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Table 1. 2000 Western Plains Regional Performance Nursery

Entry	Line/selection	Cultivar or pedigree	source
1	CI 17650	Larned	check
2	KS95HW62-6	Trego	check
3	CO 940750	Prowers	check
4	PI 518591	Arapahoe	check
5	Millennium	NE94479 (Arapahoe/Abilene//NE86488)	U. Nebraska
6	TX97A0122	TX88V4328/TX87V1613/TX87V1233-1	Texas A&M
7	TX97A0244	TAM-105*4/AMI*5//LG0/3/STURDY	Texas A&M
8	TX97A0050	TX86V1540/KARL92	Texas A&M
9	TX91A333	TAM-107/83WN55	Texas A&M
10	TX95A3091	TAM-107//TX78V3620/CTK78/3/TX87V1233	Texas A&M
11	TX90A9528	TAM-105/10334	Texas A&M
12	TX95A1161	TAM W-101//NE78488/VEERY	Texas A&M
13	OK98680	Odessa 06/Mesa	Oklahoma St.
14	OK98699	TAM 200/HBB313E//2158	Oklahoma St.
15	OK98G507W	KS90HW53/90IWWSN-88	Oklahoma St.
16	H9520483	Quantum Hybrid Wheat	Hybritech
17	H9521563	Quantum Hybrid Wheat	Hybritech
18	WX97-3201	Quantum Hybrid Wheat	Hybritech
19	XH9806	Quantum Hybrid Wheat	Hybritech
20	NE97669	VISTA/KS87H6//KSSB-369--7	U. Nebraska
21	N96L9970	GRS1201/TAM202	ARS-Lincoln
22	N95L11881	Siouxland/2*N86L177	ARS-Lincoln
23	NW97S182	KS87809-10/ARAPAHOE	ARS-Lincoln
24	NW97S218	KS85W663-1-1/KARL92	ARS-Lincoln
25	NW97S278	NE88584/Arlin	ARS-Lincoln
26	NW97S312	KM602-90/NE89657//Arlin	ARS-Lincoln
27	NW97S343	N91L122/Arlin	ARS-Lincoln
28	NW97S112	N91L122/Arlin	ARS-Lincoln
29	NW97S114	N91L122/Arlin	ARS-Lincoln
30	NW96S016	RioBlanco/90IWWSN-113	ARS-Lincoln
31	SD93267	Shield/Roughrider//SD76598-7/Agassiz	So. Dakota St.
32	Harding	Brule // Bennett / Chisholm /3/ Arapahoe	So. Dakota St.

Table 2. Summary of grain yields (kg/ha) of 32 wheats grown in the 2000 WPRPN.

Entry	Line or selection	region		Bushland, TX		Goodwell, OK		Colby, KS	
		mean	rank	mean	rank	mean	rank	mean	rank
1	Larned	2598	23	2517	21	3018	23	3743	21
2	Trego	2911	8	3140	5	3380	14	4099	8
3	Prowers	2126	30	1604	31	2442	31	3040	29
4	Arapahoe	2497	26	2314	25	2770	28	3451	26
5	Millennium	2760	15	2504	23	2988	24	3814	20
6	TX97A0122	2651	20	2871	13	2688	30	4088	9
7	TX97A0244	2629	22	2488	24	3144	19	4063	11
8	TX97A0050	2660	19	2558	20	3038	22	4008	12
9	TX91A333	2922	6	3003	9	3654	4	4674	1
10	TX95A3091	2976	3	3124	6	3531	9	3946	16
11	TX90A9528	2956	4	2903	12	3587	8	3999	13
12	TX95A1161	2789	12	3375	2	3743	2	3701	22
13	OK98680	2925	5	3411	1	3626	6	3968	15
14	OK98699	2767	14	2506	22	3499	10	3653	23
15	OK98G507W	2640	21	2714	14	3497	11	3519	24
16	H9520483	2891	10	2679	16	3598	7	3970	14
17	H9521563	3083	1	2607	18	3635	5	4593	4
18	WX97-3201	2584	24	2614	17	2859	26	3425	27
19	XH9806	2988	2	3073	8	3252	16	4653	2
20	NE97669	2690	17	2217	27	3128	20	4296	5
21	N96L9970	2714	16	3212	3	3461	12	3837	19
22	N95L11881	2360	28	2596	19	3053	21	3001	30
23	NW97S182	2520	25	2083	29	2975	25	3501	25
24	NW97S218	2276	29	2159	28	2853	27	3867	17
25	NW97S278	2661	18	2708	15	3205	18	3857	18
26	NW97S312	2395	27	2246	26	3251	17	3296	28
27	NW97S343	2773	13	2905	11	3311	15	4076	10
28	NW97S112	2894	9	3209	4	3742	3	4237	6
29	NW97S114	2876	11	3089	7	3454	13	4212	7
30	NW96S016	2921	7	2963	10	3897	1	4633	3
31	SD93267	1962	31	1671	30	2371	32	2523	32
32	Harding	1935	32	1393	32	2764	29	2970	31
	mean	2667		2639		3232		3835	
	cv (%)	11.8		12.5		10.4		9.8	
	l.s.d. (0.05)	322.86		540.77		547.98		608.14	

