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

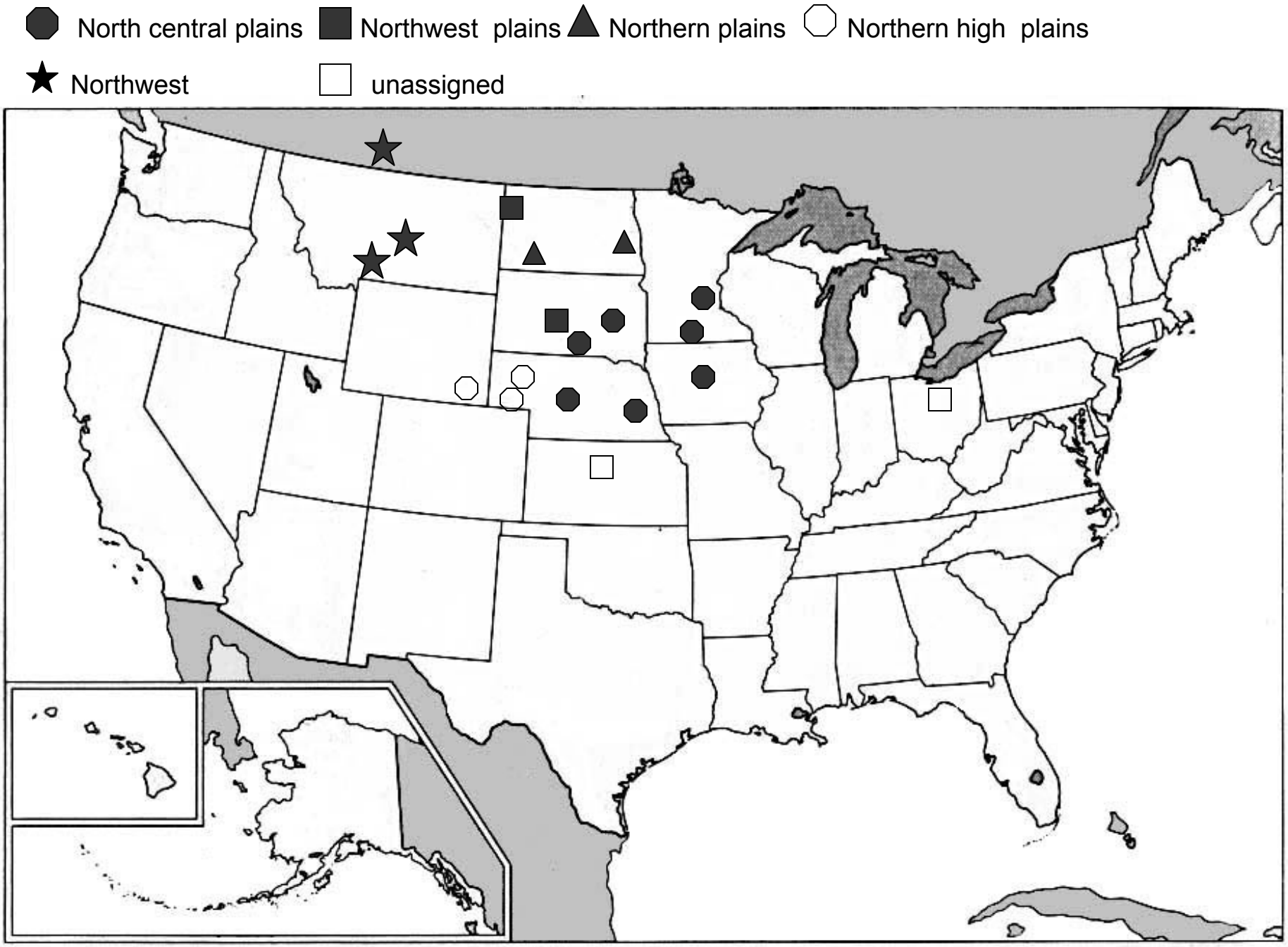

Table 1. 2002 NRPN location notes

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Location	Notes
Salina, KS	
Lincoln, NE	cool spring, decent moisture, later dry, early harvest
North Platte, NE	could have been worse
Sidney, NE	lost, drought, wheat streak mosaic virus
Alliance, NE	lost, drought
Brookings, SD	
Dakota Lakes, SD	lost, drought
Winner, SD	
Ames, IA	No winterkill
Casselton, ND	
Williston, ND	significant winterkill, January - July precipitation = 9.9 inches,
Hettinger, ND	hot and dry, less than 3 1/2 inches of rain from 4/1 through 6/30
Bozeman, MT	
Moccasin, MT	planted 9/24/200: fertilizer 50 lbs 20-20-20-10 at planting, 60 lbs N in March 2002, weed control bronate, Sept 01-July 02 precipitation = 11.14 inches
Archer, WY	lost, drought
Rosemount, MN	harvested 7/24/2002, lodging due to wet weather and late harvest
Waseca, MN	harvested 7/23/2002
Wooster, OH	data included in report but not used to calculate region-wide means, as the location is outside the traditional NRPN geographic region.
Lethbridge, Alberta	lost, hail

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Table 2. 2002 Northern Regional Performance Nursery

