UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

in cooperation with

STATE AGRICULTURAL EXPERIMENT STATIONS

Report on Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 2002

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This is a joint progress report of cooperative investigations underway in the State Agricultural Experiment Stations and the Agricultural Research Service of the U.S. Department of Agriculture. It contains preliminary data which have not been sufficiently confirmed to justify general release, and interpretations may be modified after additional experimentation. Confirmed results will be published through established channels. This report is primarily a tool for use by cooperators and their official staffs, and for those persons having direct and special interest in the development of agricultural research programs.

This report includes data furnished by the State Agricultural Experiment Stations as well as by the Agricultural Research Service of the U.S. Department of Agriculture. This report is not intended for publication and should not be referred to in literature citations, nor quoted in publicity or advertising.

Use of the data may be granted for certain purposes upon written request to the agency or agencies involved.

Agricultural Research Service
U.S. Department of Agriculture
Midwest Area
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2002 HARD RED SPRING WHEAT UNIFORM REGIONAL NURSERY REPORT

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(Note: Uniform Regional Durum Wheat Nursery Report Follows the HRSWURN Report)

COOPERATING AGENCIES, STATIONS, AND PERSONNEL FOR THE 2002 HRSWURN

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Entering Lines with Protected or Patented Genes into the Hard Red Spring Wheat Uniform Regional Nursery

The following information details the Hard Winter Wheat Regional Program position on this issue. Basically, the same situation exists in the Spring Wheat Region, and it is therefore suggested that these guidelines are appropriate and thus accepted for the Hard Red Spring Wheat Uniform Regional Nursery as well, until such a time as the participants agree to deviate from it.

From: Robert Graybosch, Coordinator of Hard Winter Wheat Region
A question has arisen as to whether wheat germplasm lines carrying protected or patented genes may be entered in the HWW regional program. We have decided to allow such submissions, on a provisional basis, for the 2001 nurseries. Submissions must adhere to the provisions below, and submissions of such lines after the 2001 year will depend upon the adoption of formal guidelines. We are in the process of drafting a formal plan, hopefully one that will be approved at the 2001 Hard Winter Wheat Workers Conference.

Provisional plan for the submission of lines with patented or protected genes:

Definition: "protected" gene = a gene whose use is restricted by patents, Material Transfer Agreements, or other types of research agreements.

Wheat lines carrying such traits may be entered in the 2001 HWW Regional nurseries (RGON, SRPN, NRPN) under the following conditions:

1. Cooperators may cross with the line in question. Thereafter, the cooperator making such crosses must either have their own research agreement with the trait owner, or, if such an agreement is lacking, they must remove the trait from breeding populations by selection.
2. The owner of the trait has been informed of the submission, and that they agree to the conditions set forth in #1.
3. All other uses of the line are governed by the Wheat Workers Code of Ethics.
4. The trait may not have been inserted into the wheat genome by genetic engineering. In other words, the wheat line in question may not be transgenic.

At this point in time, transgenics may not be entered in the program. I am certain this question will arise in the near future, so I have contacted USDA-APHIS regarding this point. If you are interested in the details, the attached file contains the pertinent points of our e-mail exchange (note by HRSW coordinator: this file is not included in this report). The APHIS responses are in bold. To make a long story short - transgenic wheat lines will be allowed in the regional program only if they have been

granted permanent non-regulated status. Non-regulated status is granted only after the originator files a formal petition to de-regulate a line with APHIS.

SPRING WHEAT PRODUCTION, 2002

SPRING WHEAT OTHER THAN DURUM Growers produced an estimated 401.6 million bushels (10.2 million metric tons) of spring wheat. This production estimate is approximately 21.6 percent lower than year 2001 production, and approximately 27.8 percent lower than 2000. Yield averaged 29.5 bushels per acre, a decrease of 5.7 bushels per acre from year 2001, and 8.9 bushels per acre lower than in year 2000. Area harvested totaled approximately 13.6 million acres (5.44 million hectares), which is approximately 6.4 percent lower than harvested area in 2001.

Spring Wheat Production Statistics, 2000-2002.*

	Acres Harvested (1000)			Bushels (1000)			Yield (Bu/Ac)		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Minnesota	1,950	1,800	1,800	95,550	79,200	61,200	49	44	34
Montana	3,100	2,850	3,500	77,500	65,550	80,500	25	23	23
North Dakota	6,400	6,900	6,000	233,600	234,600	168,000	36.5	34	28
South Dakota	1,580	1,650	1,000	60,040	64,350	24,000	38	39	24
Washington	620	630	615	33,480	25,830	26,445	54	41	43
Wyoming	8	6	4	232	168	96	29	28	24
USA	14,489	14,549	13,613	556,632	512,008	401,589	38.4	35.2	29.5

* Source: National Agricultural Statistics Service: (http://www.usda.gov/nass/pubs/estindx3.htm#wheats)

NURSERY DESCRIPTION AND SUMMARY

The Hard Red Spring Wheat Uniform Regional Nursery (HRSWURN) was planted for the 74th year in 2002. The nursery contained 32 entries submitted by 10 different scientific or industry organizations, and 5 checks (Table 1). Trials were conducted as randomized complete blocks with three replicates. The HRSWURN was planted at 19 locations in 7 different states in the USA (MN, ND, SD, MT, NE, WY, and WA), and at two locations in separate provinces in Canada (Manitoba and Saskatchewan). All but one of the locations provided data for analysis and inclusion in this report (Table 2). Data recorded at each of these locations are presented in Tables 3 through 20. For each location, entries are presented in their order of yield. Overall means across locations for a set of traits are summarized in Table 21. Two-year means for entries previously entered in the 2001 HRSWURN are presnted in Table 22.

The highest average yielding location was Bozeman, MT with 60 Bu/Ac, while the lowest yielding location was Hettinger, ND with approximately 20.6 Bu/Ac. The average yield for the 16 combined locations was 39.8 Bu/Ac. Sixteen lines fell within ± 1/2 of one LSD unit of this value, and 26 fell within ± 1 LSD unit. The five top yielding lines were SD3641, ND744, SD3623, N99-0107, and N98-

0286, which each exhibited mean yields exceeding 43 Bu/Ac. The entries with the highest test weights were 01M96, MN97695-4, FA-900-720, ND744, and ND739.

Combined data for experimental lines and checks grown in both the 2001 and 2002 HRSWURN are provided in Table 22. The highest yields were observed in SD3540, SD3546,and ND741. The highest test weight entry was FA-900-720 (61 Lb/Bu), followed by SD3546 and ND741.

The entries were also evaluated for *Fusarium* head blight resistance in nurseries at St. Paul and Crookston, MN, and at Langdon, ND. Adult plant leaf and stem rust resistance was evaluated in three North Dakota nurseries and one nursery in St. Paul, MN. Seedling stem rust resistance was evaluated as well. These data are presented in Tables 23-25 (FHB) and 26-29 (leaf and stem rust).

Table 1. Entries in the 2002 Hard Red Spring Wheat Uniform Regional Nursery.

Entry No.	Name	Pedigree/CI No	Source	Year
1	Marquis	3651	CAN	1929
2	Chris	13751	MN	1969
3	2375	Olaf//Era/Suqamuxi68/3/Cis/ND487//Lark	NDRF	1998
4	Verde	MN7663/SBY35A	MN	1998
5	Keene	Stoa's'/3/IAS20*4//H567.71//Amidon	ND	1998
6	ND741	Parshall/ND706	ND	2001
7	ND739	ND2831/Grandin	ND	2002
8	ND744	ND2831//Parshall/ND706	ND	2002
9	ND749	ND2709/3/Gr * 3//Ramsey/ND622/4/ND688/ND674	ND	2002
10	ND750	ND2891/ND721	ND	2002
11	NDSW0246	Ernest//ND622/Keene	ND	2002
12	MN97695-4	MN92387/SBE0303-23	MN	2002
13	MN98389-A	Oxen/McVey	MN	2002
14	SD3546	SD8070/SD3165	SD	2001
15	SD3540	Unknown	SD	2001
16	SD3641	1318 316-1-2/N93-0136//SD3249	SD	2002
17	SD3533	ND671/SD8072	SD	2002
18	SD3623	SD3345/SD8089	SD	2002
19	01M98	HJ98/Buck Pronto	TRI	2002
20	01M96	B1021/HJ98	TRI	2002
21	01M88	B1021/MN91227	TRI	2002
22	01M97	B1021/HJ98	TRI	2002
23	N99-0107	N94-0157//Sumai 3/Dalen	AGP	2002
24	N98-0286	N91-0048/Lars	AGP	2002
25	N98-0326	N92-0097/Lars	AGP	2002
26	N98-0328	N92-0097/Lars	AGP	2002
27	N96-0055	N90-0669/N90-0412	AGP	2001
28	N97-0117	N92-0317/Lars	AGP	2001
29	BW306	SD3055/Grandin//ACDomain	MAN	2002
30	BW313	RL4763*2/Howell	MAN	2002
31	MT9874	PI372129/Amidon//Amidon/3/MT9312	MT	2001
32	MT9929	MT9401/MT9328	MT	2002
33	CA-901-712	Express/Impervo	WPB	2002
34	FA-900-720	Russ/Impervo	WPB	2001
35	WA007899*	K993146/OR487255 (HW00021)	WA	2001
36	WA007914*	OR4895143/IDO377s	WA	2002
37	HY469	Grandin/2*HY395	SAS	2002

* Hard white spring wheat

Table 2. Location and Comparative Plot Management for 2002 HRSWURN.