Table 2. Summary of grain yields (kg/ha) of 32 wheats grown in the 2000 WPRPN.

Entry	Line or selection	Akron, CO		Archer, WY		Scottsbluff, NE		Dakota Lakes, SD	
		mean	rank	mean	rank	mean	rank	mean	rank
1	Larned	2228	10	1453	11	1187	31	4508	19
2	Trego	2482	4	1255	23	1470	18	5033	6
3	Prowers	1639	30	1233	26	1314	27	3880	29
4	Arapahoe	2015	21	1258	21	1482	14	4530	17
5	Millennium	2278	8	1374	16	1597	3	5156	4
6	TX97A0122	1964	25	1246	25	1444	21	4656	14
7	TX97A0244	1636	31	1293	19	1462	19	4708	12
8	TX97A0050	2022	20	1152	28	1422	22	4831	10
9	TX91A333	2074	19	1296	18	1475	15	4759	11
10	TX95A3091	2616	2	1426	13	1575	4	5082	5
11	TX90A9528	2739	1	1607	5	1470	17	4882	9
12	TX95A1161	2219	12	1417	15	1287	28	4279	23
13	OK98680	1997	23	1125	30	1210	30	5710	1
14	OK98699	1919	26	1471	10	1527	10	5207	3
15	OK98G507W	2116	17	1253	24	1372	23	4432	21
16	H9520483	2197	13	1677	2	1570	5	4983	8
17	H9521563	2526	3	1583	6	1543	9	5609	2
18	WX97-3201	2253	9	1258	22	1546	8	4481	20
19	XH9806	2343	5	1421	14	1625	1	5008	7
20	NE97669	2221	11	1699	1	1487	13	4181	25
21	N96L9970	1865	27	1302	17	1610	2	4080	27
22	N95L11881	1733	28	995	31	1178	32	4358	22
23	NW97S182	2302	6	1163	27	1368	24	4631	15
24	NW97S218	1403	32	897	32	1316	26	3757	30
25	NW97S278	2282	7	1576	7	1445	20	3957	28
26	NW97S312	1668	29	1264	20	1246	29	4181	25
27	NW97S343	2134	16	1677	2	1521	11	4205	24
28	NW97S112	1968	24	1542	8	1474	16	4557	16
29	NW97S114	2105	18	1477	9	1551	7	4683	13
30	NW96S016	2136	15	1444	12	1364	25	4530	17
31	SD93267	2141	14	1634	4	1566	6		
32	Harding	2011	22	1132	29	1490	12		
	mean	2101		1363		1443		4628	
	cv (%)	15.7		14.2		13.7		9.1	
	l.s.d. (0.05)	531.79		312.16		276.30		679.03	

Table 3. Stability of grain yield for 32 wheats grown in the 2000 WPRPN.

