

## North Dakota

# Barley, Oat and Rye

## Variety Trial Results for 2010 and Selection Guide

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Barley, oat and rye 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. Characteristics to evaluate in selecting a variety are yield potential in your area, test weight, straw strength, plant height, reaction to problematic diseases and maturity. Selecting varieties with good quality also is important to maintain market recognition. Because malting barley is purchased on an identity-preserved basis, producers are encouraged to determine which barley varieties are being purchased by potential barley buyers before selecting a variety. When selecting a high-yielding and good-quality variety, use data that summarizes several years and locations. Additional data from county sites are available at [www.ag.ndsu.edu/varietytrials/](http://www.ag.ndsu.edu/varietytrials/) and from each Research Extension Center.

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 these statistical analyses and apply only to the numbers in the column in which they appear. Differences between two varieties exceeding the LSD value mean that, with 95 percent confidence (LSD probability 0.05), the higher-yielding variety has a significant yield advantage. When no statistical difference occurs among any of the varieties at the 95 percent level of probability, NS is used. The CV is a measure of variability in the trial. The CV stands for coefficient of variation and is expressed as a percentage. Large CVs mean a large amount of variation could not be attributed to differences in the varieties.

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# NDSU

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November 2010

**Table 1. 2010 North Dakota barley variety descriptions.**

Variety	Use <sup>1</sup>	Origin <sup>2</sup>	Year Released	Awn Type <sup>3</sup>	Rachilla Hair Length <sup>4</sup>	Aleurone Color	Height	Straw Strength	Relative Maturity	Reaction to Disease <sup>5</sup>			
										Stem Rust	Loose Smut	Spot Blotch	Net Blotch
<b>Six-rowed</b>													
Celebration	MT	BARI	2008	S	S	White	M.short	Strg.	Med.	S	S	MR/R	MS/MS
Drummond	M/F	ND	2000	S	L	White	M.short	V.strg.	Med.	S	S	MR/R	MS/S
Innovation	MT	BARI	2009	S	L	White	M.short	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 <sup>6</sup>	F	MN	1997	S	S	White	Tall	Med.	Early	S	S	MR/R	MS/S
Quest	MT	MN	2010	S	L	White	M.short	V.strg.	Med.	S	S	MR/R	MS/S
Rasmusson	M/F	MN	2008	S	S	White	M.short	Strg.	Med.	S	S	MR/R	MS/S
Robust	M/F	MN	1983	S	S	White	Med.	M.strg.	Med.	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
<b>Two-rowed</b>													
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
Champion	F	WestBred	2007	--	L	White	Tall	--	M.late	NA	NA	NA	NA
Conlon <sup>7</sup>	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 <sup>8</sup>	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
Hockett	MT	MT	2008	R	L	White	Med.	Med.	Med.	S	NA	NA	NA
Lilly	F	Germany	--	R	L	White	Short	M.strg.	Late	S	NA	S	MR/R
Pinnacle	MT	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	S	MR
Stark	F	ND	1991	S	L	White	M.tall	Med.	Late	S	S	S/MS	MS/S
Sunshine	F	Germany	--	R	L	White	Short	M.strg.	Late	S	NA	S	MS
Valier	F	MT	1999	R	L	White	Med.	M.weak	M.late	S	NA	MS	NA
<b>Specialty</b>													
Enduro	SP	WestBred	2007	H	L	White	Med.	--	M.late	NA	NA	NA	NA
Wanubet	SP	MT	1990	H	L	White	Med.	Weak	Late	S	S	S	S

<sup>1</sup> M = malting; MT = Being tested in plant scale tests for malting and brewing quality; F = feed; SP = special uses (hullless).<sup>2</sup> BARI = Busch Agricultural Resources Inc.; Can = Canada; MN = University of Minnesota; MT = Montana State University; ND = North Dakota State University.<sup>3</sup> R = rough; S = smooth; H = hullless.<sup>4</sup> S = short; L = long.<sup>5</sup> R = resistant; MR = moderately resistant; MS = moderately susceptible; S = susceptible; NA = not available.<sup>6</sup> Moderately resistant to Fusarium head blight.<sup>7</sup> Lower DON accumulations than other varieties tested.<sup>8</sup> Recommended as a malting barley in western U.S.