Entry	Line/selection	Putative market class	Cultivar or pedigree	source
1	CI 1442	HRW	Kharkof	check
2	CI 17439	HRW	Roughrider	check
3	PI 511307	HWW	Nuplains	check
4	PI 584997	HRW	Nekota	check
5	G970252W	HWW	RAEDER/CG70654//KARL 92	Goertzen Seed
6	SD97457	HRW	Tomahawk/Bennett	South Dakota St.
7	SD92107-3	HRW	Brule//Bennett/Chisholm/3/Arapahoe	South Dakota St.
8	SD92107-5	HRW	Brule//Bennett/Chisholm/3/Arapahoe	South Dakota St.
9	SD97049	HRW	ND8889/Karl	South Dakota St.
10	SD97250	HRW	ND90109/NE87613	South Dakota St.
11	SD97W604	HWW	Abilene/Karl	South Dakota St.
12	NW97S277	HWW	Pronghorn/Arlin	ARS-Lincoln
13	NW98S078	HWW	NE90518/Arlin	ARS-Lincoln
14	NW99L7042	HWW	KM 602-90/NE89657//Arlin	ARS-Lincoln
15	NW99L7068	HWW	KS84HW1968*RioBlanco/HBY762A//Halt	ARS-Lincoln
16	NW99L7083	HWW	KS84HW1968*RioBlanco/HBY762A//Halt	ARS-Lincoln
17	NW99L7171	HWW	VH09553-753/N91L019//AP-WI89-163	ARS-Lincoln
18	NE98471	HRW	NE90461/NIOBRARA	University of Nebraska
19	NE98503	HRW	NE89523/NE90461	University of Nebraska
20	NE96737	HRW	N95L421 N87V106/NE88582	University of Nebraska
21	NI98418	HRW	NE89526/YUMA	University of Nebraska
22	NE99445	HRW	RAWHIDE/TOMAHAWK//KARL 92	University of Nebraska
23	NE99469	HRW	NE87V106/NE88588//KARL 92	University of Nebraska
24	NE99495	HRW	ALLIANCE/KARL 92	University of Nebraska
25	NE99533	HRW	TX90V7912/ABILENE	University of Nebraska

Table 3. Agronomic summary of 25 hard winter wheats entered in the 2002 NRPN.

Entry	Line/selection	Grain yield, kg/ha mean	Grain yield, kg/ha rank	Volume weight, kg/hl mean	Days from 1/1 to heading mean	Plant height, cm mean	Winter Survival, 0-9[a] mean	Lodging, 0-9 mean
1	Kharkof	2431	25	74.8	167	101	7	6
2	Roughrider	2615	24	76.3	166	95	7	5
3	Nuplains	3340	13	76.3	165	73	6	6
4	Nekota	3297	14	74.4	161	78	7	6
5	G970252W	3039	21	71.3	165	79	5	5
6	SD97457	3421	5	75.7	161	80	7	5
7	SD92107-3	3169	19	73.5	165	85	7	6
8	SD92107-5	3248	18	73.9	165	85	6	5
9	SD97049	3287	16	74.1	162	75	6	5
10	SD97250	3390	8	74.5	164	83	6	6
11	SD97W604	3393	6	76.5	161	71	7	6
12	NW97S277	3074	20	73.6	162	75	5	5
13	NW98S078	3455	2	72.3	164	79	6	5
14	NW99L7042	3038	22	69.8	163	72	5	5
15	NW99L7068	3350	10	73.7	160	74	6	6
16	NW99L7083	3288	15	73.0	161	74	7	6
17	NW99L7171	3026	23	74.3	165	90	5	6
18	NE98471	3433	4	72.2	161	83	7	6
19	NE98503	3344	11	71.0	163	86	7	6
20	NE96737	3559	1	74.7	162	83	7	5
21	NI98418	3440	3	71.8	162	82	7	5
22	NE99445	3277	17	75.0	162	80	6	5
23	NE99469	3342	12	75.0	162	79	6	5
24	NE99495	3381	9	74.5	162	79	6	5
25	NE99533	3392	7	76.0	162	77	7	5
	mean	3241		73.9	163	81	6	5
	cv (%)	12						
	l.s.d.(0.05)	354						

[a]Winter survival from various locations was normalized to a 0-9 scale, with 9 = greatest survival.

Table 4. Mean grain yields (kg/ha) and ranks for 25 wheats grown in the 2002 NRPN.

		region		Salina, KS		Nebraska state		Lincoln, NE		North Platte, NE	
Entry	Line or selection	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2431	25	1029	24	2543	25	2712	25	2374	24
2	Roughrider	2615	24	693	25	2801	24	3234	24	2368	25
3	Nuplains	3340	13	2219	9	4264	13	5674	3	2854	23
4	Nekota	3297	14	2209	10	4148	18	4842	18	3454	10
5	G970252W	3039	21	2182	12	4241	15	5352	8	3129	19
6	SD97457	3421	5	2804	2	4493	6	5539	5	3447	11
7	SD92107-3	3169	19	1812	19	3707	23	4396	22	3018	22
8	SD92107-5	3248	18	1715	22	3776	22	4274	23	3278	17
9	SD97049	3287	16	2038	16	4338	12	5250	10	3426	13
10	SD97250	3390	8	1880	18	4208	17	4795	19	3621	6
11	SD97W604	3393	6	2603	5	4240	16	4687	21	3792	2
12	NW97S277	3074	20	2448	7	4349	10	5212	11	3485	7
13	NW98S078	3455	2	2239	8	4538	3	5178	14	3897	1
14	NW99L7042	3038	22	1796	20	3983	20	4909	17	3058	21
15	NW99L7068	3350	10	2811	1	4517	5	5678	2	3356	14
16	NW99L7083	3288	15	2757	3	4589	2	5469	7	3710	4
17	NW99L7171	3026	23	1772	21	4338	11	5202	12	3475	9
18	NE98471	3433	4	2088	15	4766	1	5761	1	3772	3
19	NE98503	3344	11	1614	23	3948	21	4793	20	3104	20
20	NE96737	3559	1	2202	11	4249	14	5182	13	3315	15
21	NI98418	3440	3	2125	13	4519	4	5560	4	3477	8
22	NE99445	3277	17	1913	17	4119	19	5021	16	3217	18
23	NE99469	3342	12	2613	4	4377	9	5321	9	3434	12
24	NE99495	3381	9	2118	14	4418	7	5536	6	3301	16
25	NE99533	3392	7	2545	6	4399	8	5147	15	3652	5
	mean	3241		2089		4155		4989		3321	
	cv (%)	12		11		8		8		9	
	l.s.d.(0.05)	354		461		767		642		470	
	no.reps.	38		2		6		3		3	

Table 4. Mean grain yields (kg/ha) and ranks for 25 wheats grown in the 2002 NRPN.

