

North Dakota Hard Red Winter Wheat

Variety Trial Results for 2026 and Selection Guide

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During the 2025-26 growing season, 60,000 acres of winter wheat were planted in North Dakota, and statewide average yield was 49 bushels per acre. Roughly 50,000 acres were harvested for grain, while remaining acres were cut for forage due to the very dry spring conditions in western North Dakota that led to livestock feed shortages. Winter wheat performance was highly variable across the state due to differences in soil moisture availability from seeding through flowering across the state. Rain in June in western North Dakota supported average yields if the crop was taken to grain, while very hot and dry spring conditions stressed the crop in much of the eastern part of the state.

The most popular winter wheat variety in 2025-2026 was Ideal, a 2011 release from South Dakota State University, reported on 17.4% of acres. ND Noreen, a 2020 release from NDSU, was the second most commonly planted winter wheat variety in the state at 15.1% of acres. Other varieties not named in the survey comprised 67.5% of winter wheat acres.

Characteristics of hard red winter wheat varieties adapted for production in North Dakota are described in Table 1. Information on the agronomic and quality performance of selected varieties is summarized in subsequent tables. Yields are expressed on a 13.5% moisture basis and protein on a 12% basis, which are the industry standards.

Successful winter wheat production depends on numerous production practices, including selecting the right variety for a particular area. The information included in this publication is meant to help growers choose that variety or group of varieties. Characteristics to consider when selecting a variety are winter hardiness, yield potential in your area, test weight, protein content when grown with proper fertility, straw strength, plant height, reaction to important diseases and maturity.

The recommended seeding dates for winter wheat are Sept. 1-15 north of North Dakota Highway 200 and Sept. 15-30 in southern regions. Planting after the recommended dates reduces winter survival and grain yield

potential. Planting prior to the recommended date may unnecessarily deplete soil moisture reserves. It also increases the risk of wheat streak mosaic virus and may reduce winter survival.

Winter wheat should be seeded at a rate of 1 million to 1.2 million pure live seeds per acre. The higher end of this recommended range should be used for late seeding or with poor seedbed conditions. Producers should consider only the most winter-hardy varieties available when growing winter wheat in North Dakota. Relative ratings for winter hardiness are found in Table 1.

Phosphorus aids winter survival by stimulating root growth and fall tillering. The secondary root system that develops during tillering is essential for a healthy, deep-rooted plant capable of withstanding stress. If winter wheat is planted on bare soil or following fallow, an application of phosphorus is recommended if soil phosphorus levels are low. While important, the contribution of phosphorus to winter survival is secondary to varietal hardiness.

Data from several years and locations should be used when selecting varieties. The idea that data from a single location nearest your farm will indicate which variety will perform the best for you next year is incorrect. You should select varieties that, on average, perform the best at multiple trial locations near your farm across several years.

List of Tables

- Table 1. 2026 North Dakota hard red winter wheat variety description and agronomic traits.
- Table 2. Yield of winter wheat varieties grown at 7 locations in North Dakota in 2026, with three-year averages (2024-26).
- Table 3. Test weight of winter wheat varieties grown at 7 locations in North Dakota in 2026.
- Table 4. Grain protein content at 12% moisture of winter wheat varieties grown at 6 locations in North Dakota in 2026.
- Table 5. Analytical milling and baking characteristics of selected varieties evaluated at Dickinson, North Dakota in 2025.

Table 1. 2026 North Dakota hard red winter wheat variety descriptions and agronomic traits.

Variety	Agent or Origin ²	Year	Reaction to Disease ¹					Days to Heading ³	Straw Strength ⁴	Height ⁵ (inches)	Winter ⁶ Hardiness
			Stripe Rust	Leaf Rust	Stem Rust	Scab	Tan Spot				
AAC Coldfront	AAFC	2022	4	5	4	5	NA	0	3	29	2
AAC Overdrive	AAFC	2022	3	7	3	4	NA	0	4	28	3
AAC Vortex	Meridian	2021	4	4	4	4	8	0	3	29	4
AAC Wildfire	AAFC	2015	1	3	8	4	6	3	4	30	4
AP Sunbird	AgriPro	2025	NA	6	NA	NA	NA	-4	4	24	5
Barret	MT	2025	5	8	8	NA	NA	-1	4	29	4
Jerry	ND	2001	8	3	1	8	8	0	6	33	3
Meadowlark ⁷	MT	2024	3	4	6	NA	NA	2	4	27	6
ND Allison	ND	2023	7	2	4	4	NA	0	4	31	4
ND Noreen	ND	2020	3	5	1	3	4	0	4	31	3
SD Andes	SD	2020	2	2	NA	5	6	-1	4	28	3
SD Midland	SD	2021	1	3	7	6	8	-2	4	29	4
SD Pheasant	SD	2023	NA	1	NA	5	NA	-2	5	29	5
SD Vivian	SD	2025	NA	6	4	NA	NA	-3	4	27	6
WarCat⁷	MT	2022	3	8	NA	NA	NA	2	4	25	4
WB 4422	WB	2022	8	3	6	8	5	-3	4	28	5
WB 4445CLP	WB	2024	NA	7	NA	NA	NA	-5	4	25	5
WB 4540	WB	2024	NA	2	NA	NA	NA	-4	4	27	5
Winner	SD	2019	5	5	3	4	5	-3	4	27	4

