	S	MS	S	v.good	M
CDC Orrin	Can. QAS Cargill	2001	white	tall	strong	L	S	S	S	good	ML
CDC Pacer	Sask. Value Added	1996	white	tall	m.strg.	L	S	S	S	good	L
CDC Weaver	Can	2005	yellow	med.			R	R	S	good	
Drumlin	WI	2003	yellow	med.	strong	M	S	MR	VT	good	M
Ebeltoft	ND	1999	white	tall	strong	V	S	MS	S	v.good	M
Excel	IN	2006	white	med.	strong	M	S	MR	T	v.good	M
Furlong	AAFC Winnipeg	2003	red	tall	m.strg.	L	S	S	T	v.good	M
HiFi	ND	2001	white	tall	strong	L	MR/MS	R	T	good	M
Hytest	SD	1986	white	tall	m.strg.	E	S	MS	S	v.good	H
Jerry	ND	1994	white	tall	strong	M	S	MS	MT	v.good	M
Jud	ND	1997	ivory	tall	med.	L	R	MR/MS	T	good	MH
Killdeer	ND	2000	white	med.	strong	M	S	MS	MT	good	M
Leggett	AAFC Winnipeg	2005	white	tall	m.strg.	L	MR	R	S	good	M
Leonard	MN	2001	yellow	tall	m.strg.	L	S	S	T	fair	ML
Loyal	SD	2000	ivory	tall	m.strg.	L	S	MR	T	good	MH
Maida	ND	2005	yellow	med.	strong	M	R	S	MS	v.good	MH
Monida	MT/ID	1985	white	m.tall	strong	L	S	S	NA	good	ML
Morton	ND	2001	white	tall	v.strong	L	S	R	MT	v.good	M
Otana	MT	1977	white	m.tall	m.weak	L	S	S	S	v.good	ML
Paul	ND	1994	hulless	v.tall	strong	L	R	MR/MS	T	good	H
Reeves	SD	2002	white	m.tall	med.	E	S	MR	MT	good	H
Sesqui	MN	2001	yellow	m.tall	strong	L	S	S	T	good	M
Souris	ND	2006	white	med.	strong	M	MS	R	MS	v.good	M
Stallion	SD	2006	white	tall	med.	L	S	MR	NA	v.good	M
Stark	ND	2004	hulless	tall	m.strg.	L	R	MR/MS	T	v.good	M
Vista	WI	2000	yellow	tall	strong	L	S	R	MT	good	M
Youngs	ND	1999	white	med.	strong	L	S	MS/S	MT	good	M

¹ E = early; M = medium; L = late; V = very.

² R = resistant; MR = moderately resistant; MS = moderately susceptible; S = susceptible.

³ S = susceptible; MS = moderately susceptible; MT = moderately tolerant; T = tolerant; V = very; NA = not available

Varieties rated MT or T have a relatively good degree of protection against barley yellow dwarf virus.

⁴ H = high; M = medium; L = low; V = very; VL = very low.

Table 7. Yield and test weight of oat varieties at three locations in eastern North Dakota, 2005-2007.

