

A1049-23 (December 2023)

# North Dakota Barley, Oat and Rye

## *Variety Trial Results for 2023 and Selection Guide*

Clair Keene, Rich Horsley, Mike McMullen, Andrew Friskop and Thomas Baldwin (NDSU Main Station); Kristin Simons (Carrington Research Extension Center); Glenn Martin (Dickinson REC); John Rickertsen (Hettinger REC); Leandro Bortolon, Austin Kraklau and Jayden Hansen (North Central REC, Minot); Justin Jacobs (Williston REC); and Bryan Hanson (Langdon REC)

Barley, oat and rye varieties currently grown in North Dakota are described in the following tables. When selecting a variety, consider the following characteristics: yield potential in your area, test weight, straw strength, plant height, reaction to diseases and maturity. In 2023, barley was planted on an estimated 690,000 acres in ND, down from 740,000 acres in 2022. Statewide barley yield was estimated at 71 bushels per acre. Oat was planted on 280,000 acres in 2023, down from 345,000 acres in 2022. Rye acres were estimated at 96,000 in 2023, though rye acres are somewhat uncertain as surveys may not capture all acres planted because of its frequent use as a cover crop or forage instead of grain.

Selecting barley varieties with good quality is important to maintain market recognition. Because malting barley usually is purchased on an identity-preserved basis, producers are encouraged to determine which barley varieties are acceptable to potential buyers. Use data that summarize several years and locations to select a high-yielding and high-quality variety. Additional data from county sites are available at <https://vt.ag.ndsu.edu> and from each Research Extension Center.

Yield is reported on a 14.5%, 14% and 14% moisture basis for barley, oats and rye respectively. Protein is reported on a 0% moisture basis for all crops in this report. 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% or 90% confidence (LSD probability 0.05 or 0.10), the higher-yielding variety has a significant yield advantage.

The abbreviation NS is used to indicate that no statistical difference occurs between varieties. The coefficient of variation (CV) is a measure of variability in the trial and is expressed as a percentage. Large CVs mean a large amount of variation could not be attributed to differences in the varieties.

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, appropriate footnotes are given, the order of the data is not rearranged and NDSU is credited as the source.

## List of Tables

- Table 1. 2023 North Dakota barley variety descriptions.
- Table 2. Yield and test weight of barley varieties at three locations in eastern North Dakota, 2021-2023.
- Table 3. Plump and protein of barley varieties at three locations in eastern North Dakota, 2023.
- Table 4. Yield and test weight of barley varieties at four locations in western North Dakota, 2021-2023.
- Table 5. Plump and protein of barley varieties at four locations in western North Dakota, 2023.
- Table 6. 2023 North Dakota oat variety descriptions.
- Table 7. Yield and test weight of oat varieties at four locations in eastern North Dakota, 2021-2023.
- Table 8. Yield and test weight of oat varieties at three locations in western North Dakota, 2021-2023.
- Table 9. 2023 North Dakota winter rye variety descriptions.
- Table 10. Yield and test weight of winter rye varieties at four locations in North Dakota, 2021-2023.

