

SRPN: location of replicated yield trials and regional production zones.

- North central plains
- Central plains
- ⬡ Northern high plains
- ▲ Southern high plains
- ⊕ Southern plains
- ★ Intermountain
- unassigned

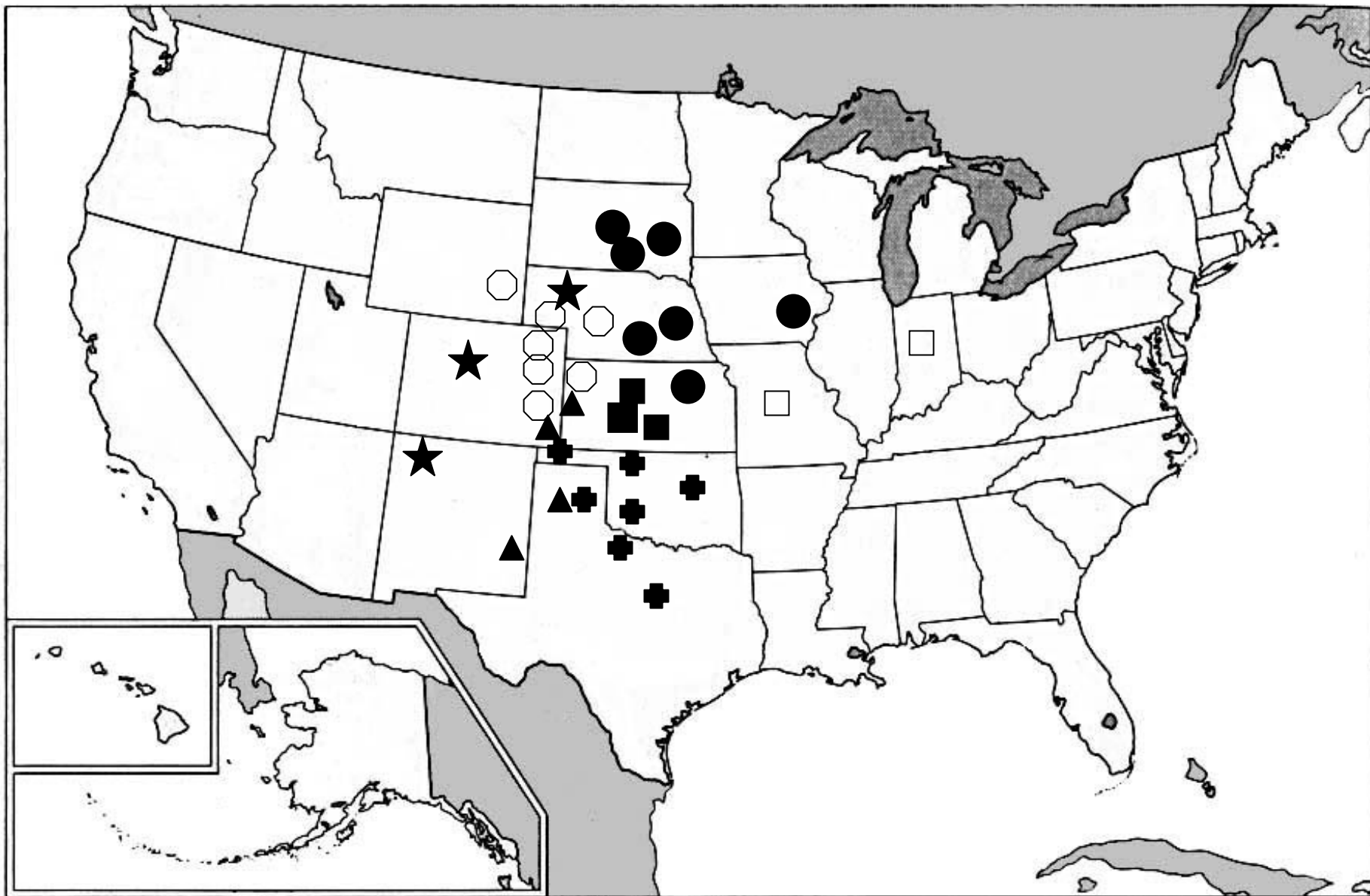


Table 1. Hard Winter Wheat Regional Nursery Program - Contributors

U.S.D.A. – Agricultural Research Service

Hard Winter Wheat Regional Coordination – R. Graybosch, L. Divis, L.E. Hansen, Lincoln, NE
Hard Winter Wheat Quality Lab – B. Seabourn, L. McLaughlin, R. Chen, M. Caley, Manhattan, KS
Regional Molecular Marker Laboratory – Guihua Bai, R. Bowden, P. St. Amand, Manhattan, KS
Rust investigations – Yue Jin, J. Kolmer St. Paul, MN; Xianming Chen, Pullman, WA
Hessian fly investigations – Ming Chen, C. E. Parker, Manhattan, KS
Russian wheat aphid / greenbug investigations – C. Baker, Stillwater, OK

Texas Agricultural Experiment Station

TAMU Research & Extension Center, Dallas, TX – R. Sutton
TAMU Research & Extension Center, Amarillo, TX –G. Peterson, J. Rudd, R. Devkota
TAMU Research & Extension Center, Vernon, TX - J. Baker
TAMU Research & Extension Center, College Station, TX - Amir Ibrahim

New Mexico Agricultural Experiment Station

Agricultural Science Center, Clovis, NM – R.E. Kirksey, Bryan Niece
Agricultural Science Center, Farmington, NM – M.K. O’Neill, C. Owen

Oklahoma Agricultural Experiment Station

Oklahoma State University, Stillwater, OK – B. Carver, R. M. Hunger, A.K. Klatt, W.E. Whitmore, K. Stricklen, R. Sidwell, B. Weidenmaier, L. Bohl; D. Jones, R. Thacker

Iowa Agricultural Experiment Station

Iowa State University, Ames, IA – R. Skrdla

Kansas Agricultural Experiment Station

Kansas State University, Manhattan, KS – A. Fritz, K. Suther, KSU
Hays Experiment Station – J. Martin, C. Seaman
Colby Experiment Station – P. Evans
Hutchinson Experiment Station – W. Heer

Colorado Agricultural Experiment Station

Colorado State University: Scott Haley, John Stromberger, Josh Butler, Emily Heaton, Hayley Miller.

Nebraska Agricultural Experiment Station

University of Nebraska, Lincoln, NE – S. Baenziger, G. Dorn, M. Montgomery,
North Platte Station – R. Klein UNL
High Plains Ag. Laboratory, Sidney – T. Nightingale, G. Frickel

Wyoming Agricultural Experiment Station

University of Wyoming, Torrington Substation – J. Krall, J. Natchman

South Dakota Agricultural Experiment Station

South Dakota State University, Brookings, SD – S. Kalsbeck, R. Little, M. Langham

North Dakota Agricultural Experimental Station

North Dakota State University, Fargo, ND – J. Ransom
NDSU, Williston Branch Station – N. R. Riveland
NDSU, Hettinger Branch Station – E. Eriksmoen

Montana Agricultural Experimental Station

Montana State University, Bozeman, MT – P. Bruckner, J. Berg
Central Ag. Research Center, Moccasin – D.M. Wicham

Illinois Agricultural Experiment Station

University of Illinois – F. Kolb

Minnesota Agricultural Experiment Station

University of Minnesota, St. Paul, MN – J. Anderson, G. Linkert

Oregon Agricultural Experiment Station

Oregon State University, Corvallis, OR – J. Peterson

Table 1. Hard Winter Wheat Regional Nursery Program - Contributors

Missouri Agricultural Experiment Station

University of Missouri, Columbia, MO – A. McKendry, D. Tague

Agriculture and Agrifoods Canada

Ag. Research Station, Lethbridge, Alberta – R. Graf

Agripro Seeds Inc.

Junction City, KS, R. Sears

Vernon, TX, D. Worrall

Westbred LLC.

Sid Perry, Haven, KS

B. Moreno, Lafayette, IN

TRIO Seed Research

J. Wilson, Wichita, KS

Table 2. Entries in the 2007 Southern Regional Performance Nursery.

Entry	Line	putative market class	pedigree	Source	Protected traits
1	Kharkof	HRW	Kharkof	check	
2	Scout 66	HRW	Scout 66	check	
3	TAM-107	HRW	TAM-107	check	
4	Trego	HWW	Trego	check	
5	OK Bullet06ERU	HWW	KS96WGRC39/Jagger	OSU	
6	OK05737W	HWW	KS96WGRC39/Jagger	OSU	
7	OK03305	HRW	N40/OK94P455	OSU	
8	OK03522	HRW	N566/OK94P597	OSU	
9	OK02522W	HWW	KS96WGRC39/Jagger	OSU	
10	OK02125	HRW	GA84200+/2*Jagger	OSU	
11	KS04HW47-3-4	HWW	X921012-A-7-1/TGO	KSU-Hays	
12	T151	HRW	T81/KS93U206	Trio	
13	T153	HRW	T136/T151	Trio	
14	T154	HRW	T88/2180/T811	Trio	
15	T158	HRW	KS93U206/2*T81	Trio	
16	98x0338-13 = Art	HRW	Jagger/W94-244-132	Agripro	
17	98x0435-15 = Hawken	HRW	W95-091/W96-427	Agripro	
18	99x0212-2	HRW	Mason/Jagger	Agripro	
19	BC98331-03\$-2W	HWW	KS920709B-5-2/2137//KS920709B5-2	Agripro	
20	BC98334-10W-8W	HWW	KS920709B-5-2/Stanof//KS920709B5-2	Agripro	
21	BC98334-04\$-02\$	HWW	KS920709B-5-2/Stanof//KS920709B5-2	Agripro	
22	HV9W96-1271R-1	HRW	B1551-WH / KS94U326	Westbred	
23	HV9W02-267W	HWW	97H79(87H6//TX81V6607-2/87H66-2)/TGO	Westbred	
24	HV9W02-112W	HWW	96HW94-5/TGO	Westbred	
25	HV9W02-271W	HWW	97HW216(91HW19/WGRC15)/97HW349(ARL//TA2460/3*T107)	Westbred	
26	KS990498-3-&-2	HRW	KS91W049-1-5-1/CM95091//X920709-B-5-2/3/X84W063-9-45-1/X85W663-7-4-2//HBB036J	KSU-Manhattan	
27	KS970093-8-9-#1	HRW	HBK1064-3/KS84063-9-39-3-4W//X960103	KSU-Manhattan	
28	KS980512-2-2	HRW	T67/X84W063-9-45//K92/3/SNF/4/X86509-1-1/X84W063-9-39-2//K92	KSU-Manhattan	
29	KS980512-11-22	HRW	T67/X84W063-9-45//K92/3/SNF/4/X86509-1-1/X84W063-9-39-2//K92	KSU-Manhattan	
30	CO01385-A1	HRW	Yumar/Arlyn	CSU	
31	CO02W280	HWW	98HW521(93HW91/93HW255)/98HW165(ARL/WGRC15)	CSU	
32	CO03W054	HWW	KS96HW94//Trego/CO960293	CSU	
33	CO03W239	HWW	KS01-5539/CO99W165	CSU	Clearfield®
34	CO03W269	HWW	KS01-5539/CO99W191	CSU	Clearfield®
35	CO03443	HRW	CO960691/CO970655	CSU	

Table 2. Entries in the 2007 Southern Regional Performance Nursery.

Entry	Line	putative market class	pedigree	Source	Protected traits
36	NI04420	HRW	NE96644(=ODESSKAYA P./CODY)/PAVON/*3SCOUT66 X NE94653(=ARAPAHOE/ABILENE//ARAPAHOE)	UNL	
37	NI04421	HRW	NE96644(=ODESSKAYA P./CODY)/PAVON/*3SCOUT66 X NE94653(=ARAPAHOE/ABILENE//ARAPAHOE)	UNL	
38	NE04424	HRW	KS92H363-2/COUGAR SIB(=NE85707/TBIRD) X NE94632(=ABILENE/NORKAN//RAWHIDE)	UNL	
39	NI04428	HRW	KS98HW22//W95-615W/N94L189	UNL	
40	SD05W012	HWW	NW96S016/SDW327	SDSU	
41	SD05W138	HWW	SD98416/SD98W331	SDSU	
42	T159	HRW	T136//T812*2/Karl	Trio	
43	TX99A0153-1	HRW	OGALLALA/TAM-202	TAMU	
44	TX03M1096	HRW	MASON/JAGGER	TAMU	
45	TX01V5136RC	HRW	TAM-200/JAGGER	TAMU	
46	TX01A7340	HRW	TX93V5723(TAM-200/TX82D5668)//JAGGER	TAMU	
47	TX02A0252	HRW	TX90V6313//TX94V3724(TAM-200 BC41254-1-8-1-1/TX86V1405	TAMU	
48	TX04M410068	HRW	TX93D2385//2137/VERDE	TAMU	
49	TX03A0148	HRW	TX89A7137/TIPACNA	TAMU	
50	TX03A0563	HRW	X96V107/OGALLALA	TAMU	

Table 3. Agronomic summary of 50 hard winter wheats entered in the 2007 SRPN.

Entry	Line/selection	Grain yield, kg/ha		Volume	Days from	Plant
		mean	rank	weight, kg/hl	1/1 to heading	height, cm
1	Kharkof	2329	50	75.1	140	100
2	Scout 66	2893	49	75.7	135	92
3	TAM-107	3574	46	73.3	131	75
4	Trego	3642	44	75.3	136	75
5	OK Bullet06ERU	3779	38	75.9	133	80
6	OK05737W	3869	32	73.7	133	79
7	OK03305	3768	40	75.3	130	73
8	OK03522	4192	6	74.8	133	77
9	OK02522W	3852	34	74.9	133	79
10	OK02125	4067	18	74.8	133	82
11	KS04HW47-3-4	4015	20	73.5	134	76
12	T151	4083	15	74.4	132	75
13	T153	4120	8	75.3	130	70
14	T154	4011	22	75.5	130	73
15	T158	4300	4	75.3	132	74
16	Art (98x0338-13)	3975	26	74.8	133	77
17	Hawken(98x0435-15)	3986	25	75.0	133	72
18	99x0212-2	4088	12	73.7	132	77
19	BC98331-03\$-2W	4536	1	74.9	130	70
20	BC98334-10W-8W	4070	16	73.8	132	70
21	BC98334-04\$-02\$	4241	5	74.6	131	74
22	HV9W96-1271R-1	4012	21	74.5	132	72
23	HV9W02-267W	4092	10	74.3	132	78
24	HV9W02-112W	3803	37	74.5	132	73
25	HV9W02-271W	4091	11	73.6	132	77
26	KS990498-3-&-2	4062	19	71.8	134	77
27	KS970093-8-9-#1	4398	2	76.6	131	74
28	KS980512-2-2	4313	3	75.6	134	79
29	KS980512-11-22	3904	29	74.2	131	70
30	CO01385-A1	4093	9	75.2	133	75
31	CO02W280	3650	43	74.9	132	83
32	CO03W054	3887	31	74.1	134	80
33	CO03W239	4010	24	73.3	134	77
34	CO03W269	3575	45	73.4	136	80
35	CO03443	3405	48	74.8	136	82
36	NI04420	4087	13	76.0	133	81
37	NI04421	3768	39	73.9	134	78
38	NE04424	4083	14	76.1	134	79
39	NI04428	3933	27	76.1	133	74
40	SD05W012	3830	35	73.0	134	81
41	SD05W138	3508	47	75.7	137	74
42	T159	3825	36	74.9	134	81
43	TX99A0153-1	4011	23	73.7	133	72
44	TX03M1096	4151	7	73.2	132	77
45	TX01V5136RC	3853	33	77.3	133	78
46	TX01A7340	3716	41	74.2	133	77
47	TX02A0252	3887	30	74.9	134	77
48	TX04M410068	3661	42	75.1	133	76
49	TX03A0148	3920	28	70.9	133	72
50	TX03A0563	4068	17	75.2	132	72
	mean	3900		74.6	133	77
	cv (%)	13.9				
	l.s.d. (0.05)	304				
	n	78				

Table 4. Mean grain yield (kg/ha) of 50 entries at individual locations of the 2007 SRPN.

Entry	Line/selection	region		Prosper, TX		Bushland, TX, dryland		Bushland, TX, irr.		Chillicothe, TX	
		mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2329	50	1484	50	1660	50	3045	50	2149	49
2	Scout 66	2893	49	2972	46	1852	49	4115	49	2857	47
3	TAM-107	3574	46	3683	41	3351	17	4710	46	3039	43
4	Trego	3642	44	3618	43	2821	43	5114	39	3223	38
5	OK Bullet06ERU	3779	38	4432	25	2963	37	5086	40	3589	25
6	OK05737W	3869	32	4694	14	3061	32	5294	35	4013	6
7	OK03305	3768	40	4779	10	3004	35	4637	47	3753	17
8	OK03522	4192	6	4824	9	3440	11	6259	10	3899	10
9	OK02522W	3852	34	4243	29	3388	14	5665	25	3854	12
10	OK02125	4067	18	4739	13	3632	6	5232	37	3131	41
11	KS04HW47-3-4	4015	20	4499	21	2886	41	6571	4	3636	22
12	T151	4083	15	4918	7	3573	8	6274	8	3625	23
13	T153	4120	8	4862	8	4218	1	6123	13	3830	14
14	T154	4011	22	4634	16	3871	2	6309	7	3899	10
15	T158	4300	4	5107	4	3357	16	6228	11	3686	21
16	Art (98x0338-13)	3975	26	4589	18	3132	27	4869	43	3462	30
17	Hawken(98x0435-15)	3986	25	3759	39	2701	47	5588	26	2880	46
18	99x0212-2	4088	12	3829	37	3200	23	5902	21	3916	8
19	BC98331-03\$-2W	4536	1	4748	12	3763	4	6505	5	4118	3
20	BC98334-10W-8W	4070	16	4495	22	3364	15	5932	19	3721	18
21	BC98334-04\$-02\$	4241	5	4535	20	3663	5	6598	3	4170	2
22	HV9W96-1271R-1	4012	21	5483	1	3093	29	5422	31	3716	19
23	HV9W02-267W	4092	10	4351	27	3200	22	4856	45	4025	4
24	HV9W02-112W	3803	37	4459	24	2966	36	5188	38	3911	9
25	HV9W02-271W	4091	11	3723	40	3115	28	5440	30	3211	39
26	KS990498-3-&-2	4062	19	4577	19	3031	33	5692	24	3546	27
27	KS970093-8-9-#1	4398	2	5198	3	3299	20	6011	15	3843	13
28	KS980512-2-2	4313	3	5046	5	3613	7	5479	29	4498	1
29	KS980512-11-22	3904	29	5349	2	3180	24	6097	14	3793	16
30	CO01385-A1	4093	9	4757	11	3323	18	5842	22	3091	42
31	CO02W280	3650	43	4154	33	3145	26	5259	36	3137	40
32	CO03W054	3887	31	3623	42	2659	48	5735	23	3472	29
33	CO03W239	4010	24	2898	47	3016	34	6502	6	3455	31
34	CO03W269	3575	45	2858	48	2766	44	5059	41	2594	48
35	CO03443	3405	48	1914	49	2723	46	4866	44	1505	50
36	NI04420	4087	13	3952	35	3069	31	5322	34	3563	26
37	NI04421	3768	39	3394	44	2876	42	5556	28	3026	44
38	NE04424	4083	14	4248	28	3414	12	5927	20	3434	32
39	NI04428	3933	27	4625	17	3496	9	4945	42	3706	20
40	SD05W012	3830	35	3829	37	3243	21	5944	18	3535	28
41	SD05W138	3508	47	3304	45	2944	39	4468	48	2893	45
42	T159	3825	36	4201	31	2748	45	5393	32	3397	33
43	TX99A0153-1	4011	23	4656	15	3853	3	6959	1	3829	15
44	TX03M1096	4151	7	4486	23	3391	13	6263	9	3923	7
45	TX01V5136RC	3853	33	4932	6	3070	30	5335	33	3610	24
46	TX01A7340	3716	41	4156	32	3165	25	5995	17	3338	35
47	TX02A0252	3887	30	3932	36	2914	40	6216	12	3253	37
48	TX04M410068	3661	42	4237	30	2950	38	6005	16	4024	5
49	TX03A0148	3920	28	4425	26	3302	19	5577	27	3371	34
50	TX03A0563	4068	17	4084	34	3478	10	6623	2	3323	36
	mean	3900		4206		3159		5601		3489	
	cv (%)	13.9		10.5		7.8		6.3		10.5	
	l.s.d. (0.05)	304		724		403		581		596	
	n	78		3		3		3		3	

Table 4. Mean grain yield (kg/ha) of 50 entries at individual locations of the 2007 SRPN.

Entry	Line/selection	region		Clovis, NM, dryland		Clovis, NM, irr.		Farmington, NM, irr.	
		mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2329	50	3099	50	2567	50	3845	50
2	Scout 66	2893	49	3130	49	3021	49	5299	48
3	TAM-107	3574	46	4480	33	5438	35	5966	40
4	Trego	3642	44	3978	45	5176	41	5800	45
5	OK Bullet06ERU	3779	38	4572	27	6892	6	6885	11
6	OK05737W	3869	32	5018	11	5492	34	6726	17
7	OK03305	3768	40	3927	47	5350	36	6515	25
8	OK03522	4192	6	4425	34	7119	4	6685	20
9	OK02522W	3852	34	4511	30	7747	2	5268	49
10	OK02125	4067	18	4867	14	6552	13	6937	10
11	KS04HW47-3-4	4015	20	5021	8	6512	14	7179	6
12	T151	4083	15	4735	16	6592	10	6743	16
13	T153	4120	8	5181	5	6682	9	6706	18
14	T154	4011	22	4280	41	6427	16	5303	47
15	T158	4300	4	5183	4	6824	7	5864	41
16	Art (98x0338-13)	3975	26	4304	40	8174	1	6937	9
17	Hawken(98x0435-15)	3986	25	4673	22	6142	25	6227	30
18	99x0212-2	4088	12	4400	36	5333	37	6655	21
19	BC98331-03\$-2W	4536	1	5451	1	7332	3	6151	35
20	BC98334-10W-8W	4070	16	4632	25	6573	12	6318	29
21	BC98334-04\$-02\$	4241	5	5020	9	7050	5	5830	43
22	HV9W96-1271R-1	4012	21	4878	12	4109	47	5800	44
23	HV9W02-267W	4092	10	4678	21	6363	17	6414	28
24	HV9W02-112W	3803	37	4745	15	5233	40	5831	42
25	HV9W02-271W	4091	11	5019	10	5832	27	6552	24
26	KS990498-3-&-2	4062	19	4502	31	6285	20	6081	38
27	KS970093-8-9-#1	4398	2	4627	26	6216	23	6560	23
28	KS980512-2-2	4313	3	4868	13	6344	18	6828	13
29	KS980512-11-22	3904	29	4493	32	5607	30	5478	46
30	CO01385-A1	4093	9	5335	2	6183	24	6839	12
31	CO02W280	3650	43	4383	37	4840	43	6150	36
32	CO03W054	3887	31	4408	35	5265	39	6748	15
33	CO03W239	4010	24	5095	6	6796	8	7326	4
34	CO03W269	3575	45	4709	19	5555	33	6769	14
35	CO03443	3405	48	4523	29	6339	19	6637	22
36	NI04420	4087	13	5066	7	6461	15	6445	27
37	NI04421	3768	39	4540	28	5636	29	6485	26
38	NE04424	4083	14	4714	18	6267	22	6173	33
39	NI04428	3933	27	4641	24	6575	11	6964	8
40	SD05W012	3830	35	3912	48	5578	31	6687	19
41	SD05W138	3508	47	3962	46	4332	46	6108	37
42	T159	3825	36	4719	17	5879	26	6172	34
43	TX99A0153-1	4011	23	4327	39	5038	42	7381	3
44	TX03M1096	4151	7	4695	20	5677	28	6223	31
45	TX01V5136RC	3853	33	4207	43	6283	21	6184	32
46	TX01A7340	3716	41	4649	23	4777	45	7011	7
47	TX02A0252	3887	30	5283	3	3951	48	7609	1
48	TX04M410068	3661	42	4367	38	4808	44	5977	39
49	TX03A0148	3920	28	4025	44	5316	38	7274	5
50	TX03A0563	4068	17	4230	42	5562	32	7407	2
	mean	3900		4570		5842		6399	
	cv (%)	13.9		7.9		12.1		12.6	
	l.s.d. (0.05)	304		592		1147		1139	
	n	78		3		3		4	

Table 4. Mean grain yield (kg/ha) of 50 entries at individual locations of the 2007 SRPN.