Entry	Line or selection	regional average (kg/ha)	rank	regression coef. (b)	r ²
1	Larned	2598	23	0.97	0.99
2	Trego	2911	8	1.10	0.98
3	Prowers	2126	30	0.79	0.94
4	Arapahoe	2497	26	0.93	0.98
5	Millennium	2760	15	1.06	0.97
6	TX97A0122	2651	20	1.03	0.98
7	TX97A0244	2629	22	1.08	0.98
8	TX97A0050	2660	19	1.10	0.99
9	TX91A333	2922	6	1.15	0.97
10	TX95A3091	2976	3	1.05	0.98
11	TX90A9528	2956	4	1.00	0.98
12	TX95A1161	2789	12	0.94	0.90
13	OK98680	2925	5	1.33	0.96
14	OK98699	2767	14	1.10	0.97
15	OK98G507W	2640	21	0.96	0.97
16	H9520483	2891	10	1.04	0.99
17	H9521563	3083	1	1.24	0.98
18	WX97-3201	2584	24	0.89	0.98
19	XH9806	2988	2	1.12	0.97
20	NE97669	2690	17	0.90	0.92
21	N96L9970	2714	16	0.89	0.90
22	N95L11881	2360	28	0.96	0.96
23	NW97S182	2520	25	0.98	0.96
24	NW97S218	2276	29	0.95	0.94
25	NW97S278	2661	18	0.82	0.96
26	NW97S312	2395	27	0.92	0.97
27	NW97S343	2773	13	0.88	0.97
28	NW97S112	2894	9	1.03	0.95
29	NW97S114	2876	11	1.03	0.98
30	NW96S016	2921	7	1.10	0.94
31	SD93267	1962	31	0.36	0.72
32	Harding	1935	32	0.67	0.76

Table 4. Volume weights (kg/ha) of 32 wheats grown in the 2000 WPRPN.

Entry	Line or selection	region (mean)	Bushland, TX	Goodwell, OK	Colby, KS	Akron, CO	Archer, WY	Dakota Lakes, SD	Scottsbluff, NE
1	Larned	74.6	73.7	72.0	77.1	75.3	77.1	72.6	74.4
2	Trego	75.8	75.7	74.4	77.3	76.7	75.0	74.9	77.0
3	Prowers	73.2	71.6	72.0	74.9	75.7	74.6	73.4	70.4
4	Arapahoe	71.9	72.1	71.5	72.5	72.3	71.1	70.0	73.9
5	Millennium	73.0	71.9	71.6	74.6	70.5	75.3	73.8	73.5
6	TX97A0122	68.6	66.6	68.8	71.3	68.4	68.0	68.7	68.5
7	TX97A0244	71.8	69.3	71.1	73.3	70.9	73.0	71.6	73.7
8	TX97A0050	71.5	71.6	71.4	70.0	71.1	73.4	71.0	71.8
9	TX91A333	74.5	73.4	73.3	78.0	75.3	76.5	69.8	75.1
10	TX95A3091	73.6	72.1	73.0	74.5	74.6	74.1	71.1	76.1
11	TX90A9528	71.9	70.8	71.7	73.5	71.3	72.5	69.6	74.0
12	TX95A1161	72.7	72.4	72.4	74.4	73.1	74.8	70.2	71.2
13	OK98680	75.4	73.8	74.0	77.5	77.1	75.1	74.8	75.6
14	OK98699	72.7	69.3	73.4	72.8	72.4	74.9	72.3	73.7
15	OK98G507W	72.4	69.6	72.6	74.5	72.4	71.3	71.9	74.2
16	H9520483	72.1	70.3	71.9	74.5	70.1	74.6	68.3	74.8
17	H9521563	72.5	69.9	73.0	74.9	71.6	73.2	71.8	73.3
18	WX97-3201	74.1	72.4	72.1	75.0	75.9	75.9	72.3	74.8
19	XH9806	72.6	69.9	72.9	75.3	72.5	75.1	71.2	71.5
20	NE97669	69.5	66.7	68.4	72.1	68.6	70.8	68.8	71.3
21	N96L9970	69.3	67.1	69.1	71.3	69.3	72.5	67.3	68.8
22	N95L11881	71.9	69.9	71.3	71.5	74.6	72.1	72.1	72.1
23	NW97S182	73.4	74.2	71.4	74.0	75.3	73.1	72.1	74.0
24	NW97S218	71.3	70.7	70.6	73.4	73.0	69.2	69.6	72.5
25	NW97S278	71.4	69.4	69.7	74.0	70.7	74.7	68.7	72.6
26	NW97S312	70.9	68.7	69.2	72.1	72.1	73.1	68.9	72.1
27	NW97S343	72.9	71.2	72.0	73.4	75.0	73.8	69.1	75.5
28	NW97S112	73.0	70.6	71.5	75.4	74.8	73.3	72.3	72.9
29	NW97S114	73.8	72.4	71.8	75.5	75.9	74.9	72.0	74.1
30	NW96S016	74.5	74.6	74.0	78.0	77.1	75.1	69.5	73.0
31	SD93267	72.7	70.8	72.0	74.2	74.2	74.0		71.2
32	Harding	72.3	70.2	71.6	72.2	75.0	71.7		72.9
	mean	72.6	71.0	71.7	74.2	73.2	73.6	71.0	73.1