Table 1. 2023 North Dakota barley variety descriptions.														
Variety	Use <sup>1</sup>	Origin <sup>2</sup>	Year Released	Awn <sup>3</sup> Type	Rachilla			Height (inch)	Days to Head	Straw <sup>5</sup> Strength	Reaction to Disease <sup>6</sup>			
					Hair <sup>4</sup> Length	Aleurone Color					Stem Rust	Spot-form Net Blotch	Spot Blotch	Net Blotch
<b>Six-rowed</b>														
ND Treasure	F	ND	2023	S	S	White	25	47	1	NA	NA	3	8	
Tradition	M/F	BARI	2003	S	L	White	26	48	3	8	6	3	7	
<b>Two-rowed</b>														
AAC Connect	M/F	AAFC	2017	R	L	White	26	53	4	4	5	4	5	
AAC Synergy	M/F	AAFC	2015	R	L	White	27	52	4	4	3	4	4	
ABI Cardinal	M/F	BARI	2019	R	S	White	25	52	4	NA	NA	4	6	
Brewski	M	ND	2021	S	L	White	27	52	4	NA	NA	4	4	
CDC Fraser	M/F	CDC	2016	R	L	White	25	54	2	NA	NA	4	4	
<b>CDC Prairie</b>	<b>M</b>	<b>CDC</b>	<b>2021</b>	<b>R</b>	<b>L</b>	<b>White</b>	<b>25</b>	<b>55</b>	<b>3</b>	<b>NA</b>	<b>NA</b>	<b>5</b>	<b>NA</b>	
Conlon <sup>7</sup>	M/F	ND	1996	S	L	White	25	47	5	8	4	6	3	
Explorer	M	Secobra	NA	R	L	White	22	51	3	NA	NA	8	4	
ND Genesis	M/F	ND	2015	S	L	White	28	50	4	8	4	4	6	
Pinnacle	M/F	ND	2006	S	L	White	26	50	4	8	4	4	6	
<b>Winston</b>	<b>F</b>	<b>Ackermann</b>	<b>2021</b>	<b>R</b>	<b>S</b>	<b>White</b>	<b>21</b>	<b>56</b>	<b>1</b>	<b>NA</b>	<b>NA</b>	<b>8</b>	<b>6</b>	

Bolded varieties were tested for the first time this year, so some ratings may change as new data become available.

<sup>1</sup>M = malting; F = feed.

<sup>2</sup>BARI = Busch Agricultural Resources Inc.; CDC = Crop Development Centre, University of Saskatchewan; ND = North Dakota State University  
AAFC = Agriculture and Agri-Food Canada; Secobra = Secobra Recherches France; Ackermann = Saatzucht Ackermann, Germany

<sup>3</sup>R = rough; S = smooth.

<sup>4</sup>L = long S = short.

<sup>5</sup>Straw Strength scores from 1-9, with 1 = strongest and 9 = weakest.

<sup>6</sup>Disease reaction scores from 1-9, with 1 = resistant and 9 = very susceptible, NA – not available.

<sup>7</sup>Lower DON accumulations than other varieties tested.

**Table 2. Yield and test weight of barley varieties at three locations in eastern North Dakota, 2021-2023.**

Variety	<u>Fargo</u>			<u>Carrington</u>			<u>Langdon</u>			<u>Avg. eastern N.D.</u>		
	Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield		Test Wt.	Yield	
	(lb/bu)	2023	3 Yr.	(lb/bu)	2023	3 Yr.	(lb/bu)	2023	3 Yr.	(lb/bu)	2023	3 Yr.
<b>Six-rowed</b>												
ND Treasure	48.6	129.2	118.2	52.7	91.5	78.0	46.6	113.0	102.5	49.3	111.2	99.6
Tradition	50.1	116.1	117.6	55.0	80.6	71.9	48.5	110.6	96.1	51.2	102.4	95.2
<b>Two-rowed</b>												
AAC Connect	49.5	117.8	115.2	55.6	55.6	69.1	50.9	109.1	99.6	52.0	94.2	94.6
AAC Synergy	49.8	116.7	113.6	55.8	55.8	71.9	51.2	113.0	103.5	52.3	95.2	96.3
ABI Cardinal	47.9	109.4	109.6	54.8	54.8	73.0	50.3	109.4	98.5	51.0	91.2	93.7
Brewski	47.7	108.6	107.6	55.2	55.2	73.9	50.6	108.1	102.5	51.2	90.6	94.7
CDC Fraser	47.7	100.2	98.8	54.2	54.2	69.9	48.9	113.4	100.0	50.3	89.3	89.6
CDC Prairie	--	--	--	56.0	56.0	--	50.4	116.6	--	--	--	--
Conlon	48.9	101.7	96.6	57.0	57.0	60.7	51.6	107.1	88.2	52.5	88.6	81.8
Explorer	48.4	110.1	103.3	55.2	55.2	65.7	49.9	102.2	96.0	51.2	89.2	88.3
ND Genesis	51.3	124.5	119.0	55.8	55.8	70.7	51.2	117.1	102.8	52.8	99.1	97.5
Pinnacle	50.2	115.6	107.1	57.1	57.1	62.8	51.7	109.1	97.3	53.0	93.9	89.1
Winston	--	--	--	--	--	--	49.5	117.2	--	--	--	--
Mean	49.1	115.5	106.3	55.0	74.7	69.8	49.8	112.2	98.8	51.5	95.0	92.8
CV %	--	8.8	--	1.2	11.9	--	1.0	6.8	--	1.7	7.7	--
LSD 0.05	--	15.4	--	0.9	12.5	--	0.7	11.0	--	1.5	12.5	--
LSD 0.10	--	7.4	--	0.8	10.5	--	0.7	9.1	--	1.2	10.3	--