Variety	Fargo			Carrington			Langdon			Average Eastern N.D.		
	Test	Yield		Test	Yield		Test	Yield		Test	Yield	
	Wt.	2007	3 Yr	Wt.	2007	3 Yr	Wt.	2007	3 Yr	Wt.	2007	3 Yr
	(lb/bu)	--(bu/A)--		(lb/bu)	--(bu/A)--		(lb/bu)	--(bu/A)--		(lb/bu)	--(bu/A)--	
AC Assiniboia	38.3	167	159	35.6	86.5	101.0	35.1	104.5	81.5	36.3	119.3	113.8
AC Pinnacle	42.4	149	154	36.1	81.1	105.7	37.8	148.8	136.2	38.8	126.3	132.0
AC Ronald	38.9	127	139	38.2	91.0	101.1	33.7	98.7	75.5	36.9	105.6	105.2
Beach	42.4	143	137	39.9	88.1	102.3	39.6	132.5	124.8	40.6	121.2	121.4
Buff ¹	49.0	136	127	43.8	44.9	60.1	46.0	93.0	88.8	46.3	91.3	92.0
CDC Dancer	40.9	136	129	38.4	74.2	97.3	40.2	135.2	131.4	39.8	115.1	119.2
CDC Weaver	40.0	159	152	37.2	91.3	100.5	35.8	125.6	101.0	37.7	125.3	117.8
Furlong	41.2	156	--	--	--	--	--	--	--	--	--	--
HiFi	41.0	165	164	37.5	86.3	102.5	40.0	160.7	162.7	39.5	137.3	143.1
Hytest	42.7	124	131	39.3	63.3	86.8	40.3	118.2	105.8	40.8	101.8	107.9
Jerry	42.0	149	143	38.7	91.6	92.8	39.3	122.4	103.2	40.0	121.0	113.0
Killdeer	37.7	151	166	38.0	85.1	103.3	36.9	135.1	118.9	37.5	123.7	129.4
Maida	40.6	155	154	38.1	80.9	99.5	38.9	130.9	112.2	39.2	122.3	121.9
Monida	33.9	154	121	--	--	--	--	--	--	--	--	--
Morton	40.3	137	139	38.0	86.3	104.4	40.4	140.6	145.0	39.6	121.3	129.5
Otana	38.6	142	116	39.2	94.9	101.4	32.8	104.7	85.6	36.9	113.9	101.0
Paul	47.6	116	112	37.7	66.5	87.9	44.7	100.8	90.1	43.3	94.4	96.7
Souris	40.5	178	168	37.3	86.7	--	40.2	150.2	151.0	39.3	138.3	106.3
Stallion	41.6	173	152	39.6	99.6	--	39.6	152.8	--	--	--	--
Stark	47.8	135	133	43.4	76.0	75.2	43.8	116.0	105.6	45.0	109.0	104.6
Youngs	38.8	155	150	37.1	96.2	105.9	37.9	142.9	124.8	37.9	131.4	126.9
Ave.	41.0	149.4	145.4	38.6	82.9	95.7	39.1	127.0	113.6	39.7	117.7	115.7

¹When comparing yield of hullless oat varieties to varieties with hulls, multiply the yield of the hullless oats by 1.35 (the hull of a hulled kernel comprises 35% of the weight).

Table 8. Yield and test weight of oat varieties at four locations in western North Dakota, 2005-2007.

