Cooperators / New cultivars and germplasm: see 1999 SRPN report.

1999 NRPN, Location notes and observations

Alliance, Nebraska: good moisture, good growing conditions after a dry planting, with some cheat grass problems.

Lincoln, Nebraska: Good seeding conditions, good growing conditions, but finishing under rain leading to diseases and lodging. Good football season.

North Platte, Nebraska: Excellent moisture, plots followed corn, with resulting high fertility and lodging.

Sidney, Nebraska: Site abandoned due to hail damage.

Moccasin, MT: planted on 9/24/1998 and harvested on 8/9/1999.

Williston, ND: planted 9/16/1998, harvested 7/28/1999

Hettinger, ND: planted 9/30/98, harvested 7/27/99; mild winter conditions, no winter-kill.

1999 Northern Regional Performance Nursery				
Entry		Cultivar or Pedigree	Selection No.	Source
1		Kharkof	CI1442	Check
2		Roughrider	CI17439	Check
3		Abilene	PI511307	Check
4		Nekota	PI584997	Check
5	*	Roughrider/ND7571//Arapahoe	ND9257	No. Dakota
6	*	ND8471/NE82651	ND9304	No. Dakota
7	*	ND85105/MT8030	ND9419	No. Dakota
8	*	Seward/RL845455	ND9460	No. Dakota
9	*	SD89245/ND8215	ND9560	No. Dakota
10	*	ND8536/Redland	SD95218	So. Dakota
11		Abilene/OK85347	SD94149	So. Dakota
12		Shield/Roughrider//SD76598-7/Agassiz	SD93267	So. Dakota
13	*	Tandem/NE86503	SD95203	So. Dakota
14		NE82562/Rose	SD94241	So. Dakota
15		Arapahoe/Abilene//Arapahoe	NE94654	Nebraska, UNL
16		TX84V122/NE84557	NE94589	Nebraska, UNL
17		Mironovskya 61/Arapahoe	NE95473	Nebraska, UNL
18		Colt/Cody//Stozher/NE86582	NE95553	Nebraska, UNL
19	*	Colt/Cody//Brigantina	NE96435	Nebraska, UNL
20	*	Abilene/Arapahoe	NE95510	Nebraska, UNL
21	*	TAM-105/BEZ1/CTK78//Arthur/CTK78/4/Severdonskaya/Siouxland	NE96632	Nebraska, UNL
22	*	Arapahoe/Nekota sib	NE96649	Nebraska, UNL
23	*	KS87809-10/Arapahoe	NW97S195	Nebraska, ARS
24		KS831936-3//Colt/Cody	N95L1226	Nebraska, ARS
25		KS831936-3//Colt/Cody	N95L1229	Nebraska, ARS
26	*	Quantum Hybrid Wheat	XH1888	HybriTech
27	*	Quantum Hybrid Wheat	XH9806	HybriTech
28	*	Quantum Hybrid Wheat	NH9803	HybriTech
29	*	R186/R187	T194	Trio
	* = New Entry			

Table 1

Yield and agronomic performance of 29 wheats grown in the 1999 NRPN.						
Lincoln, Nebraska, three replications						
line	entry	yield kg/ha	volume weight kg/hl	plant height cm	days to heading from 1/1	lodging %
XH9806	27	4862	73.7	144	102	20
XH1888	26	4577	72.2	143	108	20
SD95203	13	4285	72.2	147	110	55
Abilene	3	4186	75.2	145	97	20
Culver		4079	75.2	145	108	40
NE96649	22	4033	68.6	147	112	35
T194	29	4029	73.7	145	112	30
ND9460	8	3996	73.3	148	113	45
SD94149	11	3907	73.3	147	108	50
Nekota	4	3855	74.1	144	104	25
NE95473	17	3766	72.6	146	109	30
N95L1229	25	3746	69.7	149	109	20
ND9560	9	3627	70.4	148	114	55
N95L1226	24	3590	73.7	150	108	20
NE96435	19	3528	66.3	146	113	45
SD95218	10	3447	70.4	147	113	35
NE95510	20	3412	70.8	148	116	40
NE95553	18	3386	69.3	147	116	35
ND9257	5	3342	70.0	149	117	20
NE94589	16	3291	74.8	147	113	35
Roughrider	2	3216	73.7	149	118	20
NE94654	15	3043	71.1	145	110	30
ND9419	7	3000	68.6	151	110	40
NW97S195	23	2911	67.4	146	113	35
NE96632	21	2883	74.1	146	118	55
SD93267	12	2821	73.0	146	113	45
ND9304	6	2799	69.3	146	119	35
NH9803	28	2498	68.9	146	102	15
SD94241	14	2359	72.6	150	114	55
Kharkof	1	1923	71.5	150	109	55
mean		3480	72	147	111	35
l.s.d. (0.05)		893				
c.v. (%)		16				

Table 1, contd.

North Platte, Nebraska, three replications				
line	entry	yield kg/ha	volume weight kg/hl	plant height cm
Abilene	3	4430	80.3	84
N95L1226	24	4337	79.2	84
N95L1229	25	4311	78.5	86
NE94654	15	4238	78.9	94
NH9803	28	4222	80.7	89
SD95203	13	4200	80.7	97
NE96435	19	3932	79.6	102
NE95553	18	3929	77.8	99
NE96649	22	3905	78.1	94
XH1888	26	3885	80.3	94
Culver		3799	77.8	84
NW97S195	23	3790	80.0	102
NE94589	16	3775	81.1	104
NE95510	20	3766	78.9	102
SD94241	14	3741	81.1	102
SD94149	11	3711	82.2	91
ND9304	6	3708	81.8	109
SD93267	12	3675	80.7	112
NE95473	17	3566	80.3	89
SD95218	10	3545	80.3	94
ND9460	8	3536	80.3	99
ND9419	7	3480	77.8	94
ND9257	5	3322	78.9	97
T194	29	3297	80.3	91
Nekota	4	3215	82.6	89
XH9806	27	3176	81.1	81
NE96632	21	2992	80.3	112
ND9560	9	2814	78.9	104
Roughrider	2	2476	80.3	107
Kharkof	1	2364	79.6	112
mean		3638	80	97
l.s.d. (0.05)		889		
c.v. (%)		15		

Table 1, contd.

Imperial, Nebraska (irrigated), three replications			
line	entry	yield kg/ha	plant height cm
SD94149	11	5824	90
NH9803	28	5628	98
NE95473	17	5406	98
N95L1226	24	5397	90
NW97S195	23	5299	104
ND9419	7	5278	104
XH1888	26	5250	98
NE96649	22	5156	102
NE94654	15	5133	96
Nekota	4	5133	86
N95L1229	25	4974	88
XH9806	27	4951	90
NE94589	16	4899	106
SD94241	14	4889	108
Abilene	3	4762	84
NE95510	20	4700	102
NE95553	18	4697	104
SD95218	10	4628	98
T194	29	4619	102
ND9257	5	4511	108
NE96435	19	4410	100
SD95203	13	4265	100
ND9304	6	4259	106
NE96632	21	4163	106
ND9460	8	4104	98
ND9560	9	3966	106
SD93267	12	3935	106
Roughrider	2	3437	116
Kharkof	1	3304	126
mean		4723	101
l.s.d. (0.05)		545	
c.v. (%)		7	

Table 1, contd.

Alliance, Nebraska, three replications				
line	entry	yield kg/ha	volume weight kg/hl	plant height cm
ND9460	8	3810	74.1	97
XH1888	26	3607	74.5	81
NE95510	20	3592	74.8	89
ND9560	9	3559	74.1	104
NE96649	22	3531	73.3	91
SD95218	10	3516	75.6	91
NE94589	16	3476	75.9	91
NE94654	15	3399	73.7	84
NH9803	28	3364	75.6	89
XH9806	27	3347	75.2	81
ND9257	5	3306	72.6	104
NE95553	18	3254	73.7	91
SD94149	11	3224	75.6	86
SD93267	12	3111	74.1	102
NW97S195	23	3102	73.3	89
NE96632	21	3063	76.3	89
NE96435	19	3042	74.8	97
ND9419	7	3024	72.6	97
Kharkof	1	3021	74.5	107
NE95473	17	3016	74.8	91
Culver		3006	76.3	84
T194	29	2935	74.1	91
SD94241	14	2923	80.0	99
ND9304	6	2916	75.9	107
Abilene	3	2900	77.0	76
N95L1226	24	2849	72.6	79
SD95203	13	2774	75.2	89
Nekota	4	2712	71.5	84
N95L1229	25	2698	74.8	79
Roughrider	2	2191	73.3	107
mean		3142	75	92
l.s.d. (0.05)		901		
c.v. (%)		18		

Table 1, contd.