¹Disease reaction scores from 1-9, with 1 = resistant and 9 = very susceptible, NA = not available.

²MT = Montana State University; ND = North Dakota State University; SD = South Dakota State University; WB = WestBred; AAFC = Agriculture and Agri-Food Canada; Meridian = Meridian Seeds

³Days to heading relative to Jerry.

⁴Straw strength: 1 = strongest, 9 = weakest. Based on field observations from limited sites.

⁵Based on the average of several environments and should be used for comparing varieties. The environment can impact the height of varieties.

⁶Relative winter hardiness rating: 1 = excellent, 10 = no survival. These values are subject to change as additional information becomes available.

⁷Semi-solid or solid stem for enhanced wheat stem sawfly resistance

Bold varieties are those recently released or the first time tested, so data are limited and rating values may change.

Table 2. Yield of winter wheat varieties grown at 7 locations in North Dakota in 2026, with three-year averages (2024-26) shown from 4 locations.

	<u>Casselton</u>	<u>Carrington</u>	<u>Langdon</u>		<u>Minot</u>		<u>Dickinson</u>		<u>Hettinger</u>		<u>Williston</u>	<u>Avg. N.D.</u>	
				3-Yr.		3-Yr.		3-Yr.		3-Yr.			3-Yr.
Variety	2026	2026	2026	Avg.	2026	Avg.	2026	Avg.	2026	Avg.	2026	2026	Avg.
----- bu/a -----													
AAC Coldfront	87.7	49.9	88.3	108.6	66.4	71.9	79.3	85.2	70.9	--	70.5	73.3	88.6
AAC Overdrive	88.6	40.3	91.7	103.3	61.0	65.4	83.0	86.5	61.8	60.4	56.4	69.0	78.9
AAC Vortex	83.0	46.0	94.5	108.7	66.7	63.6	70.1	80.3	65.2	62.5	58.6	69.2	78.8
AAC Wildfire	88.7	40.4	83.9	96.7	67.9	63.1	70.5	80.7	65.6	62.8	64.1	68.7	75.8
AP Sunbird	73.5	36.6	86.4	--	40.3	--	88.7	--	73.2	--	46.3	63.6	--
Barret	76.95	39.8	58.3	--	54.1	--	82.4	--	74.3	--	58.7	63.5	--
Jerry	78.9	41.8	83.3	87.8	56.2	61.5	72.9	73.4	53.0	52.8	57.4	63.4	68.9
Meadowlark	78.4	34.2	78.6	--	62.1	--	70.6	--	54.2	--	59.6	62.5	--
ND Allison	89.9	44.1	91.6	105.4	63.6	63.7	92.4	93.1	64.3	61.3	70.1	73.7	80.9
ND Noreen	82.8	47.7	91.0	104.0	63.4	65.3	75.9	76.7	61.9	60.8	68.4	70.2	76.7
SD Andes	87.2	47.3	87.0	104.9	60.6	68.1	81.5	92.3	69.8	67.4	67.9	71.6	83.2
SD Midland	88.3	42.0	91.4	107.1	60.4	66.1	80.9	88.8	70.2	66.6	62.9	70.9	82.2
SD Pheasant	73.3	45.5	90.3	96.2	65.1	67.7	83.1	86.9	77.5	65.5	51.7	69.5	79.1
SD Vivian	78.4	43.4	81.6	--	62.0	--	75.6	--	67.9	--	55.7	66.4	--
WarCat	73.5	37.8	75.7	--	54.9	--	65.8	.	58.1	--	58.3	60.6	--
WB 4422	84.2	40.3	90.8	103.8	61.7	79.1	81.8	87.5	69.8	64.7	46.7	67.9	83.8
WB 4445CLP	67.5	27.3	79.0	--	32.3	32.3	85.7	--	67.7	--	42.1	57.4	32.3
WB 4540	71.9	49.9	106.8	--	65.0	--	78.5	--	64.0	60.3	44.3	68.6	60.3
Winner	76.5	44.7	102.9	109.1	58.5	69.0	80.2	84.8	66.3	66.6	69.3	71.2	82.4
Mean	82.0	42.3	87.7	103.0	60.2	64.4	79.7	84.7	67.0	63.2	59.7	67.4	75.1
CV (%)	10.3	13.3	4.5	--	9.8	--	10.7	--	6.8	--	11.8	10.4	--
LSD 0.10	8.1	6.7	3.6	--	8.1	--	7.8	--	4.2	--	10.7	6.2	--

Note: the 2025 winter wheat trials at Casselton, Carrington, and Williston were lost to excessive winter kill.

