

2017 VARIETAL RECOMMENDATION

KELDIN

Monsanto Company request that “KELDIN” hard red winter wheat be considered for variety recommendation in the state of Montana. We move that KELDIN be recommended for all districts.

KELDIN is a hollow-stemmed, hard red winter wheat developed by Pflanzenzucht Oberlimpurg (Dr. Peter Franck) of Germany, and licensed to WestBred, a unit of Monsanto Company. PVP, Title V certificate was issued in 2014. It has exhibited excellent relative yield in all districts. Test weight is excellent averaging almost 1 lb. heavier than Yellowstone. Its heading date is medium, similar to Yellowstone. It is a strong-strawed variety, with height similar to Decade and Northern. KELDIN has a very good overall disease package. It has shown very good tolerance to yellow (stripe) rust, leaf rust and powdery mildew. Overall quality of KELDIN is acceptable with protein levels averaging slightly below SY Wolf.

KELDIN appears well-adapted to the majority of Montana growing conditions. Overall winterhardiness is very good, though a significant reduction in winter survival was observed under very harsh conditions in a single location-year of testing in District 6. Compared to other hollow-stemmed varieties, KELDIN provides growers with an average height, strong-strawed plant type while maintaining outstanding yield levels and very good overall disease resistance.

Table 1. Yield of KELDIN compared to a set of recommended winter wheat varieties, 2014-2016^{1/}

Variety	Districts							All Locations
	1 Kalispell	2 Bozeman	3 Huntley ^{2/}	4 Moccasin ^{3/}	5 Conrad ^{4/}	5 Havre ^{5/}	6- Sidney & Williston	
location-years	3	3	8	7	7	6	3	37
KELDIN	122.5	94.5	76.2	71.3	100.8	67.6	54.0	82.0
Yellowstone	125.3	96.0	72.6	65.7	93.0	70.2	62.2	80.1
Colter	148.7	92.7	69.3	65.2	87.9	65.6	56.7	78.8
Northern	138.4	88.3	68.2	65.6	91.4	67.5	53.2	78.1
SY Wolf	113.9	88.9	68.3	64.9	96.3	67.8	57.0	77.3
CDC Falcon	85.9	68.4	63.3	58.9	84.7	63.1	55.1	68.1
Decade	67.0	64.1	65.8	58.3	84.4	60.0	51.6	65.8
Broadview	74.5	60.6	57.9	57.8	85.4	61.3	58.3	65.2
Jerry	66.2	61.7	56.5	55.9	74.6	51.6	51.9	59.9
LSD (0.05)	33.3	17.4	6.8	6.3	5.1	6.7	ns	5.1

ns = non-significant

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/ = 2014-2016 Intrastate and 2016 Off-Station tests

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

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

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

5/ includes data from Carter, Loma, Turner

Table 2. Agronomic characteristics of KELDIN compared to a set of recommended winter wheat varieties, 2014-2016^{1/}

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	37	1	24		37	7	35	3	5	1
Broadview	58.8	95	158.9	8-Jun	33.8	41	12.3	42	58	2.8
CDC Falcon	59.0	94	158.2	7-Jun	31.6	36	12.2	40	42	2.9
Colter	59.6	90	160.1	9-Jun	34.9	15	12.5	47	15	2.9
Decade	58.9	78	157.5	7-Jun	33.2	28	12.3	26	63	3.2
Jerry	58.1	98	159.2	8-Jun	37.4	35	12.5	46	73	3.2
KELDIN	60.4	28	158.5	8-Jun	33.4	24	11.8	41	28	2.8
Northern	59.6	85	160.2	9-Jun	33.8	20	12.5	16	15	2.7
SY Wolf	60.6	55	156.8	6-Jun	32.7	32	12.1	26	18	3.1
Yellowstone	59.6	93	159.3	8-Jun	35.2	27	11.9	34	26	2.8
LSD (0.05)	0.6	22	0.5		0.6	16	0.3	ns	17	0.2

1/ = 2014-2016 Intrastate and 2016 Off-Station tests

ns = non-significant

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)

Table 3. Mill and bake characteristics of Keldin compared to a set of recommended winter wheat varieties, 2014-2015

Variety	PPO ^{1/}	Kernel hardness	Flour			Mixograph			Baking		
			yield %	protein %	Ash %	tolerance (1-6)	mix time min	absorption %	mix time min	absorption %	volume cc
location-years	8	8	8	8	8	8	8	8	8	8	8
Colter	0.233	79.3	69.3	11.5	0.42	5.0	9.0	63.9	19.8	75.7	1034
Decade	0.253	73.2	69.3	11.6	0.41	4.9	8.4	63.3	20.9	74.3	1051
KELDIN	0.282	67.6	69.4	11.1	0.43	4.0	4.6	60.6	9.1	70.8	998
Northern	0.081	87.9	70.8	11.7	0.45	3.6	3.7	61.1	5.9	70.8	1069
SY Wolf	0.222	75.6	68.7	11.1	0.41	2.5	4.4	58.0	6.3	68.2	957
Yellowstone	0.199	80.5	69.7	11.0	0.43	4.8	7.7	62.2	16.1	73.6	1031
LSD (0.05)	0.037	2.9	1	ns	0.01	0.8	1.2	1.4	3.4	1.5	44

ns = non-significant

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/ polyphenol oxidase, low is best for noodles