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 this publication only if no portion is deleted, if appropriate footnotes are given and if the order of the data is not rearranged.

**Table 2. Yield and test weight of barley varieties at three locations in eastern North Dakota, 2008-2010.**

Variety	<u>Fargo</u>			<u>Carrington</u>			<u>Langdon</u>			<u>Average Eastern N.D.</u>		
	Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield	
	(lb/bu)	2010	3 Yr.	(lb/bu)	2010	3 Yr.	(lb/bu)	2010	3 Yr.	(lb/bu)	2010	3 Yr.
		------(bu/a)-----			------(bu/a)-----			------(bu/a)-----			------(bu/a)-----	
<b>Six-rowed</b>												
Celebration	51.9	81.1	108.1	46.1	131.1	128.6	49.4	123.2	127.6	49.1	111.8	121.4
Innovation	53.5	81.1	--	46.2	127.4	--	49.6	125.8	--	49.8	111.4	--
Lacey	53.9	81.5	108.5	46.8	126.8	121.6	50.3	127.8	129.2	50.3	112.0	119.8
Quest	--	--	--	45.2	122.2	113.1	48.4	132.9	130.2	--	--	--
Rasmusson	52.6	80.6	110.9	46.4	128.5	123.0	48.9	150.4	137.2	49.3	119.8	123.7
Robust	51.3	69.4	90.9	46.1	113.1	110.7	--	--	--	--	--	--
Stellar-ND	52.3	78.4	99.9	44.3	122.2	117.9	49.1	127.6	125.8	48.6	109.4	114.5
Tradition	53.4	85.0	102.2	46.7	133.7	123.7	49.8	131.2	127.0	50.0	116.6	117.6
<b>Two-rowed</b>												
AC Metcalfe	52.6	85.0	85.7	45.9	105.1	105.6	50.0	122.3	125.1	49.5	104.1	105.5
CDC Copeland	50.6	90.5	103.7	43.9	97.0	98.7	48.2	135.7	132.6	47.6	107.7	111.7
Conlon	54.0	84.5	75.3	48.8	121.3	110.3	51.5	125.0	121.8	51.4	110.3	102.5
Conrad	--	--	--	49.3	110.0	108.5	--	--	--	--	--	--
Eslick	--	--	--	46.9	116.6	113.9	--	--	--	--	--	--
Haxby	51.9	90.4	104.2	50.5	133.7	129.3	--	--	--	--	--	--
Haybet	--	--	--	41.0	73.7	93.0	--	--	--	--	--	--
Hayes	--	--	--	41.3	77.2	93.1	--	--	--	--	--	--
Lilly	--	--	--	50.2	116.1	--	50.6	115.5	--	--	--	--
Pinnacle	55.3	99.1	104.8	46.1	115.1	113.5	49.1	130.3	132.7	50.2	114.8	117.0
Rawson	54.6	86.1	93.8	47.7	116.1	113.0	48.7	139.6	137.2	50.3	113.9	114.7
Scarlett	--	--	--	45.0	99.2	110.7	--	--	--	--	--	--
Sunshine	--	--	--	44.8	116.5	--	49.8	127.6	--	--	--	--
Mean	52.9	84.1	99.0	46.2	114.4	112.7	49.5	129.6	129.7	49.6	112.0	114.8
CV %	--	9.1	--	7.0	7.7	--	1.0	7.5	--	--	--	--
LSD 0.05	--	12.7	--	4.6	12.7	--	0.7	13.7	--	--	--	--