	Date		Area (sq. ft.)	Yield (Bu/Ac)	
	Seeded	Harvested	Harvested	CV%	Mean
Canada					
Glenlea	25-May	7-Sep	35	7	56.3
Swift Current	17-May	23-Sep	29.5	10.3	41.4
Minnesota					
Crookston	3-May	13-Aug	39	9.1	52.5
Morris	1-May	2-Aug	37.5	10.8	31.4
St. Paul	1-May	31-Jul	28	8	44.1
Montana					
Bozeman	24-Apr	24-Aug	32	7.9	59.7
Nebraska					
Sidney	Delayed planting due to wet conditions followed by hot and dry weather, no dat				
North Dakota					
Carrington	30-Apr	8-Aug	68	7.5	44
Casselton*	14-May	20-Aug	40	17.8	25.8
Hettinger	12-Apr	30-Jul	53.1	12.8	20.6
Langdon	23-Apr	20-Aug	72	6.2	54.5
Minot	1-May	15-Aug	36	12.5	42.5
Prosper	17-May	20-Aug	36	12.4	29.7
Williston	14-May	19-Aug	54	7	35
South Dakota					
Brookings	17-Apr	29-Jul	75	5.4	35.8
Groton	15-Apr	7-Aug	75	9.3	34.3
Selby	10-Apr	30-Jul	75	10.5	26.2
Washington					
Pullman	22-Mar	25-Jul	80	5.1	28.1
Wyoming					
Powell**	24-Apr	14-Aug	40	19.6	44.4

* Not included in location summary table

** Yield not included in location summary table

Table 3. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Glenlea, Manitoba, CAN.

Line*	Yield Bu/Ac	Test Wt. Lb/Bu	Days to Maturity	Height cm	Lodging 1-9	Leaf rust	Stem rust	1000 K Wt g
N98-0328	70.3	59.6	86	67	1.7	20MR	5R-MR	39.4
N99-0107	69	60.3	85	78	2	50M	35MS-MR	33.7
N98-0286	69	59.5	85	68	2	40M	12R-MR	38.5
SD3623	66.4	59.6	82	80	2	20MR	15R-MR	32.9
ND750	64.6	62.3	88	78	2	tR	7R-MR	36.2
N98-0326	64	59.4	86	67	2	20MR	7R-MR	39.7
MT9929	63.2	60.3	85	75	1.3	20MR	10R-MR	35.3
WA007914	62.4	60.5	87	78	2.3	5RMR	10R-MR	40.2
ND744	61.6	61.9	88	74	2	tR	7R-MR	35.6
ND739	61.2	61.8	89	77	2	3R-MR	10R-MR	38.4
MN97695-4	60.9	60.3	82	70	2.3	20MR	15R-MR	34.8
ND749	60.6	61.7	87	78	2	tR	7R-MR	39.1
ND741	60.2	62.2	90	79	1.7	0R	12R-MR	36.8
BW306	60.1	61.9	87	79	1.7	25M	10R-MR	42.1
Keene	59.5	61	89	86	1.3	0R	10R-MR	36.7
01M96	59.1	60.4	84	75	1.3	0R	12R-MR	33.3
01M98	59	60.8	86	74	1.7	0R	30MR-MS	42.2
HY469	58.8	60.7	85	69	2.3	--	--	44.6
NDSW0246	57.7	61.7	90	87	1	tR	12MR-MS	35.3
MN98389-A	56.6	58.4	81	73	2.3	tR	10R-MR	35.5
01M88	55.9	60.3	91	67	2	30MR	5R-MR	29.3
FA-900-720	54.7	61.1	88	75	2	55M	25MR-MS	31.7
N97-0117	54.6	60	86	64	2.7	25MR	7R-MR	34.2
BW313	52.6	59.7	80	79	3	45M	10R-MR	36
MT9874	52.5	58.9	91	74	2.3	45M	50MS-S	33
Verde	52.4	58.8	89	72	2	15R-MR	10R-MR	33.8
2375	52	59.9	86	71	3	65MS-S	15MR	36.8
N96-0055	51.4	60.3	89	66	1.7	40M	3R	34.2
SD3540	51.1	59.5	90	72	1.3	35M	15R-MR	33
SD3641	49.9	58.7	80	67	1	10R-MR	25MR-MS	34.6
01M97	49.6	59.8	86	76	1.3	tR	10R-MR	31.3
SD3546	49	59.6	87	78	1.7	25MR	7R-MR	41.1
Chris	45.5	59.3	90	93	3.7	40M	10R-MR	29.3
SD3533	45.4	60.2	82	78	2	50M	50MS-S	34.9
WA007899	42.4	58.5	85	71	3.3	50M	15MR	35.4
Marquis	41.1	58.3	87	97	4.7	80S	25MS	31.3
CA-901-712	38.7	59.5	81	55	2	45M	35MS-MR	36.1
Columbus (stem rust check)							10MR-MS	
Mean	56.3	60.2	86	75	2.1			35.8
LSD (0.05)	6.4		2	3	0.8			
CV	7		2	3	27.4			

* For each location, lines are sorted based on yield.

Table 4. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Swift Current, Sask., CAN

Line	Yield Bu/Ac	Test Wt. Lb/Bu	Days to Maturity	Height cm	Protein %	1000 K Wt g
ND741	49.6	60.5	101	72	12.4	28
SD3623	48.5	60.2	100	82	11.3	29.8
N98-0286	47.4	59	99	69	11.8	31.7
Keene	47.1	61.1	106	80	12.8	26.8
01M98	46.9	59.4	100	71	11.8	32
SD3533	45.6	60.8	100	77	12.3	29.3
ND744	45.4	62	103	70	12.4	28.8
MT9874	45.4	58.2	103	72	12	28.7
SD3540	45.2	59.7	100	74	11.8	29.3
ND739	44.9	61.3	102	75	12.4	29.2
FA-900-720	44.8	61.9	104	73	11.7	27.7
ND750	44.5	62.2	103	75	12.8	31.7
ND749	44.1	61.4	102	76	12.6	32.7
MN97695-4	43.7	62.7	100	71	12.5	31.3
HY469	43.6	58.1	103	67	11.7	31.2
2375	42.5	59.4	100	71	12.2	32.2
SD3546	42.4	60.2	101	73	12.2	34
BW313	41.6	59.4	99	87	12.7	32.5
NDSW0246	40.9	61.6	106	83	13.2	31.8
01M88	40.8	60.5	105	61	11.7	24
SD3641	40.1	59.2	100	69	12.2	29.5
N96-0055	40.1	59.9	100	65	12.2	27.7
BW306	40.1	60.7	101	76	12.8	33.7
N99-0107	40	59.8	103	69	12.5	26.8
01M96	39.9	60.6	102	71	12.4	27.7
MN98389-A	39.8	58.6	100	67	11.8	30.3
MT9929	39.1	59.3	102	67	12.1	28.2
WA007899	39.1	55.9	100	71	11.9	27.5
N98-0326	37.8	56.6	101	63	11.9	28.3
WA007914	37.6	58.3	101	77	11.2	30.3
Verde	37.1	58.6	101	67	12.1	29.3
N98-0328	36.3	57.5	99	65	12	28.8
N97-0117	34.8	58.6	100	65	12.4	26.7
Marquis	34.7	59	102	85	12.4	26
Chris	34.6	59.1	103	80	12.9	24.7
01M97	33.9	61.7	103	68	12.7	28.5
CA-901-712	30	57.7	99	57	12.5	27.7
Mean	41.4	59.8	102	72	12.2	29.3
LSD (0.05)	7	0.6	2	4	0.3	1.7
CV	10.3	0.6	1	4	1.7	3.5

Table 5. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Crookston, MN.

Line	Yield	Test Wt.	Heading	Height	Lodging	Leaf	Protein
	Bu/Ac	Lb/Bu	d from 6-1	cm	0-9	rust	%
SD3546	65.8	59.4	32	82	0	0	14.7
MN98389-A	65	57.8	34	78	0.7	0, 5MS	13.8
SD3641	64.8	58.9	31	75	0	5MS-MR	14.5
ND744	64	61.5	31	76	0	0, 5MS	14.5
ND749	63.1	60.2	33	84	0	0	15.1
SD3540	62.3	58.7	32	80	0.7	5MS-S	14.2
ND741	62.1	59.8	34	81	0	0	14.8
SD3623	61.9	58	32	86	0.7	-	14
ND750	61.6	60.9	33	84	0	0, 5S	15.2
01M96	61.5	60.1	33	75	0	0	14.1
ND739	61.1	59.9	33	78	0	0	14.7
N98-0326	60.5	57.2	35	72	0.3	tMS	13.8
MN97695-4	58.7	60.6	32	72	0	20S-MS	14.2
01M98	57.8	57	33	80	0.3	tMS	14.2
SD3533	56.5	59.2	31	86	1	tMS, 20S	14.1
Verde	56.1	57.7	36	79	0.3	tMR	13.9
N99-0107	56	57.4	34	75	1	5MS	14.6
NDSW0246	54.8	57.4	35	92	0	5S	15.1
N97-0117	54.3	57.8	34	68	0	0	14.9
Keene	53.6	58.2	34	91	0.7	20MS-S	14.9
HY469	52.8	53.3	35	73	1.3	20S-MS	14
N98-0286	52	55.7	36	71	0.3	0	13.5
CA-901-712	51.3	57.1	29	61	0.7	-	14.2
N96-0055	50.6	57.7	35	78	0	tMS	14.4
MT9929	48.1	55.6	35	78	0	0	14.8
BW313	47.9	57.7	34	90	2	10MS-S	15.6
N98-0328	45.2	57.4	35	69	0	0, 10MS-S	14.1
01M88	44.9	54.8	38	67	0.3	5MS	13.7
MT9874	44.6	52.6	39	88	1	20MS	14.4
2375	44.5	57.2	35	73	3		13.9
01M97	42.6	58.7	30	76	0	-	14.4
FA-900-720	40.9	57.8	36	80	2.3	-	13.1
WA007914	37.9	53.9	36	84	1	-	13.5
BW306	37.8	57	35	81	0	10MS-S	15.3
Chris	35.1	56.4	38	90	3.3	10MS-S	14.7
Marquis	32.4	55.7	37	94	3	40MS	13.7
WA007899	30.7	50.5	35	77	7.7	-	13.6
Mean	52.5	57.5	34	79	0.9		14.3
LSD (0.05)	7.8		1	6	0.7		
CV	9.1		2	4	49		

Table 6. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Morris, MN.