Brookings, South Dakota, three replications			
line	entry	yield kg/ha	volume weight kg/hl
XH9806	27	5370	78.4
XH1888	26	5168	78.1
SD95218	10	4934	78.8
NE94589	16	4789	78.8
N95L1226	24	4668	76.2
NE95553	18	4647	75.3
SD93267	12	4642	79.2
NE95510	20	4622	78.0
Harding		4622	79.4
SD95203	13	4565	79.0
N95L1229	25	4540	76.4
ND9304	6	4515	80.9
NE96435	19	4498	78.7
Abilene	3	4466	77.8
ND9257	5	4445	75.7
NW97S195	23	4423	77.8
Nekota	4	4387	78.1
T194	29	4246	76.1
SD94241	14	4225	78.1
NE95473	17	4082	77.6
NH9803	28	4035	76.3
ND9460	8	4017	79.5
NE96632	21	3955	78.4
NE94654	15	3916	75.1
SD94149	11	3845	76.2
NE96649	22	3707	69.5
ND9419	7	3639	75.5
ND9560	9	3500	75.2
Kharkof	1	3287	
Roughrider	2	3036	80.4
mean		4293	77
l.s.d. (0.05)		422	
c.v. (%)		6	

Table 1, contd.

Dakota Lakes, South Dakota, three replications					
line	entry	yield kg/ha	volume weight kg/hl	plant height cm	days to heading from 1/1
XH9806	27	5555	75.8	96	150
SD94149	11	5020	77.5	93	151
NE95473	17	5001	76.6	101	152
NW97S195	23	4923	75.3	103	152
XH1888	26	4857	75.1	99	151
NE95553	18	4718	72.4	102	153
NE95510	20	4655	75.8	105	155
N95L1229	25	4647	74.2	97	154
Nekota	4	4640	76.2	92	151
SD93267	12	4495	77.1	111	152
Abilene	3	4380	79.1	87	151
N95L1226	24	4360	75.8	95	155
ND9257	5	4336	74.0	105	156
T194	29	4331	73.8	98	151
ND9419	7	4320	76.4	98	152
NH9803	28	4282	76.0	96	154
NE96632	21	4188	75.8	108	151
SD95218	10	4090	73.7	99	154
NE94654	15	4047	73.7	99	153
ND9460	8	3949	76.8	102	153
ND9560	9	3933	74.2	101	153
SD95203	13	3922	75.8	97	153
Harding		3829	76.2	105	155
NE94589	16	3753	75.5	103	154
NE96649	22	3709	69.5	104	153
SD94241	14	3701	77.5	106	153
ND9304	6	3533	73.3	102	153
NE96435	19	3390	76.8	99	153
Roughrider	2	3248	78.6	110	
Kharkof	1	2644	75.5	110	
mean		4215	75	101	153
l.s.d. (0.05)		531			
c.v. (%)		8			

Table 1, contd.

Winner, South Dakota, three replications					
line	entry	yield kg/ha	volume weight kg/hl	plant height cm	days to heading from 1/1
XH1888	26	4973	80.2	102	150
XH9806	27	4884		97	149
N95L1229	25	4876	79.3	102	152
Nekota	4	4800	84.8	94	149
NE95553	18	4596	78.4	108	152
NW97S195	23	4571	79.3	108	149
NE95473	17	4522	79.8	98	150
N95L1226	24	4428	80.0	97	152
SD94241	14	4261	79.3	107	152
NE95510	20	4250	81.1	102	152
ND9560	9	4227	75.1	112	151
SD94149	11	4226	82.9	97	151
Abilene	3	4185	80.6	86	151
Harding		4141	82.9	108	153
NE96435	19	4133	82.7	107	150
T194	29	4121	79.4	104	149
NE96632	21	4056	79.7	108	149
ND9257	5	4006	78.3	105	153
SD95203	13	3993	82.3	108	150
SD95218	10	3977	81.9	107	151
NH9803	28	3973	80.6	99	153
NE96649	22	3935	75.5	103	152
NE94654	15	3933	76.0	65	152
NE94589	16	3878	79.8	108	152
SD93267	12	3844	82.2	119	149
ND9304	6	3778	82.3	117	151
ND9460	8	3768	80.3	110	152
ND9419	7	3523	75.8	102	152
Roughrider	2	3350	81.6	117	153
Kharkof	1	2768	79.8	123	153
mean		4133	80	104	151
l.s.d. (0.05)		475			
c.v. (%)		7			

Table 1, contd.

Hettinger, North Dakota, three replications						
line	entry	yield kg/ha	volume weight kg/hl	plant height cm	days to heading from 1/1	lodging %
NH9803	28	6203	80.2	88	163	0
XH1888	26	5790	79.3	84	160	10
N95L1226	24	5741	80.1	79	164	0
XH9806	27	5632	81.0	77	159	0
N95L1229	25	5413	79.7	79	163	3
NE96649	22	5341	78.5	91	161	13
NE94654	15	5145	79.1	91	160	10
ND9419	7	5121	80.5	94	162	0
SD94241	14	5067	78.8	95	163	0
NE94589	16	5019	79.6	93	163	10
NE95553	18	4905	78.2	87	160	0
ND9257	5	4880	79.2	98	163	7
SD95203	13	4868	80.8	91	160	3
T194	29	4773	79.0	89	159	17
NE95510	20	4773	79.5	85	161	0
NE95473	17	4718	79.0	84	159	0
ND9460	8	4708	80.2	92	161	17
NE96632	21	4641	80.8	89	159	13
ND9304	6	4638	80.4	95	159	7
ND9560	9	4622	79.7	86	160	17
NW97S195	23	4544	78.8	86	161	10
SD95218	10	4542	79.7	87	159	7
SD94149	11	4397	79.3	86	160	13
SD93267	12	4389	80.0	100	159	10
Abilene	3	4335	81.3	69	159	0
Roughrider	2	4274	80.4	105	164	13
NE96435	19	4223	78.6	84	160	10
Nekota	4	4149	79.8	75	159	0
Kharkof	1	4018	79.6	109	163	40
mean		4858	80	89	161	8
l.s.d. (0.05)		665				
c.v. (%)		9				

Table 1, contd.

Casselton, North Dakota, three replications							
line	entry	yield kg/ha	volume weight kg/hl	plant height cm	days to heading from 1/1	lodging %	grain protein %
XH1888	26	4739	77.2	79	159	70	13.4
N95L1226	24	4696	76.4	77	164	67	13.3
ND9257	5	4564	76.5	87	161	73	13.9
Arapahoe		4535	75.4	84	161	70	14.5
SD95218	10	4465	78.8	84	161	43	14.6
NE95473	17	4394	78.2	79	160	53	13.5
ND9419	7	4302	76.8	85	162	40	12.9
XH9806	27	4297	79.3	73	160	63	14.1
NE95510	20	4295	79.0	83	160	67	14.7
NE96632	21	4219	78.6	90	160	80	12.6
SD94149	11	4131	80.0	77	160	73	12.7
NE96649	22	4046	76.5	86	161	87	13.2
SD93267	12	3999	78.1	89	160	63	15.0
NE94654	15	3941	75.2	80	161	80	13.8
NE96435	19	3918	78.7	81	160	67	14.2
ND9304	6	3894	74.8	90	162	80	14.2
SD95203	13	3892	77.3	77	161	40	13.1
ND9560	9	3849	77.4	87	161	80	14.0
Roughrider	2	3844	78.8	95	162	83	14.6
NE95553	18	3833	74.7	85	161	73	13.2
ND9460	8	3735	78.2	89	162	80	12.6
N95L1229	25	3732	77.0	83	163	65	13.6
SD94241	14	3703	75.5	87	162	80	13.1
Abilene	3	3685	79.5	67	160	60	13.4
NH9803	28	3629	73.5	77	161	43	13.2
Nekota	4	3504	78.8	68	159	60	13.4
Kharkof	1	3273	75.2	107	163	97	15.2
NW97S195	23	3102	72.3	84	161	85	14.1
NE94589	16	2941	72.3	80	161	80	14.2
T194	29	1766	75.3	74	161	70	14.2
mean		3898	77	83	161	69	14
l.s.d. (0.05)		ns					
c.v. (%)		23					

Table 1, contd.