**Table 3. Plump and protein of barley varieties at three locations in eastern North Dakota, 2023.**

Variety	<u>Fargo</u>		<u>Carrington</u>		<u>Langdon</u>		<u>Avg. eastern N.D.</u>	
	Plump	Protein	Plump	Protein	Plump	Protein	Plump	Protein
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<b>Six-rowed</b>								
ND Treasure	96.2	10.9	91.1	15.1	94	11.7	93.8	12.6
Tradition	92.0	11.3	93.4	15.4	97	12.0	94.1	12.9
<b>Two-rowed</b>								
AAC Connect	96.2	11.1	92.5	16.4	98	12.8	95.6	13.4
AAC Synergy	96.9	11.2	93.8	16.3	99	12.9	96.6	13.5
ABI Cardinal	97.3	11.6	94.8	15.7	98	12.2	96.7	13.2
Brewski	96.3	11.2	96.3	14.5	99	11.8	97.2	12.5
CDC Fraser	97.6	11.5	93.2	16.1	98	13.2	96.3	13.6
CDC Prairie	--	--	91.7	15.6	96	13.1	--	--
Conlon	96.9	11.9	96.6	16.0	99	12.6	97.5	13.5
Explorer	91.2	11.9	94.7	16.2	99	12.1	95.0	13.4
ND Genesis	97.5	10.7	94.9	14.0	100	11.3	97.5	12.0
Pinnacle	92.8	10.4	95.7	14.9	100	11.2	96.2	12.2
Winston	--	--	--	--	100	11.5	--	--
Mean	95.5	11.2	94.0	15.1	98	12.1	96.0	13.0
CV %	--	--	1.9	2.9	1.0	4.9	--	--
LSD 0.05	--	--	2.5	0.6	1.4	0.9	--	--
LSD 0.10	--	--	2.1	0.5	1.1	0.7	--	--