Table 3. Test weight of winter wheat varieties grown at 7 locations in North Dakota in 2026.

Variety	Casselton	Carrington	Langdon	Minot	Dickinson	Hettinger	Williston	Average
	(lb/bu).....							
AAC Coldfront	62.6	58.7	59.4	61.6	58.8	63.4	62.5	61.0
AAC Overdrive	62.1	54.2	59.2	58.7	57.7	60.3	58.2	58.6
AAC Vortex	62.5	58.1	60.1	61.7	56.0	62.8	61.4	60.4
AAC Wildfire	62.5	56.0	58.4	57.7	55.1	60.3	60.3	58.6
AP Sunbird	62.9	55.1	58.7	56.4	60.6	63.2	62.2	59.9
Barret	62.4	55.0	52.1	58.8	59.0	62.7	60.5	58.6
Jerry	62.3	56.9	59.4	59.9	58.6	60.9	60.7	59.8
Meadowlark	61.6	53.2	57.4	59.8	56.3	60.4	60.2	58.4
ND Allison	62.3	57.4	59.9	61.3	59.0	61.2	62.2	60.5
ND Noreen	63.2	61.6	62.7	62.6	60.3	62.7	64.3	62.5
SD Andes	63.5	58.1	59.3	61.3	60.0	63.1	63.5	61.3
SD Midland	63.5	57.1	60.2	61.2	60.0	63.1	62.2	61.0
SD Pheasant	62.1	58.6	59.3	60.9	59.1	62.7	61.2	60.6
SD Vivian	63.0	57.6	57.1	60.7	59.3	62.5	61.3	60.2
WarCat	61.5	53.5	56.7	58.0	56.7	62.1	60.0	58.4
WB 4422	63.2	54.7	58.9	60.9	59.6	63.5	61.5	60.3
WB 4445CLP	63.2	56.6	60.9	59.6	59.9	63.8	62.2	60.9
WB 4540	61.2	55.5	59.7	58.2	58.6	61.4	59.9	59.2
Winner	63.6	58.5	61.9	61.7	58.9	63.4	62.5	61.5
Mean	62.5	56.5	58.9	61.4	58.4	62.3	61.3	60.1
CV (%)	1.2	2.2	0.8	1.2	1.7	1.1	1.1	2.0
LSD 0.10	0.7	1.4	0.4	1.0	0.9	0.6	1.0	1.1

Note: 58.0 lb/bu test weight is required for US No. 1 grade Hard Red Winter Wheat

Table 4. Grain protein content at 12% moisture of winter wheat varieties grown at 6 locations in North Dakota in 2026.

Variety	Casselton	Carrington	Minot	Dickinson	Hettinger	Williston	Average
	----- (%) -----						
AAC Coldfront	11.5	13.3	12.8	10.8	11.9	10.7	11.8
AAC Overdrive	11.6	14.5	13.2	10.4	12.2	12.5	12.4
AAC Vortex	11.8	13.1	13.4	12.2	12.5	11.1	12.3
AAC Wildfire	11.3	13.9	13.4	11.1	12.8	11.6	12.4
AP Sunbird	11.6	13.3	13.1	9.7	11.0	11.5	11.7
Barret	10.9	13.1	12.3	9.7	11.3	11.3	11.4
Jerry	12.1	13.3	13.2	10.8	12.5	12.2	12.4
Meadowlark	12.1	14.1	12.5	11.7	12.0	10.9	12.2
ND Allison	10.7	12.7	11.8	9.5	11.2	10.1	11.0
ND Noreen	12.1	13.5	12.8	11.0	12.2	10.2	12.0
SD Andes	11.4	13.0	12.6	10.4	11.9	10.9	11.7
SD Midland	10.6	12.9	12.6	10.2	11.6	11.4	11.6
SD Pheasant	13.2	13.4	13.3	10.4	12.3	12.2	12.5
SD Vivian	12.8	13.8	13.0	10.5	12.2	12.2	12.4
WarCat	11.7	14.9	13.2	11.6	13.0	11.9	12.7
WB 4422	12.7	14.5	13.5	10.4	11.2	12.6	12.5
WB 4445CLP	13.0	13.8	13.5	10.6	11.5	12.5	12.5
WB 4540	11.7	13.4	13.1	10.7	11.0	12.0	12.0
Winner	11.3	13.4	13.6	10.7	11.2	10.6	11.8
Mean	11.6	13.4	12.7	10.6	11.7	11.4	12.1
CV (%)	5.2	2.2	3.4	5.2	2.7	5.7	4.3
LSD 0.10	0.6	0.3	0.7	0.5	0.3	1.0	0.5

Note: Protein data was not available from Langdon at time of printing.