**Table 3. Plump and protein of barley varieties at three locations in eastern North Dakota, 2010.**

Variety	<u>Fargo</u>		<u>Carrington</u>		<u>Langdon</u>		<u>Average Eastern N.D.</u>	
	Plump	Protein	Plump	Protein	Plump	Protein	Plump	Protein
	------(%)-----							
<b>Six-rowed</b>								
Celebration	69.2	14.0	92.5	13.0	92	12.3	84.6	13.1
Innovation	79.5	12.4	90.4	12.8	93	12.3	87.6	12.5
Lacey	76.6	12.9	86.6	12.8	94	12.3	85.7	12.7
Quest	--	--	87.8	12.6	88	11.9	--	--
Rasmusson	78.7	12.7	85.4	12.4	94	12.1	86.0	12.4
Robust	73.9	13.3	85.1	13.1	--	--	--	--
Stellar-ND	86.1	13.0	88.6	12.5	97	12.1	90.6	12.5
Tradition	78.4	12.7	92.3	12.7	95	12.0	88.6	12.5
<b>Two-rowed</b>								
AC Metcalfe	78.6	13.1	84.3	13.3	94	11.9	85.6	12.8
CDC Copeland	69.3	11.2	82.0	12.7	97	11.3	82.8	11.7
Conlon	87.7	11.8	95.7	13.1	97	12.3	93.5	12.4
Conrad	--	--	89.6	13.1	--	--	--	--
Eslick	--	--	87.5	12.5	--	--	--	--
Haxby	69.8	12.1	92.2	12.5	--	--	--	--
Haybet	--	--	53.2	12.9	--	--	--	--
Hayes	--	--	56.8	12.8	--	--	--	--
Lilly	--	--	78.7	12.0	91	11.2	--	--
Pinnacle	89.2	10.2	92.3	11.5	95	10.8	92.2	10.8
Rawson	92.6	11.7	97.8	11.8	98	11.3	96.1	11.6
Scarlett	--	--	90.1	12.7	--	--	--	--
Sunshine	--	--	85.2	12.6	96	11.5	--	--
Mean	79.2	12.4	85.4	12.6	94	11.8	81.1	11.3
CV %	--	--	7.8	--	2.5	2.9	--	--
LSD 0.05	--	--	9.6	--	3.0	0.5	--	--

**Table 4. Yield and test weight of barley varieties at three locations in western North Dakota, 2008-2010.**

Variety	Hettinger			Minot			Williston			Average Western N.D.		
	Test	Yield		Test	Yield		Test	Yield		Test	Yield	
	Wt.	2010	3 Yr.	Wt.	2010	3 Yr.	Wt.	2010	3 Yr.	Wt.	2010	3 Yr.
	(lb/bu)	---(bu/a)---		(lb/bu)	---(bu/a)---		(lb/bu)	---(bu/a)---		(lb/bu)	---(bu/a)---	
<b>Six-rowed</b>												
Celebration	43.8	106.1	--	44.5	110.2	120.3	49.7	78.8	66.0	46.0	98.4	--
Innovation	45.5	110.8	--	44.7	101.3	--	49.6	80.2	--	46.6	97.4	--
Lacey	46.5	111.9	88.6	45.8	100.5	112.1	48.7	74.5	65.3	47.0	95.6	88.7
Quest	45.1	109.1	--	43.2	97.8	111.8	48.9	75.7	65.1	45.7	94.2	--
Rasmusson	46.3	110.8	82.2	45.1	99.2	115.6	47.2	73.2	64.8	46.2	94.4	87.5
Robust	--	--	--	45.2	87.3	105.1	49.3	75.7	62.2	--	--	--
Stellar-ND	44.8	113.5	79.6	44.0	97.6	110.6	47.8	73.6	62.5	45.5	94.9	84.2
Tradition	45.9	117.4	92.3	45.8	94.1	112.2	49.8	82.5	69.6	47.2	98.0	91.4
<b>Two-rowed</b>												
AC Metcalfe	46.7	102.6	79.5	44.9	89.3	112.8	48.0	68.2	61.9	46.5	86.7	84.7
CDC Copeland	45.4	107.3	83.9	47.0	95.1	117.0	46.8	63.6	59.1	46.4	88.7	86.7
Conlon	48.1	106.4	94.7	47.8	96.0	105.1	52.4	91.0	73.5	49.4	97.8	91.1
Conrad	--	--	--	45.8	102.9	121.5	47.9	76.3	64.3	--	--	--
Harrington	--	--	--	45.2	90.7	115.7	46.8	68.7	64.0	--	--	--
Haxby	48.7	115.5	95.1	49.0	114.2	131.9	51.1	85.2	72.9	49.6	105.0	99.9
Hockett	--	--	--	46.0	95.0	122.2	48.7	73.5	66.6	--	--	--
Lilly	46.2	126.7	--	45.2	100.3	--	49.4	81.0	--	46.9	102.7	--
Pinnacle	48.7	113.3	95.6	43.5	102.6	121.9	48.8	75.2	67.4	47.0	97.0	94.9
Rawson	47.3	106.7	84.4	43.5	96.0	113.7	50.5	83.7	69.2	47.1	95.5	89.1
Scarlett	--	--	--	45.7	88.8	107.8	48.2	75.5	64.6	--	--	--
Sunshine	45.9	121.3	--	45.5	102.2	--	46.6	67.5	--	46.0	97.0	--
Mean	46.3	112.0	87.6	45.4	98.1	115.1	48.8	76.2	65.8	46.9	96.2	89.8
CV %	1.3	4.7	--	1.9	9.6	--	1.3	5.0	--	--	--	--
LSD 0.05	0.9	7.6	--	1.2	13.2	--	1.3	5.3	--	--	--	--