**Table 4. Yield and test weight of barley varieties at four locations in western North Dakota, 2021-2023.**

Variety	<u>Dickinson</u>			<u>Hettinger</u>			<u>Minot</u>			<u>Williston</u>			<u>Avg. western N.D.</u>		
	Test	<u>Yield</u>		Test	<u>Yield</u>		Test	<u>Yield</u>		Test	<u>Yield</u>		Test	<u>Yield</u>	
	Wt.	2023	3 Yr. <sup>1</sup>	Wt.	2023	3 Yr.	Wt.	2023	3 Yr.	Wt.	2023	3 Yr.	Wt.	2023	3 Yr.
	(lb/bu)	---(bu/a)---		(lb/bu)	---(bu/a)---		(lb/bu)	---(bu/a)---		(lb/bu)	---(bu/a)---		(lb/bu)	---(bu/a)---	
<b>Six-rowed</b>															
ND Treasure	47.4	62.6	42.9	40.6	132.1	97.4	40.9	87.4	--	46.5	26.9	--	43.9	77.3	--
Tradition	48.3	57.6	40.1	42.4	115.8	89.3	44.1	93.8	69.9	48.5	22.1	29.9	45.8	72.3	57.3
<b>Two-rowed</b>															
AAC Connect	47.9	59.2	39.9	38.1	121.8	87.6	45.2	87.2	65.9	--	--	--	43.7	89.4	--
AAC Synergy	48.1	65.1	42.3	36.4	134.7	95.2	45.6	95.1	72.3	--	--	--	43.4	98.3	--
ABI Cardinal	49.1	64.3	43.1	40.3	124.2	89.5	45.5	84.9	70.1	--	--	--	45.0	91.1	--
Brewski	49.4	67.0	47.1	44.5	132.3	99.1	45.2	86.9	68.3	--	--	--	46.4	95.4	--
CDC Fraser	46.7	62.9	--	38.6	125.8	91.0	44.0	80.3	67.1	49.0	20.1	24.7	44.6	72.3	--
CDC Prairie	48.6	66.7	--	38.6	111.0	--	44.9	89.6	--	50.0	17.8	--	45.5	71.3	--
Conlon	49.6	51.6	39.6	41.7	94.4	77.8	47.3	84.4	68.3	50.8	21.9	24.0	47.4	63.1	52.4
Explorer	49.8	63.4	45.3	45.7	124.2	94.6	44.8	83.0	--	49.5	32.0	33.1	47.5	75.6	--
ND Genesis	50.3	70.5	46.7	46.0	140.8	98.0	44.9	73.1	65.7	--	--	--	47.1	94.8	--
Pinnacle	50.2	64.6	45.3	44.3	96.2	78.9	45.1	79.6	66.6	--	--	--	46.5	80.1	--
Winston	--	--	--	44.3	116.1	--	44.1	91.1	--	48.8	21.0	--	45.7	76.1	--
Mean	48.6	63.1	43.2	41.8	119.5	90.8	45.2	87.0	68.3	49.3	22.5	27.9	45.6	81.3	54.9
CV %	1.5	11.4	--	3.2	6.9	--	1.4	10.9	--	1.0	20.9	--	3.8	10.4	--
LSD 0.05	0.9	8.5	--	1.6	9.8	--	1.0	15.6	--	0.8	8.0	--	2.5	NS	--
LSD 0.10	0.7	6.6	--	1.2	7.6	--	0.9	13.0	--	0.7	6.6	--	2.1	NS	--

<sup>1</sup> Three-Year average 2020, 2021 and 2023.

**Table 5. Plump and protein of barley varieties at four locations in western North Dakota, 2023.**

Variety	<u>Dickinson</u>		<u>Hettinger</u>		<u>Minot</u>		<u>Williston</u>		<u>Avg. western N.D.</u>	
	Plump	Protein	Plump	Protein	Plump	Protein	Plump	Protein	Plump	Protein
	(%)									
<b>Six-rowed</b>										
ND Treasure	98	11.9	90	12.1	95	11.5	89	14.0	94.3	12.4
Tradition	97	13.4	93	12.3	98	11.9	84	15.3	95.9	13.2
<b>Two-rowed</b>										
AAC Connect	97	13.1	91	11.8	97	13.8	--	--	--	--
AAC Synergy	97	12.6	92	12.4	98	13.2	--	--	--	--
ABI Cardinal	97	12.3	94	11.7	97	13.3	--	--	--	--
Brewski	98	12.5	92	11.9	98	12.4	--	--	--	--
CDC Fraser	97	12.1	93	11.7	97	12.7	94	14.9	95.6	12.9
CDC Prairie	97	12.1	90	11.8	96	13.4	86	14.8	94.4	13.0
Conlon	97	13.5	96	12.6	98	13.4	96	14.9	97.2	13.6
Explorer	98	12.8	91	12.6	98	13.2	95	15.3	95.7	13.5
ND Genesis	98	11.4	93	11.0	98	11.3	--	--	--	--
Pinnacle	98	10.4	91	10.5	98	10.9	--	--	--	--
Winston	--	--	95	10.6	99	11.2	96	15.1	--	--
Mean	97	12.2	92	11.7	98	12.4	91	14.7	95.5	13.1
CV %	0.8	6.6	2.4	4.7	0.9	7.0	1.8	6.9	--	--
LSD 0.05	1	1.0	2.6	0.7	1.5	1.4	2.7	0.9	--	--
LSD 0.10	1	0.7	2.0	0.6	1.2	1.2	2.3	0.7	--	--