Entry	Line/selection	region		Goodwell, OK, irr.		Hobart, OK		Colby, KS		Garden City, KS	
		mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2329	50	2827	50	1278	48	3487	50	1627	50
2	Scout 66	2893	49	3358	49	1849	42	4282	49	2004	49
3	TAM-107	3574	46	6147	30	2376	24	4635	46	3499	21
4	Trego	3642	44	5611	40	2204	32	5457	22	3320	32
5	OK Bullet06ERU	3779	38	5824	36	2441	20	5380	28	3107	37
6	OK05737W	3869	32	6539	22	3098	5	5480	20	2813	43
7	OK03305	3768	40	7126	11	3129	3	5571	18	3741	14
8	OK03522	4192	6	7622	5	2401	23	5438	24	3217	35
9	OK02522W	3852	34	6781	15	2744	10	5403	27	3809	9
10	OK02125	4067	18	6972	13	3125	4	5620	14	3945	6
11	KS04HW47-3-4	4015	20	4728	46	2109	36	6053	2	3479	23
12	T151	4083	15	7173	10	3257	1	5421	26	4057	5
13	T153	4120	8	7353	7	2100	37	4961	40	4333	1
14	T154	4011	22	7938	2	2625	13	5249	31	3905	7
15	T158	4300	4	7290	8	2757	9	5153	36	3436	27
16	Art (98x0338-13)	3975	26	5974	33	2686	12	5792	7	3544	17
17	Hawken(98x0435-15)	3986	25	6200	28	2699	11	5177	35	3459	25
18	99x0212-2	4088	12	6221	27	3212	2	5772	8	3363	31
19	BC98331-03\$-2W	4536	1	6868	14	3078	7	5753	9	3779	11
20	BC98334-10W-8W	4070	16	7678	4	2773	8	5606	17	3768	13
21	BC98334-04\$-02\$	4241	5	7985	1	3091	6	5437	25	4143	4
22	HV9W96-1271R-1	4012	21	6588	18	2540	19	5940	4	3037	39
23	HV9W02-267W	4092	10	7420	6	2558	17	5178	34	3862	8
24	HV9W02-112W	3803	37	6525	23	2262	30	5736	10	3190	36
25	HV9W02-271W	4091	11	5573	41	2000	40	5612	15	3636	15
26	KS990498-3-&-2	4062	19	6362	24	2179	34	5506	19	3477	24
27	KS970093-8-9-#1	4398	2	6546	21	2600	15	5686	13	3797	10
28	KS980512-2-2	4313	3	6564	19	2547	18	5975	3	4322	2
29	KS980512-11-22	3904	29	6729	16	2414	22	5235	32	4167	3
30	CO01385-A1	4093	9	5873	35	2580	16	5818	6	3457	26
31	CO02W280	3650	43	4728	46	1948	41	5003	38	3042	38
32	CO03W054	3887	31	5364	42	2266	29	4840	44	3237	34
33	CO03W239	4010	24	6245	26	1217	49	4906	42	3488	22
34	CO03W269	3575	45	5326	44	1592	44	4706	45	2999	41
35	CO03443	3405	48	4708	48	1038	50	4527	48	2650	44
36	NI04420	4087	13	6557	20	2042	39	5235	32	3542	18
37	NI04421	3768	39	5698	38	1392	47	4548	47	2948	42
38	NE04424	4083	14	6268	25	2248	31	5107	37	3632	16
39	NI04428	3933	27	5642	39	2437	21	5291	30	3273	33
40	SD05W012	3830	35	5362	43	2307	27	4978	39	3028	40
41	SD05W138	3508	47	4840	45	1814	43	4947	41	3419	28
42	T159	3825	36	5985	32	2125	35	4867	43	2150	48
43	TX99A0153-1	4011	23	7113	12	2365	25	6069	1	3387	30
44	TX03M1096	4151	7	6617	17	2605	14	5467	21	3533	20
45	TX01V5136RC	3853	33	5752	37	2188	33	5298	29	3537	19
46	TX01A7340	3716	41	6162	29	2293	28	5704	11	2607	46
47	TX02A0252	3887	30	6100	31	1540	45	5830	5	2562	47
48	TX04M410068	3661	42	5893	34	2327	26	5450	23	2618	45
49	TX03A0148	3920	28	7702	3	2078	38	5612	16	3770	12
50	TX03A0563	4068	17	7276	9	1473	46	5699	12	3401	29
	mean	3900		6235		2320		5318		3362	
	cv (%)	13.9		11.4		11.9		6.9		11.2	
	l.s.d. (0.05)	304		1164		449		597		615	
	n	78		3		3		3		3	

Table 4. Mean grain yield (kg/ha) of 50 entries at individual locations of the 2007 SRPN.

Entry	Line/selection	region		Fort Collins, CO, irr.		Walsh, CO		Akron, CO	
		mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2329	50	3428	48	1466	50	1670	46
2	Scout 66	2893	49	5006	42	2179	49	1771	43
3	TAM-107	3574	46	5766	29	2775	35	3176	19
4	Trego	3642	44	5180	37	2564	43	2089	41
5	OK Bullet06ERU	3779	38	5420	34	2717	38	2401	38
6	OK05737W	3869	32	6277	19	2661	40	1883	42
7	OK03305	3768	40	5066	39	2589	42	3558	11
8	OK03522	4192	6	6783	7	3111	17	3472	13
9	OK02522W	3852	34	5914	25	2343	47	3291	16
10	OK02125	4067	18	5761	30	3306	10	1675	45
11	KS04HW47-3-4	4015	20	6131	22	2894	26	3006	27
12	T151	4083	15	3354	49	2950	24	2894	31
13	T153	4120	8	4134	46	3587	1	3194	18
14	T154	4011	22	3515	47	3544	3	3120	20
15	T158	4300	4	5140	38	3369	7	4055	7
16	Art (98x0338-13)	3975	26	4716	44	3040	19	1701	44
17	Hawken(98x0435-15)	3986	25	6357	16	3360	8	3064	24
18	99x0212-2	4088	12	6295	18	3302	11	3383	15
19	BC98331-03\$-2W	4536	1	6909	5	3553	2	4403	2
20	BC98334-10W-8W	4070	16	6463	12	3445	4	1374	49
21	BC98334-04\$-02\$	4241	5	6254	21	3371	6	3114	22
22	HV9W96-1271R-1	4012	21	6839	6	3315	9	2800	33
23	HV9W02-267W	4092	10	6669	8	2869	28	3241	17
24	HV9W02-112W	3803	37	5062	41	3282	12	3062	25
25	HV9W02-271W	4091	11	6485	10	3020	22	4441	1
26	KS990498-3-&-2	4062	19	6481	11	2759	36	3616	10
27	KS970093-8-9-#1	4398	2	6413	14	2287	48	4122	5
28	KS980512-2-2	4313	3	5822	28	2807	32	3109	23
29	KS980512-11-22	3904	29	3271	50	3206	15	3470	14
30	CO01385-A1	4093	9	7601	2	2715	39	3116	21
31	CO02W280	3650	43	5564	31	3073	18	2905	30
32	CO03W054	3887	31	6364	15	3008	23	2383	39
33	CO03W239	4010	24	7353	4	3226	13	3528	12
34	CO03W269	3575	45	6496	9	3212	14	2791	35
35	CO03443	3405	48	5189	36	2872	27	2775	36
36	NI04420	4087	13	5066	39	3031	21	4221	3
37	NI04421	3768	39	5528	33	2428	44	4178	4
38	NE04424	4083	14	5862	26	2777	34	3013	26
39	NI04428	3933	27	5351	35	2831	29	1596	47
40	SD05W012	3830	35	4232	45	2751	37	1293	50
41	SD05W138	3508	47	4842	43	2392	46	1520	48
42	T159	3825	36	6070	24	2614	41	2968	29
43	TX99A0153-1	4011	23	6326	17	2950	24	2802	32
44	TX03M1096	4151	7	6416	13	2822	30	3997	8
45	TX01V5136RC	3853	33	5544	32	2421	45	2995	28
46	TX01A7340	3716	41	6263	20	2786	33	2800	34
47	TX02A0252	3887	30	7747	1	3037	20	2105	40
48	TX04M410068	3661	42	5857	27	3141	16	2764	37
49	TX03A0148	3920	28	7467	3	2822	30	4080	6
50	TX03A0563	4068	17	6104	23	3412	5	3712	9
	mean	3900		5763		2920		2954	
	cv (%)	13.9		11.3		13.9		26.8	
	l.s.d. (0.05)	304		1061		664		1293	
	n	78		3		3		3	

Table 4. Mean grain yield (kg/ha) of 50 entries at individual locations of the 2007 SRPN.

Entry	Line/selection	region		Julesburg, CO		Burlington, CO		Lincoln, NE		Clay Center, NE	
		mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2329	50	1323	50	751	50	4250	28	789	50
2	Scout 66	2893	49	1775	49	1520	47	3632	45	1365	48
3	TAM-107	3574	46	2764	39	2116	21	3016	50	2503	27
4	Trego	3642	44	2139	47	1782	36	4344	21	2911	12
5	OK Bullet06ERU	3779	38	3228	27	1755	38	4467	12	2466	29
6	OK05737W	3869	32	2786	38	1903	30	4616	6	2066	39
7	OK03305	3768	40	3611	12	2419	8	4468	11	1620	46
8	OK03522	4192	6	4116	7	2347	14	4195	31	2490	28
9	OK02522W	3852	34	3537	16	1677	40	3253	49	2075	38
10	OK02125	4067	18	2356	46	1818	34	3778	43	2650	18
11	KS04HW47-3-4	4015	20	2495	45	2385	10	4410	17	2517	25
12	T151	4083	15	3580	14	1107	49	3484	48	2937	11
13	T153	4120	8	4441	3	2006	26	4043	36	2377	34
14	T154	4011	22	3192	29	1392	48	4223	29	2548	22
15	T158	4300	4	3354	21	2365	11	3890	41	3796	2
16	Art (98x0338-13)	3975	26	3340	23	1677	42	4444	14	2757	16
17	Hawken(98x0435-15)	3986	25	4445	2	2508	4	4391	18	2158	37
18	99x0212-2	4088	12	3510	17	2499	5	4825	3	2770	15
19	BC98331-03\$-2W	4536	1	5006	1	2320	16	4133	34	3120	6
20	BC98334-10W-8W	4070	16	3161	32	1798	35	3954	38	2264	36
21	BC98334-04\$-02\$	4241	5	3183	30	2410	9	3583	46	2401	33
22	HV9W96-1271R-1	4012	21	2937	36	2475	7	3942	39	2894	13
23	HV9W02-267W	4092	10	3710	11	2065	24	4446	13	3014	10
24	HV9W02-112W	3803	37	3421	20	1692	39	4214	30	2786	14
25	HV9W02-271W	4091	11	3788	10	2325	15	3883	42	2644	19
26	KS990498-3-&-2	4062	19	3454	19	2210	18	4283	25	2465	30
27	KS970093-8-9-#1	4398	2	4192	6	2802	1	4276	27	3827	1
28	KS980512-2-2	4313	3	3995	8	2118	20	4176	32	3282	3
29	KS980512-11-22	3904	29	3921	9	1959	28	4152	33	1993	42
30	CO01385-A1	4093	9	4239	4	2522	3	3499	47	2672	17
31	CO02W280	3650	43	1988	48	1782	36	4325	22	2637	21
32	CO03W054	3887	31	2562	44	2038	25	4602	8	3086	7
33	CO03W239	4010	24	3094	35	2004	27	4714	4	1996	41
34	CO03W269	3575	45	3289	24	1524	45	4304	23	2512	26
35	CO03443	3405	48	2616	43	1522	46	5086	1	1872	44
36	NI04420	4087	13	3208	28	2197	19	4298	24	3039	8
37	NI04421	3768	39	3141	33	2076	23	4687	5	2638	20
38	NE04424	4083	14	3174	31	2318	17	4099	35	3221	4
39	NI04428	3933	27	3508	18	1899	31	4427	15	2437	31
40	SD05W012	3830	35	4221	5	1598	44	3969	37	3037	9
41	SD05W138	3508	47	2724	41	1955	29	4923	2	2329	35
42	T159	3825	36	2688	42	1677	40	4470	10	2433	32
43	TX99A0153-1	4011	23	3587	13	2363	12	4415	16	2530	24
44	TX03M1096	4151	7	3264	25	2477	6	3915	40	2535	23
45	TX01V5136RC	3853	33	3345	22	1822	33	4384	19	2065	40
46	TX01A7340	3716	41	3096	34	1894	32	4351	20	1972	43
47	TX02A0252	3887	30	3239	26	2096	22	4283	25	1448	47
48	TX04M410068	3661	42	2733	40	1601	43	4504	9	1267	49
49	TX03A0148	3920	28	2903	37	2352	13	4609	7	1717	45
50	TX03A0563	4068	17	3569	15	2556	2	3725	44	3213	5
	mean	3900		3259		2009		4207		2483	
	cv (%)	13.9		28.4		19.5		20.5		18.0	
	l.s.d. (0.05)	304		1510		643		1411		729	
	n	78		3		3		3		3	

Table 4. Mean grain yield (kg/ha) of 50 entries at individual locations of the 2007 SRPN.

Entry	Line/selection	region		North Platte, NE		Sidney, NE		Alliance, NE	
		mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2329	50	3407	49	2856	50	3225	50
2	Scout 66	2893	49	3931	47	3538	49	3617	44
3	TAM-107	3574	46	4056	46	4360	27	3747	34
4	Trego	3642	44	5047	33	4183	36	3779	31
5	OK Bullet06ERU	3779	38	4971	35	3943	43	3609	45
6	OK05737W	3869	32	4709	39	3801	47	3624	43
7	OK03305	3768	40	4482	43	3927	44	3772	32
8	OK03522	4192	6	6248	3	4116	39	3608	46
9	OK02522W	3852	34	5359	25	3893	45	3605	47
10	OK02125	4067	18	6412	2	4473	23	3625	42
11	KS04HW47-3-4	4015	20	5800	11	4543	21	4052	16
12	T151	4083	15	6060	6	4686	17	4028	18
13	T153	4120	8	5075	31	4909	7	3634	40
14	T154	4011	22	5747	13	4765	15	3714	38
15	T158	4300	4	5386	24	4815	11	4296	6
16	Art (98x0338-13)	3975	26	5503	20	4713	16	3839	27
17	Hawken(98x0435-15)	3986	25	5081	30	4363	26	4082	13
18	99x0212-2	4088	12	5724	15	4548	20	3971	22
19	BC98331-03\$-2W	4536	1	6245	4	5510	1	4308	5
20	BC98334-10W-8W	4070	16	4996	34	5011	5	4177	9
21	BC98334-04\$-02\$	4241	5	5618	17	4079	40	3742	35
22	HV9W96-1271R-1	4012	21	6608	1	4899	8	4103	11
23	HV9W02-267W	4092	10	4818	37	4920	6	4090	12
24	HV9W02-112W	3803	37	4679	41	4461	24	3785	30
25	HV9W02-271W	4091	11	5761	12	5086	4	3957	23
26	KS990498-3-&-2	4062	19	5148	28	4569	19	4057	15
27	KS970093-8-9-#1	4398	2	6093	5	4335	29	3996	19
28	KS980512-2-2	4313	3	5566	18	4229	32	4193	7
29	KS980512-11-22	3904	29	5430	22	4338	28	3626	41
30	CO01385-A1	4093	9	5387	23	4275	31	4397	2
31	CO02W280	3650	43	4900	36	4229	32	3954	24
32	CO03W054	3887	31	5729	14	4192	35	3972	21
33	CO03W239	4010	24	5180	27	4779	14	4329	4
34	CO03W269	3575	45	3303	50	4072	41	3685	39
35	CO03443	3405	48	3857	48	4866	10	3825	28
36	NI04420	4087	13	5919	9	4801	13	4193	7
37	NI04421	3768	39	5058	32	4417	25	4358	3
38	NE04424	4083	14	5815	10	5266	2	4141	10
39	NI04428	3933	27	4683	40	4872	9	3805	29
40	SD05W012	3830	35	5121	29	4630	18	3588	48
41	SD05W138	3508	47	4590	42	4298	30	3758	33
42	T159	3825	36	5698	16	3869	46	3842	26
43	TX99A0153-1	4011	23	4733	38	4193	34	3978	20
44	TX03M1096	4151	7	5939	8	4809	12	3742	35
45	TX01V5136RC	3853	33	5196	26	4534	22	3884	25
46	TX01A7340	3716	41	5446	21	3676	48	3461	49
47	TX02A0252	3887	30	5517	19	5189	3	4460	1
48	TX04M410068	3661	42	6010	7	4155	37	3737	37
49	TX03A0148	3920	28	4322	45	4061	42	4061	14
50	TX03A0563	4068	17	4339	44	4122	38	4032	17
	mean	3900		5214		4424		3901	
	cv (%)	13.9		10.3		15.7		7.6	
	l.s.d. (0.05)	304		876		ns		487	
	n	78		3		3		3	

Table 4. Mean grain yield (kg/ha) of 50 entries at individual locations of the 2007 SRPN.

Entry	Line/selection	region		Brookings, SD		Dakota Lakes, SD		Winner, SD		Crawfordsville, IA	
		mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2329	50	2818	43	2297	48	1826	39	2613	39
2	Scout 66	2893	49	3284	31	2765	43	2803	16	3191	23
3	TAM-107	3574	46	2197	50	2751	46	1660	41	3036	27
4	Trego	3642	44	3546	24	4101	4	3318	4	3006	28
5	OK Bullet06ERU	3779	38	2719	46	3183	35	1105	46	2633	38
6	OK05737W	3869	32	3426	25	3553	19	2875	15	2878	30
7	OK03305	3768	40	2984	39	2751	47	609	48	2135	47
8	OK03522	4192	6	4344	2	3578	18	799	47	2818	32
9	OK02522W	3852	34	3073	36	2960	40	2242	35	1732	49
10	OK02125	4067	18	3348	28	3354	28	2299	33	3571	11
11	KS04HW47-3-4	4015	20	3576	23	3162	36	2321	32	3171	24
12	T151	4083	15	3592	22	3488	23	3124	6	3911	7
13	T153	4120	8	2936	42	3466	24	2767	17	2989	29
14	T154	4011	22	3615	20	4068	5	2693	19	3625	10
15	T158	4300	4	3706	17	3916	8	3175	5	4459	1
16	Art (98x0338-13)	3975	26	4186	6	3494	22	1981	37	3161	25
17	Hawken(98x0435-15)	3986	25	4017	8	3610	17	2705	18	2545	41
18	99x0212-2	4088	12	3256	32	3513	21	1792	40	3040	26
19	BC98331-03\$-2W	4536	1	3302	29	4187	3	3007	10	3292	18
20	BC98334-10W-8W	4070	16	3764	13	3552	20	3369	2	2875	31
21	BC98334-04\$-02\$	4241	5	3417	27	3692	15	3357	3	3201	22
22	HV9W96-1271R-1	4012	21	4070	7	3259	34	2618	22	2266	45
23	HV9W02-267W	4092	10	3223	33	3459	25	2915	13	3268	19
24	HV9W02-112W	3803	37	2969	40	3735	13	2602	24	2754	36
25	HV9W02-271W	4091	11	3720	15	3907	9	3003	11	3917	6
26	KS990498-3-&-2	4062	19	3897	10	3834	12	2406	29	3204	21
27	KS970093-8-9-#1	4398	2	4201	5	4839	1	3907	1	3958	5
28	KS980512-2-2	4313	3	3718	16	3886	10	3014	9	4341	2
29	KS980512-11-22	3904	29	3170	34	3325	32	2982	12	2781	33
30	CO01385-A1	4093	9	3056	37	3104	37	1537	42	2734	37
31	CO02W280	3650	43	2940	41	3297	33	2270	34	3319	17
32	CO03W054	3887	31	3293	30	3354	29	2606	23	4106	4
33	CO03W239	4010	24	2766	45	3635	16	2367	30	2179	46
34	CO03W269	3575	45	2341	49	3343	30	2508	26	2347	42
35	CO03443	3405	48	2381	48	2984	39	1344	45	2287	44
36	NI04420	4087	13	3424	26	3330	31	2883	14	3827	8
37	NI04421	3768	39	3168	35	3409	27	2458	27	2767	35
38	NE04424	4083	14	3995	9	4010	7	2641	20	3457	15
39	NI04428	3933	27	4203	4	3886	11	2512	25	3524	12
40	SD05W012	3830	35	3705	18	4663	2	3026	8	4119	3
41	SD05W138	3508	47	3840	11	4044	6	2237	36	3460	14
42	T159	3825	36	4873	1	3046	38	3063	7	3218	20
43	TX99A0153-1	4011	23	3696	19	2868	41	199	49	2771	34
44	TX03M1096	4151	7	4283	3	3697	14	2641	21	3497	13
45	TX01V5136RC	3853	33	3732	14	2754	45	2433	28	3399	16
46	TX01A7340	3716	41	2769	44	2754	44	1394	43	2011	48
47	TX02A0252	3887	30	3801	12	2867	42	1890	38	2599	40
48	TX04M410068	3661	42	3039	38	2280	49	128	50	1715	50
49	TX03A0148	3920	28	2665	47	2231	50	1352	44	2297	43
50	TX03A0563	4068	17	3599	21	3434	26	2322	31	3729	9
	mean	3900		3433		3414		2342		3075	
	cv (%)	13.9		11.9		10.7		20.2		13.5	
	l.s.d. (0.05)	304		816		732		946		832	
	n	78		2		2		2		2	

Table 4. Mean grain yield (kg/ha) of 50 entries at individual locations of the 2007 SRPN.