Variety	Minot			Williston			Dickinson			Hettinger			Average		
	Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield	
	(lb/bu)	2007	3 Yr	(lb/bu)	2007	3 Yr	(lb/bu)	2007	3 Yr.	(lb/bu)	2007	3 Yr.	(lb/bu)	2007	3 Yr.
AC Assiniboia	32.0	85.9	120.6	34.0	110.2	86.0	33.6	116.0	113.7	34.3	63.6	80.8	33.5	74.9	100.3
AC Pinnacle	33.8	113.6	158.5	34.6	117.7	101.5	33.6	108.5	117.5	35.0	72.9	85.8	34.3	82.4	115.8
AC Ronald	32.8	84.9	111.3	35.1	106.3	97.8	33.8	99.2	107.0	37.5	63.1	79.0	34.8	70.6	98.8
Beach	36.5	106.8	138.7	39.9	107.1	98.4	36.2	102.4	106.2	37.8	65.9	80.4	37.6	78.8	105.9
Buff ¹	41.7	83.9	100.1	46.3	73.9	65.7	36.8	71.5	70.8	44.5	52.2	66.0	42.3	63.5	75.7
CDC Dancer	33.9	99.9	129.9	36.9	111.1	97.6	35.5	112.2	110.0	36.8	64.7	72.1	35.8	78.4	102.4
CDC Pacer	27.6	77.2	119.1	35.4	114.5	100.0	32.1	104.7	110.4	33.2	60.2	76.1	32.1	69.4	101.4
CDC Weaver	32.8	102.2	133.3	34.4	117.9	103.0	31.6	104.4	103.5	33.5	50.7	71.2	33.1	72.9	102.8
Furlong	--	--	--	35.7	117.7	99.9	--	--	--	--	--	--	--	--	--
HiFi	36.0	118.9	150.2	36.5	111.8	97.6	33.1	93.9	98.8	36.5	69.0	85.2	35.5	79.6	108.0
Hytest	33.9	85.8	104.7	41.6	97.2	83.6	36.9	96.3	96.0	42.7	70.5	83.3	38.8	73.6	91.9
Jerry	34.8	94.5	114.4	37.7	103.5	89.1	36.0	110.0	105.2	39.2	70.4	82.6	36.9	78.2	97.8
Killdeer	33.4	111.0	132.4	36.5	108.8	97.1	34.2	115.6	115.7	37.4	78.0	90.7	35.4	85.3	109.0
Maida	34.1	99.9	135.9	35.8	104.1	91.3	34.2	100.6	100.9	37.6	68.9	78.9	35.4	76.3	101.8
Monida	30.7	94.0	115.5	34.0	124.6	104.7	28.1	96.5	111.0	37.2	67.6	82.5	32.5	73.0	103.4
Morton	34.9	109.6	147.3	36.8	103.3	93.4	33.7	104.6	107.9	37.4	74.3	76.4	35.7	81.3	106.3
Otana	29.5	77.7	100.2	37.5	117.6	95.4	33.7	109.7	110.1	37.1	47.4	71.4	34.5	68.1	94.3
Paul ¹	37.0	76.2	95.4	43.0	71.7	58.8	39.7	81.7	74.4	38.6	29.2	38.2	39.6	57.5	66.7
Souris	35.7	121.9	138.3	37.9	118.1	97.5	35.1	112.9	111.3	38.4	74.7	85.9	36.8	86.9	108.3
Stallion	36.4	131.3	--	37.2	111.7	--	34.2	109.5	--	37.7	77.1	--	36.4	88.8	--
Stark ¹	37.1	84.0	109.0	40.2	84.3	68.8	35.3	73.3	76.8	38.9	47.8	56.9	37.9	61.3	77.9
Youngs	32.6	103.9	128.8	35.1	121.4	97.0	32.9	116.8	109.7	34.3	64.9	78.4	33.7	80.2	103.5
Ave.	34.2	98.2	124.2	37.2	108.2	93.0	34.3	102.1	102.8	37.4	63.5	76.1	35.8	75.3	98.6

¹When comparing yield of hullless oat varieties to varieties with hulls, multiply the yield of the hullless oats by 1.35 (the hull of a hulled kernel comprises 35% of the weight).

Table 9. 2007 North Dakota winter rye variety descriptions.

Variety	Origin	Year Released	Height	Straw Strength	Maturity	Seed Color	Seed Size	Test Weight	Winter Hardness
AC Rifle	Can	1994	short	v.good	med.	blue	med.	med.	v.good
AC Remington	Can	1998	short	v.good	med.	--	med.	good	good
Dacold	ND	1989	med.	good ¹	v.late	bl-grn.	med.	low	good
Frederick	SD	1984	tall	fair	late	tan	med.	high	good
Hancock	WI	1979	tall	good	med.	tan	large	high	fair ²
Musketeers	Can	1980	tall	good	m.early	blue	large	med.	v.good
Prima	Can	1984	tall	good	med.	blue	large	med.	v.good
Rymin	MN	1973	tall	v.good	late	grn-gray	large	high	fair ²
Spooner	WI	1993	tall	v.good	med.	tan	large	high	good
Wheeler	MI	1971	tall	fair	med.	--	large	low	good

¹ Under certain environments, lodging has been observed.

² Varieties with fair winter hardiness should not be seeded on bare soil.

Table 10. Yield and test weight of winter rye varieties at three locations in North Dakota, 2005-2007.