**Table 6. 2023 North Dakota oat variety descriptions.**

Variety	Origin <sup>1</sup>	Year Released	Grain Color	Height (inch)	Days to Heading <sup>2</sup>	Straw Strength	Reaction to Diseases <sup>3</sup>			Test Weight	Protein <sup>4</sup>
							Stem Rust	Crown Rust <sup>3</sup>	Barley Y.Dwf		
AAC Douglas	AAFC	2019	White	39	50	V. Strong	6	8	5	Good	M
Beach	ND	2004	White	37	50	M.strg.	6	8	6	V.good	M
CDC Endure	Sask.	2020	White	40	53	V. Strong	8	4	NA	Good	M
CS Camden	Meridian	2016	White	38	52	V. Strong	8	8	NA	Good	M
Deon	MN	2013	Yellow	39	53	M. Strong	6	4	2	V.good	M
HiFi	ND	2001	White	39	53	M. strg.	4	8	2	Good	M
Jury	ND	2012	White	41	52	Med.	1	8	4	V.good	M
Killdeer	ND	2000	White	34	52	M. strg.	8	8	4	Good	M
Leggett	AAFC	2005	White	37	52	M. strg.	4	6	8	Good	M
MN-Pearl	MN	2019	White	39	53	V. Strong	6	8	4	Good	M/L
<b>ND Carson</b>	<b>ND</b>	<b>2023</b>	<b>White</b>	<b>37</b>	<b>53</b>	<b>V. Strong</b>	<b>1</b>	<b>6</b>	<b>NA</b>	<b>Good</b>	<b>M</b>
ND Crema <sup>5</sup>	ND	2022	Hull-less	41	56	V. Strong	1	8	NA	V.good	H
ND Heart	ND	2020	White	39	52	Strong	3	7	4	Good	H
<b>ND Spilde</b>	<b>ND</b>	<b>2023</b>	<b>White</b>	<b>41</b>	<b>54</b>	<b>M. strg.</b>	<b>1</b>	<b>2</b>	<b>NA</b>	<b>Good</b>	<b>M</b>
Newburg	ND	2011	White	36	53	Med.	1	8	4	Good	M
Otana	MT	1977	White	41	53	M.weak	8	8	8	V.good	M/L
Paul <sup>5</sup>	ND	1994	Hull-less	43	54	Strong	1	8	2	V.good	H
Rockford	ND	2008	White	40	53	V. Strong	6	8	4	V.good	M
SD Buffalo	SD	2022	White	40	53	Strong	4	8	NA	V.good	M

Bolded varieties were tested for the first time this year, so some ratings may change as new data become available.

<sup>1</sup>AAFC = Agriculture & Agri-Food Canada; MN = University of Minnesota; ND = North Dakota State University; SD = South Dakota State University; Sask. = University of Saskatchewan; MT = Montana State University.

<sup>2</sup>Days after planting.

<sup>3</sup>Disease reaction scores from 1-9, with 1 = resistant and 9 = very susceptible. NA - not available.

<sup>4</sup>H = high; M = medium; L = low.

<sup>5</sup>Hull-less variety.