Entry	Line/selection	region		Pine Bluff, WY		Columbia, MO	
		mean	rank	mean	rank	mean	rank
1	Kharkof	2329	50	1717	49	963	39
2	Scout 66	2893	49	1787	48	561	49
3	TAM-107	3574	46	1879	41	1023	37
4	Trego	3642	44	2172	7	989	38
5	OK Bullet06ERU	3779	38	1991	26	1380	28
6	OK05737W	3869	32	1836	45	1477	23
7	OK03305	3768	40	1894	39	947	40
8	OK03522	4192	6	1890	40	1375	29
9	OK02522W	3852	34	1995	25	1373	30
10	OK02125	4067	18	2161	8	2281	4
11	KS04HW47-3-4	4015	20	2091	14	858	43
12	T151	4083	15	1984	27	1063	35
13	T153	4120	8	2087	15	940	41
14	T154	4011	22	2047	19	939	42
15	T158	4300	4	2123	11	2211	6
16	Art (98x0338-13)	3975	26	1852	44	1441	24
17	Hawken(98x0435-15)	3986	25	1957	30	1699	14
18	99x0212-2	4088	12	1908	36	1803	11
19	BC98331-03\$-2W	4536	1	2282	3	1360	31
20	BC98334-10W-8W	4070	16	2006	24	1176	33
21	BC98334-04\$-02\$	4241	5	2280	4	1663	16
22	HV9W96-1271R-1	4012	21	2100	13	720	47
23	HV9W02-267W	4092	10	2134	10	783	45
24	HV9W02-112W	3803	37	1964	29	427	50
25	HV9W02-271W	4091	11	2318	2	1068	34
26	KS990498-3-&-2	4062	19	2159	9	2259	5
27	KS970093-8-9-#1	4398	2	1930	33	2111	8
28	KS980512-2-2	4313	3	2040	20	2468	1
29	KS980512-11-22	3904	29	2074	16	1530	19
30	CO01385-A1	4093	9	2056	17	1621	17
31	CO02W280	3650	43	1874	43	1936	9
32	CO03W054	3887	31	1905	37	2450	2
33	CO03W239	4010	24	1984	27	1381	26
34	CO03W269	3575	45	1876	42	1675	15
35	CO03443	3405	48	2049	18	2353	3
36	NI04420	4087	13	2387	1	1520	21
37	NI04421	3768	39	1831	46	1502	22
38	NE04424	4083	14	2199	6	1381	27
39	NI04428	3933	27	1917	34	1592	18
40	SD05W012	3830	35	2040	20	2134	7
41	SD05W138	3508	47	1935	32	1832	10
42	T159	3825	36	2219	5	1731	12
43	TX99A0153-1	4011	23	1910	35	695	48
44	TX03M1096	4151	7	1946	31	1701	13
45	TX01V5136RC	3853	33	1796	47	1521	20
46	TX01A7340	3716	41	1681	50	1045	36
47	TX02A0252	3887	30	2035	22	748	46
48	TX04M410068	3661	42	1905	37	1395	25
49	TX03A0148	3920	28	2107	12	841	44
50	TX03A0563	4068	17	2022	23	1209	32
	mean	3900		2007		1423	
	cv (%)	13.9		11.4		17.2	
	l.s.d. (0.05)	304		ns		401	
	n	78		3		3	

Table 5. Summary of region-wide and state-wide mean grain yields (kg/ha) of entries in the 2007 SRPN.

Entry	Line/selection	region		NM State		TX State		OK State		CO State		KS State		NE State		SD State	
		mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2329	50	3238	50	2084	50	2052	50	1727	50	2557	50	2905	50	2314	43
2	Scout 66	2893	49	3965	49	2949	48	2604	49	2450	49	3143	49	3217	49	2951	33
3	TAM-107	3574	46	5362	40	3696	44	4261	28	3319	30	4067	40	3536	48	2203	47
4	Trego	3642	44	5066	46	3694	45	3907	37	2751	47	4389	27	4072	24	3655	4
5	OK Bullet06ERU	3779	38	6193	7	4018	34	4133	32	3104	37	4243	34	3891	39	2336	42
6	OK05737W	3869	32	5844	22	4266	19	4818	12	3102	38	4147	39	3763	43	3285	20
7	OK03305	3768	40	5389	39	4043	33	5128	5	3449	24	4656	13	3654	45	1941	49
8	OK03522	4192	6	6137	10	4605	7	5011	8	3966	4	4327	30	4131	21	2907	35
9	OK02522W	3852	34	5785	25	4288	18	4762	13	3352	28	4606	17	3637	46	2758	39
10	OK02125	4067	18	6200	6	4183	26	5048	6	2983	42	4782	3	4188	19	3001	31
11	KS04HW47-3-4	4015	20	6332	3	4398	14	3419	45	3382	26	4766	5	4265	11	3020	29
12	T151	4083	15	6095	11	4598	9	5215	4	2777	46	4739	7	4239	14	3401	16
13	T153	4120	8	6241	5	4758	3	4727	15	3472	21	4647	14	4008	32	3056	28
14	T154	4011	22	5333	41	4678	5	5281	2	2953	43	4577	18	4199	17	3459	14
15	T158	4300	4	5948	15	4594	10	5024	7	3657	16	4295	32	4437	6	3599	5
16	Art (98x0338-13)	3975	26	6518	1	4013	35	4330	25	2895	44	4668	12	4251	13	3220	21
17	Hawken(98x0435-15)	3986	25	5735	28	3732	42	4450	22	3947	6	4318	31	4015	29	3444	15
18	99x0212-2	4088	12	5582	37	4211	24	4716	16	3798	10	4567	19	4368	7	2854	36
19	BC98331-03\$-2W	4536	1	6295	4	4784	2	4973	10	4438	1	4766	4	4663	1	3499	12
20	BC98334-10W-8W	4070	16	5888	18	4378	15	5225	3	3248	33	4687	11	4081	23	3562	6
21	BC98334-04\$-02\$	4241	5	5953	14	4742	4	5538	1	3666	15	4790	2	3885	41	3489	13
22	HV9W96-1271R-1	4012	21	5016	47	4429	13	4564	20	3673	14	4488	24	4489	4	3316	19
23	HV9W02-267W	4092	10	5878	19	4108	31	4989	9	3711	12	4520	21	4258	12	3199	23
24	HV9W02-112W	3803	37	5326	42	4131	30	4394	23	3304	31	4463	25	3985	33	3102	26
25	HV9W02-271W	4091	11	5876	21	3872	40	3786	41	4012	3	4624	16	4266	10	3543	8
26	KS990498-3-&~2	4062	19	5668	30	4212	23	4270	27	3704	13	4492	23	4104	22	3379	17
27	KS970093-8-9-#1	4398	2	5877	20	4588	11	4573	18	3963	5	4741	6	4542	2	4316	1
28	KS980512-2-2	4313	3	6095	12	4659	6	4555	21	3570	19	5148	1	4289	9	3540	10
29	KS980512-11-22	3904	29	5221	44	4605	8	4572	19	3165	36	4701	9	3908	37	3159	24
30	CO01385-A1	4093	9	6191	8	4253	21	4227	31	4039	2	4637	15	4046	27	2566	41
31	CO02W280	3650	43	5227	43	3924	39	3338	46	3063	39	4023	43	4009	31	2835	38
32	CO03W054	3887	31	5601	35	3872	41	3815	40	3271	32	4038	41	4316	8	3084	27
33	CO03W239	4010	24	6498	2	3968	37	3731	42	3841	9	4197	35	4200	16	2923	34
34	CO03W269	3575	45	5787	24	3319	47	3459	44	3462	23	3853	45	3575	47	2731	40
35	CO03443	3405	48	5914	16	2752	49	2873	48	2995	41	3588	47	3901	38	2236	46
36	NI04420	4087	13	6036	13	3977	36	4300	26	3545	20	4388	28	4450	5	3212	22
37	NI04421	3768	39	5647	32	3713	43	3545	43	3470	22	3748	46	4232	15	3012	30

Table 5. Summary of region-wide and state-wide mean grain yields (kg/ha) of entries in the 2007 SRPN.

Entry	Line/selection	region		NM State		TX State		OK State		CO State		KS State		NE State		SD State	
		mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
38	NE04424	4083	14	5764	26	4256	20	4258	29	3429	25	4369	29	4508	3	3549	7
39	NI04428	3933	27	6151	9	4193	25	4039	35	3037	40	4282	33	4045	28	3533	11
40	SD05W012	3830	35	5522	38	4138	29	3834	38	2819	45	4003	44	4069	25	3798	2
41	SD05W138	3508	47	4932	48	3402	46	3327	47	2686	48	4183	37	3980	34	3374	18
42	T159	3825	36	5648	31	3935	38	4055	34	3203	35	3508	48	4063	26	3661	3
43	TX99A0153-1	4011	23	5762	27	4824	1	4739	14	3605	18	4728	8	3970	35	2254	45
44	TX03M1096	4151	7	5601	36	4516	12	4611	17	3795	11	4500	22	4188	18	3540	9
45	TX01V5136RC	3853	33	5621	34	4237	22	3970	36	3225	34	4418	26	4012	30	2973	32
46	TX01A7340	3716	41	5632	33	4164	28	4228	30	3368	27	4155	38	3781	42	2306	44
47	TX02A0252	3887	30	5814	23	4078	32	3820	39	3645	17	4196	36	4179	20	2853	37
48	TX04M410068	3661	42	5143	45	4304	17	4110	33	3335	29	4034	42	3934	36	1816	50
49	TX03A0148	3920	28	5712	29	4169	27	4890	11	3925	7	4691	10	3754	44	2083	48
50	TX03A0563	4068	17	5900	17	4377	16	4375	24	3870	8	4550	20	3886	40	3118	25
	mean	3900		5683		4114		4277		3383		4340		4047		3059	
	cv (%)	13.9		11.8		8.7		12.6		19.7		8.6		14.9		13.7	
	l.s.d. (0.05)	304		1035		646		1254		779		764		589		1346	
	n	78		10		12		6		15		6		15		6	

Table 6. Mean grain yields (kg/ha) of entries in the 2007 SRPN for regional production zones (after Peterson, 1992, Crop Science 32: 907). Irrigated trials = Clovis and Farmington, NM, Bushland, TX, Goodwell, OK and Ft. Collins, CO.

Entry	Line/selection	region		Southern Plains		Southern High Plains		North-central Plains	
		mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2329	50	2376	50	2084	50	2445	49
2	Scout 66	2893	49	3326	48	2437	49	2791	42
3	TAM-107	3574	46	4395	43	3909	30	2560	47
4	Trego	3642	44	4391	44	3572	46	3551	7
5	OK Bullet06ERU	3779	38	4733	35	4050	23	2863	38
6	OK05737W	3869	32	5135	19	3809	36	3251	24
7	OK03305	3768	40	5074	20	3722	37	2480	48
8	OK03522	4192	6	5651	3	4263	13	3081	34
9	OK02522W	3852	34	5136	18	4359	10	2571	46
10	OK02125	4067	18	5018	24	4460	4	3174	31
11	KS04HW47-3-4	4015	20	4858	31	4158	19	3232	27
12	T151	4083	15	5498	8	4382	9	3392	17
13	T153	4120	8	5542	7	4800	1	3113	33
14	T154	4011	22	5695	2	4406	7	3451	14
15	T158	4300	4	5578	5	4434	6	3826	2
16	Art (98x0338-13)	3975	26	4723	37	4439	5	3375	18
17	Hawken(98x0435-15)	3986	25	4607	39	4067	22	3243	25
18	99x0212-2	4088	12	4967	26	3920	28	3285	21
19	BC98331-03\$-2W	4536	1	5560	6	4776	2	3524	8
20	BC98334-10W-8W	4070	16	5456	10	4356	11	3270	22
21	BC98334-04\$-02\$	4241	5	5822	1	4649	3	3235	26
22	HV9W96-1271R-1	4012	21	5302	15	3687	41	3210	29
23	HV9W02-267W	4092	10	5163	17	4194	16	3437	15
24	HV9W02-112W	3803	37	5021	23	3883	32	3223	28
25	HV9W02-271W	4091	11	4487	41	4124	21	3477	13
26	KS990498-3-&-2	4062	19	5044	21	4011	27	3352	20
27	KS970093-8-9-#1	4398	2	5399	11	4045	24	4151	1
28	KS980512-2-2	4313	3	5397	12	4391	8	3735	3
29	KS980512-11-22	3904	29	5492	9	4130	20	3068	35
30	CO01385-A1	4093	9	4891	29	4203	15	2812	41
31	CO02W280	3650	43	4319	45	3697	40	3181	30
32	CO03W054	3887	31	4548	40	3715	38	3556	6
33	CO03W239	4010	24	4775	33	4324	12	3002	36
34	CO03W269	3575	45	3959	46	3848	33	2966	37
35	CO03443	3405	48	3248	49	3821	35	2776	43
36	NI04420	4087	13	4849	32	4234	14	3496	10
37	NI04421	3768	39	4418	42	3686	42	3256	23
38	NE04424	4083	14	4969	25	4161	18	3583	5
39	NI04428	3933	27	4729	36	4163	17	3489	12
40	SD05W012	3830	35	4667	38	3702	39	3717	4
41	SD05W138	3508	47	3876	47	3410	48	3494	11
42	T159	3825	36	4744	34	3622	43	3508	9
43	TX99A0153-1	4011	23	5639	4	3911	29	2850	39
44	TX03M1096	4151	7	5322	14	4024	25	3399	16
45	TX01V5136RC	3853	33	4907	28	3904	31	3142	32
46	TX01A7340	3716	41	4913	27	3597	44	2630	44
47	TX02A0252	3887	30	4875	30	3549	47	2822	40
48	TX04M410068	3661	42	5040	22	3577	45	2260	50
49	TX03A0148	3920	28	5269	16	3847	34	2576	45
50	TX03A0563	4068	17	5327	13	4016	26	3356	19
	mean	3900		4883		3971		3185	
	cv (%)	13.9		10.1		11.2		17.8	
	l.s.d. (0.05)	304		732		602		573	
	n	78		12		15		14	

Table 6. Mean grain yields (kg/ha) of entries in the 2007 SRPN for regional production zones (after Peterson, 1992, Crop Science 32: 907). Irrigated trials = Clovis and Farmington, NM, Bushland, TX, Goodwell, OK and Ft. Collins, CO.

Entry	Line/selection	region		Northern High Plains		Intermountain		Irrigated trials	
		mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2329	50	2249	50	3534	50	3186	50
2	Scout 66	2893	49	2803	49	4706	47	4231	49
3	TAM-107	3574	46	3518	42	5240	38	5628	42
4	Trego	3642	44	3450	44	5144	40	5403	46
5	OK Bullet06ERU	3779	38	3613	41	5463	28	6076	27
6	OK05737W	3869	32	3427	45	5661	19	6107	24
7	OK03305	3768	40	3928	24	5257	37	5787	38
8	OK03522	4192	6	4289	5	5791	12	6881	1
9	OK02522W	3852	34	3860	31	4963	45	6212	19
10	OK02125	4067	18	3726	35	5590	23	6331	13
11	KS04HW47-3-4	4015	20	4047	17	5926	8	6284	14
12	T151	4083	15	3958	22	4912	46	6072	28
13	T153	4120	8	4098	14	5013	43	6231	18
14	T154	4011	22	3911	27	4290	48	5861	35
15	T158	4300	4	4188	10	5177	39	6244	16
16	Art (98x0338-13)	3975	26	3788	33	5341	32	6184	20
17	Hawken(98x0435-15)	3986	25	4107	13	5622	20	6110	23
18	99x0212-2	4088	12	4239	8	5742	15	6117	22
19	BC98331-03\$-2W	4536	1	4873	1	5826	9	6715	3
20	BC98334-10W-8W	4070	16	3658	36	5719	18	6575	8
21	BC98334-04\$-02\$	4241	5	3973	21	5331	33	6686	5
22	HV9W96-1271R-1	4012	21	4276	6	5603	21	5755	39
23	HV9W02-267W	4092	10	3989	20	5793	11	6349	12
24	HV9W02-112W	3803	37	3842	32	4986	44	5584	44
25	HV9W02-271W	4091	11	4502	3	5753	14	6012	29
26	KS990498-3-8-2	4062	19	4084	15	5594	22	6174	21
27	KS970093-8-9-#1	4398	2	4538	2	5941	7	6362	11
28	KS980512-2-2	4313	3	4165	11	5736	16	6246	15
29	KS980512-11-22	3904	29	4059	16	4260	49	5439	45
30	CO01385-A1	4093	9	4226	9	6335	4	6491	9
31	CO02W280	3650	43	3468	43	5316	34	5361	47
32	CO03W054	3887	31	3624	40	5800	10	5949	32
33	CO03W239	4010	24	3915	25	6435	2	6875	2
34	CO03W269	3575	45	3281	48	5762	13	5899	34
35	CO03443	3405	48	3360	46	5359	30	5616	43
36	NI04420	4087	13	4263	7	5356	31	6000	30
37	NI04421	3768	39	3903	28	5560	24	5825	37
38	NE04424	4083	14	4115	12	5470	27	6104	25
39	NI04428	3933	27	3642	37	5533	26	5962	31
40	SD05W012	3830	35	3640	38	5021	42	5631	41
41	SD05W138	3508	47	3339	47	5023	41	4992	48
42	T159	3825	36	3628	39	5442	29	5917	33
43	TX99A0153-1	4011	23	3958	23	6044	5	6615	7
44	TX03M1096	4151	7	4326	4	5537	25	6238	17
45	TX01V5136RC	3853	33	3865	30	5302	35	5842	36
46	TX01A7340	3716	41	3769	34	5722	17	6102	26
47	TX02A0252	3887	30	3996	19	6706	1	6405	10
48	TX04M410068	3661	42	3914	26	5269	36	5725	40
49	TX03A0148	3920	28	3888	29	6368	3	6705	4
50	TX03A0563	4068	17	3999	18	6003	6	6645	6
	mean	3900		3866		5466		5995	
	cv (%)	13.9		16.9		11.9		11.3	
	l.s.d. (0.05)	304		584		967		956	
	n	78		18		10		16	

Table 7. Summary of mean volume weights (kg/hl) of 50 entries in the 2007 SRPN.

Entry	Line/selection	region	Clovis, NM,	Clovis, NM,	Farmington,	Bushland, TX,	Bushland, TX,
			irr.	dryland	NM, irr.	dryland	irr.
1	Kharkof	75.1	75.1	72.5	75.2	72.2	77.6
2	Scout 66	75.7	77.3	72.5	75.9	74.9	77.9
3	TAM-107	73.3	77.0	72.9	75.4	71.4	75.0
4	Trego	75.3	76.8	70.8	76.1	75.9	77.8
5	OK Bullet06ERU	75.9	79.2	78.5	77.7	77.0	78.3
6	OK05737W	73.7	79.5	74.3	75.2	73.0	77.0
7	OK03305	75.3	73.4	75.8	77.2	76.0	78.9
8	OK03522	74.8	77.4	75.1	76.4	73.4	79.9
9	OK02522W	74.9	79.2	76.9	75.7	74.6	77.7
10	OK02125	74.8	78.3	74.5	76.0	73.0	76.4
11	KS04HW47-3-4	73.5	78.3	72.9	76.0	71.9	80.5
12	T151	74.4	77.9	74.2	77.4	73.2	78.1
13	T153	75.3	79.5	76.6	75.9	73.2	78.8
14	T154	75.5	79.3	74.6	75.9	74.2	78.4
15	T158	75.3	79.6	74.7	77.5	73.5	79.2
16	Art (98x0338-13)	74.8	79.2	77.1	75.7	74.2	77.2
17	Hawken(98x0435-15)	75.0	78.0	76.3	76.3	72.0	76.6
18	99x0212-2	73.7	75.3	75.5	74.5	72.6	77.2
19	BC98331-03\$-2W	74.9	79.5	76.5	76.1	71.9	77.3
20	BC98334-10W-8W	73.8	78.7	74.0	76.0	72.3	75.8
21	BC98334-04\$-02\$	74.6	77.8	76.2	75.2	72.2	77.5
22	HV9W96-1271R-1	74.5	78.5	73.3	75.8	73.9	77.0
23	HV9W02-267W	74.3	78.5	74.0	75.5	73.3	77.6
24	HV9W02-112W	74.5	78.9	75.0	77.5	73.1	76.5
25	HV9W02-271W	73.6	78.3	72.2	76.4	71.9	76.3
26	KS990498-3-&-2	71.8	75.5	71.0	74.4	70.3	74.4
27	KS970093-8-9-#1	76.6	79.1	76.4	77.4	70.4	78.4
28	KS980512-2-2	75.6	79.9	75.2	77.8	70.4	78.3
29	KS980512-11-22	74.2	80.1	71.3	75.7	74.2	77.2
30	CO01385-A1	75.2	80.9	72.4	77.0	74.3	77.7
31	CO02W280	74.9	78.4	74.0	76.7	70.6	77.2
32	CO03W054	74.1	77.9	70.7	76.7	73.9	76.9
33	CO03W239	73.3	79.5	74.1	76.4	75.1	77.2
34	CO03W269	73.4	77.5	73.4	77.2	71.9	77.5
35	CO03443	74.8	79.6	75.3	76.9	72.8	77.3
36	NI04420	76.0	79.9	76.6	77.7	74.1	78.7
37	NI04421	73.9	78.0	73.9	75.8	76.2	77.7
38	NE04424	76.1	80.2	77.3	77.6	75.2	78.7
39	NI04428	76.1	80.0	76.5	78.5	73.5	76.2
40	SD05W012	73.0	75.8	72.7	75.0	75.5	75.5
41	SD05W138	75.7	78.3	70.4	76.8	74.1	74.8
42	T159	74.9	78.0	76.0	77.5	71.7	77.0
43	TX99A0153-1	73.7	76.0	72.5	77.3	74.8	79.1
44	TX03M1096	73.2	75.6	70.9	74.3	73.3	77.0
45	TX01V5136RC	77.3	78.4	76.6	78.4	75.2	78.7
46	TX01A7340	74.2	78.6	72.2	76.5	72.7	78.8
47	TX02A0252	74.9	78.9	71.6	78.5	78.2	78.8
48	TX04M410068	75.1	78.3	75.6	75.3	74.8	78.6
49	TX03A0148	70.9	71.7	66.2	72.9	75.3	74.8
50	TX03A0563	75.2	79.0	73.4	77.9	73.9	78.8
	mean	74.6	78.1	74.1	76.4	73.5	77.5

Table 7. Summary of mean volume weights (kg/hl) of 50 entries in the 2007 SRPN.