Line	Yield	Test Wt.	Heading	Height	Lodging	Protein
	Bu/Ac	Lb/Bu	d from 6-1	cm	0-9	%
N98-0286	40.9	57.2	26	67	1.7	15
SD3641	39.9	56.5	24	64	2.3	15.5
SD3623	39.5	56.8	24	76	1	15.5
SD3533	39.2	58.9	24	73	1	15.2
SD3546	37.3	58.2	24	74	1	16
Verde	36.5	58.5	28	65	1	15
N98-0326	36.5	58.2	25	60	1	15.4
FA-900-720	36.1	59.6	27	76	1	15.4
ND741	35.8	59.2	25	70	1	16.6
MT9929	35.8	58.5	29	65	1	16.1
SD3540	35.7	55.3	24	69	1	15.4
N98-0328	34.9	58.2	25	59	1.7	15.9
ND744	34.4	58.9	24	64	1	16
N99-0107	34.2	58.1	25	70	1	16.4
N96-0055	33.9	58.5	26	62	1	15.7
ND739	33.5	59.2	24	69	1	15.5
01M88	32.7	58.8	29	56	1	14.4
2375	32.5	58.8	25	64	3	16
MN98389-A	32	55.7	24	64	1.7	15.8
WA007899	31.6	55.7	24	69	3	14.3
01M98	30.8	57.4	24	69	1	16.6
N97-0117	30.4	58.7	24	58	3	16.5
ND750	29.3	60.2	25	72	1	17.2
Keene	29.2	58.8	26	77	1	16.2
Chris	28.9	57.1	28	78	1	16.4
ND749	28.9	59.6	24	69	1	17
01M96	28.8	58.4	24	66	1	15.7
HY469	28.3	56.7	24	60	3	15.1
CA-901-712	27.6	58.5	24	53	1.7	16.4
MN97695-4	26.7	59.5	24	60	1	16.5
BW313	26.1	55	25	79	1	17.4
MT9874	25.2	54	30	65	1	16.6
NDSW0246	23.8	57	28	69	1	16.6
WA007914	23	57.2	27	69	1	14.8
Marquis	22	57.4	27	76	1	15.8
01M97	21.8	59.8	24	64	1	16
BW306	18.4	58.7	27	69	1	16.7
Mean	31.4	57.9	25	67	1.3	15.9
LSD (0.05)	5.5		1	7	0.7	
CV	10.8		3	6	32.2	

Table 7. 2002 Hard Red Spring Wheat Uniform Regional Nursery, St. Paul, MN.

Line	Yield	Test Wt.	Heading	Height	Lodging	Leaf	Protein
	Bu/Ac	Lb/Bu	d from 6-1	cm	0-9	rust	%
SD3641	60.4	54.6	22	77	0	tMR	15.4
CA-901-712	57.3	56.1	22	75	0	10MS-MR	15.7
SD3533	55	56.3	23	88	1.3	tMR	15.5
N98-0328	52.9	56	29	77	0	tMS	15.6
N98-0286	52.5	55	30	74	0	0	15.7
N99-0107	52	56.4	28	79	0	tMS	16.3
ND744	51.4	56.4	24	81	2	0	15.4
N96-0055	50.5	57	28	80	0	tMR	15.6
MN97695-4	50	58	23	80	0	tMS-S	16
NDSW0246	49.3	56.8	28	94	0	0, 10MS	16.1
ND750	48.4	58.1	27	85	0	0	16.4
N98-0326	48.2	56	29	77	0	tMS-MR	15.5
SD3540	48.1	54	24	83	1	0	15.4
FA-900-720	47.9	57.5	30	89	0.3	20S, 5MS	15.5
ND749	47.7	56.8	27	83	0	0	15.9
SD3546	47.4	56	26	87	0.3	tMR	16
ND739	47	56.7	26	83	1	0	15.6
MT9929	46.1	55.6	28	83	0	0	15.8
ND741	45.1	57.5	28	83	1.3	0	16.1
Keene	44.9	57	28	91	0.3	0	16.1
HY469	44.6	52.3	28	72	0.3	0	14.4
SD3623	44.5	54.7	24	86	1.7	0	15.3
01M96	44	58.1	28	84	0	0	15.4
MN98389-A	42.5	53.7	27	79	0	tMS	15.2
01M98	42.3	55	26	83	0.3	0	15.2
2375	41.6	57.4	29	84	1.3	10MS-S	15.7
Verde	40.8	56.5	31	77	0	tMR	15.8
N97-0117	40.7	55.4	28	76	0	0	15.8
BW313	40	56	27	90	2.3	20S-MS	17.3
01M97	36.4	56.8	23	78	0	0	14.9
WA007899	35.1	48.9	28	79	3.3	40S	14
01M88	34.4	53.2	33	70	1.3	0	14.7
MT9874	32.6	53.4	31	84	0	20MS, tS	16
WA007914	30.1	56.1	29	87	0	tMR-MS	14.7
Marquis	27.1	53.9	30	97	1	40S	15.7
Chris	26.6	53.6	30	91	3.3	20MS-MR	16.4
BW306	25.8	56.7	28	86	0	10S-MS	16.7
Mean	44.1	55.7	27	83	0.6		15.6
LSD (0.05)	5.8		2	4	0.8		
CV	8		3	3	82.4		

Table 8. 2002 Hard Red Spring Wheat Uniform Regional Nursery,

Line	Yield Bu/Ac	Test Wt. Lb/Bu	Heading d from 6-1	Height cm
WA007914	77.6	60.9	35	91
HY469	75.6	59	31	77
01M98	74.3	58.1	31	89
MT9929	73.9	60.2	34	89
01M88	72.8	61.5	37	75
N99-0107	72.2	60.1	33	93
Verde	71.4	58.9	34	84
MT9874	70.7	59.4	37	87
N98-0328	70.1	57.5	34	81
CA-901-712	69.6	59.7	27	82
N96-0055	69	60.7	35	80
N98-0286	68.3	58.2	34	80
N98-0326	67.2	57.3	34	81
MN97695-4	65.9	61.7	31	87
N97-0117	65.8	59.4	31	76
BW306	64.1	61.1	32	92
WA007899	63.6	58.3	32	84
01M96	63.5	62.8	30	90
ND744	63.1	61.4	31	89
MN98389-A	61.7	59.5	31	96
2375	60.6	59.5	32	99
ND741	60.4	59.7	32	96
ND749	58.5	60.6	32	90
ND739	58.2	61.1	31	90
01M97	58.2	62.1	29	92
ND750	55.3	60.6	32	97
SD3540	54.8	60.7	30	97
Keene	51.9	60.6	33	107
SD3641	51	60	28	94
NDSW0246	49.7	60.3	34	100
Chris	42.7	59.2	35	112
SD3623	42.6	59.3	31	107
SD3546	42.2	60.3	32	96
BW313	39.5	60.7	32	118
FA-900-720	39.2	62.6	34	99
SD3533	34.3	59.5	30	100
Marquis	31	60.3	36	118
Mean	59.7	60.1	32	92
LSD (0.05)	7.7			6
CV	7.9			4

Table 9. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Carrington, ND.

Line	Yield	Test Wt.	Heading	Height	Lodging	I
	Bu/Ac	Lb/Bu	d from 6-1	cm	0-9	
ND744	58.1	63.7	27	68	0	
MN98389-A	52.5	60.5	26	74	1.3	
SD3623	52.3	62.4	27	76	0.3	
HY469	51.5	59.9	26	62	0.7	
MN97695-4	51.3	63.7	27	67	0.3	
ND741	51.2	62.1	28	73	0	
ND739	51	62.9	28	69	0.3	
SD3546	50.6	61.3	27	70	0.3	
ND749	49.2	61.4	28	66	0.3	
NDSW0246	48.6	62.6	29	80	0	
SD3641	48.1	60.8	25	71	2	
MT9929	48.1	62.2	28	58	0	
N98-0286	46.9	58	29	64	0	
ND750	46.8	61.4	29	70	0	
N98-0326	46.5	58.3	28	60	0	
N99-0107	46.1	60	29	71	0	
SD3540	46	61.9	26	68	0	
01M98	45.3	58.5	27	63	0.7	
N97-0117	44.9	61.8	28	59	0	
N98-0328	44.4	58.4	30	58	0	
01M96	43.7	63.9	26	64	0	
2375	43.3	59.1	27	66	1.7	
SD3533	43.3	61.9	26	67	0.7	
01M97	43.3	63.8	26	67	0	
Keene	42	61.2	30	72	0	
BW306	40.6	61.6	29	71	0	
CA-901-712	40.3	60.9	24	63	2	
N96-0055	39.6	60.2	29	58	0	
WA007914	38.3	59.5	29	67	0	
BW313	38.1	59.5	28	84	0.7	
FA-900-720	36.6	61.7	29	70	0	
MT9874	36.3	58.5	30	65	0	
01M88	35.5	60.1	29	56	0	
WA007899	32.3	55.9	29	65	4	
Chris	29	58.6	32	89	1	
Marquis	23.5	57.6	34	91	1.7	
Verde	--	--	--	--	--	
Mean	44	60.7	28	68	0.5	
LSD (0.05)	5.4	1.2	1	7	0.9	
CV	7.5	1.3	3	6	106	

Table 10. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Casselton, ND.