Williston, North Dakota, four replications									
line	entry	yield kg/ha	volume weight kg/hl	plant height cm	days to heading from 1/1	leaf necrosis* %	leaf rust % infected	winter survival %	grain protein %
XH1888	26	5112	80.9	70	154	55	1	79	9.9
NH9803	28	4661	82.6	69	157	23	40	73	11.3
SD95218	10	4661	80.0	77	154	75	1	91	12.1
NE94654	15	4609	80.4	69	153	28	10	81	10.6
ND9560	9	4550	79.8	79	156	50	35	86	11.9
NE96632	21	4543	81.5	84	152	38	30	86	11.9
ND9460	8	4432	80.8	80	154	55	10	89	10.4
Ransom		4375	80.2	79	157	40	1	61	10.9
ND9419	7	4363	80.2	74	157	38	10	86	12.5
ND9257	5	4342	80.3	76	158	35	30	75	11.8
SD94241	14	4312	81.1	76	157	18	5	76	11.0
SD95203	13	4282	82.0	74	153	33	10	79	11.5
N95L1229	25	4278	81.1	70	157	33	1	79	11.9
NE96649	22	4224	80.3	76	156	20	15	75	9.4
XH9806	27	4208	82.1	67	153	15	5	60	12.0
NE94589	16	4202	80.2	75	155	48	10	73	11.5
NE95553	18	4174	80.6	76	156	25	15	61	11.3
NE95473	17	4147	81.4	67	153	15	1	74	11.7
N95L1226	24	4115	80.7	68	158	33	5	75	12.1
SD93267	12	4101	82.3	83	155	28	5	75	12.1
Roughrider	2	4014	81.3	87	158	35	30	69	13.7
SD94149	11	3975	82.0	70	155	35	25	65	12.0
NE96435	19	3934	80.4	76	154	50	20	71	13.2
ND9304	6	3931	81.7	85	155	30	15	74	13.6
Abilene	3	3877	82.7	57	153	40	20	74	13.6
NE95510	20	3852	81.1	69	155	20	5	71	13.7
NW97S195	23	3784	81.4	74	153	20	10	59	11.8
Nekota	4	3691	81.2	59	152	55	40	59	12.5
T194	29	3368	80.4	69	154	33	40	53	12.3
Kharkof	1	3072	80.8	95	158	30	5	56	14.2
mean		4173	81	74	155	35	15	73	11.9
l.s.d. (0.05)		470							
c.v. (%)		7							

* leaf necrosis = visual rating of flag leaf at mid-dough stage, with leaf death primarily resulting from tan spot and Septoria leaf disases.

Table 1, contd.

Archer, Wyoming, three replications						
line	entry	yield kg/ha	volume weight kg/hl	plant height cm	days to heading from 1/1	winter survival %
XH1888	26	2863	77.1	57	160	92
XH9806	27	2638	76.8	52	159	95
NE94654	15	2625	74.6	57	159	94
SD95203	13	2621	77.1	56	158	95
SD94241	14	2589	75.6	58	160	95
SD93267	12	2571	78.2	61	158	94
NE95553	18	2529	73.3	58	161	94
NE96649	22	2529	74.0	58	159	95
NE95473	17	2506	75.8	56	159	94
NW97S195	23	2473	77.3	56	159	90
N95L1229	25	2452	74.9	58	161	96
SD95218	10	2450	75.9	55	158	93
ND9460	8	2421	74.7	63	159	93
NH9803	28	2419	76.0	52	163	95
Buckskin		2419	78.6	63	158	92
NE94589	16	2401	77.7	58	162	96
NE96632	21	2396	76.6	58	158	92
Nekota	4	2338	76.3	54	158	93
ND9304	6	2318	77.0	59	159	94
NE96435	19	2309	73.8	64	159	94
N95L1226	24	2295	74.0	56	163	96
SD94149	11	2280	78.9	55	159	92
T194	29	2278	75.3	57	159	94
NE95510	20	2264	76.2	55	160	95
Abilene	3	2197	78.6	52	159	94
ND9560	9	2150	75.5	59	162	94
ND9257	5	2022	74.4	57	162	95
Kharkof	1	1968	78.0	61	161	95
ND9419	7	1957	73.8	53	164	92
Roughrider	2	1681	76.8	58	164	93
mean		2365	76	57	160	94
l.s.d. (0.05)		415				
c.v. (%)		11				

Table 1, contd.

Moccasin, Montana, three replications							
line	entry	yield kg/ha	volume weight kg/hl	plant height cm	days to heading from 1/1	winter survival %	grain protein %
NE96649	22	4839	76.8	84	167	94	12.1
XH1888	26	4683	77.1	84	164	94	11.5
NH9803	28	4671	78.7	89	168	93	11.6
NE94654	15	4664	76.2	79	166	94	13.1
Neely		4605	77.6	86	170	93	12.2
N95L1229	25	4583	76.0	75	168	92	13.9
NE95553	18	4554	74.9	87	167	90	11.8
XH9806	27	4507	78.0	79	165	96	12.6
SD94241	14	4281	75.4	87	169	93	13.2
N95L1226	24	4280	76.7	74	168	90	12.8
NE94589	16	4260	76.0	80	167	95	13.8
HWW30		4246	77.3	76	170	93	12.3
Tiber		4246	76.4	95	170	88	13.1
NE95473	17	4154	76.0	81	166	92	12.7
ND9257	5	4080	76.3	92	169	89	13.3
SD95203	13	4068	78.2	81	167	76	12.7
Abilene	3	4045	79.2	70	165	96	13.8
ND9419	7	4010	76.5	82	168	95	12.5
SD94149	11	3994	76.8	79	166	90	13.3
Nekota	4	3918	77.0	79	164	91	13.0
ND9560	9	3911	76.3	91	167	94	12.6
ND9304	6	3895	75.1	94	166	91	14.2
ND9460	8	3809	75.5	92	166	92	12.4
NE96632	21	3749	75.6	94	165	91	12.7
NE95510	20	3707	76.0	83	167	95	13.8
NW97S195	23	3654	74.9	83	165	83	14.5
SD95218	10	3600	73.8	92	166	92	14.1
Roughrider	2	3448	75.3	100	169	91	13.6
SD93267	12	3369	76.0	101	164	92	14.2
NE96435	19	3360	72.8	89	167	92	14.8
Kharkof	1	3233	75.5	95	170	92	14.0
T194	29	3051	72.1	94	165	92	14.4
mean		4046	76.1	86	167	92	13.1
l.s.d. (0.05)		536					
c.v. (%)		8					

Table 1, contd.