Entry	Line/selection	region	Chillicothe,	Prosper,	Colby,
			TX	TX	KS
1	Kharkof	75.1	75.9	71.1	80.3
2	Scout 66	75.7	78.9	70.8	81.6
3	TAM-107	73.3	76.0	67.6	79.9
4	Trego	75.3	79.5	68.9	81.9
5	OK Bullet06ERU	75.9	79.7	67.6	82.0
6	OK05737W	73.7	78.0	68.6	81.0
7	OK03305	75.3	79.7	74.6	82.6
8	OK03522	74.8	80.6	70.6	82.1
9	OK02522W	74.9	77.7	68.4	80.5
10	OK02125	74.8	78.0	70.2	81.9
11	KS04HW47-3-4	73.5	77.3	67.3	80.8
12	T151	74.4	78.2	73.0	82.3
13	T153	75.3	77.9	70.0	81.9
14	T154	75.5	78.6	72.1	82.3
15	T158	75.3	77.9	72.6	82.2
16	Art (98x0338-13)	74.8	77.5	71.0	82.0
17	Hawken(98x0435-15)	75.0	77.9	72.1	81.2
18	99x0212-2	73.7	76.9	68.8	80.5
19	BC98331-03\$-2W	74.9	76.4	66.2	81.9
20	BC98334-10W-8W	73.8	76.8	62.7	81.4
21	BC98334-04\$-02\$	74.6	76.4	66.2	81.1
22	HV9W96-1271R-1	74.5	76.9	69.7	81.7
23	HV9W02-267W	74.3	77.3	68.1	80.7
24	HV9W02-112W	74.5	76.8	67.0	82.5
25	HV9W02-271W	73.6	78.4	63.6	81.3
26	KS990498-3-&-2	71.8	74.9	67.1	78.4
27	KS970093-8-9-#1	76.6	79.9	74.2	83.1
28	KS980512-2-2	75.6	78.6	69.8	81.8
29	KS980512-11-22	74.2	77.1	70.4	81.4
30	CO01385-A1	75.2	77.5	74.0	81.9
31	CO02W280	74.9	77.5	67.7	80.5
32	CO03W054	74.1	76.6	70.7	79.3
33	CO03W239	73.3	74.4	60.6	78.9
34	CO03W269	73.4	73.9	64.4	80.0
35	CO03443	74.8	72.4	66.4	79.4
36	NI04420	76.0	79.1	71.7	81.9
37	NI04421	73.9	75.7	68.0	78.4
38	NE04424	76.1	79.7	72.1	81.5
39	NI04428	76.1	78.9	69.1	82.0
40	SD05W012	73.0	75.7	63.3	79.8
41	SD05W138	75.7	79.3	69.3	81.6
42	T159	74.9	78.2	70.7	79.6
43	TX99A0153-1	73.7	78.4	69.1	81.5
44	TX03M1096	73.2	77.3	69.8	79.6
45	TX01V5136RC	77.3	80.6	75.1	83.4
46	TX01A7340	74.2	79.5	69.4	81.7
47	TX02A0252	74.9	78.8	71.6	82.8
48	TX04M410068	75.1	80.0	72.6	81.7
49	TX03A0148	70.9	75.3	69.5	79.2
50	TX03A0563	75.2	77.1	70.6	83.4
	mean	74.6	77.6	69.3	81.2

Table 7. Summary of mean volume weights (kg/hl) of 50 entries in the 2007 SRPN.

Entry	Line/selection	region	Garden City, KS	Fort Collins, CO	Walsh, CO	Akron, CO	Julesburg, CO
1	Kharkof	75.1	76.2	74.1	72.2	76.5	67.9
2	Scout 66	75.7	79.3	77.2	72.4	77.1	67.3
3	TAM-107	73.3	69.9	74.3	71.6	76.4	67.0
4	Trego	75.3	72.7	75.2	71.9	78.8	69.7
5	OK Bullet06ERU	75.9	74.4	74.7	72.2	78.4	70.2
6	OK05737W	73.7	69.2	74.9	70.5	76.6	68.3
7	OK03305	75.3	76.4	74.9	74.0	76.3	70.2
8	OK03522	74.8	70.9	76.6	72.9	75.4	71.3
9	OK02522W	74.9	73.7	74.6	72.5	76.7	69.2
10	OK02125	74.8	72.5	74.4	73.8	76.3	69.1
11	KS04HW47-3-4	73.5	68.8	75.3	66.9	76.2	66.9
12	T151	74.4	72.3	71.3	72.0	77.1	68.7
13	T153	75.3	73.6	73.3	74.2	75.8	70.0
14	T154	75.5	72.7	72.5	74.7	75.7	68.6
15	T158	75.3	71.9	74.0	74.2	77.5	68.6
16	Art (98x0338-13)	74.8	71.1	74.0	71.0	77.7	69.8
17	Hawken(98x0435-15)	75.0	71.1	76.8	71.0	76.5	69.4
18	99x0212-2	73.7	70.4	73.8	71.0	76.2	68.1
19	BC98331-03\$-2W	74.9	70.4	74.6	75.1	75.9	68.9
20	BC98334-10W-8W	73.8	69.4	75.6	72.7	76.2	66.3
21	BC98334-04\$-02\$	74.6	70.6	75.2	73.7	75.8	66.5
22	HV9W96-1271R-1	74.5	70.3	76.5	72.5	76.6	67.6
23	HV9W02-267W	74.3	71.6	76.3	72.7	77.7	70.4
24	HV9W02-112W	74.5	68.2	77.6	73.7	77.5	70.3
25	HV9W02-271W	73.6	71.6	75.9	71.4	73.1	66.8
26	KS990498-3-&-2	71.8	68.4	74.9	66.6	74.6	67.5
27	KS970093-8-9-#1	76.6	72.0	74.8	75.3	75.9	70.6
28	KS980512-2-2	75.6	73.9	75.2	73.1	76.8	70.9
29	KS980512-11-22	74.2	71.1	70.3	74.2	75.4	68.4
30	CO01385-A1	75.2	70.3	79.1	71.7	78.6	69.9
31	CO02W280	74.9	72.5	77.3	73.7	77.2	67.8
32	CO03W054	74.1	72.1	76.3	70.7	75.9	65.4
33	CO03W239	73.3	70.8	76.6	71.4	75.9	67.3
34	CO03W269	73.4	73.3	76.2	71.5	75.3	66.0
35	CO03443	74.8	73.1	75.5	71.9	76.8	71.0
36	NI04420	76.0	72.5	75.5	73.6	76.6	69.4
37	NI04421	73.9	69.6	75.2	68.8	75.8	69.3
38	NE04424	76.1	72.5	74.7	73.4	76.8	70.2
39	NI04428	76.1	73.1	77.1	73.2	76.8	69.8
40	SD05W012	73.0	69.9	72.4	70.9	74.1	69.8
41	SD05W138	75.7	76.9	75.3	73.4	76.1	69.8
42	T159	74.9	70.8	76.3	70.3	75.4	67.0
43	TX99A0153-1	73.7	71.3	76.4	71.5	77.2	59.4
44	TX03M1096	73.2	69.2	75.5	70.5	74.4	66.2
45	TX01V5136RC	77.3	76.1	76.5	74.0	79.1	69.2
46	TX01A7340	74.2	69.4	76.4	71.9	76.2	68.2
47	TX02A0252	74.9	70.7	76.2	72.2	77.3	68.0
48	TX04M410068	75.1	72.2	77.4	70.5	76.8	67.6
49	TX03A0148	70.9	69.1	73.3	70.4	74.5	64.9
50	TX03A0563	75.2	72.0	79.1	72.8	78.4	64.4
	mean	74.6	71.8	75.3	72.2	76.4	68.3

Table 7. Summary of mean volume weights (kg/hl) of 50 entries in the 2007 SRPN.

Entry	Line/selection	region	Burlington,	North Platte,	Sidney, NE	Alliance, NE	Brookings,
			CO	NE			SD
1	Kharkof	75.1	75.6	75.3	75.3	78.2	77.7
2	Scout 66	75.7	76.5	71.6	78.9	78.1	78.8
3	TAM-107	73.3	76.2	68.9	74.6	76.7	71.9
4	Trego	75.3	79.9	67.9	77.1	79.6	76.9
5	OK Bullet06ERU	75.9	76.7	71.8	79.8	79.9	76.6
6	OK05737W	73.7	74.7	59.6	74.2	77.7	77.2
7	OK03305	75.3	78.1	75.7	76.2	77.9	80.7
8	OK03522	74.8	76.5	75.3	74.4	73.5	81.2
9	OK02522W	74.9	75.8	70.2	77.2	79.3	76.9
10	OK02125	74.8	75.3	69.2	78.3	76.6	76.1
11	KS04HW47-3-4	73.5	78.1	67.4	74.8	77.3	76.7
12	T151	74.4	75.4	70.9	76.5	76.6	76.5
13	T153	75.3	74.9	76.1	76.8	78.4	77.4
14	T154	75.5	74.7	76.5	76.8	78.3	79.6
15	T158	75.3	76.6	69.4	75.5	78.9	75.1
16	Art (98x0338-13)	74.8	75.1	68.7	74.2	76.8	78.1
17	Hawken(98x0435-15)	75.0	75.5	71.8	74.9	78.0	77.5
18	99x0212-2	73.7	75.5	72.8	73.5	76.6	78.1
19	BC98331-03\$-2W	74.9	75.6	69.4	79.0	75.9	79.9
20	BC98334-10W-8W	73.8	74.7	69.2	74.9	76.3	77.5
21	BC98334-04\$-02\$	74.6	74.4	73.6	75.5	76.8	77.7
22	HV9W96-1271R-1	74.5	76.3	77.0	77.6	79.6	77.4
23	HV9W02-267W	74.3	76.6	73.2	73.9	78.5	73.7
24	HV9W02-112W	74.5	77.2	74.8	75.9	77.5	70.6
25	HV9W02-271W	73.6	77.1	69.2	74.5	79.1	77.9
26	KS990498-3-&-2	71.8	72.7	72.1	70.0	75.1	76.4
27	KS970093-8-9-#1	76.6	76.6	72.2	76.6	78.8	80.6
28	KS980512-2-2	75.6	75.6	79.5	74.5	77.8	77.7
29	KS980512-11-22	74.2	75.6	68.7	76.8	77.3	76.4
30	CO01385-A1	75.2	77.0	72.8	77.9	80.0	71.4
31	CO02W280	74.9	76.0	72.9	77.1	78.7	73.0
32	CO03W054	74.1	75.7	72.8	74.1	76.6	74.7
33	CO03W239	73.3	74.0	69.4	76.4	77.9	73.1
34	CO03W269	73.4	75.2	68.2	71.7	77.6	70.0
35	CO03443	74.8	75.9	76.3	76.3	77.6	72.0
36	NI04420	76.0	76.0	72.3	77.3	79.1	78.0
37	NI04421	73.9	75.1	75.2	74.4	77.5	71.0
38	NE04424	76.1	76.0	69.9	78.3	79.1	78.4
39	NI04428	76.1	76.4	73.3	77.7	79.8	78.1
40	SD05W012	73.0	73.7	72.1	73.4	75.9	73.4
41	SD05W138	75.7	76.1	69.7	78.6	79.4	79.0
42	T159	74.9	76.5	68.7	76.2	77.7	79.0
43	TX99A0153-1	73.7	77.4	72.3	70.8	74.2	77.1
44	TX03M1096	73.2	75.5	72.1	72.5	76.4	76.4
45	TX01V5136RC	77.3	78.3	84.3	78.2	78.6	79.7
46	TX01A7340	74.2	76.2	71.3	75.0	75.7	74.7
47	TX02A0252	74.9	75.3	71.2	76.6	80.2	77.2
48	TX04M410068	75.1	76.3	73.6	72.5	77.9	76.0
49	TX03A0148	70.9	74.9	65.2	73.8	75.1	69.9
50	TX03A0563	75.2	77.4	68.4	76.2	79.8	77.3
	mean	74.6	76.0	71.8	75.7	77.7	76.3

Table 7. Summary of mean volume weights (kg/hl) of 50 entries in the 2007 SRPN.

Entry	Line/selection	region	Dakota Lakes, SD	Winner, SD	Pine Bluff, WY	Crawfords- ville, IA	Columbia, MO
1	Kharkof	75.1	76.5	76.1	77.3	77.5	73.1
2	Scout 66	75.7	76.5	76.6	80.1	76.4	66.0
3	TAM-107	73.3	67.9	68.3	78.3	74.4	67.5
4	Trego	75.3	72.0	76.3	81.7	77.7	69.1
5	OK Bullet06ERU	75.9	73.7	70.7	80.7	75.0	68.0
6	OK05737W	73.7	71.5	71.6	77.9	75.0	67.2
7	OK03305	75.3	66.4	64.0	76.9	78.8	67.3
8	OK03522	74.8	72.3	60.7	77.1	75.1	70.1
9	OK02522W	74.9	69.8	71.2	80.9	72.0	67.6
10	OK02125	74.8	71.0	70.9	79.4	76.9	69.4
11	KS04HW47-3-4	73.5	64.6	68.4	78.0	74.2	69.2
12	T151	74.4	72.3	73.3	73.9	77.2	66.2
13	T153	75.3	71.3	73.9	79.1	76.0	66.4
14	T154	75.5	75.5	74.9	80.6	76.6	67.3
15	T158	75.3	71.5	72.1	80.7	77.3	69.8
16	Art (98x0338-13)	74.8	72.4	68.8	78.9	76.5	70.9
17	Hawken(98x0435-15)	75.0	71.2	72.8	79.1	75.9	69.4
18	99x0212-2	73.7	66.1	68.4	77.4	74.8	70.3
19	BC98331-03\$-2W	74.9	75.4	74.4	78.6	73.9	65.9
20	BC98334-10W-8W	73.8	72.7	75.4	78.9	72.2	62.0
21	BC98334-04\$-02\$	74.6	73.3	74.4	79.2	74.6	67.9
22	HV9W96-1271R-1	74.5	67.9	68.2	77.7	73.1	67.7
23	HV9W02-267W	74.3	68.8	72.4	76.6	74.6	63.6
24	HV9W02-112W	74.5	71.0	71.7	76.8	73.7	63.9
25	HV9W02-271W	73.6	69.7	71.8	75.4	76.1	62.2
26	KS990498-3-&-2	71.8	68.4	64.3	72.8	72.0	65.7
27	KS970093-8-9-#1	76.6	79.0	78.9	79.8	78.8	73.7
28	KS980512-2-2	75.6	75.4	66.7	79.8	77.4	69.3
29	KS980512-11-22	74.2	70.0	72.3	78.2	73.6	71.0
30	CO01385-A1	75.2	67.5	67.9	80.9	77.2	68.3
31	CO02W280	74.9	73.6	72.0	79.9	75.7	68.1
32	CO03W054	74.1	72.8	72.2	80.3	76.8	66.6
33	CO03W239	73.3	68.6	69.6	79.3	71.3	60.2
34	CO03W269	73.4	70.1	71.2	80.9	73.8	62.4
35	CO03443	74.8	71.5	71.2	78.3	74.4	69.4
36	NI04420	76.0	73.7	75.0	80.9	77.7	70.4
37	NI04421	73.9	69.1	70.5	77.3	75.6	70.2
38	NE04424	76.1	74.7	74.1	81.6	78.4	70.3
39	NI04428	76.1	73.3	75.2	79.7	76.9	70.5
40	SD05W012	73.0	75.0	72.5	77.5	74.8	61.3
41	SD05W138	75.7	75.5	73.8	82.4	75.7	71.4
42	T159	74.9	70.7	74.6	80.7	74.8	71.5
43	TX99A0153-1	73.7	68.3		75.2	76.4	66.8
44	TX03M1096	73.2	68.5	68.8	74.5	75.9	71.2
45	TX01V5136RC	77.3	72.0	75.2	80.1	77.9	73.6
46	TX01A7340	74.2	67.0	67.0	77.6	74.6	73.8
47	TX02A0252	74.9	66.8	67.2	78.2	77.8	69.6
48	TX04M410068	75.1	68.9		78.6	74.0	74.3
49	TX03A0148	70.9	61.7	58.7	75.2	72.9	63.6
50	TX03A0563	75.2	69.5	69.2	77.9	77.7	71.5
	mean	74.6	71.0	71.1	78.6	75.6	68.3

Table 8. Summary of plant heights (cm) of entries grown in the 2007 SRPN.

Entry	Line/selection	region	Clovis, NM, dryland					
			Clovis, NM, irr.	Clovis, NM, dryland	Farmington, NM, irr.	Bushland, TX, dryland	Bushland, TX, irr.	Chillicothe, TX
1	Kharkof	100	105	105	110	91	100	118
2	Scout 66	92	112	96	86	83	80	111
3	TAM-107	75	90	70	86	77	73	84
4	Trego	75	92	69	93	73	69	85
5	OK Bullet06ERU	80	99	79	90	75	80	94
6	OK05737W	79	91	77	75	79	78	93
7	OK03305	73	83	72	85	72	74	83
8	OK03522	77	91	69	80	77	77	84
9	OK02522W	79	91	75	91	76	78	90
10	OK02125	82	97	80	86	79	76	90
11	KS04HW47-3-4	76	90	77	80	73	76	88
12	T151	75	90	65	72	73	74	89
13	T153	70	82	68	74	73	71	82
14	T154	73	93	69	80	74	76	87
15	T158	74	86	73	86	73	73	81
16	Art (98x0338-13)	77	92	70	74	77	73	84
17	Hawken(98x0435-15)	72	87	69	87	68	73	79
18	99x0212-2	77	83	76	70	78	75	83
19	BC98331-03\$-2W	70	87	65	74	69	70	80
20	BC98334-10W-8W	70	83	66	78	68	70	77
21	BC98334-04\$-02\$	74	85	70	74	75	77	86
22	HV9W96-1271R-1	72	77	69	85	71	72	86
23	HV9W02-267W	78	89	74	82	74	75	93
24	HV9W02-112W	73	88	69	78	69	72	85
25	HV9W02-271W	77	86	79	82	74	75	85
26	KS990498-3-&-2	77	90	72	81	77	81	85
27	KS970093-8-9-#1	74	80	65	85	71	74	88
28	KS980512-2-2	79	89	72	73	82	72	92
29	KS980512-11-22	70	80	65	77	70	68	81
30	CO01385-A1	75	92	73	95	74	73	83
31	CO02W280	83	100	79	93	81	76	92
32	CO03W054	80	94	75	81	78	79	87
33	CO03W239	77	91	75	89	74	77	87
34	CO03W269	80	95	80	93	74	78	88
35	CO03443	82	104	81	90	73	81	85
36	NI04420	81	98	76	84	77	79	90
37	NI04421	78	93	77	84	72	78	86
38	NE04424	79	97	76	80	77	77	89
39	NI04428	74	89	73	94	77	76	85
40	SD05W012	81	101	71	83	77	79	91
41	SD05W138	74	95	72	88	66	73	78
42	T159	81	101	74	77	81	81	98
43	TX99A0153-1	72	81	69	86	75	73	82
44	TX03M1096	77	92	79	81	81	78	85
45	TX01V5136RC	78	102	75	81	75	77	89
46	TX01A7340	77	91	75	84	79	74	87
47	TX02A0252	77	88	77	86	76	74	87
48	TX04M410068	76	89	70	79	72	73	90
49	TX03A0148	72	86	71	73	71	68	82
50	TX03A0563	72	83	68		71	75	82
	mean	77	91	74	83	75	76	87

Table 8. Summary of plant heights (cm) of entries grown in the 2007 SRPN.

Entry	Line/selection	region	Fort									
			Colby, KS	Garden City, KS	Collins, CO	Walsh, CO	Akron, CO	Julesburg, CO	Burlington, CO	Lincoln, NE	Clay Center, NE	North Platte, NE
1	Kharkof	100	125	109	119	99	81	98	57	96	91	119
2	Scout 66	92	115	109	90	95	77	72	56	90	96	112
3	TAM-107	75	81	93	74	79	61	57	52	91	86	89
4	Trego	75	81	90	76	77	60	61	53	88	80	91
5	OK Bullet06ERU	80	88	96	83	83	65	62	52	86	80	91
6	OK05737W	79	86	97	82	81	56	67	53	91	79	94
7	OK03305	73	80	92	74	74	64	65	55	92	70	84
8	OK03522	77	85	95	80	83	75	88	56	82	75	94
9	OK02522W	79	86	100	83	80	69	72	53	98	77	94
10	OK02125	82	88	97	86	84	64	67	56	101	87	97
11	KS04HW47-3-4	76	90	87	75	79	62	62	53	80	82	94
12	T151	75	81	95	69	79	64	75	55	84	77	89
13	T153	70	75	85	63	74	56	72	53	86	69	81
14	T154	73	76	86	69	74	58	67	53	88	68	84
15	T158	74	76	88	66	76	69	75	51	90	74	81
16	Art (98x0338-13)	77	83	92	75	81	58	84	52	97	79	91
17	Hawken(98x0435-15)	72	81	84	72	71	53	67	48	97	75	86
18	99x0212-2	77	80	93	80	83	71	71	56	90	68	91
19	BC98331-03\$-2W	70	75	85	68	71	60	66	55	92	67	76
20	BC98334-10W-8W	70	78	85	69	74	57	60	55	86	71	74
21	BC98334-04\$-02\$	74	76	89	74	79	66	62	56	96	72	81
22	HV9W96-1271R-1	72	76	91	75	71	65	70	55	92	67	84
23	HV9W02-267W	78	80	96	82	83	75	71	56	85	80	91
24	HV9W02-112W	73	83	87	67	77	56	84	52	92	68	81
25	HV9W02-271W	77	85	89	74	81	74	80	51	88	76	81
26	KS990498-3-&-2	77	85	90	80	75	69	76	50	86	77	76
27	KS970093-8-9-#1	74	80	91	76	74	69	76	52	90	74	79
28	KS980512-2-2	79	86	95	81	75	69	80	57	86	80	86
29	KS980512-11-22	70	78	86	66	67	64	70	52	90	68	74
30	CO01385-A1	75	83	88	80	69	65	77	52	86	77	81
31	CO02W280	83	90	98	80	84	76	57	56	90	86	97
32	CO03W054	80	93	93	80	79	75	60	52	85	86	94
33	CO03W239	77	88	87	80	80	69	55	50	80	82	89
34	CO03W269	80	90	94	80	80	64	84	46	90	84	84
35	CO03443	82	88	95	86	79	71	75	51	86	90	86
36	NI04420	81	91	93	75	77	79	72	55	90	86	91
37	NI04421	78	88	91	71	74	74	65	50	86	86	89
38	NE04424	79	88	92	77	83	71	67	51	86	85	94
39	NI04428	74	81	88	69	71	51	60	50	91	73	84
40	SD05W012	81	86	90	77	77	65	79	51	100	85	91
41	SD05W138	74	85	86	68	71	48	62	46	97	78	94
42	T159	81	90	94	73	84	60	77	51	91	88	99
43	TX99A0153-1	72	78	84	70	75	56	64	51	91	68	81
44	TX03M1096	77	78	91	74	81	64	69	52	97	73	84
45	TX01V5136RC	78	85	93	76	79	69	71	56	91	73	94
46	TX01A7340	77	81	93	80	81	66	70	52	89	75	86
47	TX02A0252	77	85	93	86	83	65	75	51	91	70	89
48	TX04M410068	76	86	96	71	76	62	70	48	86	70	91
49	TX03A0148	72	76	81	75	70	64	62	51	91	66	76
50	TX03A0563	72	75	88	69	76	66	75	50	91	71	76
	mean	77	84	92	76	78	65	70	52	90	77	88

Table 8. Summary of plant heights (cm) of entries grown in the 2007 SRPN.

