2002 VARIETAL RECOMMENDATION

HANK

Western Plant Breeders, Inc requests that you consider the variety 'Hank' hard red spring wheat for "Variety Recommendation in the State of Montana".

A motion that Hank be recommended as a hard red spring wheat for the non-sawfly infested areas of Montana.

Pedigree = WestBred 936/WestBred 926

For the two year period 2000-2001 (18 locations), the average per acre yield of Hank in the MSU Intrastate Trials is 69 bushels, second only to Reeder which had an average yield of 70 bushels per acre and 4 bushels higher than WestBred 926 (Table 1.). The average test weight has been one pound lighter than WestBred 926 or McNeal and two pounds lighter than Reeder (Table 2.). Protein levels for Hank have averaged 15.5%, which is .3% higher than McNeal and .1% lower than Reeder and .2% lower than WestBred 926 (Table 3.). The average plant height of Hank is 28 inches which makes it similar to WestBred 926, and 3 inches shorter than McNeal or Reeder (Table 4.). The average heading date of Hank is June 18th, which is one day later than WestBred 926, two days earlier than Reeder and 5 days earlier than McNeal (Table 5.).

Milling and baking quality data from the 2000 crop indicate that flour extraction, water absorption, mixing time, loaf volume and crumb grain score for Hank are comparable to the check varieties (Table 6.).

Disease ratings for Hank show it to be resistant to stem rust (2001 MSU inoculated nursery) and moderately susceptible to Septoria (2001 data from the MSU Sidney nursery). Data from Western Plant Breeders' trials in Washington show Hank to be resistant to stripe rust, leaf rust and powdery mildew. Hank has also shown good tolerance to Dry Land Root Rot caused by the pathogen *Fusarium* spp.

Hank is tolerant to the current races of Hessian fly found in the PNW and is susceptible to damage by the Wheat Stem Saw Fly.

Hank is tolerant to the wild oat herbicide 'Avenge', and has shown very good tolerance to 'Fargo'.

Hank has also shown good tolerance to shatter in areas where WestBred 926 has been prone to shattering.

Table 1. Yield in bushels per acre of Hank compared to check varieties in the MSU Intrastate Spring Wheat Trials.

ENTRY	YEAR	HAVRE DRY	SIDNEY DRY	SIDNEY IRR	MOC DRY	CONRAD DRY	HUNTLEY DRY	HUNTLEY IRR	KALSIPELL HI-RNFALL	BOZEMAN DRY	BOZEMAN IRR	AVG
HANK	**'00**	**42**	**62**	**98**		**46**	**57**	**105**	**73**	**92**	**121**	**77**
	'01	**21**	**45**	**59**	**46**	**14**	**27**	**107**	**136**	**78**	**93**	**63**
	avg	**31**	**53**	**79**	**46**	**30**	**42**	**106**	**104**	**85**	**107**	**69**
REEDER	'00	43	67	111		48	49	96	72	73	118	75
	'01	23	54	67	44	17	33	116	138	80	91	66
	avg	33	61	89	44	32	41	106	105	76	104	70
MCNEAL	'00	40	60	102		39	53	90	67	87	123	74
	'01	19	48	63	48	13	36	111	122	78	92	63
	avg	30	54	82	48	26	44	101	94	83	108	68
SCHOLAR	'00	38	56	91		45	48	102	70	85	122	73
	'01	21	52	45	40	16	33	121	139	75	81	62
	avg	30	54	68	40	31	40	111	104	80	102	67
WB 926	'00	38	58	91		47	54	90	70	65	128	71
	'01	19	46	52	38	13	23	104	142	73	80	59
	avg	28	52	72	38	30	38	97	106	69	104	65
AMIDON	'00	36	61	99		36	50	92	67	85	122	72
	'01	22	51	45	43	16	34	124	126	75	76	61
	avg	29	56	72	43	26	42	108	96	80	99	66
ERNEST	'00	37	56	100		38	43	103	66	75	119	71
	'01	20	51	45	34	17	31	115	120	77	79	59
	avg	28	54	72	34	27	37	109	93	76	99	64
FORTUNA	'00	37	55	95		39	51	80	62	70	123	68
	'01	17	40	28	40	14	24	99	107	69	74	51
	avg	27	48	62	40	27	37	90	84	70	98	59

Table 2. Test Weight in pounds per bushel of Hank compared to check varieties in the MSU Intrastate Spring Wheat Trials.