Bozeman, Montana, three replications							
line	entry	yield kg/ha	volume weight kg/hl	plant height cm	days to heading from 1/1	lodging %	grain protein %
XH1888	26	9177	77.8	100	169	0	**12.4**
XH9806	27	9056	77.7	94	168	0	**13.1**
NH9803	28	8669	77.5	102	170	0	**12.7**
NE96649	22	8433	76.1	108	169	7	**12.3**
NE95553	18	8196	75.6	111	169	0	**13.6**
N95L1229	25	8021	76.2	96	170	0	**13.1**
NE94654	15	7949	76.0	98	169	0	**13.1**
NW97S195	23	7944	76.9	105	168	0	**14.0**
N95L1226	24	7853	75.7	93	170	0	**13.2**
ND9419	7	7850	77.7	109	170	20	**13.5**
ND9560	9	7823	76.4	115	170	23	**14.0**
Abilene	3	7808	79.0	91	168	0	**14.0**
NE94589	16	7727	78.0	112	171	0	**13.6**
SD94149	11	7664	78.9	99	169	0	**13.1**
ND9257	5	7593	76.5	117	171	0	**13.8**
SD95203	13	7415	79.5	113	169	3	**14.0**
NE95473	17	7330	76.5	96	168	0	**13.6**
ND9304	6	7243	78.8	124	169	13	**14.6**
NE95510	20	7106	76.5	101	169	0	**14.5**
T194	29	7084	75.9	107	167	0	**14.2**
SD95218	10	7081	76.5	114	169	0	**14.3**
NE96632	21	7012	77.8	120	168	7	**14.0**
SD93267	12	6925	79.0	124	167	0	**15.2**
ND9460	8	6860	77.6	116	170	3	**13.0**
SD94241	14	6653	77.8	109	170	7	**12.9**
Roughrider	2	6005	79.5	124	173	3	**14.8**
Nekota	4	5996	77.2	92	167	0	**14.4**
Kharkof	1	5900	78.1	137	172	57	**15.4**
NE96435	19	5418	75.9	115	169	0	**15.3**
mean		7441	77	108	169	5	14
l.s.d. (0.05)		815					
c.v. (%)		5					

Table 1, contd.

Rosemount, Minnesota, three replications								
line	entry	yield kg/ha	volume weight kg/hl	plant height cm	days to heading from 1/1	lodging %	reaction to powdery mildew 0-9	grain protein %
XH1888	26	5634	75.4	151	100	50	4	12.3
XH9806	27	5564	77.0	152	90	20	5	11.7
SD95203	13	5335	75.7	153	108	50	2	12.2
ND9560	9	5276	75.4	154	108	37	3	11.9
NE96632	21	5223	76.7	151	118	53	2	11.8
SD95218	10	5188	74.6	153	108	30	4	13.0
NE95473	17	5145	76.7	153	104	20	7	11.8
NW97S195	23	5079	73.9	152	103	30	3	11.5
NE95510	20	5056	75.9	153	105	37	3	12.4
SD94149	11	5046	76.5	153	95	40	2	11.7
ND9304	6	4835	76.8	154	110	47	3	13.2
ND9460	8	4816	75.6	155	112	60	4	11.7
NE94654	15	4808	71.6	153	105	43	5	12.0
NE94589	16	4794	76.2	154	106	57	3	12.5
NE95553	18	4790	72.9	155	102	23	3	11.8
N95L1229	25	4713	74.9	156	98	33	5	11.9
NE96435	19	4674	75.6	153	107	33	2	13.1
N95L1226	24	4613	74.6	158	92	30	5	12.1
T194	29	4576	71.6	153	99	30	5	12.9
ND9257	5	4442	74.2	157	102	47	4	12.6
Nekota	4	4315	75.9	152	99	37	2	12.0
NE96649	22	4277	70.4	154	106	50	4	11.9
ND9419	7	4274	72.6	154	104	47	5	12.3
SD94241	14	3870	75.8	155	104	40	2	12.1
Roughrider	2	3768	76.8	156	115	53	4	12.2
SD93267	12	3489	78.5	152	114	43	3	12.0
Abilene	3	3304	74.4	152	86	43	7	12.0
NH9803	28	3304	68.8	156	95	43	5	12.5
Kharkof	1	2944	75.2	156	125	53	4	14.1
mean		4591	75	154	104		4	12
l.s.d. (0.05)		12						
c.v. (%)		7						

Table 1, contd.

Waseca, Minnesota, three replications					
line	entry	yield kg/ha	volume weight kg/hl	lodging %	grain protein %
XH1888	26	6907	72.9	10	13.2
XH9806	27	6624	75.1	10	13.1
N95L1229	25	5425	63.7	10	13.4
N95L1226	24	5364	60.7	10	14.1
NE95473	17	5312	76.0	10	12.9
SD93267	12	5220	81.7	13	14.0
SD95218	10	5076	76.6	17	14.2
NE94654	15	4960	72.3	23	13.1
NE96649	22	4722	67.3	30	13.1
NE95510	20	4700	73.4	40	14.2
Nekota	4	4678	77.0	20	12.8
NE95553	18	4653	67.9	20	13.3
ND9257	5	4642	67.3	30	13.6
NW97S195	23	4604	72.3	17	13.4
T194	29	4185	73.5	30	13.8
SD94241	14	4118	69.0	50	13.2
Abilene	3	3946	77.1	10	13.1
NE94589	16	3869	70.3	20	13.6
ND9460	8	3714	74.5	30	13.3
NE96435	19	3686	74.3	30	13.4
ND9304	6	3628	74.6	40	14.1
NH9803	28	3564	67.0	10	12.7
SD95203	13	3496	73.8	33	13.4
ND9560	9	3390	73.0	43	13.8
NE96632	21	3332	74.2	60	13.5
Roughrider	2	3235	75.2	23	13.6
SD94149	11	2905	73.6	33	12.7
Kharkof	1	2645	72.6	63	14.5
ND9419	7	2628	71.1	47	13.5
mean		4318	72		13
l.s.d. (0.05)		1024			
c.v. (%)		15			

Table 1, contd.

Ames, Iowa, two replications							
line	entry	yield kg/ha	volume weight kg/hl	days to heading from 1/1	plant height cm	reaction to powdery mildew 0-9	reaction to leaf rust, % infected
XH1888	26	5535	75.9	146	101	5	40
XH9806	27	5336	75.9	147	99	6	60
T194	29	4714	73.7	147	107	2	80
Nekota	4	4657	75.3	147	98	4	90
ND9560	9	4475	73.9	150	110	4	65
Abilene	3	4267	75.9	147	94	8	90
SD95203	13	4200	75.1	148	109	5	90
NW97S195	23	4146	72.6	148	112	5	90
NE95510	20	4126	74.9	150	110	6	70
NE94589	16	4005	75.3	150	116	5	85
SD95218	10	3964	75.4	148	112	5	60
N95L1226	24	3867	71.0	153	97	5	75
ND9460	8	3793	74.9	151	113	4	85
SD94241	14	3786	75.8	151	110	3	60
N95L1229	25	3695	72.4	153	99	6	60
NE94654	15	3638	73.7	150	109	5	75
ND9419	7	3578	74.9	151	113	4	90
SD94149	11	3430	73.7	148	99	1	90
ND9257	5	3369	72.5	150	110	7	70
NE96649	22	3302	69.5	150	107	6	80
NE95473	17	3275	73.5	150	104	7	80
NE96435	19	3231	73.6	149	111	3	90
NE95553	18	3013	71.3	152	108	6	75
ND9304	6	2677	74.8	149	118	4	85
Roughrider	2	2663	76.2	151	116	6	90
NH9803	28	2606	74.0	152	101	8	90
SD93267	12	2525	75.3	150	109	5	70
Kharkof	1	2095	74.2	150	123	7	90
NE96632	21	1954	73.1	151	104	7	90
mean		3652	74	149	108	5	78
l.s.d. (0.05)		1247					
c.v. (%)		17					

Table 1, contd.