Hard red winter wheat industry protein standard is 12.0%

Table 5. Analytical milling and baking characteristics of selected varieties evaluated at Dickinson, North Dakota in 2025.

Kernel			Flour			Farinograph			Loaf		
Variety	Test Weight ¹	Whole Wheat Protein 12 MB ³	Flour Protein 14 MB	Flour Ash 14 MB	Milling Extraction ⁴	Abs ⁵	Peak Time (min)	Stability ⁶ (min)	Mixing Tolerance Index (BU)	Loaf Volume ⁷ (cc)	Crumb Color ⁸ (1-10) ⁹
	(lb/bu)	(%)	(%)	(%)	(%)						
ND Noreen	63.2	39.2	13.0	0.5	70.3	59.9	4.5	5.8	58	860	8
ND Allison	56.7	31.6	12.0	0.6	71.2	58.1	5.5	7.5	51	913	8
Northern	58.4	30.9	13.4	0.7	71.2	63.4	5.1	4.6	58	925	8
SD Andes	62.1	33.4	12.7	0.6	71.7	59.0	5.1	4.7	67	905	8
SD Midland	62.2	37.6	12.5	0.6	73.1	59.0	4.6	5.9	53	872	8
Winner	60.9	36	12.8	0.5	67.6	60.1	5.8	7.2	43	915	7
SD Vivian	61.3	33.1	12.7	0.6	72.2	61	5.13	7	42	890	7
SD Pheasant	61.2	37.3	13.3	0.6	71.7	61.4	5.67	7	40	940	8
AAC Wilddfire	61.2	34.6	12.9	0.6	71.5	60.9	4.62	7	41	925	6
AAC Overdrive	59.4	29.8	13.3	0.6	69.3	58.4	6.22	10	40	1005	7
AAC Coldfront	62.3	34.3	12.3	0.6	69.9	57.1	4.55	6	60	790	8
AAC Vortex	62.1	34.7	12.9	0.5	71.3	58	6.22	12	32	968	8
AC Emerson	62.3	29.5	13.4	0.6	73.2	57.9	6.17	12	29	1000	8
MS Maverick	60.5	36	13.2	0.6	69.8	59.7	6.25	8	45	922	8
AAC Goldrush	60.8	30.5	13.4	0.5	68.8	58.1	5.73	8	48	952	8
SY Monument	59.2	32.6	12.6	0.6	73.5	59.2	3.78	11	20	885	8
CSBridgerCLP	58.6	26.4	12.9	0.6	72.9	60.9	5.2	8	39	1040	7
WB4540	59.5	33.2	12.1	0.5	69.5	59.8	4.72	7	49	820	7
WB4422	61.6	33.6	13.2	0.6	70.7	62.6	5.27	6	51	940	8
LCS SteelAX	60.4	32.2	11.6	0.6	72.8	57.5	4.93	7	53	875	6.5
Jerry	60.9	36.1	12.9	0.6	70.5	61	5.08	5	61	868	6.5
Mean	60.7	33.5	12.8	0.6	71.1	59.7	5.2	7.5	46.7	914.8	7.5

¹Test weight - Expressed in pounds (lbs) per bushel. A high test weight is desirable. A 58 lb test weight is required for a grade of U.S. No. 1.

²1,000 KWT - Estimate of weight of 1,000 seeds based on a clean 10g sample. Expressed in grams and used to approximate seed size.

³Wheat Protein - Measured by NIR at a 12% moisture basis. A high protein is desirable for baking quality.

⁴Flour or Milling Extraction - Percentage of milled flour recovered from cleaned and tempered wheat. A high flour extraction percentage is desirable.

⁵Farinograph Absorption - Measured by NIR at a 14% moisture basis. A measure of dough water absorption, expressed as percent. A high absorption is desirable.

⁶Farinograph Stability - A measure of dough strength. It is expressed in minutes above the 500 Brabender unit line during mixing. A high stability is desirable.

⁷Loaf Volume - The volume of the pup loaf of bread, expressed in cubic centimeters. A high volume is desirable.

⁸Crumb color scale 1-10 with 1 being low and 10 being superior color. Determined by visual inspection of the sliced surface of the pup loaf of bread.

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