ENTRY	YEAR	HAVRE DRY	SIDNEY DRY	SIDNEY IRR	MOC DRY	CONRAD DRY	HUNTLEY DRY	HUNTLEY IRR	KALSIPELL HI-RNFALL	BOZEMAN DRY	BOZEMAN IRR	AVG
HANK	**'00**	**57**	**61**	**59**		**58**	**59**	**59**	**60**	**62**	**62**	**60**
	'01	**58**	**58**	**56**	**57**	**62**	**59**	**61**	**60**	**57**	**60**	**59**
	avg	**57**	**60**	**57**	**57**	**60**	**59**	**60**	**60**	**59**	**61**	**59**
REEDER	'00	60	62	61		61	59	61	62	62	63	61
	'01	58	61	59	58	63	61	64	62	61	63	61
	avg	59	61	60	58	62	60	62	62	61	63	61
MCNEAL	'00	57	61	61		58	57	59	60	62	62	60
	'01	58	60	58	58	60	60	62	63	59	62	60
	avg	58	61	60	58	59	58	61	61	61	62	60
SCHOLAR	'00	61	63	61		60	60	61	61	62	63	61
	'01	59	61	59	58	62	61	63	62	61	62	61
	avg	60	62	60	58	61	61	62	61	61	62	61
WB 926	'00	57	61	59		58	59	59	60	61	63	60
	'01	58	58	57	58	62	60	62	63	59	59	60
	avg	57	60	58	58	60	59	61	61	60	61	60
AMIDON	'00	59	62	61		59	59	61	60	61	62	61
	'01	58	60	58	59	61	60	63	63	60	62	60
	avg	58	61	59	59	60	59	62	62	61	62	60
ERNEST	'00	60	63	62		60	60	60	62	62	63	61
	'01	58	61	59	59	62	61	63	64	61	63	61
	avg	59	62	61	59	61	60	62	63	62	63	61
FORTUNA	'00	59	61	61		60	59	61	62	62	63	61
	'01	57	58	52	59	61	59	62	64	62	64	60
	avg	58	60	57	59	60	59	62	63	62	63	60

Table 3. Protein % of Hank compared to check varieties in the MSU Intrastate Spring Wheat Trials.