**Table 7. Yield and test weight of oat varieties at four locations in eastern North Dakota, 2020-2023.**

Variety	Fargo			Casselton			Carrington			Langdon			Average Eastern N.D.		
	Test	Yield		Test	Yield		Test	Yield		Test	Yield		Test	Yield	
	Wt.	2023	3 Yr.	Wt.	2023	3 Yr.	Wt.	2023	3 Yr. <sup>1</sup>	Wt.	2023	3 Yr. <sup>1</sup>	Wt.	2023	3 Yr.
	(lb/bu)	----(bu/a)----		(lb/bu)	----(bu/a)----		(lb/bu)	----(bu/a)----		(lb/bu)	---(bu/a)----		(lb/bu)	----- (bu/a)-----	
AAC Douglas	37.8	139.9	--	41.0	132.19	--	35.2	168.7	--	36.9	156.2	--	37.7	149.2	--
Beach	41.7	122.0	118.7	43.7	96.25	94.2	34.7	91.9	87.9	40.9	119.4	154.9	40.3	107.4	113.9
CDC Endure	35.3	133.3	--	38.0	127.31	--	35.2	152.3	--	35.7	153.1	--	36.1	141.5	--
CS Camden	35.5	120.1	121.6	39.9	117.5	116.1	36.6	149.9	115.7	34.1	142.6	183.0	36.5	132.5	134.1
Deon	38.8	139.1	124.9	41.7	120.4	97.3	35.8	134.1	110.4	37.4	144.9	184.3	38.4	134.6	129.2
HiFi	35.8	110.3	113.2	39.5	100.0	92.9	31.1	87.7	86.6	36.6	137.2	169.8	35.8	108.8	115.6
Jury	35.7	127.2	128.6	40.9	108.1	107.9	31.9	103.2	105.0	36.8	139.7	171.3	36.3	119.6	128.2
Killdeer	34.9	113.5	111.6	39.4	126.7	101.9	30.4	105.5	89.0	35.0	128.0	172.2	34.9	118.4	118.7
Leggett	37.3	123.4	123.8	41.7	134.1	102.6	33.5	112.6	95.3	38.3	140.1	173.1	37.7	127.5	123.7
MN-Pearl	38.0	132.8	--	40.8	97.5	--	34.6	128.4	--	36.0	128.8	--	37.4	121.9	--
ND Carson	36.5	127.1	122.9	41.2	132.7	115.7	33.2	138.8	108.1	37.0	148.0	191.0	37.0	136.7	134.4
ND Crema <sup>2</sup>	43.8	77.2	82.6	45.1	79.8	70.7	45.0	79.8	62.4	36.6	87.0	114.8	42.6	80.9	82.6
ND Heart	38.4	121.9	126.5	41.5	87.7	87.3	30.6	86.9	89.6	33.4	126.8	165.1	36.0	105.8	117.1
ND Spilde	36.6	123.7	124.9	39.2	95.4	--	30.2	106.5	102.7	38.5	148.1	181.3	36.1	118.4	--
Newburg	36.0	118.5	122.6	39.2	110.4	95.8	31.3	120.3	108.2	38.9	135.7	178.5	36.4	121.2	126.3
Otana	34.6	97.5	112.1	39.7	100.4	97.2	35.2	91.7	103.1	39.1	145.4	163.8	37.2	108.7	119.0
Paul <sup>2</sup>	37.4	80.2	87.7	41.5	79.7	63.1	40.5	90.0	65.1	39.0	91.0	121.1	39.6	85.2	84.2
Rockford	38.0	100.8	111.0	42.8	96.5	92.8	35.6	115.9	96.6	37.5	126.8	159.7	38.5	110.0	115.0
SD Buffalo	40.3	140.1	115.6	43.2	121.3	--	34.3	121.8	--	37.7	132.0	--	38.9	128.8	--
Mean	37.7	120.1	116.8	41.2	108.6	96.0	34.0	105.3	95.0	37.5	134.8	165.6	37.5	118.8	117.3
CV %	2.4	9.9	--	1.8	9.0	--	5.1	6.2	--	1.9	6.1	--	4.0	8.6	--
LSD 0.05	1.2	16.1	--	1.0	13.7	--	2.8	15.0	--	1.0	11.5	--	2.2	14.7	--
LSD 0.10	1.0	12.6	--	0.8	10.6	--	2.3	5.4	--	0.8	9.6	--	1.8	12.2	--

<sup>1</sup>Carrington and Langdon 3-Yr. average is for 2019, 2020 and 2022 as 2021 trial was lost due to drought.