Entry	Line/selection	region	Sidney, NE	Alliance, NE	Pine Bluff, WY	Crawfordsville, IA	Columbia, MO
1	Kharkof	100	76	81	64	111	89
2	Scout 66	92	81	79	65	99	69
3	TAM-107	75	76	66	49	72	59
4	Trego	75	64	61	54	78	64
5	OK Bullet06ERU	80	76	66	56	84	64
6	OK05737W	79	81	64	54	74	61
7	OK03305	73	79	64	48	67	59
8	OK03522	77	81	71	54	68	56
9	OK02522W	79	109	69	54	74	59
10	OK02125	82	114	71	57	80	66
11	KS04HW47-3-4	76	76	69	53	73	63
12	T151	75	74	66	52	73	65
13	T153	70	89	64	45	64	52
14	T154	73	81	69	47	68	59
15	T158	74	89	69	51	71	65
16	Art (98x0338-13)	77	79	71	50	81	58
17	Hawken(98x0435-15)	72	81	66	47	72	64
18	99x0212-2	77	76	69	52	76	64
19	BC98331-03\$-2W	70	81	61	49	66	52
20	BC98334-10W-8W	70	84	58	50	69	59
21	BC98334-04\$-02\$	74	79	66	46	71	64
22	HV9W96-1271R-1	72	71	64	50	60	59
23	HV9W02-267W	78	81	66	53	78	62
24	HV9W02-112W	73	81	61	50	68	51
25	HV9W02-271W	77	79	66	58	76	64
26	KS990498-3-&-2	77	86	71	57	70	66
27	KS970093-8-9-#1	74	81	66	54	69	63
28	KS980512-2-2	79	84	66	57	82	68
29	KS980512-11-22	70	81	58	49	68	57
30	CO01385-A1	75	81	66	49	69	65
31	CO02W280	83	97	69	56	88	80
32	CO03W054	80	81	69	54	81	71
33	CO03W239	77	89	71	52	78	69
34	CO03W269	80	84	71	55	80	73
35	CO03443	82	89	71	54	86	85
36	NI04420	81	86	71	58	82	71
37	NI04421	78	89	74	52	78	73
38	NE04424	79	86	71	53	82	73
39	NI04428	74	97	66	50	73	68
40	SD05W012	81	97	71	48	85	79
41	SD05W138	74	86	61	55	77	70
42	T159	81	79	69	58	88	66
43	TX99A0153-1	72	84	64	53	67	53
44	TX03M1096	77	94	66	50	71	66
45	TX01V5136RC	78	81	71	53	74	62
46	TX01A7340	77	79	69	54	75	67
47	TX02A0252	77	84	74	56	73	57
48	TX04M410068	76	81	71	58	77	68
49	TX03A0148	72	91	66	52	67	62
50	TX03A0563	72	74	64	50	70	57
	mean	77	84	68	53	76	65

Table 9. Summary of days (from 1/1) to heading for entries in the 2007 SRPN.

Entry	Line/selection	region	Clovis,					
			Clovis, NM, irr.	NM, dryland	Farmington, NM, irr.	Bushland, TX, dryland	Bushland, TX, irr.	Chillicothe, TX
1	Kharkof	140	134	131	137	137	136	118
2	Scout 66	135	130	124	129	129	129	117
3	TAM-107	131	127	120	130	125	124	108
4	Trego	136	129	124	133	127	125	110
5	OK Bullet06ERU	133	128	122	135	127	125	109
6	OK05737W	133	128	122	136	126	125	110
7	OK03305	130	127	120	131	124	123	104
8	OK03522	133	128	123	135	126	124	103
9	OK02522W	133	127	121	133	126	124	109
10	OK02125	133	128	124	135	127	125	110
11	KS04HW47-3-4	134	128	124	133	127	125	110
12	T151	132	127	121	132	125	125	107
13	T153	130	127	118	128	125	123	105
14	T154	130	127	119	128	125	123	105
15	T158	132	127	121	130	126	124	107
16	Art (98x0338-13)	133	128	123	135	127	125	109
17	Hawken(98x0435-15)	133	128	123	130	128	126	115
18	99x0212-2	132	127	121	132	126	125	106
19	BC98331-03\$-2W	130	126	118	127	125	123	104
20	BC98334-10W-8W	132	128	121	129	126	124	108
21	BC98334-04\$-02\$	131	127	121	128	126	124	108
22	HV9W96-1271R-1	132	127	120	129	126	124	108
23	HV9W02-267W	132	127	121	131	126	124	106
24	HV9W02-112W	132	127	121	130	126	125	105
25	HV9W02-271W	132	128	122	132	126	125	110
26	KS990498-3-&-2	134	129	124	132	127	126	109
27	KS970093-8-9-#1	131	127	120	129	125	124	104
28	KS980512-2-2	134	129	122	132	129	128	113
29	KS980512-11-22	131	126	120	129	126	124	108
30	CO01385-A1	133	127	124	133	127	125	109
31	CO02W280	132	128	121	130	125	124	106
32	CO03W054	134	129	124	131	130	128	114
33	CO03W239	134	128	124	130	129	127	113
34	CO03W269	136	130	125	133	131	130	115
35	CO03443	136	131	125	135	131	130	115
36	NI04420	133	129	123	133	126	125	108
37	NI04421	134	129	124	132	128	126	114
38	NE04424	134	128	124	134	126	125	110
39	NI04428	133	127	121	130	127	125	111
40	SD05W012	134	129	124	133	130	128	115
41	SD05W138	137	133	126	137	131	130	116
42	T159	134	129	124	129	130	127	115
43	TX99A0153-1	133	128	122	132	126	125	112
44	TX03M1096	132	128	121	130	127	124	109
45	TX01V5136RC	133	128	124	129	127	125	113
46	TX01A7340	133	127	121	130	127	124	110
47	TX02A0252	134	129	124	130	128	126	114
48	TX04M410068	133	128	124	131	127	125	106
49	TX03A0148	133	128	121	132	127	125	106
50	TX03A0563	132	128	121	129	126	124	109
	mean	133	128	122	131	127	126	110

Table 9. Summary of days (from 1/1) to heading for entries in the 2007 SRPN.

Entry	Line/selection	region	Fort					
			Goodwell, OK	Colby, KS	Garden City, KS	Collins, CO	Akron, CO	Lincoln, NE
1	Kharkof	140	135	141	139	151	147	139
2	Scout 66	135	129	137	134	144	144	138
3	TAM-107	131	124	132	127	141	138	140
4	Trego	136	127	168	132	144	143	138
5	OK Bullet06ERU	133	125	133	130	143	140	137
6	OK05737W	133	125	134	129	143	141	138
7	OK03305	130	123	132	125	141	137	138
8	OK03522	133	124	133	128	143	141	137
9	OK02522W	133	125	134	129	143	140	140
10	OK02125	133	125	133	130	143	140	139
11	KS04HW47-3-4	134	128	134	132	145	142	137
12	T151	132	126	133	127	140	139	138
13	T153	130	122	132	125	139	137	139
14	T154	130	122	132	126	140	138	137
15	T158	132	125	133	127	142	139	139
16	Art (98x0338-13)	133	125	133	129	142	139	140
17	Hawken(98x0435-15)	133	126	135	133	142	141	139
18	99x0212-2	132	123	133	127	141	139	139
19	BC98331-03\$-2W	130	122	131	125	139	137	139
20	BC98334-10W-8W	132	125	133	127	141	140	139
21	BC98334-04\$-02\$	131	124	133	128	140	139	141
22	HV9W96-1271R-1	132	124	132	127	143	138	140
23	HV9W02-267W	132	126	134	127	143	141	139
24	HV9W02-112W	132	126	134	127	143	141	138
25	HV9W02-271W	132	127	133	128	144	140	138
26	KS990498-3-&-2	134	127	134	130	144	141	139
27	KS970093-8-9-#1	131	124	132	126	140	139	138
28	KS980512-2-2	134	127	136	134	142	141	139
29	KS980512-11-22	131	124	132	127	140	138	139
30	CO01385-A1	133	127	134	129	144	140	138
31	CO02W280	132	126	134	129	143	140	137
32	CO03W054	134	129	136	134	144	142	140
33	CO03W239	134	129	136	133	143	140	136
34	CO03W269	136	132	139	133	145	143	138
35	CO03443	136	132	139	134	146	143	137
36	NI04420	133	128	135	131	145	142	139
37	NI04421	134	129	135	133	145	141	138
38	NE04424	134	127	134	130	146	142	138
39	NI04428	133	126	135	128	142	142	141
40	SD05W012	134	129	135	133	142	142	139
41	SD05W138	137	132	137	135	145	146	138
42	T159	134	126	136	134	141	142	138
43	TX99A0153-1	133	126	134	131	142	140	138
44	TX03M1096	132	123	133	127	141	139	141
45	TX01V5136RC	133	126	133	131	143	140	140
46	TX01A7340	133	124	133	129	142	139	138
47	TX02A0252	134	126	135	133	144	143	138
48	TX04M410068	133	125	134	132	144	141	138
49	TX03A0148	133	125	134	128	145	141	139
50	TX03A0563	132	126	133	129	141	139	141
	mean	133	126	135	130	143	141	139

Table 9. Summary of days (from 1/1) to heading for entries in the 2007 SRPN.

Entry	Line/selection	region	Brookings,	Dakota	Winner,	Pine Bluff,	Columbia,
			SD	Lakes, SD	SD	WY	MO
1	Kharkof	140	152	147	148	162	142
2	Scout 66	135	148	145	146	155	142
3	TAM-107	131	146	142	142	153	137
4	Trego	136	147	145	145	157	139
5	OK Bullet06ERU	133	146	144	145	154	140
6	OK05737W	133	146	144	144	156	138
7	OK03305	130	145	142	141	150	135
8	OK03522	133	147	144	145	158	139
9	OK02522W	133	146	144	145	155	139
10	OK02125	133	145	144	144	156	131
11	KS04HW47-3-4	134	148	146	145	155	140
12	T151	132	146	143	140	152	140
13	T153	130	147	141	140	151	138
14	T154	130	147	141	140	150	138
15	T158	132	146	141	140	164	136
16	Art (98x0338-13)	133	145	144	144	156	134
17	Hawken(98x0435-15)	133	146	145	145	153	135
18	99x0212-2	132	145	144	144	153	137
19	BC98331-03\$-2W	130	145	140	139	151	138
20	BC98334-10W-8W	132	146	144	144	156	138
21	BC98334-04\$-02\$	131	145	144	144	151	138
22	HV9W96-1271R-1	132	145	144	145	153	139
23	HV9W02-267W	132	145	142	144	158	140
24	HV9W02-112W	132	145	140	144	153	139
25	HV9W02-271W	132	146	142	143	155	131
26	KS990498-3-&~2	134	147	144	145	157	138
27	KS970093-8-9-#1	131	146	144	143	157	132
28	KS980512-2-2	134	148	146	146	158	137
29	KS980512-11-22	131	147	143	142	151	135
30	CO01385-A1	133	147	142	145	160	130
31	CO02W280	132	146	141	142	154	135
32	CO03W054	134	149	144	144	155	133
33	CO03W239	134	146	142	146	156	134
34	CO03W269	136	150	143	146	157	136
35	CO03443	136	152	145	147	159	137
36	NI04420	133	147	142	143	156	136
37	NI04421	134	146	142	143	157	133
38	NE04424	134	146	141	144	157	138
39	NI04428	133	146	141	145	155	139
40	SD05W012	134	145	142	146	151	133
41	SD05W138	137	150	143	147	157	139
42	T159	134	146	146	146	155	142
43	TX99A0153-1	133	145	145	146	156	139
44	TX03M1096	132	145	142	144	154	134
45	TX01V5136RC	133	146	143	144	156	139
46	TX01A7340	133	150	144	145	156	139
47	TX02A0252	134	146	144	147	156	143
48	TX04M410068	133	150	145	146	158	138
49	TX03A0148	133	147	144	145	159	139
50	TX03A0563	132	147	142	145	155	136
	mean	133	147	143	144	155	137

Table 10. Grain yield and volume weight stability analyses of wheats grown in the 2007 SPRN.

Entry	Line or selection	grain yield			volume weight		
		regional average (kg/ha)	regression coef. (b)	r ²	regional average (kg/hl)	regression coef. (b)	r ²
1	Kharkof	2329	0.54	0.60	75.1	0.56	0.52
2	Scout 66	2893	0.70	0.72	75.7	0.93	0.67
3	TAM-107	3574	0.92	0.91	73.3	1.07	0.92
4	Trego	3642	0.88	0.89	75.3	1.06	0.77
5	OK Bullet06ERU	3779	1.09	0.93	75.9	1.09	0.86
6	OK05737W	3869	1.04	0.91	73.7	1.18	0.72
7	OK03305	3768	1.02	0.84	75.3	0.96	0.54
8	OK03522	4192	1.23	0.93	74.8	0.97	0.55
9	OK02522W	3852	1.08	0.86	74.9	1.07	0.88
10	OK02125	4067	1.07	0.88	74.8	0.97	0.90
11	KS04HW47-3-4	4015	1.12	0.91	73.5	1.31	0.85
12	T151	4083	1.01	0.80	74.4	0.89	0.76
13	T153	4120	1.02	0.85	75.3	0.94	0.84
14	T154	4011	0.98	0.79	75.5	0.89	0.75
15	T158	4300	0.89	0.87	75.3	1.00	0.89
16	Art (98x0338-13)	3975	1.09	0.86	74.8	0.96	0.82
17	Hawken(98x0435-15)	3986	0.96	0.92	75.0	0.90	0.91
18	99x0212-2	4088	0.98	0.94	73.7	0.96	0.82
19	BC98331-03\$-2W	4536	1.07	0.90	74.9	1.04	0.74
20	BC98334-10W-8W	4070	1.13	0.91	73.8	1.26	0.81
21	BC98334-04\$-02\$	4241	1.05	0.89	74.6	0.99	0.84
22	HV9W96-1271R-1	4012	1.02	0.83	74.5	1.08	0.82
23	HV9W02-267W	4092	1.05	0.93	74.3	1.03	0.85
24	HV9W02-112W	3803	0.97	0.93	74.5	1.07	0.75
25	HV9W02-271W	4091	0.96	0.89	73.6	1.31	0.87
26	KS990498-3-&~2	4062	0.98	0.96	71.8	0.97	0.77
27	KS970093-8-9-#1	4398	0.91	0.86	76.6	0.68	0.51
28	KS980512-2-2	4313	0.94	0.92	75.6	0.91	0.66
29	KS980512-11-22	3904	0.86	0.78	74.2	0.92	0.77
30	CO01385-A1	4093	1.11	0.90	75.2	1.10	0.74
31	CO02W280	3650	0.85	0.91	74.9	1.00	0.86
32	CO03W054	3887	0.92	0.88	74.1	0.98	0.85
33	CO03W239	4010	1.22	0.90	73.3	1.36	0.81
34	CO03W269	3575	0.95	0.85	73.4	1.22	0.80
35	CO03443	3405	0.96	0.75	74.8	0.79	0.67
36	NI04420	4087	0.95	0.92	76.0	0.92	0.93
37	NI04421	3768	0.96	0.91	73.9	0.72	0.83
38	NE04424	4083	0.98	0.96	76.1	0.95	0.86
39	NI04428	3933	0.98	0.90	76.1	0.94	0.91
40	SD05W012	3830	0.83	0.77	73.0	0.98	0.68
41	SD05W138	3508	0.79	0.82	75.7	0.88	0.68
42	T159	3825	0.98	0.89	74.9	0.97	0.80
43	TX99A0153-1	4011	1.21	0.89	73.7	1.23	0.76
44	TX03M1096	4151	1.00	0.95	73.2	0.88	0.80
45	TX01V5136RC	3853	0.99	0.95	77.3	0.72	0.54
46	TX01A7340	3716	1.14	0.95	74.2	1.02	0.76
47	TX02A0252	3887	1.24	0.86	74.9	1.18	0.80
48	TX04M410068	3661	1.12	0.86	75.1	0.85	0.71
49	TX03A0148	3920	1.21	0.87	70.9	1.19	0.64
50	TX03A0563	4068	1.07	0.89	75.2	1.22	0.85
	mean	3900			74.6		

Table 11. Reactions of wheats grown in the 2007 SRPN to various viral infections.

Entry	Line/selection	BYDV, Columbia, MO	WSBM, Stillwater, OK: visual rating (1-4); 1 = resistant	
			3/2/2007	3/10/2007
1	Kharkof	37	3	3
2	Scout 66	29	3	4
3	TAM-107	49	2	3
4	Trego	34	2	3
5	OK Bullet06ERU	19	3	3
6	OK05737W	20	1	2
7	OK03305	37	1	2
8	OK03522	18	1	2
9	OK02522W	15	1	1
10	OK02125	27	1	1
11	KS04HW47-3-4	21	1	2
12	T151	26	1	1
13	T153	33	1	1
14	T154	24	1	1
15	T158	10	1	1
16	Art (98x0338-13)	34	1	1
17	Hawken(98x0435-15)	25	1	1
18	99x0212-2	11	2	2
19	BC98331-03\$-2W	24	1	1
20	BC98334-10W-8W	18	1	1
21	BC98334-04\$-02\$	18	1	1
22	HV9W96-1271R-1	21	1	1
23	HV9W02-267W	38	2	2
24	HV9W02-112W	26	2	2
25	HV9W02-271W	42	3	3
26	KS990498-3-&-2	19	1	2
27	KS970093-8-9-#1	7	1	1
28	KS980512-2-2	15	1	1
29	KS980512-11-22	14	1	1
30	CO01385-A1	34	4	3
31	CO02W280	25	4	3
32	CO03W054	28	4	3
33	CO03W239	27	4	4
34	CO03W269	19	4	4
35	CO03443	15	2	2
36	NI04420	47	1	1
37	NI04421	57	1	2
38	NE04424	48	1	1
39	NI04428	19	1	1
40	SD05W012	24	4	3
41	SD05W138	30	3	3
42	T159	15	1	1
43	TX99A0153-1	24	3	4
44	TX03M1096	26	3	3
45	TX01V5136RC	17	3	3
46	TX01A7340	19	3	4
47	TX02A0252	22	3	2
48	TX04M410068	17	3	2
49	TX03A0148	26	1	1
50	TX03A0563	22	1	1
	mean	25.4		
	l.s.d.	9.5		
	cv (%)	23.1		

Table 12. Seedling reactions of entries in the 2007 SRPN to selected isolates of stem rust.

Entry	Line/selection	QFCS	QTHJ	RCRS	RKQQ	TPMK	TTTT	TTKS	TTKS repeat	TTKS w/Sr24V	Postulated gene	Adult plant field response
		06ND76C	75ND717C	77ND82A	99KS76A-1	74MN1409	01MN84A-1-2	04KEN156/04	04KEN156/04	06KEN19v3	TTKS effective	St. Paul, MN
1	Kharkof	S	S	S	S	S/;	S	S				40 S
2	Scout 66	2+	S	S	S	S	S	2+/S	S/2+	-		20 MR-MS
3	TAM-107	2/2+	2	2/2++	2/1	2/S	2/S	2	2+	2+	1A.1R	T MR
4	Trego	2-	2	;1	2/S	;2/S	2/S	2	2	S	24	5 MR
5	OK Bullet06ERU	;13	;13	;13-	;23	S	S/;	S				20 MS
6	OK05737W	0	S	;	;S	S	;	S				20 MS
7	OK03305	2N	2N	2+	S	S	S	S				60 S
8	OK03522	2	2	;2	-	2/S	2	2	2	S	24	30 MR
9	OK02522W	0;	3;	0;	;3-	0;	3;	S				20 MS
10	OK02125	0/S	0/S	0;	;	0;	;1-	S				T MR
11	KS04HW47-3-4	;	;1	;	;	;1	2/1	1/S	2	S	24	0
12	T151	0/2	2	2	;	2	2	2	2	S	24	0
13	T153	0	2	;	0;	0;	2-	2	2/S	2/S	1A.1R or 24+Tmp	0
14	T154	2	2	0	2/S	2	2	2	2	2+	1A.1R or 24+Tmp	0
15	T158	2-/S	0/S	;3-	;1-	2/S	S	2/S	S/2+	S/2+	?	0
16	Art (98x0338-13)	0	0;	0	0;	0;	;2-	S/2	S	S		0
17	Hawken(98x0435-15)	;	;1-	;1-	0;	0;	0;	S				0
18	99x0212-2	;1	;13	0;	0;	;1+	0;	S				5 MS
19	BC98331-03\$-2W	;3	;3-	3;	;	3;	S	S				T MR
20	BC98334-10W-8W	0;	;3-	0;	0;	S	0;	S				T MR
21	BC98334-04\$-02\$;S	;3	0	0;	0;	0;	S				T MR
22	HV9W96-1271R-1	2	2	2	2	2	2	2	2	2+	24?	T MR
23	HV9W02-267W	1	2+	;1	1+;	;1	S	S				T MR
24	HV9W02-112W	;13	S	0;	S	S	S	S				T MR
25	HV9W02-271W	2	2	;1-	2/S	S LIF	S	S				20 MR-MS
26	KS990498-3-&-2	;	S	0;2	S	22+	;	S				30 MR
27	KS970093-8-9-#1	2	S LIF	3;1	S	S	S	S				40 MR-MS
28	KS980512-2-2	;3	;3	;13	0;/;3	0;3	S	S LIF	S	S		20 MS
29	KS980512-11-22	0;	0;	0	0;	0;3+	-	S				5 MR
30	CO01385-A1	S	S LIF	S	S	S	S	S				60 S
31	CO02W280	2+/S	S	2+	S	S	S	2++	2++	2+	?	40 MS-S
32	CO03W054	2/S	S	S	S/2	S	S/2+	S				20 MR-MS
33	CO03W239	3;	3;	S	S LIF	S	S/2-	S Sr2 mosaic				30 MS
34	CO03W269	S	S	S	2+	S	S	2	2	2+	?	5 MS
35	CO03443	;	S	;	;1	;1-	2	2-/S	2/S	S	24	T MR
36	NI04420	2/S	S	;1;/3	S	;1-	S	S				30 MS
37	NI04421	S/2	S	S;/1-	2/S	S	S	S				60 MS-S
38	NE04424	2/S	S	;1	S/2	2;/1/S	S	S				50 MS-S
39	NI04428	2-	2/S	2-	2	2	2-	S	S	-		5 MR
40	SD05W012	2-	2	;	;1	;2	;	S	S	S		TR
41	SD05W138	2-	2	;2-	2	2	2-/S	S				TR
42	T159	2-	2+	;1	1	S	S	2+ Tmp	2++	2++	Tmp	10 MR-MS
43	TX99A0153-1	2-	2	2-	2	2	2	2	2	2+	1A.1R	10 MR
44	TX03M1096	;13	;1	23	;	;1/S	S	S				40 MS/0
45	TX01V5136RC	0;/S	0;	22+	0;	;1	S/;	S				T MR
46	TX01A7340	;13-	;13-	0;	;1++	S	0;/S	S				40 MS/0
47	TX02A0252	2	2/S	;1/2-	2	2	;2	;1+	;1	S	24+ modifier	5 R
48	TX04M410068	;1	2	0;	;2	;3	0;	S				TR/30 S
49	TX03A0148	;	S	;1	S	;3	S/2	S				40 MS-S
50	TX03A0563	;S	2	;1-	1;	2	2	2	2	S	24	TR

"S" denotes susceptible, infection type (IT) 3 or 4.

"/" denotes heterogeneous, the predominant type given first.

"LIF" denotes low infection frequency (=low density of pustules)

Entries with low infection types to TTKS (or missing) were repeated, repeated entries were tested against 06KEN19v3 (TTKS+Sr24 virulence).

Postulation of 1A.1R and Sr24+ is tentative because Sr24+Tmp will yield similar ITs as 1A.1R. Users are advised to revise the gene population when 1A.1R data become available.

Table 13. Seedling reactions of entries in the 2007 SRPN to selected isolates of leaf rust.