**Table 5. Plump and protein of barley varieties at three locations in western North Dakota, 2010.**

Variety	Hettinger		Minot		Williston		Average Western N.D.	
	Plump	Protein	Plump	Protein	Plump	Protein	Plump	Protein
	------(%)-----							
<b>Six-rowed</b>								
Celebration	87	14.6	89	14.0	40	17.3	72.0	15.3
Innovation	84	13.8	91	12.7	41	16.6	72.0	14.4
Lacey	89	12.8	94	13.3	30	16.7	71.0	14.3
Quest	86	13.2	85	12.3	35	17.2	68.7	14.2
Rasmusson	90	13.1	90	11.8	25	16.8	68.3	13.9
Robust	--	--	92	13.5	33	15.5	--	--
Stellar-ND	88	13.4	96	12.8	32	15.4	72.0	13.9
Tradition	91	13.4	93	12.8	42	15.7	75.3	14.0
<b>Two-Rowed</b>								
AC Metcalfe	91	14.1	87	12.9	35	17.4	71.0	14.8
CDC Copeland	89	14.0	89	12.4	31	18.5	69.7	15.0
Conlon	93	14.2	93	13.5	84	16.3	90.0	14.7
Conrad	--	--	88	13.1	50	16.8	--	--
Harrington	--	--	74	13.3	39	16.2	--	--
Haxby	84	13.5	88	13.3	38	16.1	70.0	14.3
Hockett	--	--	90	13.0	41	17.5	--	--
Lilly	84	13.4	83	11.9	37	16.5	68.0	13.9
Pinnacle	94	12.9	92	11.3	60	15.2	82.0	13.1
Rawson	93	13.1	95	11.5	77	14.2	88.3	12.9
Scarlett	--	--	90	12.5	52	16.0	--	--
Sunshine	90	12.6	88	12.8	35	18.3	71.0	14.6
Mean	89	13.5	89	12.7	42.9	16.5	73.9	14.2
CV %	3.2	5.5	3.4	5.0	12.6	4.6	--	--
LSD 0.05	3.0	1.0	4.0	0.9	9.8	1.5	--	--

