

‘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, 2013-2018, compared to a set of winter wheat varieties.

Variety	Districts							All Locations
	1 Kalispell	2 Bozeman ^{1/}	3 Huntley ^{2/}	4 Moccasin ^{3/}	5 Conrad ^{4/}	5 Have ^{5/}	6 - Sidney, Williston	
location-years	5	5	35	30	26	18	7	126
Yellowstone	116.7	103.9	72.5	60.1	75.0	57.7	60.9	70.3
Northern	123.7	100.7	72.5	59.4	72.8	57.7	56.5	69.6
SY Clearstone 2CL	120.5	100.7	70.7	60.2	73.4	55.8	52.5	68.8
Warhorse	119.2	89.4	67.4	55.6	64.7	51.7	47.6	63.6
Decade	58.3	82.1	69.4	57.5	69.3	52.2	54.0	63.3
Judee	116.3	88.3	64.7	53.3	68.6	53.4	43.9	63.0
LSD (0.05)	19.2	10.7	2.7	2.6	3.2	2.7	6.0	1.9

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, Molt, Rapelje

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

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

5/ includes data from Loma, Turner, Fort Benton

Table 2. Agronomic characteristics of Yellowstone and Decade, 2013-2018, compared to a set of winter wheat varieties

Variety	Test	Winter	Heading date		Plant	Lodging	Protein	Saw fly	Stripe	Coleoptile
	w eight	survival			height	%	%	cutting	rust	length
	lb/bu	%	Julian	Calendar	in		%	%	%	in
location-years	126	4	50		124	23	123	17	7	2
Decade	59.6	55	159.0	8-Jun	31.3	22	12.9	29	67	3.3
Judee	60.6	28	160.1	9-Jun	31.0	24	12.9	25	12	3.9
Northern	59.8	47	162.1	11-Jun	31.3	21	12.9	30	15	2.7
SY Clearstone 2CL	59.2	41	161.1	10-Jun	33.7	27	12.5	39	29	3.0
Warhorse	59.8	44	161.1	10-Jun	30.6	14	13.1	4	12	3.3
Yellowstone	59.6	53	161.2	10-Jun	32.9	23	12.5	36	30	2.7
LSD (0.05)	0.3	14	0.4		0.3	ns	0.1	10	15	0.3

bold = indicates highest value w ithin a column

bold = indicates varieties w ith values equal to highest variety w ithin a column based on Fisher's Protected LSD (p =0.05)

Table 3. Mill and bake characteristics of Yellowstone and Decade, 2013-2016, compared to a set of winter wheat varieties

Variety	PPO ^{1/}	Kernel hardness	Flour			Mixograph			Baking		
			yield	protein	ash	tolerance	mix time	absorption	mix time	absorption	volume
			%	%	%	(1-6)	min	%	min	%	cc
location-years	16	16	16	16	16	16	16	16	16	16	16
Decade	0.271	73.2	69.8	11.5	0.42	4.6	7.8	65.0	20.8	75.5	1033
Judee	0.267	79.1	69.7	11.8	0.42	4.0	5.2	62.3	10.0	72.4	1134
Northern	0.102	85.0	71.2	11.8	0.46	3.4	3.8	62.6	6.2	72.5	1075
SY Clearstone 2CL	0.288	75.9	69.2	11.0	0.43	3.8	5.7	62.4	10.0	72.9	1038
Warhorse	0.254	90.0	69.8	12.1	0.45	3.3	4.5	63.1	7.8	73.5	1072
Yellowstone	0.213	76.7	70.0	11.2	0.44	4.4	7.7	64.4	16.8	75.2	1043
LSD (0.05)	0.033	2.3	0.7	0.4	0.01	0.4	0.8	1.4	1.8	1.4	40

bold = indicates highest value w ithin a column

bold = indicates varieties w ith values equal to highest variety w ithin a column based on Fisher's Protected LSD (p =0.05)

^{1/} low is best for noodles