Entry	Line/selection	Greenhouse screen, St. Paul, MN										Field Screen, Stillwater, OK		
		Leaf rust isolates										Stakeman's rating		
		MCRK	THBJ	MJB	TGBG	MHDS	KFBJ	TNRJ	MFPSC	MLDSB	Gene Postulation	Rep 1	Rep 2	Rep 3
1	Kharkof	3+	3+	3+	3+	3+	3+	3+	3+	3+	-	3	3	3
2	Scout 66	3+	3+	3+	;12-	;2	3+	3+	3+	3+	?	3+	3+	3+
3	TAM-107	3+	3+	3+	;2/3+	3	3+	3+	3+	3+	Lr14a	3+	3+	3+
4	Trego	0;	;	;1-	;	0;	;1-	;	3+	0;	Lr17, Lr24	3-	3-	3-
5	OK Bullet06ERU	0;	0	0;	0;	0;	0;	3	0;	3+	Lr41	; (2P3)	; (2P3)	; (2P3)
6	OK05737W	0;	0	0;	0;	0;	0;	3	0;	3+	Lr41	; (1P3)	; (1P3)	; (1P3)
7	OK03305	;	0	0;	;	;2-	;	;	;2	;1	"+"	3=	3=	3=
8	OK03522	;	0	0;	;	0;	;	;	3	0;	Lr17, Lr24	;1P3	;1P3	;1P3
9	OK02522W	0;	0	0;	0;	0;	0;	2+3	0;	3+	Lr41	3=	3=	3=
10	OK02125	;1-	;1-	;	;	3	22+	;1-	3+	;2-	?	X;3=	X;3=	X;3=
11	KS04HW47-3-4	0;	;1-	;	;	;1-	;	;	3+	0;	Lr17, Lr24	3	3	3
12	T151	0;	0;	0;	0;	3	0;	3	0;	3+	?	; (2P3)	; (2P3)	; (2P3)
13	T153	3+	3	2+3	3+	3	3	3+	3+	3+	-	3	3	3
14	T154	3+	3	3	3	3	3	3	3+	3+	-	3+	3+	3+
15	T158	0;	0	0;	0;	0;	0;	3	0;	3+	Lr9 or Lr41	X;3=	X;3=	X;3=
16	Art (98x0338-13)	;1-	;1-	;	;	3	0;	;	;2	;	Lr16, Lr26	X;3=	X;3=	X;3=
17	Hawken(98x0435-15)	;1-	;	;22+	;1-	3+	;22+	;	3	;1+2-	?	3-	3-	3-
18	99x0212-2	0;	;	0;	0;	0;	0;	3+	0;	3+	Lr9	;2P3	;2P3	;2P3
19	BC98331-03\$-2W	;1-	;2-	2+3	3+	3	;2-	;1	1+2	;2-	Lr16	3+	3+	3+
20	BC98334-10W-8W	0;	0;	0;	0;	0;	0;	;	0;	2	"+"	3=	3=	3=
21	BC98334-04\$-02\$;	;	3	;1	33+	;2-	;1-	;22+	;2-	Lr16, Lr17	3-	3-	3-
22	HV9W96-1271R-1	0;	0	0;	0;	0;	0;	3	0;	2+3	Lr9 or Lr41	; (3P3)	; (3P3)	; (3P3)
23	HV9W02-267W	;2-	;	;	; (3)	33+	;1-	;	3+	3+	Lr17	3+	3+	3+
24	HV9W02-112W	;2	;1-	;	; (3)	33+	;1-	;	3+	3+	Lr17	3+	3+	3+
25	HV9W02-271W	0;	0;	0;	0;	0;	0;	;	0;	;2+	"+"	;	;	;
26	KS990498-3-&-2	23	2+3	3	;2	3	2+3	2+3	;2+3	;2-	Lr14a	X;3-	X;3-	X;3-
27	KS970093-8-9-#1	3+	3+	3	;2	3	0;1-	3	2+3	2+3	Lr1, Lr14a	3	3	3
28	KS980512-2-2	;1+	;1-	;2	;1-	3	33+	;1-	;22+	;1-	Lr26?	3+	3+	3+
29	KS980512-11-22	0;	0	0;	0;	0;	0;	;	0;	3+	(Lr9 or Lr41), Lr17	; (1P3)	; (1P3)	; (1P3)
30	CO01385-A1	3+	3+	3+	;	3	3+	3+	3	22+	Lr14a	3-	3-	3-
31	CO02W280	3+	3+	3+	3	3	3+	3+	3+	3	-	3+	3+	3+
32	CO03W054	3+	3	23	23	3	22+	3+	3+;/1-	3+	-	3+	3+	3+
33	CO03W239	3	3	3;	;2	3	3	3+	3+	3+	Lr14a	3+	3+	3+
34	CO03W269	3+	3+	3+	3+	3	3+	3+	3+	3+	-	3+	3+	3+
35	CO03443	3+;/	3+;/	3+	;1+/3+	3/;	3+	3+	3+	;	-	3+	3+	3+
36	NI04420	3+	3+	3+;/	3+;/	3+	3+	3/1-	3+	;2+/3+	Seg	3+	3+	3+
37	NI04421	3+	3+	3	3+	3+	3+	3	3+	3+	-	X;3-	X;3-	X;3-
38	NE04424	23	3+	3+;/	3+	3+	3+	3	3+	3+	-	3	3	3
39	NI04428	2	2	;	2	2-	2+3	22+	2+	;2	?	X;3	X;3	X;3
40	SD05W012	;1-	;1	;	;	1+	;1-	;	22+	;1	"+"	X;3	X;3	X;3
41	SD05W138	2+3	2+3	;	;1-	3+	3	;2-	3+	2+3	Lr26	3-	3-	3-
42	T159	3	3+	;2-	3+	3	3+	3+	;3	;3	-	3	3	3
43	TX99A0153-1	;3+	3+	3	;	3	33+	3+	;2	;	?	3+	3+	3+
44	TX03M1096	0;	0;	0;	0;	0;	0;	3	0;	3;	Lr9	X;3=	X;3=	X;3=
45	TX01V5136RC	;1+	1+	;23	3	3	2+3	3/1-	2	;	Lr16?	3+	3+	3+
46	TX01A7340	0;	0;	0;	;	0;	0;	3	0;	3+	Lr9 or Lr41	3	3	3
47	TX02A0252	0;	;	3+	;	0;	33+	3+	3+	;	Lr24	3+	3+	3+
48	TX04M410068	0;	0;	0;	0;	0;	0;	;	0;	3	(Lr9 or Lr41), Lr17	3-	3-	3-
49	TX03A0148	;	;	;	;1-	;23	0;	;	;22+	;2	"+"	3-	3-	3-
50	TX03A0563	;	;	3+	;1-	;1-	3+	3+	3+	0;	Lr24	X;3-	X;3-	X;3-

- = no resistance genes
 ? = unable to determine Lr gene(s)
 + = no virulent isolates tested
 Seg = segregating

Table 14. Field reactions to leaf and stripe rust, 2007 SPRN.

Entry	Line/selection	Leaf rust					Stripe rust		
		Castroville, TX		Bushland, TX	Lahoma, OK	Dakota Lakes, SD	Bushland, TX	Bozeman, MT	%
		(Rep 1)	(Rep 2)		(1-9)	severity			
1	Kharkof	20MS	10R	20S	5	40	20MS	0	
2	Scout 66	20MS	20MS	20S	7	50	30MS	0	
3	TAM-107	80S	100S	tS	8	50	100S	25	
4	Trego	80S	100S	40S	9	50	60S	3	
5	OK Bullet06ERU	tR	tR	tR	6	60	20MRMS	1	
6	OK05737W	tR	tR	tR	7	60	30MSMR	2	
7	OK03305	tR	10MS	tMS	6	20	100S	1	
8	OK03522	tR	5R	tR	2	0	tR	1	
9	OK02522W	tR	tR	tR	5	60	tMRMS	0	
10	OK02125	60S	40S	20SMS	4	30	10MR	0	
11	KS04HW47-3-4	100S	80S	30S	7	70	20MRMS	0	
12	T151	40S	10MS	tR	8	70	80S	10	
13	T153	20MS	40S	40S	4	50	tR	2	
14	T154	60S	40S	40S	8	50	tR	0	
15	T158	tR	10R	tR	4	50	tR	1	
16	Art (98x0338-13)	10MR	10R	tR	2	20	10MRMS	0	
17	Hawken(98x0435-15)	tR	5R	tR	1	20	tR	0	
18	99x0212-2	20MR	10R	tR	2	30	tR	0	
19	BC98331-03\$-2W	20R	20MR	20RMR	4	20	tR	1	
20	BC98334-10W-8W	10R	tR	tR	1	0	40S	2	
21	BC98334-04\$-02\$	20R	tR	tR	2	20	tR	0	
22	HV9W96-1271R-1	tR	tR	tR	1	0	40MRMS	1	
23	HV9W02-267W	100S	60S	20S	9	60	60S	2	
24	HV9W02-112W	100S	80S	40S	9	40	40S	1	
25	HV9W02-271W	tR	tR	tR	1	0	60S	2	
26	KS990498-3-&-2	tR	tR	tR	1	0	30S	1	
27	KS970093-8-9-#1	tR	tR	tS	1	0	100S	0	
28	KS980512-2-2	20R	20R	20MRMS	1	20	20MS	0	
29	KS980512-11-22	tR	tR	tR	3	20	20MS	0	
30	CO01385-A1	tR	40S	tR	4	40	40MRMS	1	
31	CO02W280	80S	40S	80S	7	30	tR	1	
32	CO03W054	20MS	10R	20S	5	20	80S/20MR	0	
33	CO03W239	40MS	20MS	60S	2	50	20MRMS	1	
34	CO03W269	30MSMR	40MS	60S	3	60	60MSMR	2	
35	CO03443	100S	80S	80S	3	60	20MS	0	
36	NI04420	100S	80S	60S	8	40	tR	0	
37	NI04421	80S	60S	80S	8	40	tR	0	
38	NE04424	100S	80S	30S	8	50	tR	0	
39	NI04428	80MS	60MRMS	tS	8	40	100S	60	
40	SD05W012	60MS	30MS	tMS	7	30	20MSS	2	
41	SD05W138	40S	tR	tS	6	50	100S	3	
42	T159	tR	tR	tR	2	20	tR	0	
43	TX99A0153-1	10R	tR	tR	2	0	20R	0	
44	TX03M1096	tR	tR	tR	1	0	tR	0	
45	TX01V5136RC	tR	tR	tMS	4	10	tMRMS	0	
46	TX01A7340	tR	NO LEAF	tR	4	40	tR	0	
47	TX02A0252	tR	tR	tR	4	0	tR	0	
48	TX04M410068	tR	tR	tR	2	10	20MSMR	0	
49	TX03A0148	tR	tR	tR	1	0	40SMS	0	
50	TX03A0563	tR	tR	tR	2	0	20R	0	

Table 15. Seedling and adult plant reactions to stripe rust, 2007 SPRN.

Entry	Line/selection	Manhattan, KS*	Pullman, WA**		Mt. Vernon, WA		Bushland, TX		Bozeman, MT	
			IT	%	IT	%	IT	%	IT	%
1	Kharkof	7	2	10	5	20	2	5	20MS	0
2	Scout 66	8	3	10	5	20	2	5	30MS	0
3	TAM-107	8	8	80	8	60	8	100	100S	25
4	Trego	9	8	30	8	60	8	100	60S	3
5	OK Bullet06ERU	6	2,8	1	5	20	2	2	20MRMS	1
6	OK05737W	7	8	20	5	20	5	30	30MSMR	2
7	OK03305	7	8	80	8	50	8	100	100S	1
8	OK03522	7	2	1	5	10	2	2	tR	1
9	OK02522W	7	2,8	1	5	10	2	5	tMRMS	0
10	OK02125	3H8	8	5	5	10	2	5	10MR	0
11	KS04HW47-3-4	8	2,5	1	5	10	2	5	20MRMS	0
12	T151	6	8	80	8	60	2	5	80S	10
13	T153	7	3	10	5,8	20	2	5	tR	2
14	T154	7	5	20	5,8	30	2	10	tR	0
15	T158	6	2	1	5	20	2	5	tR	1
16	Art (98x0338-13)	5	2,8	5	5	20	2	5	10MRMS	0
17	Hawken(98x0435-15)	8	2,8	1	8	20	8	60	tR	0
18	99x0212-2	4	2,8	1	5	20	8	40	tR	0
19	BC98331-03\$-2W	8	8	5	5	20	8	100	tR	1
20	BC98334-10W-8W	8	8	80	8	20	8	100	40S	2
21	BC98334-04\$-02\$	6	0	0	8	20	8	100	tR	0
22	HV9W96-1271R-1	9	3	20	5	20	5	70	40MRMS	1
23	HV9W02-267W	8	5	50	5	60	3	20	60S	2
24	HV9W02-112W	9	8	10	5	60	5	60	40S	1
25	HV9W02-271W	6	8	90	5	60	2	15	60S	2
26	KS990498-3-&-2	8	5	10	5,8	50	5	40	30S	1
27	KS970093-8-9-#1	7	2,8	1	5,8	50	3	30	100S	0
28	KS980512-2-2	6	8	10	5	40	8	90	20MS	0
29	KS980512-11-22	5	8	10	5	10	2	5	20MS	0
30	CO01385-A1	5	8	60	8	20	8	100	40MRMS	1
31	CO02W280	7	2	5	8	20	5	40	tR	1
32	CO03W054	7	8	20	5,8	40	3	20	80S/20MR	0
33	CO03W239	8	3	20	5	20	2	15	20MRMS	1
34	CO03W269	9	5	40	5,8	40	3	30	60MSMR	2
35	CO03443	8	8	5	8	30	5	30	20MS	0
36	NI04420	7	5	1	5	30	2	10	tR	0
37	NI04421	8	2	2	5	30	2	10	tR	0
38	NE04424	6	5	1	5	20	2	10	tR	0
39	NI04428	7	8	100	8	60	8	90	100S	60
40	SD05W012	3	5	1	5	10	2	10	20MSS	2
41	SD05W138	8	5	10	8	50	5	40	100S	3
42	T159	9	5	30	5,8	50	2	10	tR	0
43	TX99A0153-1	6	2	20	5	30	2	10	20R	0
44	TX03M1096	4	0	0	5	20	3	15	tR	0
45	TX01V5136RC	7	0	0	5	20	2	10	tMRMS	0
46	TX01A7340	4	2	1	5	20	8	70	tR	0
47	TX02A0252	6	5	30	5	30	2	10	tR	0
48	TX04M410068	6	8	5	5	20	2	10	20MSMR	0
49	TX03A0148	8	8	30	5	20	5	20	40SMS	0
50	TX03A0563	8	8	70	8	50	8	100	20R	0

*stripe rust isolate (race PST-100) read 6-12-2007 on seedlings; 0-9 scale, 0=immune and 9=highly susceptible

**Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT or connected with "-" for entries containing plants with continuous ITs. Entries with a high IT in the first note, but a low IT in the second note may indicate that they have high-temperature, adult-plant (HTAP) resistance.

Table 16. Acid soil reactions of entries in the 2007 SRPN.

Entry	Line/selection	Acid soil tolerance, Enid, OK*	
		19-Mar	21-May
1	Kharkof	4	4
2	Scout 66	4	4
3	TAM-107	4	5
4	Trego	4	3
5	OK Bullet06ERU	3	2
6	OK05737W	3	1
7	OK03305	3	4
8	OK03522	2	2
9	OK02522W	3	3
10	OK02125	2	1
11	KS04HW47-3-4	3	3
12	T151	4	4
13	T153	3	5
14	T154	1	4
15	T158	5	4
16	Art (98x0338-13)	3	2
17	Hawken(98x0435-15)	3	3
18	99x0212-2	1	1
19	BC98331-03\$-2W	4	5
20	BC98334-10W-8W	4	3
21	BC98334-04\$-02\$	4	4
22	HV9W96-1271R-1	1	1
23	HV9W02-267W	4	4
24	HV9W02-112W	2	4
25	HV9W02-271W	2	2
26	KS990498-3-&~2	4	3
27	KS970093-8-9-#1	1	2
28	KS980512-2-2	2	1
29	KS980512-11-22	2	3
30	CO01385-A1	2	2
31	CO02W280	3	3
32	CO03W054	3	2
33	CO03W239	3	3
34	CO03W269	3	3
35	CO03443	5	5
36	NI04420	2	3
37	NI04421	4	4
38	NE04424	2	2
39	NI04428	2	3
40	SD05W012	5	3
41	SD05W138	4	3
42	T159	4	3
43	TX99A0153-1	1	2
44	TX03M1096	2	2
45	TX01V5136RC	2	2
46	TX01A7340	3	1
47	TX02A0252	3	2
48	TX04M410068	4	4
49	TX03A0148	1	3
50	TX03A0563	3	5

*Readings taken at Enid, OK (pH = 4.6, 70 ppm Al, and Al saturation = 11%). Scale of 1 (highly tolerant) to 5 (highly susceptible), in which Jagger = 2.

Table 17. Reactions of entries in the 2007 SRPN to various insects.

Entry	Line or Selection	Russian Wheat Aphid Biotype 1	Greenbug biotype E	Hessian fly
1	Kharkof	S	S	S
2	Scout 66	S	S	S
3	TAM-107	S	S	S
4	Trego	S	S	R-
5	OK Bullet06ERU	S	S	S
6	OK05737W	S	S	S
7	OK03305	S	S	S
8	OK03522	S	S	S
9	OK02522W	S	S	S
10	OK02125	S	S	S
11	KS04HW47-3-4	S	S	R-
12	T151	S	S	S
13	T153	S	S	S
14	T154	S	S	S
15	T158	S	S	S
16	Art (98x0338-13)	S	S	H
17	Hawken(98x0435-15)	S	S	S
18	99x0212-2	S	S	H-
19	BC98331-03\$-2W	S	S	R-
20	BC98334-10W-8W	S	S	S
21	BC98334-04\$-02\$	S	S	S
22	HV9W96-1271R-1	S	S	S
23	HV9W02-267W	S	S	S
24	HV9W02-112W	S	S	H
25	HV9W02-271W	S	S	S
26	KS990498-3-&-2	S	S	S
27	KS970093-8-9-#1	S	S	H-
28	KS980512-2-2	S	S	H-
29	KS980512-11-22	S	S	S
30	CO01385-A1	R (some roll?)	S	S
31	CO02W280	S	S	H+
32	CO03W054	S	S	S
33	CO03W239	R	S	H-
34	CO03W269	R	S	S
35	CO03443	seg (14R/1S)	S	H
36	NI04420	S	S	H
37	NI04421	S	S	S
38	NE04424	S	S	H
39	NI04428	S	S	S
40	SD05W012	S	S	S
41	SD05W138	S	S	S
42	T159	S	S	S
43	TX99A0153-1	S	S	S
44	TX03M1096	S	S	S
45	TX01V5136RC	S	S	S
46	TX01A7340	S	S	S
47	TX02A0252	S	S	S
48	TX04M410068	S	S	S
49	TX03A0148	S	S	S
50	TX03A0563	S	S	S

Table 18. Sprouting tolerance of selected entries, 2007 SRPN.

Entry	Line/selection	Germination (%)	
		Hays, KS	Ft. Collins, CO
3	TAM-107		22.3
4	Trego	78.0	36.8
5	OK Bullet06ERU	96.1	94.5
6	OK05737W	54.4	72.3
9	OK02522W	69.6	71.4
11	KS04HW47-3-4	89.9	80.5
16	Art (98x0338-13)		27.0
17	Hawken(98x0435-15)		31.8
19	BC98331-03\$-2W	100.0	57.5
20	BC98334-10W-8W	100.0	70.6
21	BC98334-04\$-02\$	65.2	28.7
23	HV9W02-267W	65.1	70.7
24	HV9W02-112W	45.9	31.5
25	HV9W02-271W	94.3	81.5
31	CO02W280	100.0	
32	CO03W054	92.1	
33	CO03W239	100.0	
34	CO03W269	100.0	
40	SD05W012	100.0	
41	SD05W138	100.0	
51	Danby (check)	22.8	

Lower values = greater resistance to preharvest sprouting.

Summary of Genotyping Data from the 2007 Regional Performance Nurseries

Hard winter wheat breeding lines from the 2007 Northern and Southern Regional Performance Nurseries were analyzed for 22 traits using 41 markers. The complete data set is included in the attached spreadsheet. The expected size (in base pairs) of each target band is included in the data set. Sizes preceded with the letter "T" are based on tailed primers and should be 18 base pairs longer than published reports. In the spreadsheet, a "+" indicates that the target band was positively identified, a "-" indicates that the target band was not present, and a "?" indicates that it was not possible to clearly determine the presence or absence of the band. The "NR" indicates that the assay was not run and is only used for excess control lines.

Except where noted, protocols used for all assays are listed on the MASWheat website (<http://maswheat.ucdavis.edu/protocols/index.htm>).

Fungal Resistance Traits

1. Wheat Scab (3BS QTL)

Three SSR markers (GWM493 and GWM533, TAG 2003 107:503-508; STS-3B-256, M. Pumphrey and Jim Anderson, personal communication) were used to detect the presence of a QTL on chromosome 3BS that confers resistance to wheat scab. No line contained the expected banding patterns for all three marker found in the controls Sumai 3. No line contained any two of the three markers. Two lines, 98x0435-15 and NW03681, did have the GWM493 band (211 bp) and GWM533 band (159 bp) respectively. The data suggests that none of the lines have the 3BS QTL.

2. Lr21

Newly designed primers were used for detecting the Lr21 resistance gene. This set of primers was based on the gene sequence provided by Li Huang. Known positive (WGRC07, WGRC27) and negative (WGRC02, Wichita) control lines were tested and found to be genotyped as expected using the new primers. Three entries, NE04490, 98x0338-13, and HV9W02-271W, had the band (214 bp) found in the positive controls and may have the Lr21 resistance gene. Other entries had the bands seen in the susceptible check line and may not have the Lr21 resistance gene.

3. Lr24/Sr24

Two STS markers were used to screen for Lr24/Sr24. Sr24#12 and Sr24#50 (Theor Appl Genet (2005) 111: 496–504) are both STS markers closely linked to Sr24 and typically amplify only one band. Resistant germplasm LcSr24Ag was positive for

both markers. Twenty-four lines were positive for marker Sr24#50. Sixteen lines were positive for marker Sr24#12 (512 bp). The following 16 lines were positive for both markers: CO03W054, CO03443, Jerry, NE03458, NE04537, NH03614, Nuplains, NW03681, OK03522, SD96240-3-1, SD98W175-1, TAM-107, TX02A0252, TX03A0563, TX99A0153-1, and Wesley. These 16 lines more likely have Lr24/Sr24 resistance gene.

4. Lr34/Yr18

The slow leaf rusting gene Lr34 and yellow rust resistance gene Yr18 are flanked by two markers (SSR marker SWM10, TAG 2006 113:1049–1062; STS marker csLV34-LR34, TAG 2006 114:21–30). Chinese Spring and Thatcher-Lr34 have the Lr34 resistance gene. CS7DS-4 (a deletion line of Chinese Spring) and Thatcher are both susceptible to Lr34. Chinese Spring and 20 lines have the “resistant” SWM10 206 bp band. Chinese Spring and 17 lines have the “resistant” csLV34-LR34 171 bp band. Fifteen lines were positive for both markers: 98x0338-13, CO03443, HV9W02-846R, KS980512-11-22, KS990498-3-&~2, NE04490, NWX03Y2459, NX03Y2489, OK05737W, OKBullet06ERU, TX01A7340, TX02A0252, TX03A0148, TX03A0563, and TX03M1096. These 15 entries more likely have Lr34/Yr18 resistance gene. However, Jagger also has the two resistance marker alleles and most likely does not carry the Lr34, therefore, caution needs to be taken for these materials have Jagger in their pedigrees.

