

# 2005 VARIETAL RECOMMENDATION

## STOCKFORD

### Two-rowed Hooded Hay Barley

WestBred, LLC requests that you consider the variety ‘Stockford’ two-rowed, hooded, spring hay barley for “Variety Recommendation in the State of Montana”.

A motion that Stockford be recommended as a two-rowed, hooded, spring hay barley for all irrigated and dryland districts of Montana.

Pedigree = “Stockford” is a two-rowed, hooded spring hay barley developed by WestBred, LLC from the cross ‘Baronesse / BZ 591-57”. The line BZ 591-57 is a hooded six-rowed barley selected from the cross “{(CCXXXII-32 / Canadian six-rowed varieties) // Westford}”. The Canadian six-rowed varieties crossed to short male-sterile plants in CCXXXII-32 were BT 527, Deuce, Empress, Leger, Noble, Samson, Virden, and Winchester.

For the period 2001-2004 (16 station years), Summary Table 1, Stockford has had similar yields to the check varieties. The heading date of Stockford is similar to Haybet which averages 3 days earlier than Westford and 2 days earlier than Hays. The plant height of Stockford has averaged 32 inches, which is similar to Westford, one inch shorter than Haybet, and one inch taller than Hays. The quality of Stockford, as indicated by the Relative Feeding Value (low ADF and NDF contribute to the quality), tends to be higher than the other available hay barley varieties (Table 2, 3, 4, 5 and 6).

Stockford has also been tested extensively in Canada and was added to the Barley Variety Registration List in 2004.

Stockford is moderately susceptible to spot blotch, and net blotch and is susceptible to scald. Although no grain yield data was collected in the 2001-2004 MSU trials, in Canadian Coop trials (Table 7), Stockford has shown higher seed yields and test weights than Westford, which will lower the cost of producing seed.

Table 1. Summary of Stockford compared to check varieties in MSU's 2001, 2002, 2003 and 2004 Forage Trials.

16 Location Summary				
<u>Variety</u>	<u>Yield</u> tons DM/ac	<u>Heading Date</u> Julian	<u>Plant Ht.</u> inches	
Stockford	2.6	184	32	
Westford	2.5	187	32	
Haybet	2.7	184	33	
Hays	2.7	186	29	
Otana	2.4	188	37	

Table 2. Quality of Stockford forage compared to check varieties in 2003 CARC Forage Trials.

2003 CARC quality data										
<u>Variety</u>	<u>H2O (%)</u>	<u>NO3 (ppm)</u>	<u>ADF (%)</u>	<u>NDF (%)</u>	<u>CRUDE</u> <u>PROTEIN</u>	<u>TDN</u> <u>%</u>	<u>NET ENERGY</u> <u>LACTATION</u> <u>Mcal/lb</u>	<u>NET ENERGY</u> <u>MAINTENANCE</u> <u>Mcal/lb</u>	<u>NET ENERGY</u> <u>GAIN</u> <u>Mcal/lb</u>	<u>RFV</u>
<b>Stockford</b>	<b>7.00</b>	<b>400</b>	<b>24.0</b>	<b>45.0</b>	<b>11.1</b>	<b>68.0</b>	<b>0.71</b>	<b>0.70</b>	<b>0.46</b>	<b>132</b>
Valier	7.10	600	25.8	44.6	11.4	65.9	0.68	0.67	0.43	130
Bestford	7.22	1000	24.1	46.2	12.6	67.8	0.70	0.69	0.45	129
Hays	6.84	300	25.1	47.4	10.0	66.9	0.69	0.68	0.44	124
Logan	6.83	2700	26.1	46.8	12.4	65.7	0.68	0.67	0.42	124
Haybet	7.02	400	25.8	50.4	10.0	65.9	0.68	0.67	0.43	115
Westford	5.88	9300	29.4	51.1	15.6	63.0	0.65	0.63	0.38	111
Otana	6.75	800	24.1	48.0	10.6	68.1	0.71	0.70	0.46	124

Table 3. Quality of Stockford forage compared to check varieties in 2002 Bozeman Forage Trials.

Variety	%NO3-N 7/22/02	%CP 7/22/02	%ADF 7/22/02	%NDF 7/22/02
<b>Stockford</b>	<b>0.1526</b>	<b>12.61</b>	<b>28.76</b>	<b>51.71</b>
Washford	0.1428	12.80	32.80	58.35
Haybet	0.1006	12.39	28.44	54.78
Valier	0.1350	13.41	29.56	52.59
Logan	0.0773	12.44	26.10	48.22
Hays	0.0977	13.31	30.35	55.33
Harrington	0.1223	13.66	29.41	53.01
Westford	0.1752	14.25	32.78	58.90
Bestford	0.1808	13.17	32.85	59.15
Baronesse	0.1133	13.01	30.18	52.76
Otana	0.3019	13.76	34.70	62.61

All species

Mean	0.1676	13.55	32.18	56.34
Isd(0.05)	0.0824	1.32	3.49	2.51
CV%	34.8	6.9	7.7	3.1
Fc-F(0.05)	7.63	2.30	11.67	29.13

Barley only

Mean	0.1312	13.08	29.28	53.42
Isd(0.05)	0.0793	1.29	3.27	2.79
CV%	42.3	6.9	7.8	3.7
Fc-F(0.05)	-0.74	-0.56	2.50	11.23

Simple "r" DM yield of 30-cm vs. plot = 0.388, N=88

Simple "r" FW yield of 30-cm vs. plot = 0.214, N=88

Table 4. Performance of Stockford compared to check cultivars tested for forage quality under irrigated conditions near Huntley, Montana during 2003. (Exp. 03SCF09).

