

# ‘Yellowstone’ and ‘Decade’ Winter Wheats

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**Yellowstone** is a white-chaffed hard red winter wheat developed by the Montana Agricultural Experiment Station and released to seed growers in 2005. Yellowstone’s pedigree is ‘Judith’ x ‘Promontory’. Yellowstone is a very high yielding (Table 1) winter hardy variety with medium test weight, maturity, height, and grain protein (Table 2). Yellowstone has good milling and excellent baking quality (Table 3). It is resistant to stripe rust, but susceptible to stem rust. Yellowstone is recommended in Districts 1-5. Montana State University Research Fees due on seed sold. PVP, Title V has been issued (Certificate #200600284).

**Decade** is a white-chaffed hard red winter wheat developed by the Montana Agricultural Experiment Station and released to seed growers in 2010. Decade is a joint release with the North Dakota Agricultural Experiment Station. Decade was selected from a composite of three closely related F1 populations containing such varieties as a sib line of ‘Wesley’, ‘CDC Clair’, ‘NuWest’, ‘Tiber’, and ‘Redwin’. Decade is a high yielding (Table 1) winter hardy variety well adapted to western North Dakota and eastern Montana with medium to high test weight, early maturity, reduced height, and medium to high grain protein (Table 2). Decade has excellent milling and baking quality (Table 3). It is resistant to stem rust, but susceptible to stripe rust. Relative to CDC Falcon, Decade is equivalent in yield potential and winter survival, with improved test weight, earlier maturity, higher grain protein content, superior milling characteristics and higher water absorption. Montana State University Research Fees due on seed sold. PVP, Title V has been issued (Certificate #201100096).

**Table 1. Yield of Yellowstone and Decade, 2010-2016, compared to a set of winter wheat varieties.**

Variety	Districts							All Locations
	1 Kalispell	2 Bozeman <sup>1/</sup>	3 Huntley <sup>2/</sup>	4 Moccasin <sup>3/</sup>	5 Conrad <sup>4/</sup>	5 Havre <sup>5/</sup>	6 - Sidney, Williston	
location-years	7	11	43	35	29	20	10	155
<b>Yellowstone</b>	<b>122.3</b>	<b>71.9</b>	<b>68.2</b>	<b>57.4</b>	<b>74.1</b>	<b>60.2</b>	<b>61.0</b>	<b>68.0</b>
<b>Decade</b>	56.6	59.9	<b>66.3</b>	54.0	67.4	54.9	<b>55.3</b>	60.6
<b>CDC Falcon</b>	80.7	57.2	63.3	52.6	66.5	56.5	<b>57.4</b>	60.6
<b>Judee</b>	<b>114.4</b>	64.2	60.9	48.4	67.1	55.9	43.2	60.0
<b>Bearpaw</b>	64.4	56.4	63.2	51.9	63.4	53.8	49.7	58.2
<b>Jerry</b>	57.4	56.8	58.8	49.6	60.2	49.1	<b>57.8</b>	55.5
<b>Rampart</b>	90.7	56.5	55.2	43.2	59.2	51.0	45.5	53.8
<b>LSD (0.05)</b>	<b>15.7</b>	<b>6.6</b>	<b>2.7</b>	<b>2.1</b>	<b>3.3</b>	<b>2.9</b>	<b>6.0</b>	<b>1.9</b>

**bold** = indicates highest value within a column

**bold** = indicates varieties with values equal to highest variety within a column based on Fisher's Protected LSD (p =0.05)

1/ includes data from Dry Creek, Willow Creek

2/ includes data from Forsyth, Fort Smith, Hardin area, Hysham, Lodge Grass, Molt, Rapelje

3/ includes data from Denton, Geraldine, Highwood, Winifred, Belt

4/ includes data from The Knees, Shelby, Cut Bank, Choteau

5/ includes data from North Havre, Loma, Turner, Fort Benton

**Table 2. Agronomic characteristics of Yellowstone and Decade, 2010-2016, compared to a set of winter wheat varieties**

Variety	Test weight lb/bu	Winter survival %	Heading date		Plant height in	Lodging %	Protein %	Sawfly cutting %	Stripe rust %	Coleoptile length in
			Julian	Calendar						
location-years	155	7	65		154	26	152	19	11	3
<b>Bearpaw</b>	58.9	48	163.9	13-Jun	31.2	<b>22</b>	13.0	<b>6</b>	64	3.0
<b>CDC Falcon</b>	58.9	<b>63</b>	163.9	13-Jun	30.2	<b>13</b>	12.6	22	50	2.9
<b>Decade</b>	59.1	<b>61</b>	163.1	12-Jun	31.8	<b>15</b>	12.9	20	72	3.1
<b>Jerry</b>	58.3	<b>67</b>	165.1	14-Jun	35.7	<b>20</b>	12.9	29	72	3.2
<b>Judee</b>	<b>59.8</b>	31	164.4	13-Jun	31.5	<b>18</b>	13.0	<b>11</b>	<b>16</b>	3.7
<b>Rampart</b>	59.5	39	165.0	14-Jun	34.7	28	<b>13.6</b>	<b>7</b>	44	<b>4.4</b>
<b>Yellowstone</b>	59.1	53	165.7	15-Jun	33.5	<b>16</b>	12.5	25	29	2.7
<b>LSD (0.05)</b>	<b>0.3</b>	<b>11</b>	<b>0.3</b>		<b>0.3</b>	<b>9</b>	<b>0.1</b>	<b>9</b>	<b>11</b>	<b>0.2</b>

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**Table 3. Mill and bake characteristics of Yellowstone and Decade, 2009-2015, compared to a set of winter wheat varieties**

Variety	PPO <sup>1/</sup>	Kernel hardness	Flour			Mixograph			Baking		
			yield %	protein %	ash %	tolerance (1-6)	mix time min	absorption %	mix time min	absorption %	volume cc
location-years	28	28	28	28	28	28	28	28	28	28	28
<b>Bearpaw</b>	0.384	81.0	<b>68.7</b>	<b>11.2</b>	0.42	3.5	4.5	60.0	7.0	70.3	993
<b>Decade</b>	0.416	75.7	67.7	<b>11.4</b>	<b>0.41</b>	<b>4.9</b>	7.9	<b>64.2</b>	17.7	<b>74.8</b>	1050
<b>Judee</b>	0.402	79.1	66.9	<b>11.4</b>	<b>0.41</b>	4.0	5.5	61.0	8.6	71.0	<b>1116</b>
<b>Yellowstone</b>	<b>0.291</b>	79.3	<b>68.5</b>	10.9	0.42	<b>4.8</b>	8.2	62.7	14.7	73.6	1043
<b>LSD (0.05)</b>	<b>0.052</b>	<b>2.4</b>	<b>0.5</b>	<b>0.3</b>	<b>0.01</b>	<b>0.4</b>	<b>0.6</b>	<b>0.9</b>	<b>1.5</b>	<b>1.0</b>	<b>27</b>

**bold** = indicates highest value within a column

**bold** = indicates varieties with values equal to highest variety within a column based on Fisher's Protected LSD (p =0.05)

<sup>1/</sup> low is best for noodles