‘Bearpaw’ and ‘Judee’ Winter Wheats

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Small Grain QuickFacts: http://plantsciences.montana.edu./FoundationSeed (Updated 12/2016)

Bearpaw is a solid-stemmed hard red winter wheat with improved yield potential (Tables 1, 2) relative to Rampart. Bearpaw was developed by the Montana Agricultural Experiment Station and released to seed growers in 2011. Bearpaw was derived from a composite of five F_1 crosses with a common parent, DMS/’Rampart’//’Pronghorn’/3/’Rampart’ crossed to ‘Rampart’, ‘NuPlains’, and three Montana unreleased hollow experimental lines. Bearpaw is a white-glumed, semi-dwarf (*Rht1*) wheat with medium maturity. Bearpaw performs well in locations were sawfly cutting has occurred (Table 3). Stem solidness is similar to Rampart (Table 3). Bearpaw has average test weight and protein, and below average winter hardiness (Table 4). Bearpaw is susceptible to prevalent races of stripe and leaf rust, but resistant to stem rust. Bearpaw is a high PPO variety with average mill and bake properties (Table 5). Montana State University Research Fees due on seed sold. PVP, Title V has been issued (Certificate #201200407).

Judee is a solid-stemmed hard red winter wheat with improved yield potential (Tables 1, 2) relative to Rampart. Judee was developed by the Montana Agricultural Experiment Station and released to seed growers in 2011. Judee’s pedigree is ‘Vanguard’/’Norstar’//’Judith’ dwarf/3/ NuHorizon. Judee is a white-glumed, semi-dwarf (*Rht1*) wheat with medium maturity. Judee performs well in locations were sawfly cutting has occurred (Table 3). Stem solidness is good, intermediate between Rampart and Genou (Table 3). Judee has average test weight and protein, and below average winter hardiness (Table 4). Judee is susceptible to prevalent races of leaf rust and stem rust, but resistant to stripe rust. Judee is a high PPO variety with average mill and above average bake properties (Table 5).). Montana State University Research Fees due on seed sold. PVP, Title V has been issued (Certificate #201200161).

Table 1. Yield of Bearpaw and Judee, 2009-2016, compared to a set of winter wheat varieties

Variety	Districts					All Locations
	3 Huntley[1/]	4 Moccasin[2/]	5 Conrad[3/]	5 Havre[4/]	1,2,6 - non-recommended[5/]	
location-years	45	40	31	31	36	183
Decade	**66.0**	**53.7**	**67.4**	**55.5**	60.7	**60.7**
Judee	60.8	47.6	**67.0**	**56.4**	**70.4**	**60.1**
Bearpaw	62.8	50.9	63.2	53.2	59.1	57.9
Rampart	55.1	42.6	59.6	51.7	63.2	54.1
LSD (0.05)	**2.3**	**2.0**	**3.6**	**2.5**	**6.7**	**1.8**

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 Billings, Forsyth, Fort Smith, Hardin area, Hysham, Lodge Grass, Molt, Rapelje
2/ includes data from Denton, Geraldine, Winifred, Belt, Highwood
3/ includes data from Choteau, Cut Bank, The Knees, Shelby
4/ includes data from North Havre, Loma, Gildford, Ft. Benton, Turner
5/ includes data from Bozeman, Dry Creek, Kalispell, Sidney, Williston, Willow Creek

Table 2. Bearpaw and Judee: Yield Performance under Sawfly Pressure and % Sawfly Cutting (test average cutting ≥10%) and % Sawfly Cutting (2009-2016)

Variety	Yield bu/a	Sawfly cutting %
location-years	15	15
Judee	**57.6**	**17**
Decade	**55.8**	32
Bearpaw	52.4	**11**
Rampart	48.5	**9**
LSD (0.05)	**5.1**	**10**

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. Stem solidness ratings of Bearpaw and Judee compared to other solid-stemmed varieties, (2012-2016)

	Stem Solidness Rating (scale 5-25, higher = more solid)						Stem Solidness by location, 2012-2016				
	2016	2015	2014	2013	2012	2012-16	Billings	Bozeman	Conrad	Havre[1/]	Moccasin
location-years	11	7	8	4	4	34	1	8	4	14	7
Warhorse	**21.4**	**22.0**	**22.1**	21.4	**19.3**	**21.4**	24.6	**20.0**	**21.9**	**21.7**	**21.9**
Bearpaw	20.6	19.9	**21.5**	22.2	**20.4**	20.8	23.9	**18.6**	**20.8**	**21.7**	**21.2**
Rampart	**20.6**	18.7	**21.4**	22.0	**20.4**	20.5	24.4	17.1	**21.4**	**21.5**	**21.6**
Judee	19.8	19.3	20.8	21.1	17.9	19.9	23.4	17.4	**21.0**	20.5	20.2
WBQuake	20.3	19.2	21.0	20.5	17.5	19.9	24.7	17.1	**20.9**	20.6	20.5
Loma	17.7	17.2	**21.1**	20.1	17.3	18.6	23.0	16.4	17.9	19.9	18.5
LSD (0.05)	**0.8**	**1.8**	**1.1**	**ns**	**1.6**	**0.6**	**ns**	**1.7**	**1.4**	**0.9**	**0.9**

1/ includes Carter, Gildford, and Loma

Table 4. Agronomic characteristics of Bearpaw and Judee, 2009-2016, compared to Decade and Rampart winter wheat varieties

Variety	Test weight lb/bu	Winter survival %	Heading date Julian	Heading date Calendar	Plant height in	Lodging %	Protein %	Stripe rust %	Coleoptile length in
location-years	182	7	85		182	29	180	16	3
Bearpaw	59.0	48	163.8	13-Jun	30.9	24	13.0	52	3.0
Decade	59.2	**61**	163.2	12-Jun	31.7	15	13.0	55	3.1
Judee	**59.9**	31	164.2	13-Jun	31.4	19	13.1	**13**	3.7
Rampart	59.5	39	164.8	14-Jun	34.6	27	**13.6**	33	4.4
LSD (0.05)	**0.3**	**12**	**0.3**		**0.3**	**8**	**0.1**	**11**	**0.3**

Table 5. Mill and bake characteristics of Bearpaw and Judee, 2009-2015, compared to Decade

Variety	PPO [1/]	Kernel hardness	Flour yield %	Flour protein %	Flour ash %	Mixograph tolerance (1-6)	Mixograph mix time min	Mixograph absorption %	Baking mix time min	Baking absorption %	Baking volume cc
location-years	39	39	39	39	39	39	39	39	39	39	39
Bearpaw	0.354	81.3	**68.8**	11.6	0.42	3.3	4.5	61.0	7.3	71.2	1015
Decade	0.381	75.9	67.7	11.7	**0.41**	**4.8**	8.4	**65.0**	18.6	**75.7**	1073
Judee	0.366	79.3	67.1	11.9	**0.41**	4.0	5.7	61.8	9.1	71.8	**1143**
LSD (0.05)	**ns**	**1.9**	**0.5**	**ns**	**0.004**	**0.3**	**0.6**	**0.8**	**1.5**	**0.8**	**24**

bold = indicates highest value within a column [1/] low is best for noodles ns = non-significant
bold = indicates varieties with values equal to highest variety within a column based on Fisher's Protected LSD (p =0.05)

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