

Report of the 2004 Uniform Regional Scab Nursery for Spring Wheat Parents

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The Uniform Regional Scab Nursery for Spring Wheat Parents (URSN) was grown for the 10th year in 2004. Six mist-irrigated locations at Brookings, SD, St. Paul and Crookston, MN, Prosper and Langdon, ND, and Glenlea, Manitoba, Canada, and two locations where supplemental mist irrigation was not used (“dryland screening locations”) at St. Paul and Crookston, MN were planted in 2004. The Glenlea location encountered problems and thus is not included in this annual report.

A total of 45 entries were included in the 2004 URSN, including the resistant checks 2375, BacUp, and ND2710, and the susceptible checks Wheaton and Oslo. The other 40 entries were contributed by university, industry, or national breeding programs. Four of these entries were durums, and five were USDA PI genotypes that are possible new sources of scab resistance.

A core set of traits evaluated provided from most locations included incidence of scab, scab severity, disease index, and visual scabby kernel ratings (VSK, \cong tombstone). Additional recorded trait data are presented in the relevant individual location tables. Overall means for traits across locations are presented, as are relative rankings for scab incidence, severity, disease index, and VSK. Correlation coefficients are provided between scab incidence and severity, disease index, VSK, and DON.

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St. Paul, MN
January, 2005

CONTENTS	PAGE
Cooperating Agencies, Stations and Personnel	1
Table 1. List of Entries in the 2004 URSN	2
Tables 2-6. Nursery Data by Individual Location, Mist-Irrigated Locations	3
Table 7. Trait Means Across Mist-Irrigated Locations, with Rankings	8
Tables 8-9. Nursery Data by Individual Location, Dryland Locations	9
Table 10. Trait Means Across Dryland Locations, and Rankings	11
Table 11. Correlation Coefficients Among Traits	12
Table 12. Correlation Coefficients, Mist-Irrigated vs. Dryland Means	13

Cooperators for the 2004 Uniform Regional Scab Nursery for Spring Wheat Parents

North Dakota State University (Prosper):

Mohamed Mergoum and Robert Stack

North Dakota Agricultural Experiment Station (Langdon):

John Lukach

South Dakota State University (Brookings):

Karl Glover

University of Minnesota (St. Paul, Crookston):

Jim Anderson, Ruth Dill-Macky, John Wiersma, and Kent Evans

Agri-Food Canada, Glenlea, Manitoba:

Jeannie Gilbert and Gavin Humphreys

Table 1. Entries for the Uniform Regional Scab Nursery for Spring Wheat Parents, 2004.

Entry No.	Name	Pedigree	Source
1	2375	CHECK	ND
2	Wheaton	CHECK	MN
3	Bacup	CHECK	MN
4	Oslo	CHECK	AGP
5	ND2710	CHECK	ND
6	SD3895	SD3478/SD3549	SD
7	SD3901	1317 316-3-1-1/ND678//SD3348/3/SD3520/4/SD3546	SD
8	SD3911	97NPY3209/ND726//SD3569	SD
9	SD3924	TA4083.10/SD3562//SD3367	SD
10	SD3936	MN97518/N96-0144//SD3570	SD
11	NDSW0345	MT9904/Alsen	ND
12	ND 3015		ND
13	ND 2790		ND
14	ND 03/1-15		ND
15	ND 03/3-1		ND
16	ND 03/1-9		ND
17	MN99220-4	SBF0402/Fujian5114-1	MN
18	MN99341-2-5	BACUP/NING7840-4//HAMER	MN
19	MN00187-3	RS 83/NING8331-4	MN
20	MN01164	ND2710/BacUp//MN94123	MN
21	MN01NIL84-5-5-15	Parshall/MN97589	MN
22	DG014152	Maier/WB735	DG
23	DG013141	Belzer/WB735	DG
24	FI-03-2501	Keystone/Alsen	WB
25	FI-03-2506	Keystone/Alsen	WB
26	FI-03-2665	Granite/Tokai66	WB
27	FI-03-2747	Granite/Tokai66	WB
28	99S0146ES	HJ98//SUMAI3/DALEN	AGP
29	99S0178-7	OXEN//SUMAI3/DALEN	AGP
30	99S0196-3	N97-0055//SUMAI3/DALEN	AGP
31	99S0347-2	N96-0055/3/N94-0157//SUMAI3/DALEN	AGP
32	03CBWC-21	93B42-V2A/BW252	MAN
33	03CBWA3-15	Mono 3B x FHB37	MAN
34	HY644	A16//Alpha*4/BgBSR/3/Sceptre/Ning8331	MAN
35	HY688	95EPWB25 / 95HN8125(Bt12)	MAN
36	HY699	HY627/95EPWB 9	MAN
37	Rugby*	DURUM CHECK	ND
38	FI-97-844-8*	Grandin/Sumai-3//Rugby	WB
39	FI-03-2318*	898-782/Lebsock	WB
40	CA-03-937*	Ben//Melita///Septre/4/898-787/5/Septre	WB
41	PI 189816		
42	PI 197664		
43	PI 225396		
44	PI 69321		
45	PI 74494		