5. Lr37/SR38/Yr17

These three rust resistance genes are on a chromosome segment that does not appear to recombine with bread wheat chromosomes. The STS marker (VENTRIUP-LN2) is therefore completely linked with the resistance genes. The following 62 lines were positive for the marker and likely have the alien segment: 98x0338-13, 98x0435-15, 99x0212-2, BC98331-03\$-2W, BC98334-04\$-02\$, BC98334-10W-8W, BZ9W02-2051, CO01385-A1, CO03443, CO03W239, CO03W269, HV9W02-112W, HV9W02-271W, HV9W98A-1002R, Jerry, KS04HW47-3-4, KS970093-8-9-#1, KS980512-11-22, KS980512-2-2, KS990498-3-&~2, MT0419, MT0495, N98L20040-44, NE03458, NE04490, NE04537, NH03614, NI04420, NI05711, NI05714, NI05720W, Nuplains, NW03681, NWX03Y2459, OK02125, OK02522W, OK03305, OK05737W, OKBullet06ERU, SD02804-1, SD05004, SD05118, SD05179, SD05210, SD05W018, SD05W030, SD05W138, SD05W140, SD96240-3-1, SD98W175-1, T153, T159, TAM-107, Trego, TX01A7340, TX01V5136RC, TX02A0252, TX03A0148, TX03A0563, TX03M1096, TX04M410068, and Wesley.

6. Lr39/Lr41

These two resistance genes appear to be the same gene and are linked with SSR marker GDM35. No line had the expected 183 bp band clearly found in the positive controls WGRC02 and WGRC10. The data suggests that none of the lines

have Lr39/Lr41. The marker was run twice with DNA isolated from different plants.

7. Lr50

Lr50 is flanked by microsatellite markers GWM382 (6.7 cM) and GDM87 (9.4 cM) on wheat chromosome arm 2BL. In the resistant line WGRC36, marker GDM87 produces one distinct band of 124 bp. The following 19 lines have the GDM87 124 bp band as found in the positive control WGRC36: BZ9W02-2051, CO03W054, CO03W239, CO02W280, MT0419, MT0495, MTCL0477, NE03458, NI05711, NI05714, Nuplains, NX03Y2489, OK05737W, OKBullet06ERU, SD05118, SD05W018, SD96240-3-1, SD98W175-1, and Trego. None of the lines have the 156 bp band found in WGRC36 for marker GWM382. It is likely that none of the tested lines have the Lr50 gene. The 19 lines with the GDM87 124 bp band may have the Lr50 gene if they are from a pedigree with Lr50 gene.

8. Sr2

The Sr2 resistance gene has been effective worldwide for more than 50 years. It has recessive inheritance and is expressed primarily during the adult-plant stage. It is located on 3BS in the same region as the FHB QTL. The SSR marker, GWM533, produces a 133 bp band in resistant lines (Spielmeyer, 2003. *Crop Sci.* 43:333–336) and is only 1 to 2 cM away from the gene. The 133 bp band was present in all 15 Sr2 resistant lines tested from the US, Mexico, Canada, Kenya, and India and was present in all 12 Sr2 resistant lines from Australia; but was also present in 4 susceptible Australian lines (Spielmeyer, 2003. *Crop Sci.* 43:333–336). The 133 bp band was present in our positive controls (Eagle(USA), Sonalika) and was in the following 49 lines: 99x0212-2, BC98334-04\$-02\$, BC98334-10W-8W, BZ9W02-2051, CO02W280, CO03443, CO03W054, CO03W239, CO03W269, Harding, HV9W02-112W, HV9W02-267W, HV9W02-271W, HV9W96-1271R-1, HV9W98A-1002R, Jerry, KS980512-11-22, KS990498-3-&~2, MTCL0477, NE04424, NI04420, NI04428, NI05711, NI05714, Nuplains, NW03681, NWX03Y2459, OKBullet06ERU, Scout66, SD02804-1, SD05004, SD05210, SD05W012, SD05W018, SD05W030, SD05W140, SD96240-3-1, SD98W175-1, T153, T154, T158, T159, Trego, TX01A7340, TX01V5136RC, TX02A0252, TX03A0148, TX03A0563, and TX03M1096.

9. Sr26

One STS marker (Sr26#43) was used to screen for Sr26 (Theor Appl Genet (2005) 111: 496–504). Three Sr26 resistant lines were positive for marker Sr26#43 (6AL-Ag-TA3933, Argus-Isoline-TA4025, Eagle-Aus). None of the tested entries appears to have the Sr26 gene.

Insect Resistance Traits

10. Hessian Fly (H9)

One STS marker was used to test lines for the presence of gene H9 which confers resistance to Hessian fly biotype L. The following 10 lines had the expected 909 bp band found in the positive control 'Iris' and likely have H9 gene: BC98331-03\$-2W, BC98334-04\$-02\$, BC98334-10W-8W, Kharkof, Millennium-27(ALS-1), MT0419, NH03614, NW03681, NWX03Y2459, and Trego.

11. Hessian Fly (H13)

Two SSR markers (GDM36 and CFD132) were used to test lines for the presence of gene H13 which also confers resistance to Hessian fly biotype L. No line contained both of the expected bands found in the positive control Molly. Only one line, HV9W96-1271R-1, has the CFD132 166 bp band. It is likely that none of the tested lines has H13 resistance gene.

12. Russian Wheat Aphid (Dn1, Dn2, Dn5, Dn6, Dnx)

Dn1, Dn2, Dn5, Dn6, Dnx, RWA genes....

We have data on GWM44 and GWM111, but since the controls for all of the RWA genes showed complex band patterns, we can not determine which band is corresponding to the resistance gene based on available information from the publication.

Viral Resistance Traits

13. Barley Yellow Dwarf Virus (Bydv2)

One SCAR marker (BYAgi) was used to detect the presence of the Bydv2 gene. No line had the expected 567 bp band clearly found in the positive control P961341. The data suggests that none of the lines have Bydv2.

14. Wheat Streak Mosaic Virus (Wsm1)

One STS marker (J15) was used to detect the chromosome segment containing the Wsm1 gene translocated from *Agropyron intermedium*. No line had the expected 431 bp band clearly found in the positive control KS93WGRC27. The data suggests that none of the lines may have Wsm1.

Quality Traits

15. 1RS Translocation

One rye SSR marker (SCM9, Euphytica 2003 132: 243–250, <http://maswheat.ucdavis.edu/protocols/drought/index.htm>) was used to detect the presence of the 1RS rye translocation. SCM9 amplified a 225 bp band

for the 1B/1R in check cultivar 'Aurora' and in 14 lines. SCM9 amplified a 242 bp band for the 1A/1R in check cultivar TAM107 and in 12 lines. The following 14 lines were positive for the SCM9 225bp band from rye only and likely have the 1B/1R translocation: HV9W02-846R, NW03681 SD05W012, SD05W018, SD05W030, SD05W138, SD05W140, SD05004, SD05118, OK02125, 98x0338-13, NI04420, NI04421, and NI04428. The following 12 lines were positive for the SCM9 242bp band and likely have the 1A/1R translocation: SD02804-1, SD05179, SD05210, T151, T153, T154, T158, BC98331-03S-2W, HV9W96-1271R-1, CO02W280, TX99A0153-1, and TX01V5136RC.

(Note: Five lines showed different results compared to the results from the USDA-ARS Grain, Forages and Bioenergy group at Lincoln, NE. One line, NI05714 showed 1R translocation in the Lincoln lab, but not in our report. Four lines showed 1RS translocation in our report, but not in the Lincoln lab, namely: HV9W02-846R, NWX03Y2459, BC98331-03S-2W and CO02W280. The marker was originally run in ABI3730. Because ABI sequencer is very sensitive and many samples showed false positive, the marker was rerun twice in an agarose gel using DNA isolated from different plants.)

16. High Grain Protein Content, HGPC

One STS marker (UCW89) very closely (0.1 cM) linked with the Gpc-B1 gene was used to identify the gene for HGPC. The positive control 'Glupro' produces a band of 138 bp. No line had the distinct 138 bp band. It appears that no entry has the Gpc-B1 gene.

17. High Molecular Weight Glutenins

Three STS markers (Euphytica 2003 134:51-60) were used to determine some of the alleles at the 3 loci controlling high molecular weight glutenins. Marker HMWx2* produces one band of 1319 bp for Ax2* genotype, or no band for Ax1 genotype. HMWBx produces one band of 669 bp for Bx17 genotype, or 2 bands (630 and 766 bp) for all others (non-Bx17 genotypes). HMWDx5 will produce one 478 bp band for Dx5 genotype, or no band for all others (non-Dx5 genotypes). These three markers appear to be extremely sensitive to small changes in PCR conditions. Reproducibility of the data using these markers is low to moderate.

Twenty four lines without the HMWx2* band likely carry Ax1 allele (98x0435-15, 99x0212-2, BC98331-03S-2W, BC98334-04S-02S, BC98334-10W-8W, CO01385-A1, CO03W239, HV9W02-846R, Jerry, KS970093-8-9-#1, KS980512-2-2, MT0495, N98L20040-44, OK02125, OK02522W, OK03522, OK05737W, OKBullet06ERU, SD05118, SD05W012, SD96240-3-1, TX01A7340, TX03A0148, TX04M410068) and the remaining entries likely carry the Ax2* allele. Fifteen lines with the HMWBx 669 bp band likely carry Bx17 allele (CO03443, CO03W054, HV9W02-112W, HV9W02-267W, KS980512-11-22, KS980512-2-2, NE04490, NWX03Y2459, OK02522W, OK05737W, OKBullet06ERU, SD05210, T154, T158, T159) and the remaining entries likely carry non-Bx17 allele. Most of the lines tested with HMWDx5 produced a band of 478 bp and carry, therefore, Dx5 allele and only 7 lines (BC98334-10W-8W, Scout66, T151, T153, T154, T158, TAM-107) amplified no band and likely carry non- Dx5 allele.

18. Grain Texture (Pina-D1, Pinb-D1)

One dominant STS marker (Pina-D1) was used to screen for the presence of wild-type (Pina-D1a), soft alleles. The positive control, 'Newana' yielded the expected band size of 348 bp which is associated with soft texture. The following five lines were missing the 348 bp band and likely have the null allele (Pina-D1b) associated with hard texture: NE04490, NI05714, SD05118, SD05W018, and TX03M1096. The rest of entries have the 348 bp band, indicating the presence of the Pina-D1a (soft) allele.

A codominant PCR-CAPs marker (Pinb-D1) was used to screen for Pinb-D1 alleles. After PCR amplification and restriction using Bsr BI, a 320 bp band indicates the soft, wild allele (Pinb-D1a). A band of 200 bp indicates the hard, mutant allele (Pinb-D1b). Eighteen lines had the 320 bp band and therefore have the soft allele Pinb-D1a (Kharkof, NE04490, NI05714, SD98W175-1, SD05118, SD05210, NX03Y2489, KS04HW47-3-4, OK02125, 99x0212-2, CO01385-A1, CO02W280, CO03W054, TX01A7340, TX01V5136RC, TX03M1096, T159, TX04M410068). The remaining lines had the 200 bp band from the hard allele Pinb-D1b.

In summary, 4 lines have soft alleles of both markers Pina-D1a and Pinb-D1a: NE04490, NI05714, SD05118, and TX03M1096. Those lines are likely soft wheat.

19. Waxy Mutants

One STS marker (Waxy4) was used to detect null mutants at all three loci controlling granule-bound starch synthase (GBSS) or waxy protein. Almost all entries had all three bands and are non-mutants or non-waxy lines. No lines were missing more than one band. No line was missing either the Wx-D1 locus (314 bp) on 7DS or the Wx-A1 locus (273 bp) on 7AS. Three lines (HV9W02-112W, Trego, TX01A7340) were missing only the 243 bp band and are partially waxy null-mutants for the Wx-B1 locus on 4AL.

Abiotic Stress and Agronomic Traits

20. Aluminum Tolerance

Two SSR markers WMC331 and ALMT1-SSR3A (Mol Breeding 2006 18:171–183) were used for screening of 4DL Al-resistance QTL. Twelve entries (98x0338-13, 99x0212-2, KS970093-8-9-#1, NE04490, NH03614, NI05720W, OK02125, SD05118, SD96240-3-1, TX01A7340, TX03M1096, and Wesley) were positive for both SSR markers are most likely have the Al tolerance QTL on chromosome 4D.

Additional eight lines that were positive for only the ALMT1-SSR3A SSR marker

(98x0435-15, KS04HW47-3-4, KS990498-3-&~2, NI05714, Nuplains, NW03681, SD05W018, and T159) may also carry the Al tolerance QTL on chromosome 4D.

21. Plant Height Genes (Rht1, Rht2, Rht8)

Two gene-specific STS markers were used to detect the Rht1 and Rht2 genes (TAG 2002 105:1038-1042). One linked SSR marker (GWM261, TAG 1998 96:1104-1109) was used to detect Rht8. All but seventeen lines (BC98331-03\$-2W, BZ9W02-2051, CO03W239, Harding, Jerry, Kharkof, KS970093-8-9-#1, NI05720W, Scout66, SD02804-1, SD05004, SD05118, SD05179, SD05W138, SD05W140, T159, and TX04M410068) had the 255 bp band indicating the presence of the Rht1 gene. Only three lines (BZ9W02-2051, KS970093-8-9-#1, and SD02804-1) had the 270 bp band diagnostic for the Rht2 gene. Four lines (CO01385-A1, OK03305, TX03A0148, Wesley) had the 212 bp band linked with Rht8 and may carry the Rht8 gene.

22. Vernalization (VRN-1)

Three STS primer sets (MGG 2005 273:54-65) were used to determine if deletions were present in the first intron of the VRN-1 gene in the A (Intr1/C/F & Intr1/AB/R), B (Intr1/B/F & Intr1/B/R4), and D (Intr1/D/F & Intr1/D/R4) genomes. One STS primer set (VRNAIF-VRNA1R, TAG 2004 109:1677-1686) was used to determine the presence of insertions or deletions (in/dels) in the VRN-A1 promoter. Winter genotypes have no intron deletions in the VRN-A1, VRN-B1, or VRN-D1 genes and no VRN-A1 promoter in/dels. Either an in/del in the VRN-A1 promoter or a deletion in the VRN-A1 gene itself is associated with a strong spring growth habit. A deletion in the intron of VRN-B1 or VRN-D1 indicates the dominant Vrn-B1 and Vrn-D1 alleles associated with spring growth habit. The deletions in Vrn-B1 and Vrn-D1 do not have as great an effect as the dominant Vrn-A1 alleles, and usually flower later than the Vrn-A1 spring types, but much earlier than winter types. There are other alleles associated with spring growth that are not detected by the primer sets used here, so it is possible to have no promoter mutations and no deletions in any of the VRN-1 genes yet still have a spring type.

One entry (BC98334-10W-8W) appears to have an indel in the VRN-A1 promoter and is likely strong spring types. Four entries (Harding, HV9W98A-1002R, SD05004, and Wesley) have deletions in the VRN-A1 gene contributing to spring growth habit. Seven entries (KS980512-2-2, NH03614, NI05720W, NW03681, SD05179, SD05W012, and SD05W138) appear to have indels in the VRN-B1 gene contributing to spring growth habit. Two entries, MTCL0477 and N98L20040-44, appear to have deletions in the VRN-B1 gene contributing to spring growth habit. One entry, OK02125, appear to have a deletion in the VRN-D1 gene contributing to spring growth habit.

Table 19. DNA marker analysis, 2007 SRPN.

Trait	FHB 3BS	FHB 3BS	FHB 3BS	Sr2	Lr21	Lr24/Sr24	Lr24/Sr24	Lr24/Sr24	Lr24/Sr24	Sr26
Marker	GWM533	STS-3B-256	GWM493	GWM533	Lr21-214	Sr24#12	Sr24#12	Sr24#12	Sr24#50	Sr26#43
Band Size (bp)	T159	T221	T211	T133	214	T512	T524	T525	T213	T231
Marker type	SSR	STS	SSR	SSR	STS	STS	STS	STS	STS	STS
Chinese Spring	-	-	+	-	-	-	-	-	-	-
Yecora Rojo	-	-	-	+	-	-	-	-	-	-
1 Kharkof	-	-	-	-	-	-	-	-	-	-
2 Scout66	-	-	-	+	-	-	-	-	-	-
3 TAM-107	-	-	-	-	-	+	-	-	+	-
4 Trego	-	-	-	+	-	-	-	-	+	-
5 OKBullet06ERU	-	-	-	+	-	-	-	-	-	-
6 OK05737W	-	-	-	-	-	-	-	-	-	-
7 OK03305	-	-	-	-	-	-	-	-	-	-
8 OK03522	-	-	-	-	-	+	-	-	+	-
9 OK02522W	-	-	-	-	-	-	-	-	-	-
10 OK02125	-	-	-	-	-	-	-	-	-	-
11 KS04HW47-3-4	-	-	-	-	-	-	-	-	+	-
12 T151	-	-	-	-	-	-	-	-	-	-
13 T153	-	-	-	+	-	-	-	-	-	-
14 T154	-	-	-	+	-	-	-	-	-	-
15 T158	-	-	-	+	-	-	-	-	-	-
16 98x0338-13	-	-	-	-	+	-	-	-	-	-
17 98x0435-15	-	-	+	-	-	-	-	-	-	-
18 99x0212-2	-	-	-	+	-	-	-	-	-	-
19 BC98331-03\$-2W	-	-	-	-	-	-	-	-	-	-
20 BC98334-10W-8W	-	-	-	+	-	-	-	-	-	-
21 BC98334-04\$-02\$	-	-	-	+	-	-	-	-	-	-
22 HV9W96-1271R-1	-	-	-	+	-	-	-	-	-	-
23 HV9W02-267W	-	-	-	+	-	-	-	-	-	-
24 HV9W02-112W	-	-	-	+	-	-	-	-	-	-
25 HV9W02-271W	-	-	-	+	+	-	-	-	-	-

Table 19. DNA marker analysis, 2007 SRPN.

	Trait	FHB 3BS	FHB 3BS	FHB 3BS	Sr2	Lr21	Lr24/Sr24	Lr24/Sr24	Lr24/Sr24	Lr24/Sr24	Sr26
	Marker	GWM533	STS-3B-256	GWM493	GWM533	Lr21-214	Sr24#12	Sr24#12	Sr24#12	Sr24#50	Sr26#43
	Band Size (bp)	T159	T221	T211	T133	214	T512	T524	T525	T213	T231
	Marker type	SSR	STS	SSR	SSR	STS	STS	STS	STS	STS	STS
26	KS990498-3-&~2	-	-	-	+	-	-	-	-	-	-
27	KS970093-8-9-#1	-	-	-	-	-	-	-	-	-	-
28	KS980512-2-2	-	-	-	-	-	-	-	-	-	-
29	KS980512-11-22	-	-	-	+	-	-	-	-	-	-
30	CO01385-A1	-	-	-	-	-	-	-	-	-	-
31	CO02W280	-	-	-	+	-	-	-	-	-	-
32	CO03W054	-	-	-	+	-	+	-	-	+	-
33	CO03W239	-	-	-	+	-	-	-	-	-	-
34	CO03W269	-	-	-	+	-	-	-	-	-	-
35	CO03443	-	-	-	+	-	+	-	-	+	-
36	NI04420	-	-	-	+	-	-	-	-	-	-
37	NI04421	-	-	-	-	-	-	-	-	-	-
38	NEO4424	-	-	-	+	-	-	-	-	-	-
39	NI04428	-	-	-	+	-	-	-	-	-	-
40	SD05W012	-	-	-	+	-	-	-	-	-	-
41	SD05W138	-	-	-	-	-	-	-	-	-	-
42	T159	-	-	-	+	-	-	-	-	+	-
43	TX99A0153-1	-	-	-	-	-	+	-	-	+	-
44	TX03M1096	-	-	-	+	-	-	-	-	-	-
45	TX01V5136RC	-	-	-	+	-	-	-	-	-	-
46	TX01A7340	-	-	-	+	-	-	-	-	-	-
47	TX02A0252	-	-	-	+	-	+	-	-	+	-
48	TX04M410068	-	-	-	-	-	-	-	-	-	-
49	TX03A0148	-	-	-	+	-	-	-	-	-	-
50	TX03A0563	-	-	-	+	-	+	-	-	+	-
	TAM107	-	-	-	-	-	+	-	-	+	-
	Clark	-	-	-	+	-	-	-	-	+	-
	Jagger	-	-	-	+	-	-	-	-	-	-
	Sumai 3	+	+	+	-	-	-	-	-	-	-
	Check	+	+	+	-	+	+	+	+	+	+
	Check	-	-	-	+	-	-	-	-	-	-

Table 19. DNA marker analysis, 2007 SRPN.

Trait	Lr34/Yr18	Lr34/Yr18	Lr37/Sr38/Yr17	Lr39/Lr41	Lr50	Lr50	Hessian Fly, H9	Hessian Fly, H13
Marker	SWM10	csLV34-LR34	VentriupLn2	GDM35	GWM382	GDM87	H9	CFD132
Band Size (bp)	T206	T171	T275	T183	T156	T124	909	T166
Marker type	SSR	STS	STS	SSR	SSR	SSR	STS	SSR
Chinese Spring	+	+	+	-	-	-	-	-
Yecora Rojo	-	-	+	-	-	-	-	-
1 Kharkof	-	-	-	-	-	-	+	-
2 Scout66	-	-	-	-	-	-	-	-
3 TAM-107	-	-	+	-	-	-	-	-
4 Trego	-	-	+	-	-	+	+	-
5 OKBullet06ERU	+	+	+	-	-	+	-	-
6 OK05737W	+	+	+	-	-	+	-	-
7 OK03305	-	-	+	-	-	-	-	-
8 OK03522	-	-	-	-	-	-	-	-
9 OK02522W	+	-	+	-	-	-	-	-
10 OK02125	+	-	+	-	-	-	-	-
11 KSO4HW47-3-4	-	-	+	-	-	-	-	-
12 T151	-	-	-	-	-	-	-	-
13 T153	-	-	+	-	-	-	-	-
14 T154	-	-	-	-	-	-	-	-
15 T158	-	-	-	-	-	-	-	-
16 98x0338-13	+	+	+	-	-	-	-	-
17 98x0435-15	-	-	+	-	-	-	-	-
18 99x0212-2	-	+	+	-	-	-	-	-
19 BC98331-03\$-2W	-	-	+	-	-	-	+	-
20 BC98334-10W-8W	-	-	+	-	-	-	+	-
21 BC98334-04\$-02\$	-	-	+	-	-	-	+	-
22 HV9W96-1271R-1	-	-	-	-	-	-	-	+
23 HV9W02-267W	-	-	-	-	-	-	-	-
24 HV9W02-112W	-	-	+	-	-	-	-	-
25 HV9W02-271W	-	-	+	-	-	-	-	-

Table 19. DNA marker analysis, 2007 SRPN.