Table 5. Plant heights (cm) of 32 wheats grown in the 2000 WPRPN.

Entry	Line or selection	region	Bushland,	Goodwell,	Archer,		Scottsbluff,
		(mean)	TX	OK	Colby, KS	WY	NE
1	Larned	70	81	89	80	46	54
2	Trego	59	63	73	70	36	53
3	Prowers	68	71	81	86	43	57
4	Arapahoe	63	68	76	78	39	57
5	Millennium	64	68	77	81	40	54
6	TX97A0122	62	71	74	74	38	52
7	TX97A0244	65	70	81	83	41	51
8	TX97A0050	59	65	71	73	38	49
9	TX91A333	56	61	68	65	37	50
10	TX95A3091	65	71	80	76	42	53
11	TX90A9528	64	71	75	78	41	53
12	TX95A1161	62	68	72	75	39	53
13	OK98680	58	66	70	67	36	50
14	OK98699	58	64	68	69	38	51
15	OK98G507W	60	67	74	68	37	54
16	H9520483	62	70	75	73	39	53
17	H9521563	62	66	75	73	40	54
18	WX97-3201	63	71	74	75	37	57
19	XH9806	60	68	71	71	38	53
20	NE97669	59	63	70	71	39	51
21	N96L9970	62	70	75	74	37	52
22	N95L11881	66	77	83	75	41	53
23	NW97S182	66	68	83	82	40	59
24	NW97S218	58	65	69	73	32	52
25	NW97S278	60	65	72	70	41	54
26	NW97S312	59	64	72	67	39	52
27	NW97S343	61	66	75	70	41	55
28	NW97S112	63	69	78	73	41	52
29	NW97S114	62	68	72	75	40	52
30	NW96S016	63	68	79	75	40	53
31	SD93267	73	84	89	80	47	62
32	Harding	65	70	76	86	37	55
	mean	62	69	76	75	39	53

Table 6. Days (from 1/1) to heading for 32 wheats grown in the 2000 WPRPN.