* Durum entries

Table 2. 2004 Uniform Regional Scab Nursery for Spring Wheat Parents, Brookings, SD.

Line	Incidence %	Severity %	Disease Index	Tombstone %	Yield (g/plot)	Test Weight
2375	100.0	43.3	43.3	21.7	70.0	17.3
Wheaton	96.7	59.8	58.0	60.0	40.0	8.7
Bacup	90.0	39.5	35.7	10.0	50.0	16.7
Oslo	100.0	61.7	61.7	41.7	23.3	11.3
ND2710	91.7	25.2	23.0	3.0	83.3	21.3
SD3895	95.0	34.7	33.2	16.7	76.0	19.3
SD3901	88.3	20.5	18.1	6.7	98.7	21.3
SD3911	85.0	32.7	27.9	16.7	63.3	16.7
SD3924	98.3	37.0	36.4	18.3	94.7	18.7
SD3936	90.0	29.2	26.6	10.0	81.3	19.3
NDSW0345	98.3	53.0	52.2	18.3	37.3	12.7
ND 3015	98.3	47.3	46.7	11.7	74.0	13.3
ND 2790	96.7	34.3	33.3	8.3	68.7	18.0
ND 03/1-15	100.0	54.7	54.7	18.3	62.0	15.3
ND 03/3-1	98.3	39.3	38.7	18.3	90.0	18.7
ND 03/1-9	98.3	44.0	43.3	5.0	90.0	18.7
MN99220-4	96.7	43.5	42.1	4.3	80.7	17.3
MN99341-2-5	100.0	37.5	37.5	7.3	78.7	17.3
MN00187-3	98.3	28.3	27.9	1.7	81.3	22.7
MN01164	93.3	28.7	26.6	7.3	82.0	19.3
MN01NIL84-5-5-15	100.0	34.2	34.2	11.7	66.0	20.0
DG014152	98.3	49.3	48.7	18.3	46.0	13.3
DG013141	95.0	43.8	42.0	18.3	50.0	16.7
FI-03-2501	98.3	34.5	34.0	6.7	72.0	20.7
FI-03-2506	93.3	36.2	33.8	8.3	74.0	16.0
FI-03-2665	95.0	28.7	27.2	1.0	82.0	22.0
FI-03-2747	91.7	36.2	33.3	1.7	35.3	20.0
99S0146ES	91.7	37.8	35.1	10.0	84.7	19.3
99S0178-7	100.0	58.8	58.8	20.0	62.0	14.7
99S0196-3	100.0	51.2	51.2	33.3	73.3	16.7
99S0347-2	100.0	56.0	56.0	26.7	46.7	12.0
03CBWC-21	98.3	35.7	35.1	7.3	59.3	16.7
03CBWA3-15	98.3	36.8	36.3	5.3	104.0	19.3
HY644	95.0	39.3	37.4	20.0	58.0	18.7
HY668	98.3	55.0	54.2	25.0	57.3	15.3
HY699	95.0	40.5	38.8	20.0	70.7	16.0
Rugby	96.7	55.7	53.9	25.0	62.0	12.7
FI-97-844-8	98.3	43.5	42.9	5.7	42.0	16.7
FI-03-2318	96.7	55.5	53.7	46.7	35.3	12.0
CA-03-937	100.0	68.2	68.2	36.7	28.0	10.0
Mean	96.3	42.3	41.0	16.3	65.9	16.8
LSD	6.7	7.7	8.8	11.4	23.9	3.4
CV	4.3	11.3	13.3	43.1	22.4	12.3

Table 3. 2004 Uniform Regional Scab Nursery for Spring Wheat Parents, St. Paul, MN.