	Trait	Lr34/Yr18	Lr34/Yr18	Lr37/Sr38/Yr17	Lr39/Lr41	Lr50	Lr50	Hessian Fly, H9	Hessian Fly, H13
	Marker	SWM10	csLV34-LR34	VentriupLn2	GDM35	GWM382	GDM87	H9	CFD132
	Band Size (bp)	T206	T171	T275	T183	T156	T124	909	T166
	Marker type	SSR	STS	STS	SSR	SSR	SSR	STS	SSR
26	KS990498-3-&~2	+	+	+	-	-	-	-	-
27	KS970093-8-9-#1	-	-	+	-	-	-	-	-
28	KS980512-2-2	-	-	+	-	-	-	-	-
29	KS980512-11-22	+	+	+	-	-	-	-	-
30	CO01385-A1	-	-	+	-	-	-	-	-
31	CO02W280	-	-	-	-	-	+	-	-
32	CO03W054	-	-	-	-	-	+	-	-
33	CO03W239	-	-	+	-	-	+	-	-
34	CO03W269	-	-	+	-	-	-	-	-
35	CO03443	+	+	+	-	-	-	-	-
36	NI04420	-	-	+	-	-	-	-	-
37	NI04421	-	-	-	-	-	-	-	-
38	NE04424	-	-	-	-	-	-	-	-
39	NI04428	-	-	-	-	-	-	-	-
40	SD05W012	-	-	-	-	-	-	-	-
41	SD05W138	+	-	+	-	-	-	-	-
42	T159	-	-	+	-	-	-	-	-
43	TX99A0153-1	-	-	-	-	-	-	-	-
44	TX03M1096	+	+	+	-	-	-	-	-
45	TX01V5136RC	+	-	+	-	-	-	-	-
46	TX01A7340	+	+	+	-	-	-	-	-
47	TX02A0252	+	+	+	-	-	-	-	-
48	TX04M410068	-	-	+	-	-	-	-	-
49	TX03A0148	+	+	+	-	-	-	-	-
50	TX03A0563	+	+	+	-	-	-	-	-
	TAM107	-	-	+	-	-	-	-	-
	Clark	-	-	+	-	-	+	-	-
	Jagger	+	+	+	-	-	+	-	-
	Sumai 3	+	+	+	-	-	+	-	-
	Check	+	+	+	+	+	+	+	+
	Check	-	-	-	-	+	+	+	+

Table 19. DNA marker analysis, 2007 SRPN.

Trait		Hessian Fly, H13	BYDV2	WSM1	1RS: ARS-LNK	1B/1R	1A/1R	Grain Texture	Grain Texture
Marker		GDM36	BYAgi	J15	(secalin proteins + SCM PCR markers	SCM0009	SCM0009	Pina-D1	Pinb-D1b
Band Size (bp)		T186	T567	T431		T225	T242	T348/350	200
Marker type		SSR	SSR	STS				STS	CAP
	Chinese Spring	-	-	-				+	-
	Yecora Rojo	-	-	-				+	-
1	Kharkof	-	-	-	Non.1RS	-	-	+	-
2	Scout66	-	-	-	Non.1RS	-	-	+	+
3	TAM-107	-	-	-	1AL.1RS	-	+	+	+
4	Trego	-	-	-	Non.1RS	-	-	+	
5	OKBullet06ERU	-	-	-	Non.1RS	-	-	+	
6	OK05737W	-	-	-	Non.1RS	-	-	+	+
7	OK03305	-	-	-	Non.1RS	-	-	+	+
8	OK03522	-	-	-	Non.1RS	-	-	+	+
9	OK02522W	-	-	-	Non.1RS	-	-	+	+
10	OK02125	-	-	-	1BL.1RS	+	-	+	-
11	KSO4HW47-3-4	-	-	-	Non.1RS	-	-	+	-
12	T151	-	-	-	1AL.1RS	-	+	+	+
13	T153	-	-	-	1AL.1RS	-	+	+	+
14	T154	-	-	-	1AL.1RS	-	+	+	+
15	T158	-	-	-	1AL.1RS	-	+	+	+
16	98x0338-13	-	-	-	1BL.1RS	+	-	+	+
17	98x0435-15	-	-	-	Non.1RS	-	-	+	+
18	99x0212-2	-	-	-	1BL.1RS	-	-	+	-
19	BC98331-03\$-2W	-	-	-	Non.1RS	-	+	+	+
20	BC98334-10W-8W	-	-	-	Non.1RS	-	-	+	+
21	BC98334-04\$-02\$	-	-	-	Non.1RS	-	-	+	+
22	HV9W96-1271R-1	-	-	-	1AL.1RS	-	+	+	+
23	HV9W02-267W	-	-	-	Non.1RS	-	-	+	+
24	HV9W02-112W	-	-	-	Non.1RS	-	-	+	+
25	HV9W02-271W	-	-	-	Non.1RS	-	-	+	+

Table 19. DNA marker analysis, 2007 SRPN.

	Trait	Hessian Fly, H13	BYDV2	WSM1	1RS: ARS-LNK	1B/1R	1A/1R	Grain Texture	Grain Texture
	Marker	GDM36	BYAgi	J15	(secalin proteins + SCM PCR markers	SCM0009	SCM0009	Pina-D1	Pinb-D1b
	Band Size (bp)	T186	T567	T431		T225	T242	T348/350	200
	Marker type	SSR	SSR	STS				STS	CAP
26	KS990498-3-&~2	-	-	-	Non.1RS	-	-	+	+
27	KS970093-8-9-#1	-	-	-	Non.1RS	-	-	+	+
28	KS980512-2-2	-	-	-	Non.1RS	-	-	+	+
29	KS980512-11-22	-	-	-	Non.1RS	-	-	+	+
30	CO01385-A1	-	-	-	Non.1RS	-	-	+	-
31	CO02W280	-	-	-	Non.1RS		+	+	-
32	CO03W054	-	-	-	Non.1RS	-	-	+	-
33	CO03W239	-	-	-	Non.1RS	-	-	+	+
34	CO03W269	-	-	-	Non.1RS	-	-	+	+
35	CO03443	-	-	-	Non.1RS	-	-	+	+
36	NI04420	-	-	-	Non.1RS	+	-	+	+
37	NI04421	-	-	-	Non.1RS	+	-	+	+
38	NE04424	-	-	-	Non.1RS	-	-	+	+
39	NI04428	-	-	-	1BL.1RS	+	-	+	+
40	SD05W012	-	-	-	1BL.1RS	+	-	+	+
41	SD05W138	-	-	-	1BL.1RS	+	-	+	+
42	T159	-	-	-	Non.1RS	-	-	+	-
43	TX99A0153-1	-	-	-	1AL.1RS	-	+	+	+
44	TX03M1096	-	-	-	Non.1RS	-	-	-	-
45	TX01V5136RC	-	-	-	1AL.1RS	-	+	+	-
46	TX01A7340	-	-	-	Non.1RS	-	-	+	-
47	TX02A0252	-	-	-	Non.1RS	-	-	+	+
48	TX04M410068	-	-	-	Non.1RS	-	-	+	-
49	TX03A0148	-	-	-	Non.1RS	-	-	+	+
50	TX03A0563	-	-	-	Non.1RS	-	-	+	+
	TAM107	-	-	-		-	+	+	+
	Clark	-	-	-		+	-	+	-
	Jagger	-	-	-		-	-	+	-
	Sumai 3	-	-	-		-	-	+	-
	Check	+	+	+		+	-	+	+
	Check	+	-	-		-	+	+	+

Table 19. DNA marker analysis, 2007 SRPN.

	Trait	Grain Texture	HGPC	HMW Glutenins	HMW Glutenins	HMW Glutenins	HMW Glutenins	Waxy
	Marker	Pinb-Wild	UCW89	HMWA	HMWB	HMWB	HMWD	Waxy4,4A
	Band Size (bp)	320	T138	1319	630+766	669	478	T243
	Marker type	CAP	STS	STS	STS	STS	STS	STS
	Chinese Spring	+	-	-	-	+	+	+
	Yecora Rojo	+	-	-	-	+	+	+
1	Kharkof	+	-	+	+	-	+	+
2	Scout66	-	-	+	+	-	-	+
3	TAM-107	-	-	+	+	-	-	+
4	Trego	+	-	+	+	-	+	-
5	OKBullet06ERU	+	-	-	-	+	+	+
6	OK05737W	-	-	-	-	+	+	+
7	OK03305	-	-	+	-	-	+	+
8	OK03522	-	-	-	+	-	+	+
9	OK02522W	-	-	-	-	+	+	+
10	OK02125	+	-	-	+	-	+	+
11	KSO4HW47-3-4	+	-	+	-	-	+	+
12	T151	-	-	+	+	-	-	+
13	T153	-	-	+	+	-	-	+
14	T154	-	-	+	+	+	-	+
15	T158	-	-	+	-	+	-	+
16	98x0338-13	-	-	+	+	-	+	+
17	98x0435-15	-	-	-	+	-	+	+
18	99x0212-2	+	-	-	+	-	+	+
19	BC98331-03\$-2W	-	-	-	+	-	+	+
20	BC98334-10W-8W	-	-	-	+	-	-	+
21	BC98334-04\$-02\$	-	-	-	+	-	+	+
22	HV9W96-1271R-1	-	-	+	+	-	+	+
23	HV9W02-267W	-	-	+	-	+	+	+
24	HV9W02-112W	-	-	+	-	+	+	-
25	HV9W02-271W	-	-	+	+	-	+	+

Table 19. DNA marker analysis, 2007 SRPN.

	Trait	Grain Texture	HGPC	HMW Glutenins	HMW Glutenins	HMW Glutenins	HMW Glutenins	Waxy
	Marker	Pinb-Wild	UCW89	HMWA	HMWB	HMWB	HMWD	Waxy4,4A
	Band Size (bp)	320	T138	1319	630+766	669	478	T243
	Marker type	CAP	STS	STS	STS	STS	STS	STS
26	KS990498-3-&~2	-	-	+	-	-	+	+
27	KS970093-8-9-#1	-	-	-	+	-	+	+
28	KS980512-2-2	-	-	-	-	+	+	+
29	KS980512-11-22	-	-	+	-	+	+	+
30	CO01385-A1	+	-	-	+	-	+	+
31	CO02W280	+	-	+	-	-	+	+
32	CO03W054	+	-	+	-	+	+	+
33	CO03W239	-	-	-	+	-	+	+
34	CO03W269	-	-	+	+	-	+	+
35	CO03443	-	-	+	-	+	+	+
36	NI04420	-	-	+	+	-	+	+
37	NI04421	-	-	+	+	-	+	+
38	NE04424	-	-	+	+	-	+	+
39	NI04428	-	-	+	+	-	+	+
40	SD05W012	-	-	-	-	-	+	+
41	SD05W138	-	-	+	+	-	+	+
42	T159	+	-	+	-	+	+	+
43	TX99A0153-1	-	-	+	+	-	+	+
44	TX03M1096	+	-	+	+	-	+	+
45	TX01V5136RC	+	-	+	-	-	+	+
46	TX01A7340	+	-	-	-	-	+	-
47	TX02A0252	-	-	+	-	-	+	+
48	TX04M410068	+	-	-	-	-	+	+
49	TX03A0148	-	-	-	-	-	+	+
50	TX03A0563	-	-	+	-	-	+	+
	TAM107	-	-	+	+	-	-	+
	Clark	+	-	-	-	-	+	+
	Jagger	+	-	-	-	-	+	+
	Sumai 3	+	-	-	+	-	+	+
	Check	-	+	+	+	-	+	+
	Check	-	-	-	-	+	-	+

Table 19. DNA marker analysis, 2007 SRPN.

	Trait	Waxy	Waxy	AI Tolerance	AI Tolerance	Height, Rht1	Height, Rht2	Height, Rht8
	Marker	Waxy4,7A	Waxy4,7D	WMC331	ALMT1-SSR3A	Rht1BF-MR1	Rht2,DF-MR2	GWM261
	Band Size (bp)	T273	T314	T149	T220-250	T255	T270	T212
	Marker type	STS	STS	SSR	SSR	STS	STS	SSR
	Chinese Spring	+	+	-	-	-	-	+
	Yecora Rojo	+	+	+	+	+	+	-
1	Kharkof	+	+	-	-	-	-	-
2	Scout66	+	+	-	-	-	-	-
3	TAM-107	+	+	-	-	+	-	-
4	Trego	+	+	-	-	+	-	-
5	OKBullet06ERU	+	+	-	-	+	-	-
6	OK05737W	+	+	-	-	+	-	-
7	OK03305	+	+	-	-	+	-	+
8	OK03522	+	+	-	-	+	-	-
9	OK02522W	+	+	-	-	+	-	-
10	OK02125	+	+	+	+	+	-	-
11	KS04HW47-3-4	+	+	-	+	+	-	-
12	T151	+	+	-	-	+	-	-
13	T153	+	+	-	-	+	-	-
14	T154	+	+	-	-	+	-	-
15	T158	+	+	-	-	+	-	-
16	98x0338-13	+	+	+	+	+	-	-
17	98x0435-15	+	+	-	+	+	-	-
18	99x0212-2	+	+	+	+	+	-	-
19	BC98331-03\$-2W	+	+	-	-	-	-	-
20	BC98334-10W-8W	+	+	-	-	+	-	-
21	BC98334-04\$-02\$	+	+	-	-	+	-	-
22	HV9W96-1271R-1	+	+	-	-	+	-	-
23	HV9W02-267W	+	+	-	-	+	-	-
24	HV9W02-112W	+	+	-	-	+	-	-
25	HV9W02-271W	+	+	-	-	+	-	-

Table 19. DNA marker analysis, 2007 SRPN.

	Trait	Waxy	Waxy	AI Tolerance	AI Tolerance	Height, Rht1	Height, Rht2	Height, Rht8
	Marker	Waxy4,7A	Waxy4,7D	WMC331	ALMT1-SSR3A	Rht1BF-MR1	Rht2,DF-MR2	GWM261
	Band Size (bp)	T273	T314	T149	T220-250	T255	T270	T212
	Marker type	STS	STS	SSR	SSR	STS	STS	SSR
26	KS990498-3-&~2	+	+	-	+	+	-	-
27	KS970093-8-9-#1	+	+	+	+	-	+	-
28	KS980512-2-2	+	+	-	-	+	-	-
29	KS980512-11-22	+	+	-	-	+	-	-
30	CO01385-A1	+	+	-	-	+	-	+
31	CO02W280	+	+	-	-	+	-	-
32	CO03W054	+	+	-	-	+	-	-
33	CO03W239	+	+	-	-	-	-	-
34	CO03W269	+	+	-	-	+	-	-
35	CO03443	+	+	-	-	+	-	-
36	NI04420	+	+	-	-	+	-	-
37	NI04421	+	+	-	-	+	-	-
38	NE04424	+	+	-	-	+	-	-
39	NI04428	+	+	-	-	+	-	-
40	SD05W012	+	+	-	-	+	-	-
41	SD05W138	+	+	-	-	-	-	-
42	T159	+	+	-	+	-	-	-
43	TX99A0153-1	+	+	-	-	+	-	-
44	TX03M1096	+	+	+	+	+	-	-
45	TX01V5136RC	+	+	-	-	+	-	-
46	TX01A7340	+	+	+	+	+	-	-
47	TX02A0252	+	+	-	-	+	-	-
48	TX04M410068	+	+	-	-	-	-	-
49	TX03A0148	+	+	-	-	+	-	+
50	TX03A0563	+	+	-	-	+	-	-
	TAM107	+	+	-	-	+	-	-
	Clark	+	+	-	-	+	-	-
	Jagger	+	+	+	+	+	-	-
	Sumai 3	+	+	-	-	-	-	+
	Check	+	+	+	+	+	+	+
	Check	+	-	-	-	+	+	-

Table 19. DNA marker analysis, 2007 SRPN.

Trait	RWA	RWA	Vernalization	Vernalization	Vernalization
Marker	GWM0044	GWM111	VRN1AProm	VRN-A1, NON-Del	VRN-B1, Del
Band Size (bp)	Tailed	Tailed	T492	1068	709
Marker type	SSR	SSR	STS	STS	STS
Chinese Spring	129, 155, 197	152, 155, 156, 226, 227, 228, 229	+	+	+
Yecora Rojo	129, 155, 199	155, 168, 169, 230, 231, 232	+	+	+
1 Kharkof	129, 157, 179, 189	154, 155, 168, 169, 203, 227	+	+	-
2 Scout66	122, 129, 193	153, 154, 168, 169, 203, 231	+	+	-
3 TAM-107	129, 179	153, 154, 168, 169, 202	+	+	-
4 Trego	129, 193, ,	155, 156, 169, 202	+	+	-
5 OKBullet06ERU	129, 157, 179, 197	168, 169, 202, 203, 204	+	+	-
6 OK05737W	129, 179	156, 168, 169, 202	+	+	-
7 OK03305	122, 129, 179	154, 155, 202, 203	+	+	-
8 OK03522	129, 155, 157, 199	154, 155, 204, 205	+	+	-
9 OK02522W	129, 157, 179	156, 157, 168, 169, 202, 203	+	+	-
10 OK02125	122, 129, 197	152, 156, 168, 169, 204, 205	+	+	-
11 KSO4HW47-3-4	122, 129, 193	156, 157, 202, 203	+	+	-
12 T151	129, 179	153, 154, 202	+	+	-
13 T153	122, 129, 179	155, 156, 202	+	+	-
14 T154	129, 157, 179, 187, 189	150, 156, 157, 202, 203	+	+	-
15 T158	122, 179	153, 154, 202, 203	+	+	-
16 98x0338-13	122	150, 156, 157, 204, 205, 221, 223	+	+	-
17 98x0435-15	129, 157, 191	154, 156, 157, 231, 233	+	+	-
18 99x0212-2	129, 197	168, 169, 204	+	+	-
19 BC98331-03\$-2W	122, 193	155, 156, 204, 205	+	+	-
20 BC98334-10W-8W	129, 155, 193, ,	155, 156, 157, 230 231, 232	+	+	-
21 BC98334-04\$-02\$	122	155, 156, 202, 231, 233	+	+	-
22 HV9W96-1271R-1	129, 157, 163	153, 154, 200, 202	+	+	-
23 HV9W02-267W	122, 193	168, 169, 202, 203	+	+	-
24 HV9W02-112W	122, 193	150, 156, 157, 219	+	+	-
25 HV9W02-271W	129, 155, 157, 201	152, 156, 157, 235, 237	+	+	-

Table 19. DNA marker analysis, 2007 SRPN.

Trait	RWA	RWA	Vernalization	Vernalization	Vernalization	
Marker	GWM0044	GWM111	VRN1AProm	VRN-A1, NON-Del	VRN-B1, Del	
Band Size (bp)	Tailed	Tailed	T492	1068	709	
Marker type	SSR	SSR	STS	STS	STS	
26	KS990498-3-&~2	.	150, 156, 157, 204, 205	+	+	-
27	KS970093-8-9-#1	122, 129, 201	153, 154, 155, 156	+	+	-
28	KS980512-2-2	129, 193	150, 155, 156, 157, 202, 203	+	+	+
29	KS980512-11-22	122	154, 168, 169, 202, 203	+	+	-
30	CO01385-A1	129, 155, 197	148, 153, 154, 168, 169, 227	+	+	-
31	CO02W280	122	168, 169, 203	+	+	-
32	CO03W054	122	156, 157, 168, 169, 219, 231	+	+	-
33	CO03W239	129, 191	154, 155, 237	+	+	-
34	CO03W269	122, 129, 163	154, 155, 202, 203	+	+	-
35	CO03443	122	152, 155, 156, 224, 225, 227	+	+	-
36	NI04420	122	150, 155, 156, 202	+	+	-
37	NI04421	122	152, 155, 156, 231	+	+	-
38	NE04424	129, 157, 201	150, 155, 156, 157, 202	+	+	-
39	NI04428	122	150, 155, 156, 202, 203, 229, 231	+	+	-
40	SD05W012	122	152, 156, 157, 231	+	+	-
41	SD05W138	122, 129, 193	150, 156, 157, 232	+	+	-
42	T159	129, 157, 187	154, 155, 222, 223, 224, 225	+	+	-
43	TX99A0153-1	129, 155, 157, 199	150, 156, 157, 202, 203	+	+	-
44	TX03M1096	.	156, 157, 168, 169, 204, 205	+	+	-
45	TX01V5136RC	129, 201	148, 153, 154, 155, 168, 169, 204, 205	+	+	-
46	TX01A7340	129, 197	148, 154, 155, 168, 169, 204, 205	+	+	-
47	TX02A0252	122	156, 157, 168, 169, 235	+	+	-
48	TX04M410068	122	152, 153, 168, 169, 204, 205, 227, 229	+	+	-
49	TX03A0148	129, 157, 193, 199	154, 155, 156, 169, 202, 203	+	+	-
50	TX03A0563	129, 155, 195	148, 154, 155, 168, 169, 202, 203	+	+	-
	TAM107	129, 179	153, 154, 168, 169, 202	+	+	-
	Clark	129, 157, 189	153, 154, 155, 156, 222, 223	+	+	-
	Jagger	129, 197	154, 168, 169, 191, 204, 205	+	+	-
	Sumai 3	129, 157, 197	150, 156, 157, 202, 203	+	+	-
	Check	129, 155, 191	148, 154, 155, 168, 169, 232, 233, 234	+	-	-
	Check	129, 155, 191	152, 153, 168, 169, 236, 237	+	+	-

Table 19. DNA marker analysis, 2007 SRPN.

Trait		Vernalization	Vernalization	Vernalization
Marker		VRN-B1, NON-Del	VRN-D1, Del	VRN-D1, NON-Del
Band Size (bp)		1149	1671	997
Marker type		STS	STS	STS
	Chinese Spring	+	+	+
	Yecora Rojo	+	+	+
1	Kharkof	+	-	+
2	Scout66	+	-	+
3	TAM-107	+	-	+
4	Trego	+	-	+
5	OKBullet06ERU	+	-	+
6	OK05737W	+	-	+
7	OK03305	+	-	+
8	OK03522	+	-	+
9	OK02522W	+	-	+
10	OK02125	+	-	-
11	KSO4HW47-3-4	+	-	+
12	T151	+	-	+
13	T153	+	-	+
14	T154	+	-	+
15	T158	+	-	+
16	98x0338-13	+	-	+
17	98x0435-15	+	-	+
18	99x0212-2	+	-	+
19	BC98331-03\$-2W	+	-	+
20	BC98334-10W-8W	+	-	+
21	BC98334-04\$-02\$	+	-	+
22	HV9W96-1271R-1	+	-	+
23	HV9W02-267W	+	-	+
24	HV9W02-112W	+	-	+
25	HV9W02-271W	+	-	+

Table 19. DNA marker analysis, 2007 SRPN.

	Trait	Vernalization	Vernalization	Vernalization
	Marker	VRN-B1, NON-Del	VRN-D1, Del	VRN-D1, NON-Del
	Band Size (bp)	1149	1671	997
	Marker type	STS	STS	STS
26	KS990498-3-&~2	+	-	+
27	KS970093-8-9-#1	+	-	+
28	KS980512-2-2	+	-	+
29	KS980512-11-22	+	-	+
30	CO01385-A1	+	-	+
31	CO02W280	+	-	+
32	CO03W054	+	-	+
33	CO03W239	+	-	+
34	CO03W269	+	-	+
35	CO03443	+	-	+
36	NI04420	+	-	+
37	NI04421	+	-	+
38	NE04424	+	-	+
39	NI04428	+	-	+
40	SD05W012	+	-	+
41	SD05W138	+	-	+
42	T159	+	-	+
43	TX99A0153-1	+	-	+
44	TX03M1096	+	-	+
45	TX01V5136RC	+	-	+
46	TX01A7340	+	-	+
47	TX02A0252	+	-	+
48	TX04M410068	+	-	+
49	TX03A0148	+	-	+
50	TX03A0563	+	-	+
	TAM107	+	-	+
	Clark	+	-	+
	Jagger	+	-	+
	Sumai 3	+	+	+
	Check	-	+	-
	Check	+	-	+