		region		South Dakota state		Brookings, SD		Winner, SD	
Entry	Line or selection	mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2431	25	2223	24	3574	25	872	23
2	Roughrider	2615	24	1994	25	3615	23	373	25
3	Nuplains	3340	13	3073	9	4221	8	1925	10
4	Nekota	3297	14	2605	21	4241	7	969	21
5	G970252W	3039	21	2478	23	4204	10	752	24
6	SD97457	3421	5	2779	19	4012	16	1545	19
7	SD92107-3	3169	19	2895	14	3779	22	2012	9
8	SD92107-5	3248	18	3152	8	4011	17	2294	6
9	SD97049	3287	16	3008	11	4103	13	1913	11
10	SD97250	3390	8	3293	4	4337	4	2250	7
11	SD97W604	3393	6	3219	5	4362	3	2076	8
12	NW97S277	3074	20	2688	20	3783	21	1593	17
13	NW98S078	3455	2	3165	7	4021	15	2309	5
14	NW99L7042	3038	22	2508	22	4131	12	885	22
15	NW99L7068	3350	10	3186	6	3606	24	2765	2
16	NW99L7083	3288	15	3414	3	3908	18	2921	1
17	NW99L7171	3026	23	2878	17	4041	14	1715	16
18	NE98471	3433	4	3417	2	4334	5	2499	4
19	NE98503	3344	11	2893	15	4249	6	1537	20
20	NE96737	3559	1	3602	1	4462	1	2742	3
21	NI98418	3440	3	2890	16	3884	19	1896	12
22	NE99445	3277	17	3020	10	4458	2	1582	18
23	NE99469	3342	12	2933	13	4133	11	1732	15
24	NE99495	3381	9	2998	12	4207	9	1788	14
25	NE99533	3392	7	2838	18	3865	20	1810	13
	mean	3241		2926		4062		1790	
	cv (%)	12		17		8		35	
	l.s.d.(0.05)	354		929		512		1023	
	no.reps.	38		6		3		3	

Table 4. Mean grain yields (kg/ha) and ranks for 25 wheats grown in the 2002 NRPN.

		region		North Dakota State		Williston, ND		Casselton, ND		Hettinger, ND	
Entry	Line or selection	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2431	25	2324	13	2027	8	2937	16	2107	24
2	Roughrider	2615	24	2569	6	2734	1	2739	21	2178	21
3	Nuplains	3340	13	2169	18	1331	18	3249	7	2206	18
4	Nekota	3297	14	2611	4	2007	9	3366	5	2662	5
5	G970252W	3039	21	1856	22	1179	20	2766	19	1850	25
6	SD97457	3421	5	2490	8	1986	10	2990	13	2662	4
7	SD92107-3	3169	19	2441	11	1821	11	3574	2	2135	23
8	SD92107-5	3248	18	2638	3	2036	7	3660	1	2420	14
9	SD97049	3287	16	2044	21	1238	19	3013	12	2149	22
10	SD97250	3390	8	2483	9	1812	13	3198	9	2662	3
11	SD97W604	3393	6	2611	5	2562	3	3080	10	2206	18
12	NW97S277	3074	20	1616	25	685	23	2209	25	2263	17
13	NW98S078	3455	2	2160	19	1144	21	3498	3	2178	20
14	NW99L7042	3038	22	1639	24	296	25	2634	23	2434	13
15	NW99L7068	3350	10	2192	17	1584	15	2632	24	2562	7
16	NW99L7083	3288	15	2272	14	1817	12	2846	17	2306	16
17	NW99L7171	3026	23	1777	23	457	24	2794	18	2519	10
18	NE98471	3433	4	2407	12	1589	14	3413	4	2491	11
19	NE98503	3344	11	2719	1	2251	4	3214	8	2847	1
20	NE96737	3559	1	2675	2	2703	2	2751	20	2562	8
21	NI98418	3440	3	2442	10	2190	5	2687	22	2534	9
22	NE99445	3277	17	2257	15	1479	16	2948	15	2605	6
23	NE99469	3342	12	2199	16	1474	17	2975	14	2391	15
24	NE99495	3381	9	2144	20	829	22	3352	6	2690	2
25	NE99533	3392	7	2495	7	2078	6	3054	11	2491	12
	mean	3241		2289		1652		3023		2404	
	cv (%)	12		19		28		14		12	
	l.s.d.(0.05)	354		704		675		677		457	
	no.reps.	38		10		4		3		3	

Table 4. Mean grain yields (kg/ha) and ranks for 25 wheats grown in the 2002 NRPN.

		region		Montana State		Moccasin, MT		Bozeman, MT	
Entry	Line or selection	mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2431	25	3580	25	2540	22	4620	25
2	Roughrider	2615	24	3671	24	2473	24	4869	24
3	Nuplains	3340	13	4608	18	2856	20	6360	18
4	Nekota	3297	14	4922	12	2988	18	6855	8
5	G970252W	3039	21	4929	11	3201	10	6658	13
6	SD97457	3421	5	4970	10	3114	16	6826	10
7	SD92107-3	3169	19	4597	19	3244	7	5949	23
8	SD92107-5	3248	18	4431	23	2780	21	6082	21
9	SD97049	3287	16	5059	8	3179	13	6940	7
10	SD97250	3390	8	4732	17	3107	17	6357	19
11	SD97W604	3393	6	4779	16	3322	2	6236	20
12	NW97S277	3074	20	5001	9	3228	9	6774	11
13	NW98S078	3455	2	5144	3	3266	5	7021	5
14	NW99L7042	3038	22	4811	15	3150	15	6472	17
15	NW99L7068	3350	10	5127	4	3179	13	7075	3
16	NW99L7083	3288	15	4489	21	2432	25	6546	15
17	NW99L7171	3026	23	4475	22	2905	19	6046	22
18	NE98471	3433	4	4593	20	2495	23	6691	12
19	NE98503	3344	11	4857	14	3185	11	6528	16
20	NE96737	3559	1	5066	7	3282	4	6851	9
21	NI98418	3440	3	5438	1	3519	1	7357	1
22	NE99445	3277	17	5244	2	3309	3	7180	2
23	NE99469	3342	12	5117	5	3181	12	7052	4
24	NE99495	3381	9	5102	6	3237	8	6967	6
25	NE99533	3392	7	4908	13	3259	6	6557	14
	mean	3241		4786		3057		6515	
	cv (%)	12		7		10		5	
	l.s.d.(0.05)	354		723		490		540	
	no.reps.	38		6		3		3	

Table 4. Mean grain yields (kg/ha) and ranks for 25 wheats grown in the 2002 NRPN.