Line	Survival*	Yield	Test Weight**	Heading	Height
	%	Bu/Ac	Lb/Bu	d from 6-1	cm
ND744	61.7	37.2	57.9	32	75
SD3533	65	34.1	56.6	31	89
ND741	65	33.5	56	33	81
N99-0107	65	32.9	54.7	35	79
SD3641	56.7	32.6	53.6	31	74
SD3623	56.7	32.5	54.9	31	83
N98-0286	66.7	32.2	53	36	70
01M88	70	30.8	52.7	36	69
Verde	71.7	30.2	54.8	34	76
N98-0326	66.7	29.9	54.4	34	71
SD3540	60	29.7	55.5	32	86
MN97695-4	53.3	29	58	32	71
MT9929	56.7	28	55.4	34	77
MN98389-A	58.3	27.9	52.3	33	79
01M98	63.3	27.8	55.4	31	77
ND739	58.3	27.7	55.9	33	83
SD3546	50	27.1	54.9	33	86
CA-901-712	51.7	27.1	55.3	29	64
FA-900-720	63.3	26	54.4	35	85
ND749	53.3	25.9	54.7	33	87
ND750	58.3	25.7	56.2	32	82
N98-0328	63.3	25.1	54	34	71
N97-0117	45	25	54.6	34	65
BW313	66.7	25	54.6	33	91
HY469	53.3	25	51.6	34	64
N96-0055	53.3	24.2	55	35	73
01M97	51.7	23.7	57.7	30	77
01M96	48.3	22.4	56.1	32	78
Chris	60	20.6	53.6	38	100
NDSW0246	43.3	20.2	55.2	34	91
WA007914	63.3	18.9	54.3	34	86
Keene	36.7	18.5	53.9	38	91
2375	46.7	18	53.1	34	75
WA007899	53.3	16.6	50.7	33	81
BW306	50	16.2	51.8	34	84
MT9874	43.3	15.5	--	36	83
Marquis	40	10.5	--	36	100
Mean	56.5	25.8	54.7	34	80
LSD (0.05)	20.2	7.5		1	7
CV	22	17.8		2	5

* Severe germination problems due to soil crusting. Notes on survival have been included.

** Many missing values for test weight. Some lines were represented by one rep.

Table 11. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Hettinger, ND.

Line	Yield Bu/Ac	Test Wt. Lb/Bu	Heading d from 6-1	Height cm
HY469	25.2	56.8	24	56
SD3641	25	55.5	23	56
MN98389-A	24.6	55	24	55
01M96	23.9	60.5	22	55
MN97695-4	23.5	58.7	24	55
MT9874	23.3	54.3	27	57
ND744	22.9	58.4	24	57
ND739	22.6	56.9	24	60
N99-0107	22.4	57.2	24	62
01M88	22.2	54.4	28	50
N98-0326	21.8	54.4	26	54
CA-901-712	21.8	58.4	21	49
N98-0286	21.6	53.6	26	54
FA-900-720	21.6	58.3	26	55
SD3540	21.2	57.6	23	55
01M97	21.2	60.3	24	54
N98-0328	21.2	54.9	25	54
N96-0055	21	54.7	27	52
ND749	20.7	56.4	25	58
ND750	20.7	56.1	25	56
BW313	20.7	54.7	25	63
WA007899	20.7	54.7	25	54
SD3546	20.5	56.7	24	53
2375	19.9	56.6	26	52
ND741	19.9	55	26	61
Keene	19.7	56.6	27	57
SD3623	19.7	55.4	24	57
MT9929	19.7	55.4	26	50
01M98	19.5	55.2	24	55
BW306	19.5	57.3	25	59
N97-0117	18.8	55.9	24	53
SD3533	17.8	58	23	57
NDSW0246	16.7	55.4	26	54
Verde	16.5	56.2	27	51
Chris	15.5	52.7	28	58
WA007914	14	53.6	27	57
Marquis	13.5	52.6	29	61
Mean	20.6	56.1	25	56
LSD (0.05)	4.3	1.4	1	6
CV	12.8	1.5	3	7

Note: The trial sustained severe heat and moisture stress.

Table 12. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Langdon, ND.

Line	Yield	Test Wt.	Heading	Height	Lodging	Shatter*	Tombstone
	Bu/Ac	Lb/Bu	d from 6-1	cm	0-9	0-11	%
SD3641	65.7	60.5	28	85	0	3	1.3
ND744	60.9	62.3	30	82	0	4.7	0
N98-0328	60.9	58.5	35	76	0	1	3
MN98389-A	60.7	59.5	32	87	0	1	0
N99-0107	60.1	59.7	33	90	0	2.3	0.3
Verde	59.7	59.3	37	87	0	1	1.7
CA-901-712	59.5	59.5	28	74	0	0.3	2
SD3623	59.1	60.5	31	95	0	6.7	0.7
N98-0326	59.1	58.7	35	78	0	0	2.7
ND739	58.9	61.7	31	88	0	7	0.7
N97-0117	58.8	59.5	34	79	0.3	0	2
N98-0286	58.3	58.3	35	76	1	0.3	2
HY469	58.3	59	29	70	1	1.3	3
01M96	58.2	61.3	31	84	0	0.7	2.7
01M88	57.7	59.7	37	74	0	0	2
SD3540	57.3	61.2	32	90	0	9.7	1
MT9874	56.1	58	37	92	0	0.7	2
N96-0055	56	59.8	35	83	0	0.7	1.7
BW306	55.8	60.8	33	94	0	0	1
MN97695-4	54.3	61.2	33	79	0	2	3.7
MT9929	54.3	58.7	34	85	0	2	3.3
2375	54	60.2	34	84	0	1.7	3.3
ND749	53.4	60.7	31	91	0	9.3	1
SD3546	53.3	60.2	33	97	0	6.7	2.7
FA-900-720	53.3	62.3	36	90	0	1.7	0
01M98	53.2	58.2	30	88	0	2	3.7
Keene	52.6	59.8	34	98	0.3	3.7	2
NDSW0246	52.6	60.3	34	105	0	8	1.7
ND750	52.4	61.8	32	94	0	8	1.3
ND741	52	61	32	91	0	6.7	1.3
WA007914	50.3	59.2	34	91	1	0	2.7
BW313	49.3	60.3	32	99	0	6	1
SD3533	44.7	60.5	28	88	0.3	10.7	0.7
01M97	44.5	60.2	29	83	0.7	0.7	2.7
Chris	42.5	59.2	37	112	2	1	0
WA007899	39.9	57	34	89	4.7	1	1.3
Marquis	37.5	59.7	40	111	1.3	2	0
Mean	54.5	60	33	88	0.3	3.1	1.7
LSD (0.05)	5.5	0.7	2	5	1	3.2	1.5
CV	6.2	0.7	4	4	180.5	63.9	56.6

*Shatter – Seeds/ft^2 0-10=0, 10-20=1, 20-30=2, 30-40=3, 40-50=4, 50-60=5
60-70=6, 70-80=7, 80-90=8 90-100=9, 100-110=10, 110-120=11

Table 13. 2002 Hard Red Spring Wheat Uniform Regional Nurser

Line	Yield Bu/Ac	Test Wt. Lb/Bu	Heading d from 6-1	Height cm
SD3540	51.7	61.2	60	59
SD3546	47.6	61.6	61	61
SD3533	46.8	60.9	60	61
SD3641	46	61.1	58	58
Keene	45.5	60.1	62	61
2375	44.8	60.8	61	54
ND744	44.5	61.8	60	57
SD3623	44.4	61.6	59	64
01M98	44.4	60.5	60	56
MT9874	44.3	60.6	64	61
HY469	44.3	61.4	59	51
NDSW0246	44.2	59.5	63	65
01M88	44.2	59.8	64	53
BW306	44.2	61.4	61	63
ND750	44	61.7	60	61
N98-0326	43.9	60.4	61	50
FA-900-720	43.8	61.1	62	57
CA-901-712	43.3	60.7	57	47
01M96	43	62.2	59	58
N98-0328	42.6	60.8	61	51
WA007914	42.3	60.8	62	63
N99-0107	41.8	60.5	61	59
N97-0117	41.7	61.1	61	52
ND741	41.6	61.6	61	60
MT9929	41.3	59.7	62	58
01M97	41.2	61.5	58	56
MN98389-A	40.9	60	60	56
ND739	40.5	61.1	60	58
N98-0286	39.9	59.9	62	52
Marquis	39.7	61	63	82
WA007899	39.7	60.3	61	58
BW313	39.5	60.8	61	70
N96-0055	37.2	61	63	51
Verde	37.1	61	63	54
ND749	37.1	59.8	59	57
Chris	36	60.3	62	68
MN97695-4	35.9	61.2	59	53
Mean	42.5	60.8	61	58
LSD (0.05)	8.7	2.2	3	5
CV	12.5	2.2	3	5