**Table 6. 2010 North Dakota oat variety descriptions.**

Variety	Origin <sup>1</sup>	Year Released	Grain Color	Height	Straw Strength	Maturity <sup>2</sup>	Reaction to Diseases			Bu/Wt.	Protein <sup>5</sup>
							Stem Rust <sup>3</sup>	Crown Rust <sup>3</sup>	Barley Y.Dwf <sup>4</sup>		
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 Pinnacle	Can. OAS	1999	White	Tall	Med.	L	S	S	S	V.good	L
AC Ronald	Can. SeCan	2001	White	M.short	V.strg.	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 Dancer	Can. Cargill	2000	White	Tall	Strong	L	S	MS	S	V.good	M
CDC Minstrel	Sask.	2006	White	Tall	M.strg.	L	S	S	S	Good	M
CDC Orrin	Can. QAS Cargill	2001	White	Tall	Strong	L	S	S	S	Good	ML
CDC Weaver	Can.	2005	Yellow	Med.	M.strg.	L	S	S	S	Good	M
Drumlin	WI	2003	Yellow	Med.	Strong	M	S	MR	VT	Good	M
Excel	IN	2006	White	Med.	Strong	M	S	MS	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
Hyttest	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	S	Fair	ML
Morton	ND	2001	White	Tall	V.strg.	L	S	S	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
Rockford	ND	2008	White	Tall	Strong	L	S	R	MT	V.good	M
Sesqui	MN	2001	Yellow	M.tall	Strong	L	S	S	T	Good	M
Shelby427	SD	2008	White	Med.	Strong	E	S	R	--	V.good	--
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
Streaker	SD	2008	Hulless	Tall	M.weak	M	S	R/MR	NA	V.good	MH
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

<sup>1</sup> Can = Canada; ND = North Dakota State University; SD = South Dakota State University; WI = University of Wisconsin; IN = Purdue University; MT = Montana; ID = Idaho; Sask. = Saskatchewan.

<sup>2</sup> E = early; M = medium; L = late; V = very late.

<sup>3</sup> R = resistant; MR = moderately resistant; MS = moderately susceptible; S = susceptible.

<sup>4</sup> Barley Yellow Dwarf Virus; S = susceptible; MS = moderately susceptible; MT = moderately tolerant; T = tolerant; VT = very tolerant; NA = not available. Varieties rated MT or T have a relatively good degree of protection against barley yellow dwarf virus.

<sup>5</sup> H = high; M = medium; L = low.

**Table 7. Yield and test weight of oat varieties at two locations in eastern North Dakota, 2008-2010.**

Variety	Fargo			Langdon			Average Eastern N.D.		
	Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield	
	(lb/bu)	2010	3 Yr.	(lb/bu)	2010	3 Yr.	(lb/bu)	2010	3 Yr.
		----- (bu/a) -----			----- (bu/a) -----			----- (bu/a) -----	
AC Pinnacle	38.4	196.1	218.2	33.7	175.2	197.9	36.1	185.7	208.1
Beach	40.4	188.7	198.7	37.3	173.7	182.2	38.9	181.2	190.5
Buff <sup>1</sup>	47.6	152.1	156.9	46.6	132.3	131.0	47.1	142.2	144.0
CDC Dancer	40.6	177.1	199.0	37.9	187.9	192.3	39.3	182.5	195.7
CDC Minstrel	38.0	207.5	218.4	32.3	157.1	174.2	35.2	182.3	196.3
Furlong	40.0	188.7	209.0	34.4	157.3	168.4	37.2	173.0	188.7
HiFi	40.6	190.4	210.7	40.1	204.1	192.2	40.4	197.3	201.5
Hystest	42.5	153.8	162.8	41.5	140.6	146.3	42.0	147.2	154.6
Jerry	41.6	170.8	183.1	38.4	140.0	153.9	40.0	155.4	168.5
Killdeer	38.5	204.7	225.6	35.9	172.0	177.7	37.2	188.4	201.7
Leggett	38.4	186.5	196.3	38.1	212.4	--	38.3	199.5	98.2
Maida	--	--	--	38.5	152.0	157.8	19.3	76.0	78.9
Monida	32.4	182.9	200.6	29.0	116.4	--	30.7	149.7	100.3
Morton	39.3	166.4	187.3	37.4	143.2	163.3	38.4	154.8	175.3
Otana	37.0	170.9	191.7	29.9	123.3	152.9	33.5	147.1	172.3
Paul <sup>1</sup>	46.2	145.2	147.1	44.0	125.2	133.7	45.1	135.2	140.4
Rockford	41.6	190.2	211.8	40.6	191.5	191.4	41.1	190.9	201.6
Shelby 427	41.5	166.6	--	41.3	167.7	--	41.4	167.2	0.0
Souris	40.1	191.2	208.0	39.4	197.1	195.9	39.8	194.2	202.0
Stallion	40.7	166.8	184.5	39.0	175.6	171.4	39.9	171.2	178.0
Stark <sup>1</sup>	44.3	159.4	167.6	43.1	136.5	141.1	43.7	148.0	154.4
Streaker	48.6	131.1	--	48.7	119.6	--	48.7	125.4	0.0
Youngs	38.6	180.8	200.3	33.4	140.2	170.5	36.0	160.5	185.4
Mean	40.8	175.8	193.9	38.7	158.3	168.1	38.6	163.2	153.7
CV %	2.4	6.6	--	3.1	7.4	--	--	--	--
LSD 0.05	1.6	19.5	--	1.7	18.1	--	--	--	--