Cultivar	Pedigree	1/ Forage Yield		Plant Height inches	Nitrate ppm	Crude Protein %	ADF %	NDF %	TDN %	NEL Mcal/lb	NEM Mcal/lb	NEG Feed Value	Relative Feed Value
		lb/ac	tons/ac										
Stockford	Barley	10548.1	5.27	42.2	6700	11.6	28.6	48.3	64.0	0.66	0.65	0.40	118.5
Bestford	Barley	10199.9	5.07	47.0	3900	10.2	27.9	48.8	65.0	0.67	0.66	0.41	118.5
Haybet	Barley	10131.0	5.03	42.3	4050	11.6	27.6	49.6	65.7	0.68	0.67	0.42	121.2
Hays	Barley	10309.3	5.17	35.5	4200	11.8	25.6	47.1	67.7	0.71	0.69	0.45	126.5
Westford	Barley	9809.4	4.93	42.3	3300	9.7	32.1	54.0	60.6	0.62	0.60	0.35	102.3
Otana	Oat	9918.7	4.97	49.5	3950	9.3	37.1	60.7	55.0	0.56	0.54	0.32	85.1
Average		9859.3	4.93	44.1	3378	10.4	29.8	50.7	63.0	0.65	0.63	0.39	115.0
LSD (0.05)		ns	ns	3.5	ns	ns	4.9	8.0	5.2	0.06	0.06	0.07	27.0
CV (%)		8.8	8.90	4.8	66	9.7	7.9	7.5	3.9	4.37	4.84	8.69	11.1

1/ Forage yields are calculated on a 100 percent dry matter basis.

ns Indicates no significant difference between cultivars within a column based on Fisher's protected LSD (p=0.05).

Spring Cereal Forage Trial (Exp. 03SCF09)

Planted: April 10, 2003  
Harvested: July 7, 2003  
Herbicide: none  
Insecticide: none  
Previous Crop: sugar beets  
Irrigation: profile flooded, June 16, 2003  
Precipitation: 6.02 inches

Table 5. Performance of Stockford compared to check cultivars tested for forage quality under dryland conditions near Huntley, Montana during 2003. (Exp. 03SCF08).

Cultivar	Pedigree	Forage Yield		1/ Plant Height	Nitrate	Crude Protein			ADF	NDF	TDN	NEL	NEM	NEG	Relative Feed Value
		lb/ac	tons/ac			inches	ppm	%							
Stockford	Barley	4735.6	2.37	25.9	350	9.0	25.7	45.3	66.7	0.69	0.68	0.44	130.0		
Westford	Barley	4641.7	2.30	28.3	550	9.3	26.4	49.6	65.9	0.69	0.67	0.43	117.5		
Bestford	Barley	4801.4	2.40	30.2	400	8.6	26.2	50.2	66.3	0.69	0.68	0.43	118.0		
Haybet	Barley	5534.5*	2.77*	29.9	250	8.1	25.6	50.3	67.0	0.70	0.68	0.44	117.5		
Hays	Barley	5024.8*	2.53*	24.0	200	8.8	25.4	48.6	67.5	0.70	0.69	0.44	123.5		
Otana	Oat	4643.2	2.30	35.2	650	8.4	30.6	56.3	62.0	0.64	0.62	0.37	99.6		
Average		4658.6	2.33	31.2	353	8.9	27.5	50.4	64.9	0.67	0.66	0.41	115.8		
LSD (0.05)		709.7	0.36	2.0	ns	ns	ns	ns	ns	ns	ns	ns	ns		
CV %		9.2	9.2	3.8	110.0	10.5	10.2	7.8	4.8	5.12	5.73	10.60	11.0		

1/ Forage yields are calculated on a 100 percent dry matter basis.

\*\* Indicates highest yielding cultivar.

\* Indicates cultivars yielding equal to highest yielding cultivar based on Fisher's protected LSD (p=0.05).

ns Indicates no significant difference between cultivars within a column based on Fisher's protected LSD (p=0.05).