Variety	Carrington			Williston			Hettinger			State Average		
	Test Wt.	Yield 2007	Yield 3 Yr	Test Wt.	Yield 2007	Yield 3 Yr	Test Wt.	Yield 2007	Yield 2 Yr	Test Wt.	Yield 2007	Yield 3 Yr
	(lb/bu)	--(bu/A)--		(lb/bu)	--(bu/A)--		(lb/bu)	--(bu/A)--		(lb/bu)	--(bu/A)--	
AC Remington	54.3	62.0	--	55.0	77.7	--	55.1	52.1	49.8	54.8	63.9	--
Dacold	52.5	56.6	54.0	53.4	83.4	60.8	55.5	61.4	56.6	53.8	67.1	57.1
DR02	--	--	--	55.1	86.2	--	56.3	60.4	56.2	--	--	--
Hancock	54.8	45.8	51.4	55.7	63.8	50.0	55.8	43.3	42.4	55.4	51.0	47.9
Musketeer	54.5	59.8	60.0	55.7	79.8	56.3	56.3	48.6	43.2	55.5	62.7	53.2
Spooner	53.6	44.9	49.2	55.8	73.6	52.7	55.8	42.8	42.4	55.1	53.8	48.1
Wheeler	51.4	29.3	22.3	52.9	42.4	31.2	49.5	14.1	13.6	51.3	28.6	22.4
Ave.	53.5	49.7	47.4	54.8	72.4	50.2	54.9	46.1	43.5	54.3	54.5	45.7

Table 11. 2007 North Dakota flax variety descriptions.

Variety ¹	Origin	Year Released	Relative Maturity ²	Seed Color	Plant Height	Wilt ³
NorLin	Can.	1982	early	brown	med.	MS
AC Watson	Can.	1996	early	brown	short	MR
CDC Valour	Can.	1996	early	brown	short	MR
Linton	ND	1985	early	brown	med.	R
Prompt	SD	1988	early	brown	med.	MR
Hanley	Can.	2002	med. early	brown	med.	R
AC Emerson	Can.	1994	med.	brown	med.	R
CDC Normandy	Can.	1995	med.	brown	short	MR
Cathay	ND	1998	med.	brown	med.	MR
Pembina	ND	1998	med.	brown	med.	MR
Carter	ND	2004	med.	yellow	med.	R
Neche	ND	1988	med.	brown	med.	R
Omega	ND	1989	med.	yellow	med.	MS
Rahab 94	SD	1994	med.	brown	med.	MR
CDC Arras	Can.	1999	med.	brown	med.	MR
Prairie Thunder	Can.	2006	med.	brown	short	NA
CDC Bethune	Can.	1999	med. late	brown	med. tall	MR
AC Carnduff	Can.	1998	med. late	brown	med. tall	MR
CDC Mons	Can.	2003	med. late	brown	med.	MR
Taurus	Can.	2003	med. late	brown	med.	MR
Prairie Blue	Can.	2003	med. late	brown	med.tall	MR
Flanders	Can.	1989	late	brown	med.	MS
Webster	SD	1998	late	brown	tall	MR
McDuff	Can.	1993	late	brown	med. tall	MR
AC Linora	Can.	1993	late	brown	tall	R
Selby	SD	2000	late	brown	tall	MR
York	ND	2002	late	brown	med.	R
Nekoma	ND	2002	late	brown	med.	MR
AC Lightning	Can.	2002	late	brown	med. tall	R

1 All varieties have resistance to prevalent races of rust; all have good oil yield and oil quality.

2 Varieties listed in order of maturity.

3 R = resistant; MR = moderately resistant; MS = moderately susceptible; NA = not available.

Table 12. Yield and test weight of flax varieties at two locations in eastern North Dakota, 2005-2007.