		region		Minnesota state		Rosemount, MN		Waseca, MN		Ames, IA		Wooster, OH (not included in region-wide mean)	
Entry	Line or selection	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2431	25	1480	25	1440	13	1519	25	4059	25	2408	24
2	Roughrider	2615	24	2105	18	1954	1	2256	24	4439	24	2952	23
3	Nuplains	3340	13	2387	8	1413	14	3361	5	6839	1	4802	7
4	Nekota	3297	14	2388	7	1574	7	3202	11	5195	23	4529	9
5	G970252W	3039	21	1755	22	737	21	2773	22	6063	10	5269	3
6	SD97457	3421	5	2399	6	1471	11	3327	6	5824	16	5319	2
7	SD92107-3	3169	19	2323	10	1562	9	3084	17	5619	20	3978	19
8	SD92107-5	3248	18	2385	9	1572	8	3198	12	5582	21	3648	22
9	SD97049	3287	16	2307	11	1450	12	3163	13	6056	11	.	
10	SD97250	3390	8	2491	3	1614	6	3367	4	5945	13	4916	5
11	SD97W604	3393	6	2140	15	620	24	3659	3	5686	19	3675	21
12	NW97S277	3074	20	2096	19	1236	15	2955	18	5481	22	4563	8
13	NW98S078	3455	2	2463	4	1229	16	3698	2	6678	2	4277	16
14	NW99L7042	3038	22	2539	2	1852	2	3225	9	6211	7	5330	1
15	NW99L7068	3350	10	1720	23	632	23	2809	21	6237	6	4341	12
16	NW99L7083	3288	15	1655	24	441	25	2869	20	5911	15	5013	4
17	NW99L7171	3026	23	1937	21	712	22	3162	14	5945	13	3850	20
18	NE98471	3433	4	2127	17	1020	19	3234	8	6399	5	4314	15
19	NE98503	3344	11	2247	12	1551	10	2943	19	6490	4	4072	18
20	NE96737	3559	1	2408	5	1659	4	3158	15	6069	9	4375	10
21	NI98418	3440	3	2168	13	1116	17	3221	10	5979	12	4899	6
22	NE99445	3277	17	2057	20	968	20	3147	16	5750	17	4331	13
23	NE99469	3342	12	2139	16	1646	5	2632	23	6197	8	4317	14
24	NE99495	3381	9	2704	1	1693	3	3714	1	5736	18	4260	17
25	NE99533	3392	7	2144	14	1051	18	3238	7	6564	3	4365	11
	mean	3241		2183		1289		3077		5878		4325	
	cv (%)	12		18		32		12		8		11	
	l.s.d.(0.05)	354		917		668		580		901			
	no.reps.	38		6		3		3		2		2	

Table 5. Summary of mean yields of 25 wheats grown in the 2002 NRPN for three regional production zones (after Peterson, 1992, Crop Science 32: 907).

		region		North Central Plains		Northern Plains		North West	
Entry	Line or selection	mean	rank	mean	rank	mean	rank	mean	rank
1	Kharkof	2431	25	2280	25	2522	22	3580	25
2	Roughrider	2615	24	2514	24	2459	23	3671	24
3	Nuplains	3340	13	3601	5	2728	12	4608	18
4	Nekota	3297	14	3262	21	3014	4	4922	12
5	G970252W	3039	21	3148	23	2308	24	4929	11
6	SD97457	3421	5	3483	9	2826	9	4970	10
7	SD92107-3	3169	19	3240	22	2855	7	4597	19
8	SD92107-5	3248	18	3352	16	3040	1	4431	23
9	SD97049	3287	16	3501	7	2581	19	5059	8
10	SD97250	3390	8	3592	6	2930	6	4732	17
11	SD97W604	3393	6	3448	14	2643	16	4779	16
12	NW97S277	3074	20	3288	20	2236	25	5001	9
13	NW98S078	3455	2	3718	2	2838	8	5144	3
14	NW99L7042	3038	22	3330	19	2534	21	4811	15
15	NW99L7068	3350	10	3451	13	2597	18	5127	4
16	NW99L7083	3288	15	3489	8	2576	20	4489	21
17	NW99L7171	3026	23	3341	17	2657	15	4475	22
18	NE98471	3433	4	3733	1	2952	5	4593	20
19	NE98503	3344	11	3376	15	3030	2	4857	14
20	NE96737	3559	1	3685	3	2657	14	5066	7
21	NI98418	3440	3	3471	10	2610	17	5438	1
22	NE99445	3277	17	3334	18	2776	10	5244	2
23	NE99469	3342	12	3455	12	2683	13	5117	5
24	NE99495	3381	9	3610	4	3021	3	5102	6
25	NE99533	3392	7	3471	11	2772	11	4908	13
	mean	3241		3367		2714		4786	
	cv (%)	12		12		13		7	
	l.s.d.(0.05)	354		465		562		723	
	no. locs.	13		7		2		2	

Table 6. Summary of mean volume weights (kg/hl) of 25 wheats grown in the 2002 NRPN.