Spring Cereal Forage Trial (Exp. 03SCF08)

Planted: April 10, 2003  
 Harvested: July 3, 2003  
 Fertility: 11-52-00, 100 lbs/a, preplant incorporated March 24, 2003  
 Herbicide: none  
 Insecticide: none  
 Previous Crop: chemical fallow  
 Precipitation: 6.02 inches

Table 6. Forage yield and Quality of Stockford compared to Westford in the Canadian Forage Barley Coop, 2002-2003.

<u>Variety</u>	<u>DM Yield Kg/ha</u>	<u>Crude Protein %</u>	<u>ADF %</u>	<u>NDF %</u>	<u>TDN %</u>	<u>RFV %</u>
Stockford	7901	11.1	31.1	50.4	57.4	120
Westford	7664	12.0	32.7	53.2	55.7	110
Station years (11)						

Table 7. Grain yield and agronomic performance of Stockford compared to Westford in the Canadian Forage Barley Coop, 2002-2003.

<u>Variety</u>	<u>Heading (days)</u>	<u>Height (cm)</u>	<u>Lodging (1-9)</u>	<u>Maturity (days)</u>	<u>KWT g/1000</u>	<u>TWT Kg/Hi</u>	<u>Yield Kg/ha</u>
Stockford	54.1	76	2.2	88.6	46.3	60.1	4359
Westford	56.5	83	2	89.4	40.5	52.8	3913
Station years	9	10	4	8	8	9	8

Table 8. Yield in tons dry matter per acre of Stockford compared to check varieties in MSU' 2001-2004 Forage Trials.

Year	Location	Variety				
		Stockford	Westford	Haybet	Hays	Otana
2001	Moccasin	3.2	2.7	3.6	3.1	-
2002	Bozeman	3.2	3.0	3.2	3.0	2.6
	Corvallis	3.5	3.9	3.5	4.9	3.9
	Kalispell	2.7	2.2	2.2	2.2	2.1
	McSW3	1.7	1.7	1.8	1.8	1.5
	McSE 12a	1.5	1.5	1.7	1.7	0.9
	McSE 12d	1.6	1.3	1.4	1.3	1.5
	Dickensen	1.7	1.7	2.0	2.1	1.7
	mean	2.3	2.2	2.2	2.4	2.0
2003	Corvallis	3.2	2.4	3.2	3.2	2.9
	Kalispell	3.0	3.1	3.2	2.8	2.8
	Moccasin	1.6	1.8	2.0	2.1	1.4
	Huntley Dry	2.4	2.3	2.8	2.5	2.3
	Huntley Irr.	5.3	4.9	5.0	5.2	5.0
	mean	3.1	2.9	3.2	3.2	2.9
2004	Mc-Lupines	2.3	2.3	2.4	2.4	1.9
	Mc-Barley	2.3	1.8	2.0	2.4	1.6
	Corvallis	3.2	3.1	3.3	3.1	3.2
	mean	2.6	2.4	2.6	2.6	2.2
	Grand mean	2.6	2.5	2.7	2.7	2.4

Table 9. Heading date (Julian) of Stockford compared to check varieties in MSU' 2001-2004 Forage Trials.

Year	Location	Variety					
		Stockford	Westford	Haybet	Hays	Otana	
2001	Moccasin	183	183	182	185		
2002	Kalispell (from Planing)	189	191	190	192	191	
	McSE 12d	182	187	184	186	188	
	mean	186	189	187	189	190	
2003	Corvallis	194	192	189	189	189	
	Kalispell (from Planting)	186	187	184	187	186	
	Moccasin	185	186	185	189	184	
	mean	188	188	186	188	186	
2004	Bozeman						
	Mc-Lupines	181	185	182	183	187	
	Mc-Barley	183	187	182	183	187	
	Corvallis	177	182	180	182	188	
	mean	180.3	184.7	181.3	182.7	187.3	
	Grand mean	184.4	186.7	184.2	186.2	187.5	



Table 10. Plant height in inches of Stockford compared to check varieties in MSU' 2001-2004 Forage Trials.

Year	Location	Variety				
		Stockford	Westford	Haybet	Hays	Otana
2001	Moccasin	29	27	34	25	
2002	Bozeman	40	39	39	38	48
	Corvallis	42	39	43	46	46
	Kalispell	28	24	27	20	37
	McSW3	24	24	25	23	30
	McSE 12d	20	22	21	20	28
	Dickensen					
	mean	30.8	29.6	31.0	29.4	37.8
2003	Corvallis	36	34	36	33	41
	Kalispell	26	32	29	23	36
	Huntley Dry	26	28	30	24	35
	Huntley Irr.	<u>42</u>	<u>42</u>	<u>42</u>	<u>35</u>	<u>49</u>
	mean	32.5	34.0	34.3	28.8	40.3
2004	Mc-Lupines	33	38	34	30	31
	Mc-Barley	28	27	27	23	29
	Corvallis	<u>42</u>	<u>39</u>	<u>36</u>	<u>38</u>	<u>36</u>
	mean	34.3	34.7	32.3	30.3	32.0
	Grand mean	32.0	31.9	32.5	29.1	37.2