<sup>1</sup>Hulless varieties. When comparing yield of hulless oat varieties with varieties with hulls, multiply the yield of the hulless oats by 1.35 (the hull of a hulled kernel accounts for 35 percent of the weight).

**Table 8. Yield and test weight of oat varieties at three locations in western North Dakota, 2008-2010.**

Variety	<u>Dickinson</u>			<u>Hettinger</u>			<u>Minot</u>			<u>Average Western N.D.</u>		
	Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield	
	(lb/bu)	2010	3 Yr.	(lb/bu)	2010	3 Yr.	(lb/bu)	2010	3 Yr.	(lb/bu)	2010	3 Yr.
AC Pinnacle	34.4	189.2	152.5	37.9	159.6	124.5	35.2	164.8	174.3	35.8	171.2	150.4
Beach	37.9	174.9	131.3	39.8	149.0	112.7	38.9	123.9	144.5	38.9	149.3	129.5
Buff <sup>1</sup>	37.6	149.9	116.7	46.6	10.32	81.0	46.1	86.6	88.0	43.4	82.3	95.2
CDC Dancer	34.9	158.9	129.9	37.5	145.9	110.5	36.9	121.9	147.9	36.4	142.2	129.4
CDC Minstrel	33.4	183.5	141.5	36.6	154.9	119.6	34.9	143.9	163.4	35.0	160.8	141.5
Furlong	34.3	184.3	141.3	37.3	154.7	122.9	36.2	148.3	164.2	35.9	162.4	142.8
HiFi	35.7	185.4	137.0	37.5	140.1	111.6	37.6	159.9	151.0	36.9	161.8	133.2
Hyttest	37.5	161.7	123.3	41.4	121.9	95.1	38.7	119.5	126.6	39.2	134.4	115.0
Jerry	35.8	151.3	120.8	38.4	133.8	101.8	37.6	114.2	129.5	37.3	133.1	117.4
Killdeer	35.7	176.5	144.1	37.2	151.0	116.6	36.4	157.0	164.8	36.4	161.5	141.8
Leggett	35.0	177.2	--	38.2	154.4	--	37.1	148.3	--	36.8	160.0	--
Maida	34.9	162.3	125.8	37.4	139.7	109.7	37.0	131.7	139.9	36.4	144.6	125.1
Monida	33.7	185.5	141.6	36.1	153.3	121.1	36.4	173.9	168.0	35.4	170.9	143.6
Morton	35.6	159.1	123.7	38.7	135.7	98.4	37.2	120.0	139.2	37.2	138.3	120.4
Otana	36.7	164.3	132.7	38.8	139.6	101.1	36.1	144.0	152.4	37.2	149.3	128.7
Paul <sup>1</sup>	37.7	150.7	108.0	--	--	--	43.3	106.2	104.0	--	--	--
Rockford	37.5	188.2	142.3	40.1	145.8	120.3	39.2	161.6	159.9	38.9	165.2	140.8
Shelby 427	37.6	153.0	--	38.4	142.2	--	38.5	126.6	--	38.2	140.6	--
Souris	34.9	168.6	133.2	38.3	155.9	115.4	36.2	160.4	157.2	36.5	161.6	135.3
Stallion	37.1	156.3	129.7	40.8	151.2	117.9	39.0	140.7	146.1	39.0	149.4	131.2
Stark <sup>1</sup>	38.4	161.7	116.9	40.8	95.8	77.0	42.3	135.0	114.0	40.5	130.8	102.6
Streaker	42.0	115.0	--	47.8	114.2	--	47.0	119.4	--	45.6	116.2	--
Youngs	34.2	165.1	132.1	35.8	133.5	107.2	35.7	118.2	142.2	35.2	138.9	127.2
Mean	36.2	166.2	131.2	39.2	135.6	108.7	38.4	135.9	143.9	37.4	143.9	109.7
CV %	2.4	7.2	--	2.3	5.8	--	1.4	7.4	--			
LSD 0.05	1.2	17.1	--	1.2	11.7	--	0.7	14.6	--			