Lethbridge, Alberta, four replications					
line	entry	yield kg/ha	days to heading from 1/1	plant height cm	lodging %
XH9806	27	8028	167	77	28
XH1888	26	7915	168	80	25
NH9803	28	7900	171	86	30
NE96649	22	7866	169	92	28
NE94654	15	7564	168	84	30
SD94149	11	7306	167	81	30
N95L1229	25	7162	171	83	30
NE95510	20	7117	168	83	28
NW97S195	23	7073	167	88	28
NE95473	17	6971	168	81	25
SD95203	13	6869	168	92	28
ND9560	9	6812	169	96	35
NE95553	18	6757	168	94	25
Abilene	3	6739	166	72	28
Bellatrix		6737	173	96	23
N95L1226	24	6727	171	77	28
NE94589	16	6727	170	91	18
T194	29	6651	166	91	40
SD94241	14	6442	170	93	28
ND9419	7	6331	171	91	33
ND9257	5	6325	172	100	30
NE96435	19	6323	169	93	25
SD95218	10	6313	168	98	18
ND9460	8	6280	168	99	33
ND9304	6	6230	167	102	45
SD93267	12	6198	166	102	28
Nekota	4	5956	166	79	25
NE96632	21	5939	166	98	25
Roughrider	2	5474	172	108	33
Kharkof	1	4741	171	116	60
mean		6716	169	91	29
l.s.d. (0.05)		891			
c.v. (%)		10			

Table 2. Summary of mean yields (kg/ha) of 29 wheats grown in the 1999 NRPN.

line	entry	region		North Platte, Nebraska		Alliance, Nebraska		Lincoln, Nebraska		Imperial, Nebraska		Nebraska State	
		mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
XH1888	26	5375	1	3885	10	3607	2	4577	2	5250	7	4330	1
XH9806	27	5212	2	3176	25	3347	10	4862	1	4951	12	4084	4
N95L1229	25	4722	3	4311	3	2698	28	3746	11	4974	11	3932	9
N95L1226	24	4710	4	4337	2	2849	25	3590	13	5397	4	4043	6
NE96649	22	4685	5	3905	9	3531	5	4033	5	5156	8	4156	3
NE94654	15	4673	6	4238	4	3399	8	3043	21	5133	9	4036	7
NE95473	17	4622	7	3566	18	3016	20	3766	10	5406	3	3939	8
NE95553	18	4573	8	3929	8	3254	12	3386	17	4697	17	3816	15
NH9803	28	4555	9	4222	5	3364	9	2498	27	5628	2	3928	10
NE95510	20	4516	10	3766	13	3592	3	3412	16	4700	16	3868	12
SD95218	10	4489	11	3545	19	3516	6	3447	15	4628	18	3784	16
NW97S195	23	4480	12	3790	11	3102	15	2911	23	5299	5	3775	17
SD95203	13	4463	13	4200	6	2774	26	4285	3	4265	22	3881	11
SD94149	11	4460	14	3711	15	3224	13	3907	8	5824	1	4167	2
NE94589	16	4430	15	3775	12	3476	7	3291	19	4899	13	3860	14
ND9257	5	4382	16	3322	22	3306	11	3342	18	4511	20	3621	22
Abilene	3	4363	17	4430	1	2900	24	4186	4	4762	15	4069	5
ND9560	9	4330	18	2814	27	3559	4	3627	12	3966	26	3491	23
ND9460	8	4272	19	3536	20	3810	1	3996	7	4104	25	3862	13
Nekota	4	4247	20	3215	24	2712	27	3855	9	5133	10	3729	18
SD94241	14	4226	21	3741	14	2923	22	2359	28	4889	14	3478	24
ND9419	7	4215	22	3480	21	3024	18	3000	22	5278	6	3696	21
SD93267	12	4148	23	3675	17	3111	14	2821	25	3935	27	3386	26
T194	29	4140	24	3297	23	2935	21	4029	6	4619	19	3720	20
ND9304	6	4113	25	3708	16	2916	23	2799	26	4259	23	3420	25
NE96632	21	4108	26	2992	26	3063	16	2883	24	4163	24	3275	27
NE96435	19	4059	27	3932	7	3042	17	3528	14	4410	21	3728	19
Roughrider	2	3556	28	2476	28	2191	29	3216	20	3437	28	2830	28
Kharkof	1	3179	29	2364	29	3021	19	1923	29	3304	29	2653	29
mean*		4389		3632		3147		3464		4723		3742	
l.s.d.(0.05)		330		879		887		886		545		652	
c.v.(%)		11		15		18		16		7		14	

*less any local checks

Table 2, contd.

line	entry	region		Brookings, SD		Dakota Lakes, SD		Winner, SD		South Dakota State	
		mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
XH1888	26	5375	1	5168	2	4857	5	4973	1	4999	2
XH9806	27	5212	2	5370	1	5555	1	4884	2	5269	1
N95L1229	25	4722	3	4540	10	4647	8	4876	3	4688	3
N95L1226	24	4710	4	4668	5	4360	12	4428	8	4477	9
NE96649	22	4685	5	3707	25	3709	24	3935	21	3784	27
NE94654	15	4673	6	3916	23	4047	19	3933	22	3965	22
NE95473	17	4622	7	4082	19	5001	3	4522	7	4592	7
NE95553	18	4573	8	4647	6	4718	6	4596	5	4654	4
NH9803	28	4555	9	4035	20	4282	16	3973	20	4097	18
NE95510	20	4516	10	4622	8	4655	7	4250	10	4509	8
SD95218	10	4489	11	4934	3	4090	18	3977	19	4334	11
NW97S195	23	4480	12	4423	15	4923	4	4571	6	4639	5
SD95203	13	4463	13	4565	9	3922	22	3993	18	4160	16
SD94149	11	4460	14	3845	24	5020	2	4226	12	4282	13
NE94589	16	4430	15	4789	4	3753	23	3878	23	4140	17
ND9257	5	4382	16	4445	14	4336	13	4006	17	4262	14
Abilene	3	4363	17	4466	13	4380	11	4185	13	4344	10
ND9560	9	4330	18	3500	27	3933	21	4227	11	3935	24
ND9460	8	4272	19	4017	21	3949	20	3768	26	3911	25
Nekota	4	4247	20	4387	16	4640	9	4800	4	4609	6
SD94241	14	4226	21	4225	18	3701	25	4261	9	4062	20
ND9419	7	4215	22	3639	26	4320	15	3523	27	3828	26
SD93267	12	4148	23	4642	7	4495	10	3844	24	4327	12
T194	29	4140	24	4246	17	4331	14	4121	15	4231	15
ND9304	6	4113	25	4515	11	3533	26	3778	25	3942	23
NE96632	21	4108	26	3955	22	4188	17	4056	16	4080	19
NE96435	19	4059	27	4498	12	3390	27	4133	14	4007	21
Roughrider	2	3556	28	3036	29	3248	28	3350	28	3211	28
Kharkof	1	3179	29	3287	28	2644	29	2768	29	2900	29
mean		4389		4293		4218		4132		4213	
l.s.d.(0.05)		330		418		520		475		506	
c.v.(%)		11		6		8		7		7	

Table 2, contd.