Entry	Line or selection	region (mean)	Bushland, TX	Goodwell, OK	Colby, KS	Akron, CO	Archer, WY
1	Larned	132	116	122	130	144	149
2	Trego	134	117	122	132	146	152
3	Prowers	133	120	115	133	149	151
4	Arapahoe	134	118	122	132	146	150
5	Millennium	132	118	116	132	145	149
6	TX97A0122	133	115	122	131	144	151
7	TX97A0244	131	116	117	130	142	149
8	TX97A0050	134	117	125	132	144	150
9	TX91A333	131	114	123	128	142	150
10	TX95A3091	132	116	122	131	144	150
11	TX90A9528	132	117	122	130	143	149
12	TX95A1161	130	113	117	129	142	149
13	OK98680	130	114	114	130	142	150
14	OK98699	133	116	122	131	143	151
15	OK98G507W	134	116	123	132	146	151
16	H9520483	132	114	123	130	143	150
17	H9521563	130	114	115	129	143	149
18	WX97-3201	133	116	118	132	146	151
19	XH9806	132	115	123	130	142	149
20	NE97669	134	118	126	132	144	151
21	N96L9970	131	113	124	129	141	150
22	N95L11881	135	117	128	133	147	151
23	NW97S182	133	118	121	132	146	150
24	NW97S218	133	115	125	131	144	151
25	NW97S278	133	117	127	130	143	149
26	NW97S312	133	114	125	130	144	150
27	NW97S343	132	117	117	131	145	150
28	NW97S112	132	115	126	129	142	149
29	NW97S114		114		129	143	150
30	NW96S016	133	116	122	131	145	151
31	SD93267	134	119	125	132	144	149
32	Harding	139	122		134	149	152
	mean	133	116	122	131	144	150

Table 7. Seedling reaction of entries in the 2000 WPRPN to selected isolates of stem rust. From D.V. McVey, USDA-ARS, St. Paul, MN.

Entry	Selection	stem rust isolate							Postulated Sr gene***	Adult plant infection type St. Paul, MN
		69-MN	98-UGAO*	74-MN	80-BRA	76-IND	72-MEX	81-IN		
		399 QTHJ	I PTHS	1409 TPMK	38A TTRS	708C RKRO	53A RTQQ	838A RCRS		
1	Kharkof	2	2	S	S	2-	;1N	2	17	5RMR
2	Trego	2=	2=	;	2=	2=	2=	0;	6,24	TR
3	Prowers	2-	2=	;;2-	23	2=	0	0	6,27,24	TR
4	Arapahoe	2=	2=	;	2=	2=	;	0	6,17,24	0
5	Millennium	1	1	1	2	2-	0	0	6,17,24	5MR-S
6	TX97A0122	2	22	2=	2	2-,2=	2=	1	Amigo	20MS-S
7	TX97A0244	2-2	2-	2=	2-	;1	;1	2=	17,Amigo	TR
8	TX97A0050	2-	2	23	S?	2	2-	2-	Amigo?	60S
9	TX91A333	2=	1	2=	2=	2=	2=	1	Amigo	TR
10	TX95A3091	2-	2	0;	23	2-	2-	0	6,Amigo	0
11	TX90A9528	2	2	23	2	2-C	2C	---	+	0
12	TX95A1161	1	2+3	22-	23	2=	2-	---	+	TR
13	OK98680	1	2=	0	2=	2-	0	0	6,17,24	10MS-S
14	OK98699	2	2-	2	22-C	;1N	0;	2	10,+	30MS-S
15	OK98G507W	22-	2	S	23,;1,S	S	2-2,S	S	+	10MS-S
16	H9520483	2=	2=	2=	2=	2=	;	1	+, 31	TR
17	H9521563	2=	S	;	2=	2=	0;	2=	17,+, 31	5MR-MS
18	WX97-3201	2=	2	2-,0;	2=	2=	2=	1	+, 31	20MS
19	XH9806	2=	2-	2=,0	2=	2=	2=	1	+, 31	5MR-MS
20	NE97669	;1	2	2-	2-	2-,S	;1N	2=	17,+	5RMR
21	N96L9970	---	22+	2	2,S	2,S	1N	---	17,+	40S
22	N95L11881	2=	2-	2=	2=	2=	2=	1	24, 31	5R-MR
23	NW97S182	2-CN	S,2	0;	S	S	X-N	2=	17	30S
24	NW97S218	2-CN	22+	0;	S	;1-N,2	;1N	0	6,10,+	TR
25	NW97S278	2-	S	;	2	S	;1N	0;	6,17,+	40S
26	NW97S312	2-CN	23	S,;1	1	;1,S	S,;1N	1	seg10,+, 31	10MR
27	NW97S343	2-2	S	S	1,S	S	S	1	+	TR
28	NW97S112	22-	2	S	2-C	23	23	---	+	TR
29	NW97S114	2	2-	S	2-	23	0;	2=	17,Tmp	TR
30	NW96S016	2=	2	1	0	2=	2=	1	+, 31	0
31	SD93267	22-	2	;	23C	23	23	0	6,+	TR-MR
32	Harding	2=CN	2=	;	2=,S	2-	;	0;	6,17,+	0