Line	Incidence %	Severity %	Disease Index	VSK %	DON ppm	Wt. of 30 heads (g)	Heading d from 6-1
2375	100.0	44.7	44.7	9.0	12.2	29.8	31.0
Wheaton	100.0	74.7	74.7	43.3	34.4	15.8	35.0
Bacup	65.0	18.3	13.9	2.7	4.5	23.4	24.0
Oslo	100.0	74.3	74.3	21.7	21.5	13.0	31.0
ND2710	73.3	16.2	13.4	2.7	3.7	35.8	30.0
SD3895	83.3	18.8	16.1	5.3	4.4	34.8	30.0
SD3901	70.0	14.4	9.8	4.0	3.7	34.2	28.0
SD3911	90.0	24.7	22.2	5.7	5.6	28.5	24.0
SD3924	58.3	23.6	17.5	5.5	7.6	33.7	27.7
SD3936	93.3	29.5	28.3	5.7	6.4	34.7	29.0
NDSW0345	100.0	72.0	72.0	12.7	26.9	15.0	35.0
ND 3015	100.0	42.3	42.3	8.0	10.1	21.6	31.0
ND 2790	96.7	34.0	33.3	5.3	12.0	25.9	32.3
ND 03/1-15	100.0	38.7	38.7	10.3	9.5	24.4	31.0
ND 03/3-1	91.7	28.5	26.7	6.0	11.0	31.3	32.3
ND 03/1-9	98.3	39.7	39.3	7.3	9.2	24.9	30.0
MN99220-4	95.0	22.3	21.2	3.7	6.1	31.2	28.0
MN99341-2-5	100.0	27.7	27.7	8.3	7.1	30.2	31.0
MN00187-3	73.3	18.3	13.8	4.7	2.8	33.6	31.0
MN01164	98.3	32.6	32.1	4.0	6.8	30.0	31.0
MN01NIL84-5-5-15	88.3	30.2	27.3	4.7	6.7	26.3	31.0
DG014152	100.0	47.6	47.6	10.0	17.7	32.6	33.7
DG013141	100.0	51.0	51.0	5.3	11.5	30.3	33.7
FI-03-2501	91.7	31.7	28.6	4.3	9.3	25.2	33.7
FI-03-2506	100.0	38.3	38.3	4.7	11.9	19.1	35.0
FI-03-2665	93.3	36.3	33.5	1.7	3.1	22.7	33.7
FI-03-2747	96.7	52.2	51.4	2.3	5.3	18.7	33.7
99S0146ES	100.0	56.5	56.5	8.3	10.3	28.4	32.3
99S0178-7	100.0	59.8	59.8	10.3	20.5	18.4	31.0
99S0196-3	100.0	47.5	47.5	15.0	22.4	24.4	31.0
99S0347-2	100.0	54.8	54.8	15.0	23.4	24.1	31.0
03CBWC-21	95.0	23.1	22.0	3.7	5.7	26.7	31.0
03CBWA3-15	98.3	37.0	36.4	2.7	3.5	31.2	35.0
HY644	98.3	36.9	36.5	7.0	5.2	30.9	36.0
HY688	96.7	54.1	52.6	12.3	12.8	16.4	38.0
HY699	100.0	54.1	54.1	9.0	10.4	24.9	35.0
Rugby	100.0	52.3	52.3	14.7	19.4	24.9	35.0
FI-97-844-8	73.3	30.4	24.9	1.7	4.7	23.8	40.7
FI-03-2318	100.0	62.5	62.5	20.0	19.9	18.2	35.0
CA-03-937	100.0	65.2	65.2	10.0	10.9	30.5	31.0
PI 189816	100.0	65.4	65.4	5.0	7.6	20.2	31.0
PI 197664	98.3	23.6	23.4	6.0	5.3	27.9	31.0
PI 225396	100.0	59.1	59.1	5.7	12.2	22.5	31.3
PI 69321	100.0	58.5	58.5	2.3	4.0	21.6	35.0
PI 74494	96.7	37.7	36.6	4.0	8.3	18.9	35.0
Mean	93.6	41.4	40.2	8.0	10.6	25.8	32.0
LSD	19.3	19.1	20.1	4.8	7.6	7.5	2.2
CV	12.7	27.5	29.8	33.4	41.8	18.4	4.2

Table 4. 2004 Uniform Regional Scab Nursery for Spring Wheat Parents, Crookston, MN.