Table 14. 2002 Hard Red Spring Wheat Uniform Regional Nurser

Line	Yield Bu/Ac	Test Wt. Lb/Bu	Heading d from 6-1	Height cm
SD3623	46.5	55.2	48	92
SD3641	44.3	54.5	48	77
SD3533	40.5	56	48	88
MN97695-4	40.3	59.3	48	75
ND741	39.8	57.9	49	88
SD3540	36.7	54.7	48	88
MN98389-A	36.4	51.9	50	82
ND750	35.3	58.3	48	85
SD3546	34.4	54.6	50	87
CA-901-712	34.4	54.5	48	67
Verde	34.2	55	51	78
ND744	33.9	57.5	48	77
N99-0107	33.2	54.6	50	84
2375	32.8	55.5	49	86
N98-0328	32.5	53.6	51	78
ND749	32	56.4	48	85
N98-0326	32	53.3	51	75
ND739	31.9	56.2	48	83
N98-0286	30.4	51	51	77
01M98	29.9	55.1	49	87
01M96	27.9	57.2	49	84
BW313	27.7	53.6	50	89
Keene	27.3	55.2	50	95
N97-0117	27	53.9	50	74
NDSW0246	26.5	55.2	51	93
MT9929	25.3	51.2	51	82
FA-900-720	25.1	55.2	51	91
N96-0055	25	52.6	51	80
01M88	23.8	50.4	50	72
HY469	23.3	47.2	51	74
01M97	22.9	56.5	48	78
WA007914	20.3	51.2	50	86
BW306	19.4	54.6	50	84
MT9874	19.3	48.2	52	83
WA007899	18.5	48.3	49	77
Chris	14.9	49.8	52	92
Marquis	13.9	51.2	52	90
Mean	29.7	54	50	83
LSD (0.05)	6	1.5		7
CV	12.4	1.7		5

Table 15. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Williston, ND.

Line	Yield	Test Wt.	Heading	Height	Protein	Leaf Disease
	Bu/Ac	Lb/Bu	d from 6-1	cm	%	%
SD3623	40.9	57.4	32	54	16.9	27.5
SD3641	39.4	57.3	29	52	17.6	40
MT9874	39.1	56.5	35	50	17.3	5.5
MN98389-A	38.9	56.3	33	50	16.3	15
SD3540	38.8	58.5	31	50	16.8	30
N98-0328	38.6	56.2	33	42	17.5	15
01M88	38.4	58.3	36	43	16.5	3
HY469	38.4	57.6	35	46	17.4	3
N99-0107	38	58.5	32	51	17.5	15
ND741	37.7	57.5	33	54	17.7	22.5
ND744	37.5	59.2	31	49	17.2	22.5
Keene	37	58.2	35	49	17.4	7.5
SD3546	37	58.6	34	47	17.4	17.5
NDSW0246	36.7	58.4	34	48	18	17.5
WA007899	36.5	55.6	33	49	17	25
2375	36.1	58.9	34	45	17.5	50
SD3533	35.7	58.7	31	49	17.1	65
N98-0286	35.6	54.8	36	43	17.8	20
ND750	35.3	58.6	33	50	18.6	12.5
01M98	35.2	55.9	30	49	17	27.5
N96-0055	35	58	35	46	17.3	7.5
WA007914	34.5	57.4	33	47	16.7	20
01M96	34	61	33	54	16.6	50
FA-900-720	34	60.4	36	52	17.5	10
ND739	33.9	58	31	47	17.4	35
N98-0326	33.6	56.4	33	47	17.7	15
MT9929	33.5	56.6	32	46	18.2	45
N97-0117	33	56.3	33	44	18.3	15
CA-901-712	32.7	57.7	29	47	18.2	90
MN97695-4	32.4	58.9	30	47	17.6	35
Verde	32.2	57.3	35	46	17.7	12.5
ND749	31.8	58.1	32	53	17.7	25
Chris	30.6	56.2	34	51	18.4	5
01M97	29.7	60.2	29	48	17.6	67.5
BW306	29.5	59.2	32	51	18.4	20
BW313	29.1	56.3	33	53	19.4	67.5
Marquis	25.7	56.9	34	57	17.5	5
Mean	35	57.7	33	49	17.5	26.1
LSD (0.05)	4	0.7	1	6	0.4	10.2
CV	7	0.7	2	7	1.4	19.3

Table 16. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Brookings, SD.

Line	Yield Bu/Ac	Test Wt. Lb/Bu	Heading d from 6-1	Height cm	Lodging 1 - 5	Protein %
SD3546	42.1	55.8	18	80	1	15.1
SD3533	41.2	52.6	17	81	1.3	14.7
MN97695-4	40.9	52.2	17	73	1.3	15.6
N98-0328	40.2	50.2	19	69	1.3	14.6
SD3540	40	55.2	16	77	1.3	14.6
SD3623	39.9	53.7	18	83	1.3	14.4
ND739	39.7	54.4	18	81	1.7	15
01M88	39.5	52.9	19	65	1	13.7
ND749	39.4	50.9	18	82	1.7	15.5
N98-0326	39.1	50.9	18	74	1	14.8
ND741	39	54	19	81	1	15.5
SD3641	38.7	56.4	15	74	1	15
MT9929	38.3	47.5	20	71	1.3	15.6
N99-0107	37.8	56.5	19	80	1.7	15.2
ND750	37.7	48.6	19	81	1	16.2
ND744	37.6	52.7	18	73	1	15.2
MN98389-A	37.2	54.3	16	74	1.7	14.9
N97-0117	37.2	51.8	18	70	1.3	16
01M96	37	54.1	18	73	1.3	15.7
N98-0286	36.4	48.8	20	67	1.3	15.1
01M98	36	50.6	18	76	2	15.4
2375	35.7	55	18	75	2	14.8
N96-0055	35.6	51.6	19	71	1	15.6
HY469	35.2	54.8	17	67	1.3	14.8
FA-900-720	35	55.7	20	78	1	14.1
Verde	34.6	57.2	19	73	1	15.5
BW313	34.5	47	17	89	2	16.5
NDSW0246	33.5	54	20	86	1.3	16.2
Keene	32.9	48.8	21	81	1.3	15.6
01M97	32.3	50.9	17	76	1	15.9
CA-901-712	31.9	53.8	15	66	1	16.9
BW306	30.8	44	21	84	1.7	16.1
WA007914	29.3	51.6	20	82	1.3	14.5
Marquis	28.2	46.2	20	89	2	14.8
Chris	27.3	42.3	20	85	1.7	15.9
WA007899	27.3	51.1	18	76	1.3	13.8
MT9874	27	50.9	23	75	1.3	15.6
Mean	35.8	51.9	19	77	1.4	15.3
LSD (0.05)	3.2	5.2	2	6	0.7	0.4
CV	5.4	6.2	6	4	31.4	1.9

Table 17. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Groton, SD.

Line	Yield Bu/Ac	Test Wt. Lb/Bu	Heading d from 6-1	Height cm	Lodging 1 - 5	Protein %
SD3546	42.1	57.4	22	64	2	16.3
SD3623	41.4	57.2	23	68	2	16.2
ND744	41	55.6	23	59	1.3	16.5
ND739	40.5	56.1	22	65	2	16.8
MN97695-4	39.8	58.1	22	61	2.7	17
ND741	39.5	55.4	24	67	1.3	17.1
Keene	39.5	54	25	72	1	16.5
N98-0328	39	56.2	24	55	2	16
N98-0286	38.8	54	25	55	2	16.1
Verde	38.6	56.4	25	62	1.7	15.9
SD3533	38.1	57	22	65	1.7	15.7
SD3641	37.4	55.4	22	59	1.7	16.7
ND749	37.3	54.5	23	65	1.7	16.8
MT9929	37.1	52.5	27	64	1.3	16.6
N99-0107	37	55.9	25	66	2.3	16.4
SD3540	36.6	54.7	24	65	1	15.7
ND750	36.6	56.1	25	67	1.7	17.7
N96-0055	35.4	56.2	25	57	1.7	15.8
N98-0326	34.7	54.2	24	54	1.7	15.7
NDSW0246	34.7	54.8	27	74	1.3	16.2
N97-0117	33.7	55.5	24	54	2	17.7
FA-900-720	32.6	56.7	25	60	2	14.8
01M98	32.1	55	24	65	1.7	16.4
BW313	31.9	51.7	22	76	3.3	17.6
HY469	31.8	54.3	21	54	2.3	15.9
01M88	31.7	53.1	28	53	1	14.7
MT9874	31.2	53.9	27	66	1.3	17.1
2375	31.1	55.4	25	61	3	16.2
Chris	31.1	52.6	26	75	3.3	16.7
01M96	30.1	56.9	21	58	1.7	16.8
MN98389-A	30	55.7	22	58	2.7	15.9
CA-901-712	27.8	57.2	20	52	2	18
01M97	27.7	54.1	23	60	1.3	16.7
BW306	27.2	55.2	24	69	1.7	16.9
WA007914	25.9	54.7	25	65	1.7	15.9
Marquis	23.6	49.6	26	76	3.7	15.7
WA007899	23.1	51.3	25	63	3.7	15.5
Mean	34.3	54.9	24	63	2	16.4
LSD (0.05)	5.2	3.1	3	4	0.9	0.5
CV	9.3	3.4	7	4	28.9	1.7

Table 18. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Selby, SD.