ENTRY	YEAR	HAVRE DRY	SIDNEY DRY	SIDNEY IRR	MOC DRY	CONRAD DRY	HUNTLEY DRY	HUNTLEY IRR	KALSIPELL HI-RNFALL	BOZEMAN DRY	BOZEMAN IRR	AVG
HANK	**'00**	**16.1**	**13.7**	**14.6**		**14.4**	**17.5**	**15.7**	**16.1**	**15.2**	**14.7**	**15.3**
	'01	**17.1**	**14.2**	**16.4**	**16.4**	**15.1**	**16.2**	**14.3**		**15.7**	**15.0**	**15.6**
	avg	**16.6**	**14.0**	**15.5**	**16.4**	**14.8**	**16.9**	**15.0**	**16.1**	**15.5**	**14.9**	**15.5**
REEDER	'00	15.5	14.1	15.4		14.1	17.1	15.4	16.3	15.3	15.8	15.4
	'01	17.0	15.6	16.4	17.0	14.3	17.2	13.8		15.3	16.0	15.8
	avg	16.3	14.9	15.9	17.0	14.2	17.2	14.6	16.3	15.3	15.9	15.6
MCNEAL	'00	15.7	13.4	14.1		14.5	18.0	14.8	15.7	14.9	15.4	15.2
	'01	17.0	14.7	16.1	16.2	14.8	14.9	13.5		14.7	15.6	15.3
	avg	16.4	14.1	15.1	16.2	14.7	16.5	14.2	15.7	14.8	15.5	15.2
SCHOLAR	'00	15.6	14.9	14.9		14.8	17.6	15.5	16.5	15.4	15.6	15.6
	'01	17.8	15.1	16.4	19.3	15.1	15.7	14.0		15.4	15.4	16.0
	avg	16.7	15.0	15.7	19.3	15.0	16.7	14.8	16.5	15.4	15.5	15.8
WB 926	'00	16.4	14.4	14.6		15.6	17.6	15.1	16.1	15.0	15.2	15.6
	'01	17.1	14.8	16.6	18.1	15.4	15.9	14.8		14.6	15.3	15.8
	avg	16.8	14.6	15.6	18.1	15.5	16.8	15.0	16.1	14.8	15.3	15.7
AMIDON	'00	15.4	14.0	15.1		14.8	17.2	13.9	15.9	15.3	15.1	15.2
	'01	16.6	14.3	15.6	17.7	15.2	15.7	14.4		14.6	14.8	15.4
	avg	16.0	14.2	15.4	17.7	15.0	16.5	14.2	15.9	14.9	15.0	15.3
ERNEST	'00	16.8	14.5	15.4		16.0	18.0	16.8	16.4	16.7	15.9	16.3
	'01	18.5	15.8	16.4	18.0	15.2	16.0	13.8		15.2	15.7	16.1
	avg	17.7	15.2	15.9	18.0	15.6	17.0	15.3	16.4	15.9	15.8	16.2
FORTUNA	'00	15.6	13.1	14.3		15.0	17.9	15.3	15.9	15.3	15.3	15.3
	'01	16.6	15.1	16.8	16.4	15.3	15.1	14.8		14.3	14.7	15.5
	avg	16.1	14.1	15.6	16.4	15.2	16.5	15.1	15.9	14.8	15.0	15.4

Table 4. Plant Height in inches of Hank compared to check varieties in the MSU Intrastate Spring Wheat Trials.

ENTRY	YEAR	HAVRE DRY	SIDNEY DRY	SIDNEY IRR	MOC DRY	CONRAD DRY	HUNTLEY DRY	HUNTLEY IRR	KALSIPELL HI-RNFALL	BOZEMAN DRY	BOZEMAN IRR	AVG
HANK	**'00**	**29**	**26**	**31**		**28**	**28**	**32**	**33**	**35**	**30**	**30**
	'01	**18**	**23**	**27**	**30**	**21**	**19**	**33**	**30**	**29**	**30**	**26**
	avg	**23**	**25**	**29**	**30**	**25**	**23**	**33**	**32**	**32**	**30**	**28**
REEDER	'00	30	28	36		29	31	34	38	39	32	33
	'01	19	27	28	31	20	21	36	36	32	35	28
	avg	25	27	32	31	25	26	35	37	35	33	31
MCNEAL	'00	31	29	37		29	31	34	35	39	32	33
	'01	18	28	27	31	21	23	34	33	33	34	28
	avg	24	28	32	31	25	27	34	34	36	33	31
SCHOLAR	'00	32	32	35		32	34	36	39	42	36	35
	'01	19	32	30	32	21	25	39	36	36	38	31
	avg	25	32	33	32	27	29	37	37	39	37	33
WB 926	'00	28	27	32		28	30	30	32	35	30	30
	'01	18	23	26	28	20	19	32	32	30	31	26
	avg	23	25	29	28	24	24	31	32	33	30	28
AMIDON	'00	32	32	37		33	35	37	42	43	38	37
	'01	19	32	34	35	22	24	41	39	38	40	32
	avg	26	32	36	35	28	29	39	41	40	39	34
ERNEST	'00	32	32	38		34	36	40	42	43	37	37
	'01	20	31	32	33	22	26	41	38	37	41	32
	avg	26	32	35	33	28	31	40	40	40	39	34
FORTUNA	'00	33	33	38		36	36	40	42	46	41	38
	'01	19	30	32	34	23	26	42	38	38	38	32
	avg	26	32	35	34	30	31	41	40	42	40	35

Table 5. Heading date from Jan 1 of Hank compared to check varieties in the MSU Intrastate Spring Wheat Trials.