Entry	Line or selection	region	Salina, KS	Lincoln, NE	North Platte, NE	Brookings, SD	Winner, SD	Casselton, ND	Williston, ND	Hettinger, ND
1	Kharkof	74.8	69.7	81.3	77.4	77.6	60.0	75.7	74.9	72.4
2	Roughrider	76.3		80.7	75.5	78.8		74.4	76.1	73.3
3	Nuplains	76.3	72.2	85.1	78.2	81.7	69.7	76.1	71.2	71.9
4	Nekota	74.4	67.1	80.9	78.5	78.3	59.0	76.3	75.4	73.7
5	G970252W	71.3	66.4	79.3	76.7	73.7	56.4	70.7	72.5	70.5
6	SD97457	75.7	72.9	81.8	79.0	77.8	67.3	75.9	74.6	74.6
7	SD92107-3	73.5	65.1	80.7	76.4	76.3	65.7	74.0	72.5	73.4
8	SD92107-5	73.9	65.1	82.2	77.2	75.9	66.1	74.0	72.9	71.8
9	SD97049	74.1	68.4	79.1	78.1	78.0	66.5	73.7	72.7	75.3
10	SD97250	74.5	67.7	80.3	77.2	78.9	68.6	73.5	73.1	75.1
11	SD97W604	76.5	73.5	84.0	79.3	79.2	70.0	76.1	75.8	75.7
12	NW97S277	73.6	71.0	79.6	77.4	76.3	63.1	73.7	71.3	75.4
13	NW98S078	72.3	67.7	81.8	76.0	75.2	62.7	72.0	70.9	70.3
14	NW99L7042	69.8	65.8	79.8	75.1	72.9	53.4	69.9	68.1	71.7
15	NW99L7068	73.7	72.2	82.2	78.6	76.4	70.4	71.8	72.0	73.2
16	NW99L7083	73.0	72.2	80.7	77.6	77.0	70.4	70.1	72.0	73.3
17	NW99L7171	74.3	71.0	84.0	79.5	79.1	67.2	70.3	64.8	72.4
18	NE98471	72.2	67.7	78.7	76.0	75.5	66.8	72.2	70.2	72.9
19	NE98503	71.0	66.4	77.8	75.3	72.7	59.9	71.0	70.9	70.2
20	NE96737	74.7	71.0	80.9	77.0	77.9	66.3	74.0	75.6	72.3
21	NI98418	71.8	66.4	80.0	75.7	74.5	60.6	71.4	73.4	69.4
22	NE99445	75.0	72.2	82.0	77.6	77.8	66.4	74.8	74.9	75.8
23	NE99469	75.0	71.0	82.4	78.6	78.0	65.1	75.5	74.7	74.8
24	NE99495	74.5	71.6	80.8	77.4	76.5	68.3	75.7	71.8	75.6
25	NE99533	76.0	72.2	81.5	78.8	77.2	73.3	76.8	75.4	73.5
	mean	73.9	69.4	81.1	77.4	76.9	65.1	73.6	72.7	73.1

Table 6. Summary of mean volume weights (kg/hl) of 25 wheats grown in the 2002 NRPN.

Entry	Line or selection	region	Rosemount, MN	Waseca, MN	Moccasin, MT	Bozeman, MT	Ames, IA	Wooster, OH (excluded from regional mean)
1	Kharkof	74.8	71.7	74.5	79.1	77.1	77.3	76.8
2	Roughrider	76.3	72.2	76.3	77.8	76.0	78.4	77.4
3	Nuplains	76.3	71.3	76.7	78.7	77.6	80.8	81.1
4	Nekota	74.4	68.6	73.0	78.3	78.4	77.8	79.6
5	G970252W	71.3	62.5	69.1	72.0	73.0	74.6	75.5
6	SD97457	75.7	71.7	73.9	77.5	75.5	77.9	81.1
7	SD92107-3	73.5	68.7	74.5	77.0	73.3	76.2	77.3
8	SD92107-5	73.9	70.4	76.1	76.4	75.2	77.6	77.3
9	SD97049	74.1	65.1	70.8	77.5	75.6	75.4	
10	SD97250	74.5	69.1	73.3	77.8	73.5	76.0	74.3
11	SD97W604	76.5	70.8	74.5	78.6	75.9	79.0	78.9
12	NW97S277	73.6	67.6	71.7	76.2	75.7	75.1	76.1
13	NW98S078	72.3	61.4	70.2	73.9	73.7	74.6	75.3
14	NW99L7042	69.8	62.8	69.1	74.2	71.3	74.5	76.5
15	NW99L7068	73.7	63.4	68.6	73.4	73.9	74.6	77.4
16	NW99L7083	73.0	63.9	68.2	71.7	70.6	75.0	77.1
17	NW99L7171	74.3	66.7	75.4	77.5	75.9	78.5	78.8
18	NE98471	72.2	59.7	71.0	74.2	72.6	73.0	74.0
19	NE98503	71.0	64.3	67.6	76.5	71.8	73.9	73.3
20	NE96737	74.7	71.3	73.3	78.2	76.9	76.9	79.2
21	NI98418	71.8	64.7	69.8	76.4	74.1	76.8	79.7
22	NE99445	75.0	71.7	74.5	75.5	75.0	76.5	77.9
23	NE99469	75.0	71.3	71.7	76.4	76.7	76.9	79.1
24	NE99495	74.5	66.3	73.9	76.8	73.9	75.8	76.2
25	NE99533	76.0	69.8	72.1	77.8	75.9	77.9	80.6
	mean	73.9	67.5	72.4	76.4	74.8	76.4	77.5

Table 7. Summary of mean plant heights (cm) of 25 wheats grown in the 2002 NRPN.

Entry	Line or selection	Region	Lincoln, NE	Brookings, SD	Winner, SD	Casselton, ND	Williston, ND	Hettinger, ND	Rosemount, MN	Waseca, MN	Moccasin, MT	Bozeman, MT	Ames, IA
1	Kharkof	101	130	83	81	92	89	72	113	108	91	129	114
2	Roughrider	95	122	80	76	87	80	62	112	103	82	132	108
3	Nuplains	73	94	66	64	69	53	52	82	81	65	98	84
4	Nekota	78	97	67	69	66	60	57	87	90	74	101	89
5	G970252W	79	98	71	69	71	60	57	87	85	78	104	95
6	SD97457	80	101	68	46	66	67	58	93	91	76	105	91
7	SD92107-3	85	106	74	69	76	70	54	97	95	79	109	102
8	SD92107-5	85	109	75	76	75	65	63	98	96	73	112	100
9	SD97049	75	93	67	69	66	60	53	84	83	72	97	90
10	SD97250	83	97	72	74	75	66	62	96	88	77	107	101
11	SD97W604	71	85	64	69	57	54	52	81	85	69	90	90
12	NW97S277	75	102	68	74	66	53	56	78	83	78	94	89
13	NW98S078	79	100	70	74	70	56	58	86	86	81	101	94
14	NW99L7042	72	94	63	71	63	51	55	77	82	70	91	88
15	NW99L7068	74	95	66	71	59	55	54	80	87	75	94	92
16	NW99L7083	74	92	68	66	63	61	51	75	86	72	93	92
17	NW99L7171	90	124	76	76	80	69	62	94	102	84	118	104
18	NE98471	83	106	73	81	69	63	58	90	97	73	109	105
19	NE98503	86	109	70	79	75	72	62	96	98	79	110	102
20	NE96737	83	98	72	71	69	70	61	92	87	87	107	96
21	NI98418	82	103	68	81	68	69	59	92	91	78	105	92
22	NE99445	80	101	73	76	69	62	57	86	85	81	101	95
23	NE99469	79	100	70	74	67	58	59	88	90	78	101	94
24	NE99495	79	99	73	76	70	59	61	85	88	76	99	94
25	NE99533	77	100	65	56	66	62	55	86	86	72	98	94
		81	102	71	72	70	63	58	89	90	77	104	96

Table 8. Summary of days (from 1/1) to heading for 25 wheats grown in the 2002 NRPN.