Line	Yield Bu/Ac	Test Wt. Lb/Bu	Heading d from 6-1	Height cm	Lodging 1 - 5	Protein %
N99-0107	33.4	59.6	21	69	1	17.8
SD3546	33.1	60.2	21	67	1	17.8
MT9929	32.7	60.3	21	60	1	18.1
SD3540	31.8	59.2	19	64	1	17.5
SD3623	31.2	58.7	20	67	1	17.4
SD3533	31	59.9	20	67	1	17.7
01M98	29.9	59.5	18	67	1	17.9
01M88	29.7	60.3	22	55	1	16.4
SD3641	29.6	58.2	16	58	1	18.3
MN98389-A	29.5	57	18	60	1	17.6
MT9874	28.9	58.3	22	63	1	17.7
FA-900-720	28.7	61.7	22	59	1	16.8
ND739	27.4	60.9	20	66	1	18.3
2375	27.2	59.5	19	61	1	17.3
Keene	27.1	60.6	22	64	1	17.7
ND749	26.7	60.4	21	68	1	18.8
Chris	26.5	57.7	22	77	1	18.5
HY469	26.5	59.7	20	60	1	17.5
ND750	25.7	61.6	22	66	1	18.8
ND744	24.7	60	21	60	1	17.9
Verde	24.7	58.6	22	65	1	17.8
N98-0326	24.3	60	20	58	1	17.6
N98-0286	24.2	58.4	22	60	1	17.7
N96-0055	24.2	59.5	22	56	1	17.9
01M96	23.8	60.9	16	61	1	18
BW313	23.8	57.9	21	73	1	19.6
N97-0117	23.6	59.5	21	60	1	18.9
NDSW0246	23.5	58.8	22	65	1	18.2
01M97	23.4	59.5	17	65	1	18.5
CA-901-712	23.3	60.2	16	52	1	18.6
N98-0328	23.3	60	20	58	1	17.9
Marquis	23	57.6	22	72	1	18.1
ND741	22.5	60.5	21	65	1	19.1
MN97695-4	21.5	61.7	21	63	1	19.1
WA007899	20.6	58.3	22	60	1	16.8
BW306	19.9	60.9	22	68	1	19
WA007914	19.3	59.7	22	70	1	17.5
Mean	26.2	59.6	20	64	1	18
LSD (0.05)	4.5	1	2	6	NS	0.7
CV	10.5	1	5	6	0	2.2

Table 19. 2002 Hard Red Spring Wheat Uniform Regional Nursery, Pullman,

Line	Yield Bu/Ac	Test Wt. Lb/Bu	Heading d from 6-1	Height cm	Protein %
SD3641	30.9	59.9	3	61	15.4
MT9874	30.8	56.7	9	64	15.1
MN98389-A	30.7	59	5	61	15.1
BW306	30.7	59.9	6	69	15.8
SD3540	30.4	59.7	4	66	15.7
SD3623	30.2	58.8	5	69	14.8
FA-900-720	30.1	60.1	7	66	15.1
ND741	29.8	58.9	6	69	16
WA007899	29.7	57.8	6	61	14.9
N99-0107	29.2	59.1	8	69	14.9
MN97695-4	29	60.9	5	64	15.8
HY469	28.9	59.1	6	61	15.8
ND739	28.7	59.6	6	64	15.2
ND744	28.7	60.2	5	64	15.8
N98-0328	28.7	58.6	6	58	15.2
SD3546	28.5	59.4	6	64	15.5
N98-0286	28.5	57.3	8	58	15.4
01M98	28.1	58.3	4	61	15.1
01M96	28	61.5	2	61	15.7
N98-0326	28	57.9	6	58	15.6
WA007914	28	57.7	7	66	15.4
01M88	27.9	59.8	9	56	14.8
Keene	27.8	59.1	6	69	16.2
N96-0055	27.2	58.7	8	58	15.5
N97-0117	27.1	58.5	7	61	15.7
Verde	27	58.1	7	64	15.7
SD3533	27	59.7	5	69	15.9
2375	26.8	57.8	3	64	15.3
MT9929	26.8	58.2	10	56	16.2
Marquis	26.7	58.4	7	76	16.4
ND749	26.6	59.5	7	66	15.7
ND750	26.6	59.6	8	66	16.7
BW313	26.5	58.2	7	76	15.8
CA-901-712	25.9	58.7	2	56	16
NDSW0246	25.8	59.1	8	66	15.9
Chris	25	58.3	7	76	16.2
01M97	24.5	60.4	3	61	16.2
Mean	28.1	59	6	64	15.6
LSD (0.05)	2.3				
CV	5.1				

Table 20. 2002 Hard Red Spring Wheat Uniform Regional Nurser

Line	Yield Bu/Ac	Test Wt. Lb/Bu	Heading d from 6-1	Height cm
WA007914	71	60.2	26	70
N98-0328	66.2	62.2	24	66
01M96	62	62.8	27	66
MT9929	60.2	62.4	20	64
BW306	58.2	60.3	24	76
N98-0326	57.3	61.9	23	64
Verde	56.7	61.2	25	61
01M97	53.2	61.7	20	66
MN97695-4	52.6	61.1	24	62
01M88	52.4	62.7	19	57
N99-0107	52.3	61.9	24	72
01M98	52.1	59.6	22	65
WA007899	49.7	60.6	25	64
ND741	49.5	61	26	67
Keene	47	60.7	27	87
N98-0286	46.1	61.4	25	64
2375	45.9	64.4	28	72
CA-901-712	45.8	63.7	19	60
ND750	45.2	60.1	25	70
N97-0117	44.6	64.7	25	58
NDSW0246	43.5	61.2	27	87
N96-0055	42.6	63.7	25	63
HY469	41.9	61.6	23	63
SD3641	41.6	61.3	20	67
ND749	41.3	62.2	25	72
BW313	40.9	61.2	20	84
ND744	39.2	63	24	68
MT9874	36.2	59.4	28	69
MN98389-A	34.5	61	26	63
SD3540	33.7	62.2	22	68
Chris	32.9	59	29	83
ND739	28.5	62.8	23	74
FA-900-720	27.5	62.7	28	67
SD3546	26.5	61.4	23	79
Marquis	23.7	59.6	30	82
SD3533	21.2	62.4	19	72
SD3623	20	60.1	19	79
Mean	44.4	61.6	24	70
LSD (0.05)	14.2	2.2	1	8
CV	19.6	2.2	3	7

Table 21. 2002 Hard Red Spring Wheat Uniform Regional Nursery Summary of Means Acro

Line	Yield Bu/Ac	Test Wt. Lb/Bu	Heading d from 6-1	Height cm	Lodging 0-9	Protein %
No. Locations	16	17	15	17	8	9
SD3641	44.5	58.2	26	69	0.7	15.6
ND744	44.4	59.8	28	69	0.6	15.7
SD3623	44.3	58.2	28	78	1	15.1
N99-0107	43.9	58.6	30	73	0.9	15.7
N98-0286	43.2	56.5	31	65	0.9	15.3
SD3540	43	58.5	28	72	0.5	15.2
ND741	42.9	59	30	74	0.5	16.1
ND739	42.6	59.4	28	72	0.9	15.7
N98-0328	42.6	57.4	30	64	0.7	15.4
MN98389-A	42.4	57.3	29	69	1.3	15.2
N98-0326	42.3	57.1	30	64	0.5	15.3
MN97695-4	42.2	60	28	67	0.9	16
SD3546	42.1	58.9	29	74	0.6	15.7
HY469	41.7	57.1	29	64	1.4	15.2
ND750	41.6	59.3	30	74	0.4	16.6
01M98	41.5	57.3	28	70	0.8	15.5
MT9929	41.5	57.3	31	68	0.4	15.9
ND749	41.1	58.9	29	73	0.7	16.1
01M96	40.4	60.2	28	69	0.4	15.6
Verde	40.2	58.2	31	68	0.5	15.5
SD3533	40.1	59	27	74	0.9	15.4
Keene	39.9	58.3	31	79	0.4	15.9
01M88	39.5	57.7	32	61	0.5	14.5
N96-0055	39.5	58.2	31	65	0.4	15.6
N97-0117	39.2	58.1	29	63	1	16.2
2375	39.1	58.6	30	70	2.2	15.4
NDSW0246	38.7	58.5	31	79	0.3	16.2
CA-901-712	38.5	58.5	26	60	1	16.3
MT9874	38	56	33	72	0.6	15.8
FA-900-720	37.8	59.8	31	73	0.9	14.9
WA007914	35.7	57.2	31	73	0.8	14.9
BW313	35.6	57	29	82	1.9	16.9
BW306	35.2	58.3	30	75	0.6	16.4
01M97	34.6	59.3	27	69	0.3	15.9
WA007899	33.2	55.2	30	69	4	14.6
Chris	30.7	56	32	83	2.5	16.2
Marquis	27.7	56.2	33	86	2.5	15.6
Mean	39.8	58.1	29	71	1	15.7
LSD (0.05)	3.8	0.9	1	2	0.7	0.3

Table 22. Hard Red Spring Wheat Uniform Regional Nursery 2-Year Means Summary, 2001-

Line	Yield Bu/Ac	Test Wt. Lb/Bu	Heading d from 6-1	Height cm	Lodging 0-9	Protein %
No. Locations	28	32	28	32	12	15
SD3540	50.3	59	26	78	0.7	14.8
SD3546	49.8	59.4	27	79	1.3	15.3
ND741	49.7	59.2	28	78	1.3	15.7
Verde	47.9	58.3	30	72	0.8	15
2375	47.7	59.2	28	75	2.3	14.9
Keene	47.6	58.6	29	86	1.1	15.3
N97-0117	47.6	58.3	27	67	1.1	15.6
FA-900-720	47.6	61	29	79	1.1	14.5
N96-0055	47.5	58.8	29	69	0.5	15.1
MT9874	47.4	56.9	31	77	0.9	15.1
WA007899	42.1	55.9	28	74	3.9	14
Chris	35.4	56.3	30	90	3.7	15.8
Marquis	33.3	56.3	31	92	3.2	15.2
Mean	45.7	58.3	29	78	1.7	15.1
LSD (0.05)	3	0.8	1	2	1	0.3

Table 23. 2002 Hard Red Spring Wheat URN *Fusarium* Head Blight Reactions, Crookston, MN.