<sup>2</sup>Hull-less varieties. When comparing yield of hull-less oat varieties with varieties with hulls, multiply the yield of the hull-less 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 three locations in western North Dakota, 2020-2023.**

Variety	<u>Dickinson</u>			<u>Hettinger</u>			<u>Minot</u>			<u>Average Western N.D.</u>		
	Test	Yield		Test	Yield		Test	Yield		Test	Yield	
	Wt.	2023	3 Yr.	Wt.	2023	3 Yr.	Wt.	2023	3 Yr.	Wt.	2023	3 Yr.
	(lb/bu)	----(bu/a)----		(lb/bu)	----(bu/a)----		(lb/bu)	----(bu/a)----		(lb/bu)	----(bu/a)----	
AAC Douglas	37.2	172.4	--	36.0	174.6	150.1	35.4	75.3	--	36.2	140.8	--
Beach	40.3	123.1	77.3	38.3	135.0	117.1	39.0	71.8	109.1	39.2	110.0	101.2
CDC Endure	--	--	--	36.9	160.7	--	36.1	79.4	--	36.5	80.0	--
CS Camden	36.5	161.2	91.7	34.7	164.3	139.2	33.0	75.6	--	34.7	133.7	--
Deon	38.7	132.3	81.8	36.9	130.5	125.8	36.7	72.1	118.0	37.4	111.6	108.5
HiFi	38.1	175.5	--	35.3	119.7	118.0	34.4	67.4	109.3	35.9	120.9	--
Jury	38.8	145.1	84.0	35.9	126.2	123.9	34.6	76.2	109.3	36.4	115.8	105.7
Killdeer	37.7	138.3	86.5	36.2	140.8	133.1	35.9	73.4	108.0	36.6	117.5	109.2
Leggett	37.4	149.3	91.2	37.0	133.8	122.1	37.5	83.2	113.7	37.3	122.1	109.0
MN-Pearl	39.6	151.6	85.2	36.6	141.8	--	36.3	80.2	--	37.5	124.5	--
ND Carson	38.0	155.3	--	35.8	140.2	131.7	35.7	71.7	--	36.5	122.4	--
ND Crema <sup>2</sup>	38.6	153.8	92.2	43.1	101.8	84.4	42.8	38.5	--	41.5	98.0	--
ND Heart	45.4	95.7	50.8	36.7	113.4	114.7	35.1	60.0	104.8	39.1	89.7	90.1
ND Spilde	38.5	124.3	80.8	34.9	130.3	129.8	34.0	74.3	--	35.8	109.6	--
Newburg	37.0	127.2	81.4	36.1	143.2	128.6	35.3	55.4	103.2	36.1	108.6	104.4
Otana	38.6	160.8	92.7	36.0	131.7	127.2	35.4	64.1	108.8	36.7	118.9	109.6
Paul <sup>1</sup>	38.9	122.0	77.8	40.2	106.6	90.9	40.1	38.0	78.2	39.7	88.9	--
Rockford	42.3	107.5	59.8	38.3	134.2	127.9	38.1	63.1	111.5	39.6	101.6	99.7
SD Buffalo	39.3	131.9	79.9	37.9	126.1	--	37.3	68.1	--	38.2	108.7	--
Mean	38.8	139.2	80.9	36.7	134.7	123.5	35.7	67.4	106.7	37.4	111.8	104.2
CV %	1.3	9.4	--	1.6	8.7	--	2.0	16.5	--	4.2	11.2	--
LSD 0.05	0.6	15.3	--	0.7	13.7	--	1.2	18.1	--	2.6	21.7	--
LSD 0.10	0.5	11.9	--	0.5	10.7	--	1.0	15.1	--	2.2	18.0	--

<sup>1</sup>Hull-less varieties. When comparing yield of hull-less oat varieties with varieties with hulls, multiply the yield of the hull-less oats by 1.35 (the hull of a hulled kernel is 35% of the weight).