line	entry	region		Moccasin, Montana		Bozeman, MT		Montana State		Casselton, ND		Williston, ND		Hettinger, ND		North Dakota State	
		mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
XH1888	26	5375	1	4683	2	9177	1	6930.29	1	4739	1	5112	1	5790	2	5203	1
XH9806	27	5212	2	4507	7	9056	2	6781.79	2	4297	7	4208	14	5632	4	4662	4
N95L1229	25	4722	3	4583	5	8021	6	6301.61	7	3732	21	4278	12	5413	5	4455	11
N95L1226	24	4710	4	4280	9	7853	9	6066.19	8	4696	2	4115	18	5741	3	4777	3
NE96649	22	4685	5	4839	1	8433	4	6636.30	4	4046	11	4224	13	5341	6	4506	9
NE94654	15	4673	6	4664	4	7949	7	6306.26	6	3941	13	4609	4	5145	7	4569	7
NE95473	17	4622	7	4154	11	7330	17	5742.16	16	4394	5	4147	17	4718	16	4392	12
NE95553	18	4573	8	4554	6	8196	5	6374.93	5	3833	19	4174	16	4905	11	4291	17
NH9803	28	4555	9	4671	3	8669	3	6669.67	3	3629	24	4661	2	6203	1	4814	2
NE95510	20	4516	10	3707	22	7106	19	5406.59	20	4295	8	3852	25	4773	15	4261	18
SD95218	10	4489	11	3600	24	7081	21	5340.72	22	4465	4	4661	3	4542	22	4566	8
NW97S195	23	4480	12	3654	23	7944	8	5799.41	15	3102	27	3784	26	4544	21	3807	26
SD95203	13	4463	13	4068	13	7415	16	5741.96	17	3892	16	4282	11	4868	13	4341	15
SD94149	11	4460	14	3994	16	7664	14	5828.94	14	4131	10	3975	21	4397	23	4148	20
NE94589	16	4430	15	4260	10	7727	13	5993.76	9	2941	28	4202	15	5019	10	4069	22
ND9257	5	4382	16	4080	12	7593	15	5836.43	13	4564	3	4342	9	4880	12	4570	6
Abilene	3	4363	17	4045	14	7808	12	5926.58	11	3685	23	3877	24	4335	25	3957	25
ND9560	9	4330	18	3911	18	7823	11	5867.38	12	3849	17	4550	5	4622	20	4361	13
ND9460	8	4272	19	3809	20	6860	24	5334.49	23	3735	20	4432	7	4708	17	4306	16
Nekota	4	4247	20	3918	17	5996	27	4957.26	26	3504	25	3691	27	4149	28	3772	27
SD94241	14	4226	21	4281	8	6653	25	5467.34	19	3703	22	4312	10	5067	9	4356	14
ND9419	7	4215	22	4010	15	7850	10	5930.34	10	4302	6	4363	8	5121	8	4572	5
SD93267	12	4148	23	3369	26	6925	23	5146.52	24	3999	12	4101	19	4389	24	4157	19
T194	29	4140	24	3051	29	7084	20	5067.18	25	1766	29	3368	28	4773	14	3309	29
ND9304	6	4113	25	3895	19	7243	18	5568.83	18	3894	15	3931	23	4638	19	4132	21
NE96632	21	4108	26	3749	21	7012	22	5380.48	21	4219	9	4543	6	4641	18	4475	10
NE96435	19	4059	27	3360	27	5418	29	4388.89	29	3918	14	3934	22	4223	27	4016	24
Roughrider	2	3556	28	3448	25	6005	26	4726.75	27	3844	18	4014	20	4274	26	4041	23
Kharkof	1	3179	29	3233	28	5900	28	4566.54	28	3273	26	3072	29	4018	29	3416	28
mean		4389		4013		7441		5727		3876		4173		4835		4286	
l.s.d.(0.05)		330		536		585		866		ns		470		665		605	
c.v.(%)		11		8		5		6		23		7		9		14	

Table 2, contd.

line	entry	region		Rosemount, Minnesota		Waseca, Minnesota		Minnesota State		Archer, Wyoming		Lethbridge, Alberta		Ames, Iowa	
		mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
XH1888	26	5375	1	5634	1	6907	1	6930	1	2863	1	7915	2	5535	1
XH9806	27	5212	2	5564	2	6624	2	6782	2	2638	2	8028	1	5336	2
N95L1229	25	4722	3	4713	16	5425	3	6302	7	2452	11	7162	7	3695	15
N95L1226	24	4710	4	4613	18	5364	4	6066	8	2295	20	6727	15	3867	12
NE96649	22	4685	5	4277	22	4722	9	6636	4	2529	7	7866	4	3302	20
NE94654	15	4673	6	4808	13	4960	8	6306	6	2625	3	7564	5	3638	16
NE95473	17	4622	7	5145	7	5312	5	5742	16	2506	9	6971	10	3275	21
NE95553	18	4573	8	4790	15	4653	12	6375	5	2529	7	6757	13	3013	23
NH9803	28	4555	9	3304	27	3564	22	6670	3	2419	14	7900	3	2606	26
NE95510	20	4516	10	5056	9	4700	10	5407	20	2264	23	7117	8	4126	9
SD95218	10	4489	11	5188	6	5076	7	5341	22	2450	12	6313	22	3964	11
NW97S195	23	4480	12	5079	8	4604	14	5799	15	2473	10	7073	9	4146	8
SD95203	13	4463	13	5335	3	3496	23	5742	17	2621	4	6869	11	4200	7
SD94149	11	4460	14	5046	10	2905	27	5829	14	2280	21	7306	6	3430	18
NE94589	16	4430	15	4794	14	3869	18	5994	9	2401	15	6727	16	4005	10
ND9257	5	4382	16	4442	20	4642	13	5836	13	2022	26	6325	20	3369	19
Abilene	3	4363	17	3304	27	3946	17	5927	11	2197	24	6739	14	4267	6
ND9560	9	4330	18	5276	4	3390	24	5867	12	2150	25	6812	12	4475	5
ND9460	8	4272	19	4816	12	3714	19	5334	23	2421	13	6280	23	3793	13
Nekota	4	4247	20	4315	21	4678	11	4957	26	2338	17	5956	26	4657	4
SD94241	14	4226	21	3870	24	4118	16	5467	19	2589	5	6442	18	3786	14
ND9419	7	4215	22	4274	23	2628	29	5930	10	1957	28	6331	19	3578	17
SD93267	12	4148	23	3489	26	5220	6	5147	24	2571	6	6198	25	2525	27
T194	29	4140	24	4576	19	4185	15	5067	25	2278	22	6651	17	4714	3
ND9304	6	4113	25	4835	11	3628	21	5569	18	2318	18	6230	24	2677	24
NE96632	21	4108	26	5223	5	3332	25	5380	21	2396	16	5939	27	1954	29
NE96435	19	4059	27	4674	17	3686	20	4389	29	2309	19	6323	21	3231	22
Roughrider	2	3556	28	3768	25	3235	26	4727	27	1681	29	5474	28	2663	25
Kharkof	1	3179	29	2944	29	2645	28	4567	28	1968	27	4741	29	2095	28
mean		4389		4591		4318		4455		2362		6716		3652	
l.s.d.(0.05)		330		12		1064		1406		415		891		1247	
c.v.(%)		11		7		15		13		11		10		17	

Table 3

Summary of mean yields (kg/ha) and ranks for 29 wheats in the 1999 NRPN for 4 intra-region production zones (see Crop Science 32: 907, 1992)

line	entry	Regional		North Central Plains		Northern High Plains		Northwest Plains		Northwest	
		mean	rank	mean	rank	mean	rank	mean	rank	mean	rank
XH1888	26	5375	1	5225	1	3235	1	5003	1	7324	1
XH9806	27	5212	2	5106	2	2993	6	4786	2	7280	2
N95L1229	25	4722	3	4511	3	2575	23	4436	5	6646	6
N95L1226	24	4710	4	4424	4	2572	24	4196	17	6331	9
NE96649	22	4685	5	4017	16	3130	2	4003	24	7128	4
NE94654	15	4673	6	4154	12	3012	5	4368	9	6809	5
NE95473	17	4622	7	4297	7	2761	14	4513	3	6234	14
NE95553	18	4573	8	4201	11	2891	9	4407	7	6528	7
NH9803	28	4555	9	3500	26	2891	10	4499	4	7162	3
NE95510	20	4516	10	4283	8	2928	8	4196	18	6091	17
SD95218	10	4489	11	4321	5	2983	7	4416	6	5729	21
NW97S195	23	4480	12	4221	10	2788	13	4272	14	6309	10
SD95203	13	4463	13	4301	6	2697	18	4128	19	6193	15
SD94149	11	4460	14	3889	21	2752	16	4323	12	6420	8
NE94589	16	4430	15	4060	15	3046	4	4010	23	6287	11
ND9257	5	4382	16	3967	18	2664	20	4340	11	6032	18
Abilene	3	4363	17	4104	14	2548	25	4093	21	6252	12
ND9560	9	4330	18	3892	20	2854	11	4286	13	6245	13
ND9460	8	4272	19	3956	19	3115	3	4225	16	5713	22
Nekota	4	4247	20	4253	9	2525	26	4097	20	5357	26
SD94241	14	4226	21	3765	23	2756	15	4050	22	5857	19
ND9419	7	4215	22	3440	27	2490	28	4344	10	6091	16
SD93267	12	4148	23	3806	22	2841	12	4270	15	5567	25
T194	29	4140	24	4134	13	2606	22	3780	25	5701	23
ND9304	6	4113	25	3757	24	2617	21	3760	26	5833	20
NE96632	21	4108	26	3540	25	2730	17	4391	8	5604	24
NE96435	19	4059	27	3991	17	2675	19	3701	27	5162	27
Roughrider	2	3556	28	3128	28	1936	29	3686	28	5026	28
Kharkof	1	3179	29	2599	29	2494	27	2888	29	4636	29
mean		4390		4029		2762		4189		6122	
l.s.d. (0.05)		330		552		439		889		614	
c.v. (%)		11		13		16		7		8	