<sup>1</sup>Hulless varieties. When comparing yield of hulless oat varieties with varieties with hulls, multiply the yield of the hulless oats by 1.35 (the hull of a hulled kernel accounts for 35 percent of the weight).

**Table 9. 2010 North Dakota winter rye variety descriptions.**

Variety	Origin <sup>1</sup>	Year Released	Height	Straw Strength	Maturity	Seed Color	Seed Size	Test Weight	Winter Hardiness
AC Rifle	Can.	1994	Short	V.good	Med.	Blue	Med.	Med.	V.good
AC Remington	Can.	1998	Short	V.good	Med.	--	Med.	Good	Good
Aroostok	USDA	1999	Tall	Fair	Early	--	Small	High	V.good
Ensi	Finland	1933	Tall	Fair	Late	--	Small	Low	--
Dacold	ND	1989	Med.	Good <sup>2</sup>	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 <sup>3</sup>
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 <sup>3</sup>
Spooner	WI	1993	Tall	V.good	Med.	Tan	Large	High	Good
Wheeler	MI	1971	Tall	Fair	Med.	--	Large	Low	Good

<sup>1</sup> Can. = Canada; ND = North Dakota State University; SD = South Dakota State University; WI = University of Wisconsin; MN = University of Minnesota; MI = Michigan State University.

<sup>2</sup> Under certain environments, lodging has been observed.

<sup>3</sup> Varieties with fair winter hardiness should not be seeded on bare soil.

**Table 10. Yield and test weight of winter rye varieties at two locations in North Dakota, 2010.**

Variety	<u>Carrington</u>		<u>Williston</u>		<u>State Average</u>	
	<u>Test Wt.</u>	<u>Yield 2010</u>	<u>Test Wt.</u>	<u>Yield 2010</u>	<u>Test Wt.</u>	<u>Yield 2010</u>
	(lb/bu)	----(bu/a)----	(lb/bu)	--(bu/a)---	(lb/bu)	---(bu/a)---
Aroostok	53.5	52.6	53.7	41.9	53.6	47.3
Ensi	52.8	43.6	50.1	33.0	51.5	38.3
Dacold	52.5	71.2	51.6	50.6	52.1	60.9
Hancock	54.7	67.3	54.8	56.2	54.8	61.8
Rymin	54.1	56.6	53.0	46.9	53.6	51.8
Spooner	54.2	59.2	53.9	47.6	54.1	53.4
Wheeler	50.6	19.2	50.3	23.7	50.5	21.5
Mean	53.2	52.8	52.5	42.8	52.8	47.8
CV %	1.1	8.3	.9	14.3	--	--
LSD 0.05	0.8	6.8	1.1	10.9	--	--

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