Line	Headed from 6-1	Incidence %	Severity %	Disease %	Wt. of 30 heads grams	VSK %	DON ppm
Marquis	35	52.5	16.7	12.8	17.0	4.0	2.0
Chris	36	65.0	23.9	17.6	15.5	10.5	4.0
2375	34	82.5	20.6	17.0	19.8	9.0	4.5
Verde	36	75.0	21.3	16.8	15.0	12.5	6.0
Keene	35	67.5	27.2	20.3	19.3	6.0	5.9
ND741	34	65.0	23.5	18.7	17.8	5.0	2.6
ND739	33	62.5	10.7	7.2	18.3	4.0	1.3
ND744	32	65.0	12.0	7.9	18.5	1.5	2.2
ND749	33	55.0	9.6	5.8	19.3	4.0	2.1
ND750	33	62.5	8.4	5.3	21.3	3.0	2.9
NDSW0246	35	82.5	49.4	40.7	17.8	11.5	6.1
MN97695-4	33	67.5	22.7	17.3	20.5	6.0	4.4
MN98389-A	33	75.0	30.7	27.0	20.8	3.0	1.4
SD3546	33	90.0	17.6	16.0	20.3	2.0	1.5
SD3540	32	80.0	25.4	22.3	16.3	5.0	4.1
SD3641	31	62.5	25.6	21.2	19.8	3.0	1.1
SD3533	33	82.5	17.1	14.3	19.5	3.0	2.2
SD3623	32	82.5	23.3	20.9	20.0	5.0	3.6
01M98	33	97.5	29.4	28.8	17.3	13.5	6.1
01M96	33	87.5	23.7	20.9	16.8	6.0	4.1
01M88	35	95.0	22.0	20.9	12.5	10.0	6.8
01M97	31	80.0	20.8	16.5	17.0	7.0	5.8
N99-0107	33	62.5	11.4	7.2	19.4	4.0	2.3
N98-0286	36	85.0	52.2	43.9	17.8	13.5	8.0
N98-0326	35	85.0	26.0	20.9	20.5	12.5	8.2
N98-0328	35	62.5	20.4	13.3	17.3	7.0	3.7
N96-0055	35	100.0	32.9	32.9	16.3	12.5	8.3
N97-0117	34	95.0	30.1	28.8	19.3	9.0	4.2
BW306	35	77.5	18.4	14.3	18.3	6.0	4.1
BW313	34	100.0	50.4	50.4	18.3	4.0	2.6
MT9874	37	97.5	44.0	42.9	16.3	15.0	7.3
MT9929	34	95.0	67.3	64.3	14.3	25.0	10.5
CA-901-712	30	72.5	51.4	42.9	16.5	6.0	3.6
FA-900-720	35	55.0	10.8	6.3	21.0	3.0	1.9
WA007899	35	100.0	34.0	34.0	17.5	9.0	6.7
WA007914	35	97.5	58.1	57.1	16.8	22.5	17.3
HY469	35	100.0	56.5	56.5	17.3	30.0	11.6
BACUP (R CK)	32	50.0	14.9	9.2	16.0	4.0	1.8
ALSEN (R CK)	33	62.5	15.9	9.2	16.0	4.0	3.1

MCVEY (R CK)	38	65.0	13.7	8.8	23.5	6.0	3.7
ROBLIN (S CK)	32	92.5	51.4	49.5	16.0	10.5	5.2
WHEATON (S CK)	35	100.0	57.9	57.9	22.0	27.5	10.1
MN00269 (S CK)	38	97.5	46.0	45.2	11.3	22.5	10.0
Mean	34	78.8	28.9	25.4	17.9	9.0	5.0
LSD (0.05)	1	34.5	23.4	26.1	NS	7.1	

Table 24. 2002 Hard Red Spring Wheat URN *Fusarium* Head Blight Reactions, St. Paul, MN.

Line	Headed from 6-1	Incidence %	Severity %	Disease %	Wt. of 30 heads grams	VSK %	DON ppm
Marquis	26	100.0	63.4	63.4	5.8	25.0	11.9
Chris	28	100.0	72.2	72.2	8.1	40.0	9.7
2375	26	100.0	44.5	44.5	15.5	17.5	4.0
Verde	19	95.0	49.4	47.3	8.6	35.0	8.9
Keene	26	75.0	19.9	14.8	11.9	27.5	10.8
ND741	25	100.0	39.5	39.5	11.3	27.5	6.6
ND739	24	97.5	37.4	36.5	9.5	40.0	6.9
ND744	22	77.5	15.8	12.1	13.7	10.5	3.0
ND749	24	82.5	31.0	26.1	11.3	10.0	6.5
ND750	24	100.0	31.6	31.6	10.2	15.0	5.9
NDSW0246	26	85.0	44.6	38.7	12.1	32.5	6.5
MN97695-4	22	95.0	42.2	40.7	11.6	35.0	9.9
MN98389-A	22	87.5	44.1	40.2	10.8	27.5	3.6
SD3546	22	75.0	30.3	22.9	11.4	22.5	6.9
SD3540	22	87.5	20.4	17.9	10.9	18.5	6.3
SD3641	21	90.0	34.9	31.5	14.8	12.5	4.2
SD3533	22	82.5	43.5	35.8	12.3	15.0	5.5
SD3623	22	75.0	42.3	33.7	12.0	25.0	4.2
01M98	23	97.5	73.8	72.2	4.0	77.5	8.3
01M96	24	77.5	40.3	31.7	8.8	27.5	9.2
01M88	30	100.0	46.3	46.3	5.6	40.0	6.3
01M97	22	80.0	35.1	27.9	9.0	45.0	7.4
N99-0107	26	90.0	26.2	23.6	12.3	13.5	4.2
N98-0286	28	100.0	65.0	65.0	10.9	30.0	6.2
N98-0326	28	100.0	51.4	51.4	12.1	62.5	10.3
N98-0328	26	100.0	43.7	43.7	13.4	50.0	10.0
N96-0055	25	100.0	64.0	64.0	12.0	22.5	4.9
N97-0117	25	100.0	73.5	73.5	5.7	80.0	10.6
BW306	27	92.5	39.5	37.3	12.3	20.0	10.5
BW313	22	100.0	82.0	82.0	6.4	35.0	6.9
MT9874	29	95.0	58.7	55.8	8.5	25.0	9.5
MT9929	26	97.5	55.0	53.8	11.2	21.0	5.7
CA-901-712	21	100.0	45.6	45.6	13.5	18.5	9.4
FA-900-720	27	72.5	18.5	13.8	18.8	7.0	2.0
WA007899	25	97.5	51.8	50.8	6.8	35.0	12.2
WA007914	27	100.0	76.3	76.3	7.4	40.0	5.3
HY469	24	100.0	84.2	84.2	9.3	27.5	18.9
BACUP (R CK)	22	80.0	33.3	28.1	12.5	18.5	4.1
ALSEN (R CK)	25	80.0	24.0	19.4	11.2	15.0	5.0

MCVEY (R CK)	30	87.5	28.8	25.1	11.9	32.5	8.8
ROBLIN (S CK)	22	100.0	77.0	77.0	7.9	75.0	8.4
WHEATON (S CK)	28	100.0	81.7	81.7	7.6	85.0	8.9
MN00269 (S CK)	30	100.0	58.4	58.4	6.6	25.0	6.5
Mean	25	91.9	47.4	45.0	10.4	31.7	7.5
LSD (0.05)	5	19.1	21.6	23.2	4.1	21.6	

Table 25. 2002 Hard Red Spring Wheat URN *Fusarium* H

Line	Incidence	Severity	Field Severity
	%	%	%
Marquis	16.7	1.3	0.3
Chris	6.7	0.8	0.1
2375	26.7	3.2	0.9
Verde	10	1.1	0.1
Keene	30	3.6	1.3
ND741	6.7	0.7	0.1
ND739	23.4	6.7	1.7
ND744	26.7	5.4	1.3
ND749	13.4	3.7	0.4
ND750	30	8.7	2.5
NDSW0246	16.7	3.3	0.5
MN97695-4	36.7	10.5	3.8
MN98389-A	16.7	2.2	0.4
SD3546	20	2.5	0.7
SD3540	10	1.4	0.3
SD3641	26.7	6.2	1.7
SD3533	26.7	4	1.2
SD3623	23.3	8	2.5
01M98	33.4	5.7	2.1
01M96	16.7	4.5	0.8
01M88	33.4	8.9	3.4
01M97	33.3	3.7	1.3
N99-0107	26.7	7.2	2.7
N98-0286	23.4	7.1	1.8
N98-0326	16.7	3.7	1.2
N98-0328	30	13	3.6
N96-0055	26.7	4.9	1.4
N97-0117	33.4	6.4	2.2
BW306	36.7	10.6	4.7
BW313	46.7	6.9	3.7
MT9874	30	7.5	2.3
MT9929	20	6.5	1.1
CA-901-712	20	3.1	0.7
FA-900-720	16.7	5.3	1.8
WA007899	13.4	2.6	0.5
WA007914	26.7	4.6	1.2
HY469	13.4	1.9	0.4
Mean	23.3	5	1.5
LSD (0.05)	NS	NS	NS
CV	48.9	90.4	123.4