Table 4. Stability analyses of 29 wheats grown in the 1999 NRPN.

line	entry	grain yield			test weight		
		regional average (kg/ha)	regress. coef. (b)	r2	regional average (kg/hl)	regress. coef. (b)	r2
XH1888	26	5375	1.18	0.87	77.03	0.91	0.96
XH9806	27	5212	1.23	0.84	77.89	0.87	0.92
N95L1229	25	4722	1.11	0.94	75.01	1.37	0.80
N95L1226	24	4710	1.05	0.92	74.71	1.39	0.64
NE96649	22	4685	1.20	0.91	74.20	1.23	0.70
NE94654	15	4673	1.12	0.94	75.56	0.88	0.83
NE95473	17	4622	1.00	0.91	77.03	0.79	0.83
NE95553	18	4573	1.09	0.95	74.67	1.20	0.91
NH9803	28	4555	1.35	0.84	75.83	1.47	0.79
NE95510	20	4516	0.96	0.94	76.59	0.95	0.87
SD95218	10	4489	0.87	0.89	76.47	0.91	0.62
NW97S195	23	4480	1.12	0.91	75.61	1.20	0.85
SD95203	13	4463	0.95	0.88	77.88	1.05	0.95
SD94149	11	4460	1.09	0.85	77.82	1.01	0.84
NE94589	16	4430	1.04	0.92	75.97	0.84	0.57
ND9257	5	4382	1.00	0.95	75.34	1.19	0.90
Abilene	3	4363	0.99	0.85	78.43	0.70	0.63
ND9560	9	4330	1.04	0.85	76.00	0.78	0.76
ND9460	8	4272	0.81	0.91	76.95	0.86	0.86
Nekota	4	4247	0.71	0.75	77.75	0.96	0.67
SD94241	14	4226	0.89	0.89	76.59	0.92	0.63
ND9419	7	4215	1.09	0.86	76.16	1.00	0.69
SD93267	12	4148	0.89	0.80	78.24	0.68	0.41
T194	29	4140	0.98	0.76	75.53	0.88	0.74
ND9304	6	4113	0.99	0.92	77.25	1.17	0.78
NE96632	21	4108	0.94	0.81	77.12	0.85	0.85
NE96435	19	4059	0.69	0.81	75.91	1.18	0.72
Roughrider	2	3556	0.84	0.88	77.77	0.85	0.78
Kharkof	1	3179	0.76	0.82	76.82	0.95	0.86

Table 5. Summary of agronomic and yield data for 29 wheats grown in the 1999 NRPN.

line	entry	yield kg/ha	volume weight kg/hl	days to heading from 1/1	plant height cm	lodging %	grain protein %	winter survival %	reaction to powdery mildew 0-9	reaction to leaf rust, % infection
No. locations reporting:		17	15	12	15	8	5	4	2	2
XH1888	26	5375	77.0	158	88	28	12.9	89	4	44
XH9806	27	5212	77.9	158	82	24	13.3	87	5	47
N95L1229	25	4722	75.0	161	85	24	13.3	90	5	43
N95L1226	24	4710	74.7	161	83	24	13.2	88	5	54
NE96649	22	4685	74.2	160	93	34	12.8	89	5	59
NE94654	15	4673	75.6	158	84	29	13.2	81	5	53
NE95473	17	4622	77.0	158	85	18	13.1	79	7	48
NE95553	18	4573	74.7	159	92	25	13.0	79	5	55
NH9803	28	4555	75.8	161	87	24	12.7	89	6	67
NE95510	20	4516	76.6	159	90	28	14.0	81	6	56
SD95218	10	4489	76.5	158	92	20	14.1	82	4	40
NW97S195	23	4480	75.6	158	92	27	13.6	82	4	63
SD95203	13	4463	77.9	158	90	29	13.4	77	4	51
SD94149	11	4460	77.8	158	84	33	13.0	76	1	68
NE94589	16	4430	76.0	160	92	29	13.8	77	4	46
ND9257	5	4382	75.3	161	94	30	13.6	79	6	44
Abilene	3	4363	78.4	158	75	23	13.5	79	8	67
ND9560	9	4330	76.0	159	94	36	13.3	82	4	44
ND9460	8	4272	77.0	159	95	32	12.9	82	4	46
Nekota	4	4247	77.7	157	80	24	12.9	76	3	61
SD94241	14	4226	76.6	160	93	32	13.1	80	2	42
ND9419	7	4215	76.2	161	91	28	13.1	81	4	63
SD93267	12	4148	78.2	158	99	30	13.9	78	4	37
T194	29	4140	75.5	158	91	28	13.9	82	4	59
ND9304	6	4113	77.2	158	98	36	14.2	78	3	62
NE96632	21	4108	77.1	158	97	39	13.3	84	6	66
NE96435	19	4059	75.9	159	94	27	14.0	80	3	67
Roughrider	2	3556	77.8	162	101	31	13.9	75	5	70
Kharkof	1	3179	76.8	161	106	52	14.2	75	6	55

Table 6

Seedling reaction of entries of the 1999 Uniform Northern Regional Performance Nursery to selected isolates of leaf rust.											
Cereal Disease Laboratory, USDA-ARS, U. of MN., St. Paul, MN.											Stillwater, OK*
		Leaf Rust Isolate									
#	Sel No.	TDBM	TCLH	PLLM	TLLC	MGBM	PNMR	KDBM	PLMR	LR GENE?	
1	CI1442	S	S	S	S	S	S	S	S	None	S
2	Roughrider	S	S	S	S	S	S	S	S	None	S
3	Abilene	S	-	;1-	;1-	;1-	S	S	;	24	MS
4	Nekota	S	21CN	;12	S	S	S	S	;1,S	+	S
5	ND9257	2CN	;C	;1C	;1C	S	;12C	1C	;1C	10,16	S
6	ND9304	S	S	S	S	S	S	S	S	None	S
7	ND9419	S	S	S	S	S	S	S	S	None	S
8	ND9460	S	;C	;	;1-C	S	;12C	S	;1-C	10	S
9	ND9560	1C	1CN	1CN	1C	S	12C	-	1C	16	S
10	SD95218	S	S	2	1C	S	X	S	2	+	S
11	SD94149	S	;+1-C	;1C	;1-C	;1-	S	S	;1-C	10,24	MS
12	SD93267	S	S	S	1C	S	X	S	S	+	S
13	SD95203	S	S	S	S	S	S	S	S	None	S
14	SD94241	12C	1C	1C	12CN	1C	1	1CN	1C	16,+	MS
15	NE94654	1C	12CN	;1C	1C	S,;1-C	1C	1C	12CN	16,+	MS
16	NE94589	S	S	2	2	S	-	S	;1-C,S	+	S
17	NE95473	S	;1C	;1C	;1-C	S,;1-C	S	S	S,;1-C	10,seg 24	MS
18	NE95553	2CN,S	1CN,S	;1C,2	;1-C	S,;1-C	X	2	;1-2C	seg 16,+	S
19	NE96435	S	S	2C	2	S	;1C,S	12C	2C	+	MS
20	NE95510	1CN	;+C	;1C	;1C	;	;1C	;+1-C	;	10,26	MS
21	NE96632	S	S	S	S	S	1?	S	S	None	S
22	NE96649	1CN	1CN,;+C	;1C	;1-C	;1,S	S,;1	;+1-C	0;,1C	seg 10,24,26	MS
23	NW97S195	2CN	1CN	1CN	1CN	S	1C	0	1CN	1,16	MS
24	N96L1226	S	;+C	0	;C	;1	;1C	0	0	1,10,24,2a	MS
25	N96L1229	S	;+C	;1-C	;C	;1-C	S,;1C-	;1-C	;1-C	10,24,+	MS
26	XH1888	;+1C	;C	;	;C	;1-C	;1-C	;1-C	;1-C	10,26	MR
27	XH9806	;+1C	;+C	;	;	;	;	;	;1-C	10,26	MS
28	NH9803	S	S	0;	S	S	S	S	S	+	S
29	T194	S	X	23C	S	X	S	23C	S	+	S

*Stillwater test: Leaf rust reaction of seedlings tested during the 1998-99 season wasdetermined using a mixture of P. triticina urediospores collected in 98May. This was a bulk spore collection obtained from seven hard red winterwheat cultivars (Big Dawg, Chisholm, Custer, Jagger, Karl 92, 2137, and 2174) growing at three locations (Apache, Kingfisher, and Lahoma) in Oklahoma.