Entry	Line or selection	region	Lincoln, NE	Brookings, SD	Winner, SD	Casselton, ND	Williston, ND	Hettinger, ND	Bozeman, MT	Moccasin, MT	Rosemount, MN	Ames, IA
1	Kharkof	167	150	161	160	170	174	171	176	175	168	154
2	Roughrider	166	149	161	160	169	173	171	176	176	167	154
3	Nuplains	165	148	159	158	170	175	171	173	173	169	152
4	Nekota	161	146	155	159	164	168	167	167	169	163	149
5	G970252W	165	148	158	160	170	173	171	173	174	169	152
6	SD97457	161	143	156	159	163	168	167	168	172	162	148
7	SD92107-3	165	149	160	159	169	172	170	172	173	167	152
8	SD92107-5	165	149	159	158	168	173	169	176	174	167	153
9	SD97049	162	146	156	158	165	169	168	168	169	165	149
10	SD97250	164	147	157	158	166	170	169	171	173	167	152
11	SD97W604	161	144	154	158	165	168	168	168	172	163	148
12	NW97S277	162	147	155	158	165	169	168	168	172	166	150
13	NW98S078	164	147	158	158	167	170	168	170	173	167	151
14	NW99L7042	163	147	158	159	166	169	168	170	173	165	151
15	NW99L7068	160	142	152	158	164	169	167	166	169	163	148
16	NW99L7083	161	145	151	158	164	168	167	167	169	162	148
17	NW99L7171	165	149	160	160	169	173	170	172	174	168	152
18	NE98471	161	144	154	157	164	168	167	168	169	164	149
19	NE98503	163	147	158	158	166	170	168	170	172	165	151
20	NE96737	162	146	156	157	165	169	169	171	173	164	148
21	NI98418	162	146	154	158	165	168	168	168	172	164	148
22	NE99445	162	146	152	157	166	169	168	169	173	163	149
23	NE99469	162	145	155	158	165	169	168	167	171	163	149
24	NE99495	162	147	155	158	165	170	167	168	170	166	149
25	NE99533	162	146	156	159	165	168	167	168	170	163	149
	mean	163	146	156	158	166	170	168	170	172	165	150

Table 9. Stability analyses, grain yield and volume weights, of 25 wheats grown in the 2002 NRPN.

		grain yield			volume weight		
Entry	Line or selection	regional average (kg/ha)	regression coef. (b)	r2	regional average (kg/hl)	regression coef. (b)	r2
1	Kharkof	2431	0.61	0.77	74.8	1.13	0.83
2	Roughrider	2615	0.66	0.72	76.3	0.60	0.71
3	Nuplains	3340	1.10	0.96	76.3	0.98	0.81
4	Nekota	3297	0.96	0.95	74.4	1.32	0.98
5	G970252W	3039	1.18	0.98	71.3	1.35	0.93
6	SD97457	3421	1.00	0.98	75.7	0.83	0.96
7	SD92107-3	3169	0.86	0.97	73.5	0.98	0.88
8	SD92107-5	3248	0.84	0.96	73.9	0.99	0.83
9	SD97049	3287	1.08	0.99	74.1	1.01	0.90
10	SD97250	3390	0.93	0.99	74.5	0.86	0.89
11	SD97W604	3393	0.91	0.93	76.5	0.86	0.96
12	NW97S277	3074	1.06	0.95	73.6	0.92	0.98
13	NW98S078	3455	1.12	0.97	72.3	1.24	0.96
14	NW99L7042	3038	1.11	0.94	69.8	1.46	0.93
15	NW99L7068	3350	1.08	0.93	73.7	0.88	0.69
16	NW99L7083	3288	1.00	0.91	73.0	0.78	0.60
17	NW99L7171	3026	1.08	0.96	74.3	1.15	0.74
18	NE98471	3433	1.09	0.96	72.2	1.00	0.81
19	NE98503	3344	1.01	0.96	71.0	1.13	0.94
20	NE96737	3559	0.94	0.96	74.7	0.86	0.92
21	NI98418	3440	1.09	0.97	71.8	1.23	0.94
22	NE99445	3277	1.11	0.99	75.0	0.80	0.91
23	NE99469	3342	1.07	0.98	75.0	0.96	0.93
24	NE99495	3381	1.07	0.96	74.5	0.89	0.84
25	NE99533	3392	1.03	0.98	76.0	0.66	0.78
	mean	3241			73.9		

Table 10. Reaction of 25 wheats grown in the 2002 NRPN to WSBMV, BYDV Hessian fly.

		Wheat soilborne mosaic virus (WSBMV)		Barley yellow dwarf virus (BYDF)[2,3]		Hessian fly[4]
Entry	Line or selection	[1]Stillwater, OK	[2]Urbana, IL (0-9)	Rating (0-9)	Dwarfing (%)	rating
1	Kharkof	2.5	7.5	4.5	2.9	S
2	Roughrider	2.7	7.0	5.5	11.3	S
3	Nuplains	2.7	9.0	6.5	13.8	S
4	Nekota	2.3	5.0	5.0	17.0	S
5	G970252W	1.7	3.0	5.5	12.0	S
6	SD97457	1.5	1.0	4.5	0.0	S
7	SD92107-3	1.7	1.0	5.0	8.4	H
8	SD92107-5	1.8	6.5	6.0	7.4	H
9	SD97049	3.0	8.0	6.0	16.3	H+
10	SD97250	1.8	4.5	4.5	10.3	H+
11	SD97W604	2.3	6.0	6.5	4.8	S
12	NW97S277	2.3	4.5	4.5	6.1	S
13	NW98S078	1.2	2.0	4.0	1.6	S
14	NW99L7042	1.7	3.5	4.0	7.4	S
15	NW99L7068	2.0	7.0	6.5	9.5	S
16	NW99L7083	2.3	7.0	6.0	18.3	S
17	NW99L7171	1.7	4.5	6.0	15.3	S
18	NE98471	2.5	7.5	6.0	17.8	H+
19	NE98503	2.0	7.5	5.0	6.1	H
20	NE96737	2.3	7.5	5.0	7.1	S
21	NI98418	1.8	7.5	5.5	5.9	H+
22	NE99445	1.5	3.0	6.0	11.8	S
23	NE99469	1.7	7.5	5.5	7.0	S
24	NE99495	2.5	8.0	6.0	5.9	H
25	NE99533	1.7	6.5	5.0	11.5	S
		2.0	5.7	5.4	9.4	