Line	Incidence %	Severity %	Disease Index	VSK %	DON ppm	Wt. of 30 heads (g)	Heading d from 6-1
2375	100.0	49.3	49.3	12.5	17.8	23.6	39.5
Wheaton	100.0	81.5	81.5	55.0	54.6	6.5	40.0
Bacup	90.0	25.2	22.7	7.5	14.5	19.8	36.0
Oslo	100.0	85.1	85.1	45.0	29.2	4.2	38.5
ND2710	40.0	8.9	3.6	4.0	7.4	36.9	40.0
SD3895	71.7	12.5	9.1	4.0	10.4	24.0	39.0
SD3901	50.0	11.2	6.5	8.5	14.6	23.7	38.5
SD3911	100.0	39.9	39.9	11.5	16.5	22.9	36.5
SD3924	95.0	41.5	40.2	10.5	16.6	22.8	38.5
SD3936	88.3	13.7	12.3	7.5	14.0	29.5	38.5
NDSW0345	100.0	41.0	41.0	8.0	27.6	18.5	43.5
ND 3015	100.0	39.8	39.8	9.0	24.7	14.6	39.5
ND 2790	88.3	15.9	13.8	7.0	23.1	19.9	42.0
ND 03/1-15	100.0	38.9	38.9	12.0	32.8	12.7	40.5
ND 03/3-1	100.0	17.4	17.4	6.5	16.9	23.5	40.0
ND 03/1-9	80.0	16.0	13.5	6.5	17.1	19.8	40.0
MN99220-4	68.3	14.6	10.3	6.0	10.6	28.2	38.5
MN99341-2-5	61.7	8.7	5.4	8.5	12.9	28.2	40.0
MN00187-3	25.0	7.7	2.0	2.5	6.8	24.1	41.0
MN01164	85.0	14.1	12.0	5.0	10.9	26.0	38.0
MN01NIL84-5-5-15	43.3	8.0	3.9	6.0	8.1	23.7	40.5
DG014152	100.0	38.4	38.4	10.0	26.3	26.5	39.5
DG013141	98.3	42.3	41.7	10.0	20.2	27.0	39.0
FI-03-2501	78.3	17.2	13.7	5.0	16.1	20.8	40.5
FI-03-2506	83.3	12.2	10.3	6.5	20.3	18.4	42.5
FI-03-2665	20.0	7.7	1.5	2.5	4.1	20.5	41.0
FI-03-2747	81.7	16.1	13.1	3.5	9.9	20.0	41.5
99S0146ES	70.0	17.8	12.6	9.0	10.5	22.4	38.0
99S0178-7	100.0	65.7	65.7	37.5	31.0	10.9	38.5
99S0196-3	100.0	33.9	33.9	25.0	34.7	14.8	40.0
99S0347-2	100.0	64.2	64.2	22.5	35.7	14.7	40.0
03CBWC-21	60.0	10.5	6.9	5.0	9.0	25.7	40.5
03CBWA3-15	80.0	11.1	8.9	4.5	11.2	24.3	42.0
HY644	63.3	17.0	10.6	16.0	20.0	23.9	43.0
HY688	98.3	45.9	45.2	13.0	25.8	14.8	44.0
HY699	88.3	19.3	17.0	20.0	39.6	18.0	43.0
Rugby	96.7	41.7	40.3	22.5	28.3	21.2	41.5
FI-97-844-8	36.7	13.7	5.3	6.0	15.6	26.3	43.0
FI-03-2318	95.0	39.1	37.3	32.5	44.9	13.7	41.0
CA-03-937	100.0	69.5	69.5	25.0	28.8	15.7	38.5
PI 189816	86.7	45.9	40.1	14.0	11.5	18.9	42.0
PI 197664	88.3	20.5	18.5	6.5	13.5	22.8	38.5
PI 225396	83.3	32.5	26.8	7.5	18.6	27.0	40.0
PI 69321	21.7	12.8	2.8	2.0	5.7	24.0	40.5
PI 74494	55.0	23.2	12.8	4.5	12.8	28.6	43.0
Mean	79.4	29.1	26.3	12.3	19.6	21.2	40.2
LSD	17.4	10.8	10.8	9.2	7.7	4.6	1.8
CV	13.4	22	24.1	43.5	19.5	13.8	2.2

Table 5. 2004 Uniform Regional Scab Nursery for Spring Wheat Parents, Langdon, ND.