Variety	Langdon			Carrington			Average Eastern N.D.		
	Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield	
	(lb/bu)	2007	3 Yr	(lb/bu)	2007	3 Yr	(lb/bu)	2007	3 Yr
		--(bu/A)--			--(bu/A)--			--(bu/A)--	
AC Lightning	53.4	32.9	34.4	--	--	--	--	--	--
AC Watson	52.7	29.1	--	52.2	16.5	--	52.5	22.8	--
Bison ¹	52.1	17.1	29.5	--	--	--	--	--	--
Carter ²	53.6	35.9	37.1	52.6	17.7	18.2	53.1	26.8	27.7
CDC Arras	51.6	22.8	36.4	52.4	18.4	17.8	52.0	20.6	27.1
CDC Bethune	52.7	28.8	35.6	52.9	18.9	18.9	52.8	23.9	27.3
Hanley	53.0	28.7	37.3	52.0	13.2	--	52.5	21.0	--
Linott ¹	52.2	22.9	33.2	--	--	--	--	--	--
McGregor ¹	52.8	29.8	36.8	--	--	--	--	--	--
Neché	51.9	18.9	31.3	52.3	19.4	17.8	52.1	19.2	24.6
Nekoma	53.5	29.9	34.9	53.3	16.3	17.4	53.4	23.1	26.2
Omega ²	52.9	28.0	33.3	52.6	16.2	17.6	52.8	22.1	25.5
Pembina	53.1	34.7	36.0	53.4	19.9	17.1	53.3	27.3	26.6
Prairie Blue	52.8	31.9	38.3	52.4	19.9	18.8	52.6	25.9	28.6
Prairie Thunder	53.1	34.5	--	52.5	17.9	--	52.8	26.2	--
Rahab 94	53.2	31.6	36.9	52.1	19.0	18.7	52.7	25.3	27.8
Webster	52.7	32.9	37.9	53.3	11.5	16.6	53.0	22.2	27.3
York	53.6	29.5	37.3	54.0	18.3	18.1	53.8	23.9	27.7
Ave.	52.8	28.9	35.4	52.7	17.4	17.9	52.8	23.6	27.0

¹Long-term check.²Yellow seeded.**Table 13. Yield and test weight of flax varieties at three locations in western North Dakota, 2005-2007.**

Variety	Minot			Williston		Hettinger			Average Western N.D.		
	Test Wt.	Yield		Yield		Test Wt.	Yield		Test Wt.	Yield	
	(lb/bu)	2007	3 Yr	2007	3 Yr	(lb/bu)	2007	3 Yr	(lb/bu)	2007	3 Yr
		--(bu/A)--		--(bu/A)--			--(bu/A)--			--(bu/A)--	
AC Lightning	--	--	--	16.9	--	--	--	--	--	--	--
AC Watson	--	--	--	17.3	16.2	--	--	--	--	--	--
Bison ¹	--	--	--	16.6	15.5	--	--	--	--	--	--
Carter ²	51.4	12.1	25.1	14.7	15.4	56.8	14.6	13.5	54.1	13.8	18.0
Cathay	50.5	13.3	24.6	--	--	53.3	13.2	--	--	--	--
CDC Arras	--	--	--	16.4	16.4	54.4	20.4	18.4	--	--	--
CDC Bethune	--	--	--	16.8	15.8	56.8	16.6	15.5	--	--	--
Hanley	--	--	--	16.2	15.5	57.7	15.8	14.9	--	--	--
Linott ¹	--	--	--	16.9	15.8	--	--	--	--	--	--
McGregor ¹	--	--	--	14.1	14.3	--	--	--	--	--	--
Neché	51.6	13.4	25.9	16.2	15.4	58.2	19.5	15.9	54.9	16.4	19.1
Nekoma	51.9	14.9	25.6	16.2	15.5	56.3	18.1	16.4	54.1	16.4	19.2
Omega ²	51.3	9.4	20.5	14.9	15.6	57.4	9.7	7.1	54.4	11.3	14.4
Pembina	50.7	12.5	24.8	17.0	15.4	55.8	15.8	14.0	53.3	15.1	18.1
Prairie Blue	--	--	--	16.8	17.2	56.6	18.6	15.6	--	--	--
Prairie Thunder	--	--	--	18.5	--	57.1	17.5	--	--	--	--
Rahab 94	51.6	14.8	24.2	17.0	16.2	57.5	17.0	13.2	54.6	16.3	17.9
Webster	--	--	--	15.3	15.6	55.0	18.7	17.0	--	--	--
York	51.1	11.9	26.2	15.9	15.1	56.3	17.3	15.8	53.7	15.0	19.0
Ave.	51.3	12.8	24.6	16.2	15.7	56.2	16.6	14.8	54.2	14.9	17.9

¹Long-term check.²Yellow seeded.

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