Table 26. 2002 Hard Red Spring Wheat URN Adult Leaf

Line	Heading d from 6-1	Leaf Rust	Stem Rust
Marquis	31	50S	60S
Chris	33	10-20M	10MR-MS
2375	33	40M	20R-MR
Verde	35	40M	30MS-S
Keene	32	tR, 50MS	30MR-R
ND741	31	tR	5R
ND739	31	tR	20R-MR
ND744	31	tR	10R
ND749	31	tR	5R
ND750	31	20M	5R-MR
NDSW0246	33	10R	5R
MN97695-4	30	40MS	5R
MN98389-A	31	10MR	10MR-MS
SD3546	30	10R	10R
SD3540	30	20M	10
SD3641	30	10R	30R-MR
SD3533	30	tR, 40MS	30MR-MS
SD3623	30	20M	20MR-MS
01M98	31	80S	50S
01M96	31	5R	10R
01M88	38	10M	tR
01M97	30	10R	20R
N99-0107	31	50S	40MS-S
N98-0286	33	20R	10R-MR
N98-0326	33	40M	10R-MR
N98-0328	33	20M	tR
N96-0055	33	20M	10MR, 50S
N97-0117	31	tR	tR
BW306	33	20M	5R
BW313	31	30M	tR
MT9874	35	20M	30MR
MT9929	32	tR	10R
CA-901-712	28	50S	40MS
FA-900-720	35	40M	10MR
WA007899	31	40MS	10R
WA007914	33	10R	10R
HY469	37	20R-MR	10R-MR

Table 27. Adult Leaf Rust Reactions in the 2002 HRSWURN [USDA-ARS, NDSU, (Miller, Rasmusse

	Percent Severity and Reaction			
Line	**Fargo**	**Carrington**	**Langdon**	**C.I.***
Marquis	30S	50S	50S	43.3
Chris	10S-10MS-tMR	60S	30S	36.1
2375	20S	60S	50S	43.3
Verde	10R	20MR-tMS	5R	3.8
Keene	10R	10R	5R	1.7
ND741	tMR	10R	10R	1.4
ND739	tMR	10R-tMR	10R	1.5
ND744	5R	10R	10R	1.7
ND749	5R	10R	10R	2.3
ND750	10S-10MS	10R-5MR-tMS	5S-5MS	10.5
NDSW0246	tMR	10R	10R	1.4
MN97695-4	20MS-tS	20MS-10MR-tS	10MS-10MR	16.3
MN98389-A	5MR-tMS	10R	10R	2.1
SD3546	5R-tMR	20R-5MR	5MR	3.1
SD3540	10MS-tS	70S	10MS	28.8
SD3641	5MR-tMS	20R-tMR	5MS-tS	3.7
SD3533	5MS	10R	10S-10MS	8.0
SD3623	5MR	10MR	30S	12.0
01M98	40S	20R	20R	16.0
01M96	5R-tMR	10R-tMR	5R	1.5
01M88	tMS-tS	10R-tMR	10MR	2.4
01M97	5MR	10R	5R	1.7
N99-0107	tMS	10R	5R	1.1
N98-0286	tMR	10R	20S-20MS	12.7
N98-0326	10R	10R	5MS-5MR	3.3
N98-0328	5R-tMR	10R-tMR	20MS-10S	9.8
N96-0055	5R	20R-10MR	10R-5MR	4.3
N97-0117	10R	10R	10R	2.0
BW306	tMR-tMS-tS	50S	10MR	18.4
BW313	5S-t,MS	20S-20MS	10MR-5MS	16.5
MT9874	20S	60S	20MR-5MS	30.7
MT9929	5R-tMR	20MR	10R	3.7
CA-901-712	5S	50S	10R-10S-5MS	23.7
FA-900-720	40S	60S	50S	50.0
WA007899	40S	50S	40S	43.3
WA007914	20S-20MS-tMR	40S-20MS	20MS	36.1
HY469	5S-tMS-tMR	20R-5MR	20MS	9.2
Baart (CK)	50S	50S	60S	53.3

Date of Planting - Fargo; 5/20/02, Carrington; 5/2/02, Langdon; 4/30/02.

*C.I. = Average Coefficient of Infection. Percent severity multiplied by the following values for reaction types: R=0.2, MR=0.4, MS=0.8, S=1.0, t=0.5. Multiplication carried out for each reporting station and then an average is taken across stations.

Table 28. Stem Rust Seedling Reactions in the 2002 HRSWURN [USDA-ARS, NDSU (M

	Stem rust pathotypes and seedling reactions						
Line	Pgt-HPHJ	Pgt-MCCF	Pgt-RHTS	Pgt-RTQQ	Pgt-QCCJ	Pgt-QTHJ	Pgt-TPMK
Marquis	MS	S	MS	MR	MS	MR	MS
Chris	VR	R	VR	MS	VR	MS	S
2375	R	R	MR	MS	VR	MS	R
Verde	VR	VR	VR	R	VR	MS	MR
Keene	R	R	R	R	VR	R	R
ND741	R	R	R	R	VR	R	MR
ND739	MR	R	R	R	R	R	R
ND744	R	VR	VR	R	VR	R	R
ND749	MR	R	R	R	VR	MR	R
ND750	R	R	R	MS	VR	R	MR
NDSW0246	VR	R	R	MR	R	MR	MR
MN97695-4	R	R	R	MR	VR	MR	R
MN98389-A	MR	VR	VR	R	VR	MS	R
SD3546	R	R	R	R	R	R	MS
SD3540	R	R	VR	R	VR	R	R
SD3641	VR	R	R	MR	R	R	MR
SD3533	R	R	R	MR	VR	MS	R
SD3623	R	R	R	MR	R	R	R
01M98	MR	R	R	MS	R	MS	MS
01M96	MR	R	R	R	VR	MR	R
01M88	VR	R	VR	VR	VR	MR	VR
01M97	R	VR	VR	R	VR	R	R
N99-0107	VR	R	R	R	R	MS	R
N98-0286	R	VR	MS	R	VR	MR	MR
N98-0326	VR	R	VR	R	VR	MS	R
N98-0328	VR	R	VR	R	VR	MS	MR
N96-0055	VR	R	VR	R	VR	MS	MR
N97-0117	R	VR	VR	R	VR	R	R
BW306	MR	R	R	R	VR	MR	MR
BW313	MS	VR	VR	MS	VR	MS	MR
MT9874	MS	MS	MS	MR	R	MS	MS
MT9929	MS	R	R	R	VR	MS	MR
CA-901-712	MR	R	R	MR	R	MS	MS
FA-900-720	MR	--	MR	MR	R	MR	MR
WA007899	MR	R	R	R	R	MR	MR
WA007914	R	R	MS	MS	R	MS	R
HY469	MR	R	R	MR	R	MR	MR

Table 29. Adult Stem Rust Reactions in the 2002 HRSWURN [USDA-ARS, NDSU (Mi

	Percent Severity and Reaction*		
Line	**Fargo**	**Carrington**	**Langdon**
Marquis	40MSS	t-5S	25MSS
Chris	0,t-10S	0	0
2375	0-tMR	0	0
Verde	t-5MS	0	0
Keene	tR	0	0
ND741	tR	0	0
ND739	t-10MR	0	0
ND744	t-5MR	0	0
ND749	tR	0	0
ND750	tR	0	0
NDSW0246	t-10MR	0	0
MN97695-4	t-5MR	0	0
MN98389-A	10MSS	0	0
SD3546	10MR	0	0
SD3540	tR	0	0
SD3641	10MR	0	0
SD3533	40MSS	0	0
SD3623	20MRMS	0	0
01M98	40S	0	0
01M96	tR	0	0
01M88	tR	0	0
01M97	0	0	0
N99-0107	10MS	0	0
N98-0286	0,5MS	0	0
N98-0326	tMR	0	0
N98-0328	tR	0	0
N96-0055	tR	0	0
N97-0117	tR	0	0
BW306	0	0	0
BW313	0,tS	0	0
MT9874	10MR	0	0
MT9929	tR	0	0
CA-901-712	0	0	0
FA-900-720	tR	0	0
WA007899	tR	0	0
WA007914	5R	0	0
HY469	tR	0	0
Baart (CK)	40S	t-20S	10-25S

Date of Planting - Fargo; 5/20/02, Carrington; 5/2/02, Langdon; 4/30/02.

Reading - made at dough stage.

*Natural inoculum - plus additional inoculum of pathotypes:
Pgt - TMLK, - TPMK, - RTQQ, - QFCQ and - QTHJ at Fargo.

Comma - separation of plants into two or more reaction classes (segregation or seed mixture).
Dash - range in severity between plants with the same reaction.