			LR GENES				
			SET 1	1	2A	2C	3
			SET 2	9	16	24	26
			SET 3	3KA	11	17	30
			SET 4	10	18	21	23
			CODE	**REACTION***			
			B	L	L	L	L
			C	L	L	L	H
			D	L	L	H	L
			F	L	L	H	H
			G	L	H	L	L
			H	L	H	L	H
			J	L	H	H	L
			K	L	H	H	H
			L	H	L	L	L
			M	H	L	L	H
			N	H	L	H	L
			P	H	L	H	H
			Q	H	H	L	L
			R	H	H	L	H
			S	H	H	H	L
			T	H	H	H	H
				L = LOW INFECTION TYPE			
				H = HIGH INFECTION TYPE			

Table 7

Seedling reaction of entries of the 1999 Northern Regionial Performance Nursery to selected isolates of stem rust (from D.V. McVey, Cereal Disease Laboratory, USDA-ARS, U. Minn, St. Paul, MN.

		STEM RUST ISOLATE						
#	Sel. No.	RTRQ	TPMK	QKCS	RHMS	RTHJ	RTQQ	SR GENE ?
1	CI1442	S	S	S	S	S	S	None
2	Roughrider	S	S	;	2	0	S	8?,36
3	Abilene	2=	2=	2=	2=	2=	2=	24
4	Nekota	2=	;	2=	2=	2=	;	6,17,24
5	ND9257	S	;	S	S	S	;	6,17
6	ND9304	S	;	S	S	2	;1	6,17
7	ND9419	S	;	S	2-	S	;	6,8,17
8	ND9460	S,2=	;	2	;	;1	;	6,17,+
9	ND9560	S	;	S	S	S	;1	6,17
10	SD95218	2-,S	;	S	S	2=	2	6,+
11	SD94149	2=	2=	2=	2=	2=	2=	24
12	SD93267	S	;	2	S	2	2-	6,+
13	SD95203	S	;	S	2	S	;	6,17,+
14	SD94241	2	;	2	2	2-	;	6,17,24
15	NE94654	1	;	2=,S	2	2=	2	6,24
16	NE94589	2=	;	2=	2=	2=	;	6,24
17	NE95473	1N	;	S,2=	2=	2-	;	6,17,+
18	NE95553	S	;	2	S	S	;	6,7b,17
19	NE96435	S	;	S	S	S	;1	6,17
20	NE95510	2=	;	2=,S	2=	;1	;	6,17,31
21	NE96632	2=	;	2=	2=	;1	2=	6,24,+
22	NE96649	2-	;	2-	2-	2=	-	6+
23	NW97S195	S	;,S	S,2-	1	S	;	17,seg6
24	N96L1226	2=	;	2=	1	2=	;	6,17,24
25	N96L1229	2=	;	2=	;1	2=	;	6,17,24
26	XH1888	2,S	;,S	2=	2	2=	;	17,seg6,+
27	XH9806	2=	2=	2=	;1	2=	;	17,31
28	NH9803	S	S	2	2	2	2	+
29	T194	2,S	S	2	2-	2-	2-	+

Table 8. Reactions to Hessian fly and wheat soilborne mosaic virus (WSBMV).

entry	line	reaction to Hessian fly	reaction to wheat soilborne mosaic virus		
		USDA-ARS, Manhattan, KS	Oklahoma State Un., Stillwater, OK		USDA-ARS, Urbana, IL
			VA (1-4)	ELISA	0-9, mean, 2reps
1	Kharkof	S	3	+	4
2	Roughrider	H	3	+	5.5
3	Abilene	S	2	+	5
4	Nekota	S	3	+	4.5
5	ND9257	S	3	+	4
6	ND9304	S	3	+	1.5
7	ND9419	S	3	+	2.5
8	ND9460	S	3	+	5.5
9	ND9560	S	2	-/+	4.5
10	SD95218	S	4	+	6.5
11	SD94149	S	2	+	5.5
12	SD93267	S	2	+	6.5
13	SD95203	S	3	+	7
14	SD94241	S	3	+	5.5
15	NE94654	H	3	+	5.5
16	NE94589	S	3	+	3.5
17	NE95473	R-	4	+	6.5
18	NE95553	H	3	+	4.5
19	NE96435	S	1	-	3.5
20	NE95510	S	2	+	4.5
21	NE96632	S	3	+	4
22	NE96649	S	3	+	7.5
23	NW97S195	S	2	-	5.5
24	N95L1226	S	1	-	3
25	N95L1229	S	1	-	5
26	XH1888	S	1	-	2.5
27	XH9806	S	2	-	4
28	NH9803	S	3	+	1
29	T194	S	1	-/+	6

Table 9. Miscellaneous quality related traits, 1999 NRPN

entry	selection	1RS status	waxy genotype*	PPO**
1	Kharkof	NON.1RS	wild-type	4
2	Roughrider	NON.1RS	wild-type	2
3	Abilene	NON.1RS	wild-type	5
4	Nekota	NON.1RS	wild-type	4
5	ND9257	NON.1RS	wild-type	4
6	ND9304	NON.1RS	wild-type	4
7	ND9419	NON.1RS	wild-type	4
8	ND9460	NON.1RS	wild-type	3
9	ND9560	NON.1RS	wild-type	2
10	SD95218	NON.1RS	wild-type	2
11	SD94149	1AL.1RS	wild-type	2
12	SD93267	NON.1RS	wild-type	3
13	SD95203	NON.1RS	wild-type	3
14	SD94241	NON.1RS	wild-type	3
15	NE94654	NON.1RS	wild-type	3
16	NE94589	NON.1RS	wild-type	3
17	NE95473	NON.1RS	wild-type	3
18	NE95553	NON.1RS	wild-type	3
19	NE96435	NON.1RS	wild-type	4
20	NE95510	NON.1RS	wild-type	3
21	NE96632	NON.1RS	wild-type	4
22	NE96649	NON.1RS	wild-type	3
23	NW97S195	NON.1RS	wild-type	3
24	N95L1226	NON.1RS	wild-type	4
25	N95L1229	NON.1RS	wild-type	3
26	XH1888	NON.1RS	wild-type	3
27	XH9806	1BL.1RS	wild-type	3
28	NH9803	NON.1RS	*wx-A1* null	3
29	T194	NON.1RS	wild-type	4

*waxy genotype = granule-bound starch synthase (waxy locus) alleles

***PPO = polyphenol oxidase activity, whole grain, 0-5 scale, cv. Platte (value=1) used as control

Table 10. Adult plant field reaction to inoculation with leaf and stem rust, 1999 NRPN.

entry	line	LR 6/25/99	SR 7/6/99
1	Kharkof	40S	60MS-S
2	Roughrider	60S	0
3	Abilene	40S	5R
4	Nekota	5MR-MS	TR
5	ND9257	TMR	TMS-S
6	ND9304	40S	10MS-S
7	ND9419	30S	10MS-S
8	ND9460	10MS-S	0
9	ND9560	5MR	10S
10	SD95218	TR	20MR-S
11	SD94149	TMR,20S	10R-MR
12	SD93267	10MR-S	10MS-S
13	SD95203	30S	5MS-S
14	SD94241	TMR	TR-MR
15	NE94654	10S	20MS-S
16	NE94589	30S	5MR
17	NE95473	-	-
18	NE95553	-	-
19	NE96435	20MR-S	10S
20	NE95510	TMR	TR
21	NE96632	30S	TMR
22	NE96649	10MR,60S	TR
23	NW97S195	20MR	5R-MR
24	N96L1226	TR	0
25	N96L1229	TMR	0
26	XH1888	TR	TR-MR
27	XH9806	TR	TR
28	NH9803	20S	60S
29	T194	5MR	80S