*98-UGA-1, PTHS, ISOLATE VIRULENT TO Sr31

**With this set of races, Sr31 can not always be differentiated. When in italics, Sr31 was inferred from independent testing for 1RS by USDA-ARS, Lincoln.

Table 9. Miscellaneous attributes of 32 wheats grown in the 2000 WPRPN.

Entry	Line or selection	Reaction to WSMV (0- 12), Hays, KS	Drought tolerance*, Bushland, TX	Lodging (0%), Bushland, TX	Grain polyphenol oxidase (PPO) ¹ , Lincoln, NE		1RS
					tyrosine (0- 5)	L-dopa (od)	
1	Larned	9	3	0	5	1.46	NON.1RS
2	Trego	9	3	0	5	1.07	NON.1RS
3	Prowers	11	3	3	4	1.28	NON.1RS
4	Arapahoe	11	3	0	3	1.31	NON.1RS
5	Millennium	11	2	0	4	1.25	NON.1RS
6	TX97A0122	8	3	2	0	0.45	NON.1RS
7	TX97A0244	8	3	0	5	2.12	NON.1RS
8	TX97A0050	9	2	0	5	2.98	NON.1RS
9	TX91A333	6	3	7	5	3.28	1AL.1RS
10	TX95A3091	8	2	2	5	1.79	NON.1RS
11	TX90A9528	10	2	0	5	1.49	NON.1RS
12	TX95A1161	5	2	0	4	1.81	NON.1RS
13	OK98680	6	3	0	3	0.98	NON.1RS
14	OK98699	7	2	0	5	3.18	NON.1RS
15	OK98G507W	8	3	0	3	2.34	NON.1RS
16	H9520483	7	3	3	4	3.07	1BL.1RS
17	H9521563	6	2	0	5	1.94	1BL.1RS
18	WX97-3201	9	3	0	5	2.09	1BL.1RS
19	XH9806	6	3	0	5	3.70	1BL.1RS
20	NE97669	11	2	0	5	3.99	NON.1RS
21	N96L9970	6	3	7	5	3.24	1AL.1RS
22	N95L11881	8	2	0	5	2.69	1BL.1RS
23	NW97S182	11	3	0	5	2.92	NON.1RS
24	NW97S218	9	2	5	5	2.61	NON.1RS
25	NW97S278	9	3	2	5	1.76	NON.1RS
26	NW97S312	7	2	0	5	2.11	1BL.1RS
27	NW97S343	10	3	0	5	3.08	NON.1RS
28	NW97S112	8	3	0	5	2.87	NON.1RS
29	NW97S114	5	2	0	5	2.40	NON.1RS
30	NW96S016	7	3	12	5	1.99	1BL.1RS
31	SD93267	11	3	3	5	2.20	NON.1RS
32	Harding	12	2	0		1.46	NON.1RS

*Drought tolerance is a visual evaluation of drought tolerance on a 0-5 scale (0=flat, green leaf, 1=green, rolled leaf, 2= leaf tip senescent, 3= less than half of leaf senescent, 4=more than half of leaf senescent, 5=whole leaf senescent). Evaluation done 5/10/00 on flag leaves.

¹PPO: from unreplicated field plots at Lincoln. 'Platte' (low PPO control) was replicated 5 times in the field. Two assays were run, using tyrosine and L-dopa, respectively, as substrates. Tyrosine response - seed color rated on a 0-5 scale; durum wheat = 0. L-dopa - od = optical density relative to od of a laboratory control sample of Platte.