**Table 9. 2023 North Dakota winter rye variety descriptions.**

Variety	Origin <sup>1</sup>	Year Released	Height (inches)	Heading Date	Straw Strength	Seed Color	Seed Size	Winter Hardiness
AC Hazlet	Canada	2006	37	154	Fair	Bl-grn.	Small	Good
Aroostook	USDA	1981	43	150	Good	Tan	Small	V.good
Danko	Poland	1976	35	154	Fair	Green	Large	Poor
ND Dylan	ND	2016	41	153	Weak	Blue	Med.	V.good
ND Gardner	ND	2019	41	150	Fair	Bl-grn.	Small	V.good
Receptor <sup>2</sup>	KWS	2022	31	154	Good	Grn-gray	Med.	V.good
Rymin	MN	1973	39	153	V.good	Grn-gray	Large	Fair <sup>3</sup>
Serafino <sup>2</sup>	KWS	2019	32	155	V.good	Green	Large	V.good
Spooner	WI	1993	40	152	Good	Tan	Large	Good
Tayo <sup>2</sup>	KWS	2020	30	155	V.good	Green	Med.	Good

Bolded varieties were tested for the first time this year, so some ratings may change as new data become available.

<sup>1</sup>ND = North Dakota State University; WI = University of Wisconsin; MN = University of Minnesota; KWS = KWS Cereals, USA.

<sup>2</sup>Hybrid.

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

**Table 10. Yield and test weight of winter rye varieties at four locations in North Dakota, 2020-2023.**

Variety	<u>Carrington</u>			<u>Hettinger</u>			<u>Langdon</u>			<u>Minot</u>			<u>Average</u>		
	Test Wt.	Seed Yield 2023	Seed Yield 3-yr.	Test Wt.	Seed Yield 2023	Seed Yield 3-Yr.	Test Wt.	Seed Yield 2023	Seed Yield 3-Yr.	Test Wt.	Seed Yield 2023	Seed Yield 3-yr.	Test Wt.	Seed Yield 2023	Seed Yield 3-yr.
	(lb/bu)	---(bu/a)---		(lb/bu)	---(bu/a)---		(lb/bu)	---(bu/a)---		(lb/bu)	---(bu/a)---		(lb/bu)	---(bu/a)---	
AC Hazlet	56.2	58.8	51.0	50.5	56.4	45.4	57.3	60.5	72.9	57.9	66.2	86.6	55.5	60.5	64.0
Aroostook	55.4	43.0	34.9	48.1	35.8	33.6	56.1	47.1	53.5	55.8	51.6	62.9	53.9	44.4	46.2
Danko	56.2	55.3	41.6	52.3	67.7	48.3	57.0	58.0	67.3	58.2	34.5	66.3	55.9	53.9	55.9
ND Dylan	55.9	54.2	49.2	48.3	38.3	39.1	56.7	59.9	66.2	56.2	59.8	81.4	54.3	53.1	59.0
ND Gardner	55.6	51.0	41.0	47.3	40.2	36.9	56.5	49.8	56.5	56.4	48.5	64.9	54.0	47.4	49.8
Receptor	56.0	80.4	--	51.0	71.5	--	56.3	78.5	--	56.2	83.9	--	54.9	78.6	--
Rymin	55.0	48.9	41.9	49.4	52.1	42.1	55.8	49.2	61.6	56.1	58.5	69.1	54.1	52.2	53.7
Serafino	55.2	71.5	61.8	52.7	74.7	--	56.5	75.9	88.5	56.0	70.7	--	55.1	73.2	--
Spooner	55.4	45.8	41.0	48.6	49.8	40.6	56.3	50.5	54.3	56.0	52.1	68.1	54.1	49.6	51.0
Tayo	54.7	75.6	--	50.2	73.6	--	54.9	73.4	94.9	55.0	74.1	--	53.7	74.2	--
Mean	55.6	58.5	45.3	50.1	59.3	40.9	56.3	60.3	68.4	56.4	60.0	71.3	54.5	58.7	54.2
CV %	0.8	6.9	--	2.2	12.4	--	0.9	8.9	--	2.2	13.3	--	1.8	10.4	--
LSD 0.05	0.6	5.9	--	1.6	10.5	--	0.8	8.1	--	2.1	14.5	--	NS	9.0	--
LSD 0.10	0.5	4.9	--	1.3	8.7	--	0.6	6.7	--	1.8	12.0	--	1.2	7.5	--

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](http://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](http://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, [nds.u.eoaa.ndsu.edu](mailto:nds.u.eoaa.ndsu.edu). This publication will be made available in alternative formats for people with disabilities upon request, 701-231-7881.