ENTRY	YEAR	HAVRE DRY	SIDNEY DRY	SIDNEY IRR	MOC DRY	CONRAD DRY	HUNTLEY DRY	HUNTLEY IRR	KALSIPELL HI-RNFALL	BOZEMAN DRY	BOZEMAN IRR	AVG
HANK	**'00**	**173**	**161**	**160**		**178**	**161**	**157**	**174**	**175**	**169**	**168**
	'01	**172**	**170**	**179**	**176**	**174**	**159**	**164**	**173**	**172**	**173**	**171**
	avg	**173**	**166**	**169**	**176**	**176**	**160**	**160**	**173**	**174**	**171**	**169**
REEDER	'00	173	164	161		178	161	159	177	175	172	169
	'01	173	174	180	176	174	159	163	174	174	175	172
	avg	173	169	170	176	176	160	161	175	175	174	171
MCNEAL	'00	177	168	165		179	166	163	180	179	172	172
	'01	175	175	182	179	176	162	169	177	176	178	175
	avg	176	172	174	179	178	164	166	179	178	175	174
SCHOLAR	'00	175	168	163		180	164	159	179	178	173	171
	'01	176	175	183	179	176	161	167	176	175	177	175
	avg	175	172	173	179	178	162	163	178	177	175	173
WB 926	'00	172	161	160		174	159	155	174	174	165	166
	'01	172	170	178	176	173	157	162	173	172	173	171
	avg	172	165	169	176	174	158	159	173	173	169	168
AMIDON	'00	175	166	163		178	164	161	177	177	173	170
	'01	175	175	181	177	175	160	167	176	175	175	174
	avg	175	170	172	177	177	162	164	177	176	174	172
ERNEST	'00	173	165	162		179	165	160	178	177	172	170
	'01	174	173	180	177	175	161	167	175	175	175	173
	avg	173	169	171	177	177	163	164	177	176	174	172
FORTUNA	'00	174	165	162		179	164	160	177	178	173	170
	'01	173	173	181	175	174	160	168	175	174	176	173
	avg	174	169	171	175	177	162	164	176	176	174	172

Table 6. Quality evaluation of Hank compared to check varieties in the MSU Intrastate Spring Wheat Trials.

2000 Advanced Spring Wheat Yield Trial
Means Across Locations: Bozeman (irrigated), Havre, & Sidney (irrigated & dryland), MT

Variety	Wheat Protein, % (12%m.b.)	Flour Yield, %	Flour Protein, % (14%m.b.)	Flour Ash, %	Mixograph Type	Mixing Tolerance	Mixo Mixing Time, min	Mixo Water Absorption, %	Bake Mixing Time, min	Bake Water Absorption, %	Loaf Volume	Crumb Grain Score	wht protein- flour protein
HANK	**15.0**	**67.0**	**12.5**	**0.4**		**4.0**	**4.3**	**62.0**	**6.5**	**72.2**	**1099**	**3.3**	**2.5**
REEDER	15.1	67.0	12.8	0.4		4.0	2.8	63.2	3.8	73.3	1064	2.8	2.3
MCNEAL	14.5	66.0	12.1	0.4		5.0	4.4	63.2	8.2	74.4	1095	3.3	2.4
SCHOLAR	15.2	69.9	12.8	0.4		3.8	2.6	63.9	3.6	73.3	1053	2.8	2.4
WESTBRED 926	16.5	65.6	14.0	0.4		2.0	3.1	63.2	4.6	73.0	1083	3.0	2.5
AMIDON	15.1	67.2	12.5	0.4		3.5	3.6	62.7	5.6	72.5	1093	3.0	2.6
ERNEST	15.1	69.2	12.8	0.4		3.5	2.9	63.8	3.8	72.8	1068	3.0	2.2
FORTUNA	15.9	68.8	13.3	0.4		3.8	3.3	64.5	6.7	74.5	1133	3.8	2.6
Average	15.3	67.7	12.9	0.41		4	3.2	63.5	5.2	73.4	1084	3	
Min	14.5	65.6	12.1	0.36		2	2.6	62.7	3.6	72.5	1053	3	
Max	16.5	69.9	14.0	0.44		5	4.4	64.5	8.2	74.5	1133	4	