[1]Wheat soilborne mosaic virus, mean of 3 replications

1=no mosaic and/or no stunting, 2=slight mosaic and/or slight stunting, 3=moderate mosaic and/or moderate stunting, 4=severe mosaic and/or severe stunting. From Bob Hunger and Jeanmarie Verchot, Oklahoma State

[2]From Fred Kolb, Univ. Illinois

[3]BYDV data are from two reps of PAV-IL-BYDV inoculated hills. % dwarfing = 100 - ((infected hill height/control hill height) * 100)

[4]From Elburn Parker, USDA-ARS, Manhattan, KS

Table 11. Reaction of 25 wheats grown in the 2002 NRPN to foliar diseases.

Entry	Line or selection	Seedling leaf rust, Stillwater, OK	Leaf rust, adult plant reaction, Waseca, MN	Leaf rust, adult plant reaction, St. Paul, MN	Stem rust, adult plant reaction, St. Paul, MN	Powdery mildew, Wooster, OH (0-9)
1	Kharkof	S	40S	60S	40S	1
2	Roughrider	S	60S	60S	0	2
3	Nuplains	MR	10MS	20R-MR	TR-MR	2
4	Nekota	S	S	30MR-MS	TR-MR	1
5	G970252W	S	5MS	20MR-MS	20MR-MS	2
6	SD97457	S	20S	30MR-MS	40MS-S	4
7	SD92107-3	MR	t MS	10R-MR	TR	2
8	SD92107-5	MR	5MS	10R-MR	5R-MR	2
9	SD97049	MS	20S	30S	60S	
10	SD97250	MR	20S	10R-MR	5R-MR	4
11	SD97W604	MS	60S	30MR-MS	TR-MR	3
12	NW97S277	S	20S	5R	TR	3
13	NW98S078	S	20S	30MR-MS	20MR-MS	2
14	NW99L7042	S	10MS	5R-MR	40MS-S	1
15	NW99L7068	S	60S	60S	60MS-S	3
16	NW99L7083	S	60S	30MR-MS	60S	3
17	NW99L7171	MR	tS	5R-MR	30MR	4
18	NE98471	MR	5 MS-s	60S	60MS-S	1
19	NE98503	S	40S	60S	60MS-S	1
20	NE96737	S	t MS	30R-MR	60S	3
21	NI98418	S	20S	40MR-MS	40MS-S	1
22	NE99445	S	5MS-S	40MR-MS	5R-MR	2
23	NE99469	S	60S	30MR-MS	30MS	1
24	NE99495	S	20MR-MS	20R-MR	40S	2
25	NE99533	S	60S	60S	40MS-S	4

Table 12. Reaction of 25 wheats in the 2002 to infection by Fusarium head blight.

			Fusarium head blight, Brookings, SD[1]					
			Direct Seeded Rows			Transplanted Hills		
Entry	Line or selection	Fusarium head blight, Wooster, OH (% florets)	Inc%	Sev%	Dis%	Inc%	Sev%	Dis%
1	Kharkof	0.5	96.67	49	47.72	100	33.49	33.49
2	Roughrider	1.0	100	65.67	65.67	100	42.38	42.38
3	Nuplains	0.5	100	57	57	100	88.22	88.22
4	Nekota	2.5	100	76.17	76.17	86.67	36.33	35.13
5	G970252W	3.0	100	68	68	100	77.67	77.67
6	SD97457	6.0	100	68.5	68.5	100	17.67	17.67
7	SD92107-3	0.0	100	50.83	50.83	100	50.56	50.56
8	SD92107-5	0.0	100	59.06	59.06	100	46.43	46.43
9	SD97049		100	61.17	61.17	100	45.24	45.24
10	SD97250	0.5	100	64.69	64.69	100	35.35	35.35
11	SD97W604	12.5	100	78.88	78.88	100	66	66
12	NW97S277	8.5	100	80.39	80.39	100	78.57	78.57
13	NW98S078	3.5	100	73.83	73.83	100	65.95	65.95
14	NW99L7042	0.0	100	66.61	66.61	100	48.04	48.04
15	NW99L7068	3.0	100	70.5	70.5	100	29.67	29.67
16	NW99L7083	5.0	100	73.32	73.32	100	48.15	48.15
17	NW99L7171	0.0	100	59.83	59.83	100	67.5	67.5
18	NE98471	3.5	100	67.67	67.67	96.67	45	44.1
19	NE98503	1.0	100	70.5	70.5	100	47.26	47.26
20	NE96737	2.0	100	70	70	100	25.33	25.33
21	NI98418	8.5	100	65.5	65.5	100	50.95	50.95
22	NE99445	17.5	100	80	80	95.24	46	45.52
23	NE99469	3.5	100	74.17	74.17	100	74.38	74.38
24	NE99495	2.5	100	64.17	64.17	100	54.85	54.85
25	NE99533	6.0	100	65.67	65.67	100	25.78	25.78
	mean		99.87	67.25	67.19	99.14	49.87	49.77
	l.s.d. (0.05)		1.94	12.57	12.74	8.39	38.05	38.36
	cv (%)		1.17	11.28	11.44	5.1	46.22	46.69

[1]From Amir Ibrahim, South Dakota State, FHB ratings are based on a 0-9 scale. Incidence (Inc%) is the number of infected ears. Severity (Sev%) is the average of the scab ratings * 10. Disease Index (Dis%) is incidence * severity/100.

Table 13. Reaction of entries in the 2002 NRPN to selected isolates of stem rust. From D.V. McVey, USDA-ARS, St. Paul, MN.

		stem rust races								
Entry	Line or selection	80-MN 633b TPMK	72-MEX-52A RTQQ	99-EGY5 BRRTS	69-MN-399 QTHJ	98-UGQ-1 APTHS	01-TX-27 CTTTT	Postulated sr gene(s)	Adult plant reaction, St. Paul, MN	1RS status
1	Kharkof	S	S	S	S	S	S	none	40S	Non.1RS
2	Roughrider	0;	2=,S	S	0	0	S	6,36	0	Non.1RS
3	Nuplains	2=	2=	2	2=	2=	2=	24	TR-MR	Non.1RS
4	Nekota	2=	;	2-	2=	2=	2	17,24	TR-MR	1AL.1RS
5	G970252W	2=	;	2=	2-	S	2+	17,31	20MR-MS	Non.1RS
6	SD97457	;	2=	S	2=	2=	2+	6,+	40MS-S	Non.1RS
7	SD92107-3	---	0	2=	2=	2=	;1	17,24	TR	Non.1RS
8	SD92107-5	0	;	S	2-	2=	2+	6,17,+	5R-MR	Non.1RS
9	SD97049	0;	S	2	2,S	S	;1	6,+	60S	Non.1RS
10	SD97250	0;	;	;1-	2=	2=	2=	6,17,24	5R-MR	Non.1RS
11	SD97W604	1	2=	;1-	2=	2=	2-	24 (31?)	TR-MR	1BL.1RS
12	NW97S277	0	;	S	2=	S	;1	6,17,+	TR	Non.1RS
13	NW98S078	0	2=	2=	2-	2-	2,S	6,24	20MR-MS	Non.1RS
14	NW99L7042	2-	S	;1	2=	S	;1	9a,+ (31?)	40MS-S	1BL.1RS
15	NW99L7068	0	0,S	1	S	S	2+	6,+	60MS-S	Non.1RS
16	NW99L7083	0	S	2=,S	S	S	2+	6,+	60S	Non.1RS
17	NW99L7171	0	2=	;	2-	2=	2=	6,24.+	30MR	Non.1RS
18	NE98471	0	S	2	S	S	2+	6,+	60MS-S	Non.1RS
19	NE98503	---	;	2	2=,S	---	2+	17,+	60MS-S	Non.1RS
20	NE96737	0	;	2-	S	S	2=,S	6,17,+	60S	Non.1RS
21	NI98418	0,2=	0	2-	2=	S	2+	17,seg6,+	40MS-S	Non.1RS
22	NE99445	0	;	2	2=	S	S	6,17.+	5R-MR	Non.1RS
23	NE99469	2	2	2-,S	2=	2=	S	?	30MS	Non.1RS
24	NE99495	0	0;	2	S	S	2	6,17,+	40S	Non.1RS
25	NE99533	2	2=	2-	2=	S	S,2-	31	40MS-S	Non.1RS

Table 14. Tolerance to acid soils, resistance to lodging, and winter survival of 25 wheats entered in the 2002 NRPN.

		Acid soil tolerance, Stillwater, OK[1]		Lodging[2]					Winter survival[3]						
Entry	Line or selection	Jan. 8, 2002	Mar. 6, 2002	Brookings, SD	Casselton, ND	Waseca, MN	Wooster, OH	mean	Brookings, SD	Winner, SD	Casselton, ND	Williston, ND	Hettinger, ND	Rosemount, MN	mean
1	Kharkof	4	4	7	4	5	9	6	7	8	8	2	9	8	7
2	Roughrider	4	4	4	2	4	7	4	6	9	7	5	9	8	7
3	Nuplains	4	4	4	0	3	3	2	7	9	7	1	9	6	6
4	Nekota	5	5	4	1	3	4	3	7	9	8	2	9	7	7
5	G970252W	5	4	4	0	3	1	2	7	8	5	0	8	5	6
6	SD97457	5	4	4	2	3	1	3	7	8	8	3	9	7	7
7	SD92107-3	5	4	4	0	3	7	3	7	9	7	1	9	8	7
8	SD92107-5	3	3	4	0	3	9	4	6	9	7	2	9	7	7
9	SD97049	4	3	4	1	3		3	6	9	6	1	9	6	6
10	SD97250	5	4	4	0	4	8	4	7	9	5	2	9	7	7
11	SD97W604	4	4	4	0	3	1	2	6	9	8	3	9	8	7
12	NW97S277	4	2	4	1	3	3	3	7	8	5	1	9	4	5
13	NW98S078	4	3	4	0	2	6	3	6	8	7	1	9	5	6
14	NW99L7042	4	3	4	1	2	5	3	6	9	5	0	9	6	6
15	NW99L7068	4	3	6	2	4	8	5	7	8	7	1	9	6	6
16	NW99L7083	4	3	6	2	4	5	4	8	9	7	2	9	7	7
17	NW99L7171			4	0	4	8	4	7	8	5	0	9	4	6
18	NE98471			4	2	5	7	4	8	9	8	2	9	5	7
19	NE98503			7	3	3	9	5	8	8	8	2	9	8	7
20	NE96737			4	1	3	5	3	8	9	7	4	9	7	7
21	NI98418			5	2	3	4	3	7	9	7	2	9	6	7
22	NE99445			4	2	4	7	4	7	9	7	1	9	5	6
23	NE99469			4	3	4	7	4	6	8	6	1	9	7	6
24	NE99495			4	2	3	9	4	8	9	7	1	9	6	6
25	NE99533			4	2	3	1	2	6	8	7	2	9	8	7

[1]The standard cultivar used to determine acid-soil tolerance (AST) was 2163, with an assigned AST rating of 2 on a scale of 1 (tolerant) to 5 (susceptible). No AST ratings for entries 17-25 due to very little visible growth. From Brett Carver, OSU.

[2]Lodging scores normalized to a 0-9 scale, where 0=no lodging.

[3]Winter survival scores normalized to a 0-9 scale, where 0=no survival.