Line	Incidence %	Severity %	Disease Index	FDK %	Heading d from 6-1	Flag Leaf Necrosis
2375	43.3	6.9	3.1	1.8	13.0	56.7
Wheaton	33.3	6.7	2.2	2.7	13.3	23.3
Bacup	30.0	4.3	1.4	1.0	14.0	40.0
Oslo	35.0	14.8	5.2	2.2	12.3	70.0
ND2710	25.0	2.7	0.7	0.8	13.7	23.3
SD3895	23.3	3.3	0.8	1.2	12.3	23.3
SD3901	25.0	3.5	1.0	1.0	12.7	20.0
SD3911	25.0	4.8	1.3	1.3	13.0	26.7
SD3924	28.3	7.3	2.1	1.3	12.3	33.3
SD3936	21.7	3.8	0.9	1.3	14.3	13.3
NDSW0345	28.3	5.7	1.6	1.7	13.0	8.3
ND3015	35.0	6.8	2.5	1.2	13.0	16.7
ND2970	20.0	2.5	0.5	1.5	13.3	5.0
ND 03/1-15	36.7	6.6	2.4	1.7	14.0	8.3
ND 03/3-1	26.7	3.4	1.0	1.2	13.7	5.7
ND 03/1-9	28.3	4.7	1.4	1.2	13.3	5.0
MN99220-4	26.7	5.8	1.5	1.2	13.3	28.3
MN99341-2-5	38.3	4.7	1.8	1.5	12.0	46.7
MN00187-3	16.7	3.8	0.7	0.3	12.7	15.0
MN01164	23.3	2.6	0.6	0.8	14.0	11.7
MN01NIL84-5-5-15	20.0	3.6	0.8	0.7	13.7	11.7
DG 4152	30.0	4.6	1.4	1.2	13.7	16.7
DG 3141	31.7	5.0	1.5	1.5	13.0	23.3
FI-03-2501	26.7	3.1	0.9	0.8	13.7	16.7
FI-03-2506	18.3	2.9	0.6	0.7	14.3	8.3
FI-03-2665	28.3	5.1	1.4	1.3	13.7	16.7
FI-03-2747	18.3	3.1	0.5	1.0	13.7	43.3
99S0146ES	30.0	4.5	1.4	1.5	13.3	21.7
99S0178-7	41.7	9.1	4.0	1.8	13.3	33.3
99S0196-3	33.3	6.7	2.5	2.2	13.0	11.7
99S0347-2	30.0	4.9	1.5	2.0	14.0	10.0
03CBWC-21	20.0	4.7	1.0	1.2	13.3	30.0
03CBWA3-15	26.7	5.0	1.5	1.7	15.0	16.7
HY644	23.3	2.4	0.6	1.5	11.7	8.3
HY688	28.3	5.7	1.6	1.0	13.7	23.3
HY699	30.0	3.8	1.2	0.8	13.0	20.0
Rugby	31.7	5.3	1.6	1.5	14.0	11.7
FI-97-844-8 *	---	---	---	---	---	---
FI-03-2318	31.7	5.2	1.6	2.0	14.0	20.0
CA-03-937	35.0	7.3	2.6	1.7	14.0	50.0
Mean	28.3	5.0	1.6	1.4	13.4	22.4
LSD	11.4	3.4	1.4	0.8	NS	18.1
CV	24.8	41.0	55.7	36.3	8.4	49.7

* very poor emergence, no data

Table 6. 2004 Uniform Regional Scab Nursery for Spring Wheat Parents, Prosper, ND.

Line	Incidence %	Severity %	Disease Index
2375	95.3	28.0	26.9
Wheaton	100.0	81.4	81.4
Bacup	77.8	16.5	13.3
Oslo	100.0	65.8	65.8
ND2710	35.0	8.6	3.1
SD3895	58.8	16.6	11.4
SD3901	42.3	10.1	4.3
SD3911	79.8	18.4	15.2
SD3924	79.0	34.6	28.8
SD3936	52.3	11.7	6.2
NDSW0345	97.5	57.1	55.8
ND3015	93.0	28.7	27.1
ND2970	93.5	21.1	19.7
ND03/1-15	100.0	36.2	36.2
ND03/3-1	94.5	39.6	37.6
ND03/1-9	78.0	18.8	15.4
MN99220-4	60.8	10.7	6.4
MN99341-2-5	60.8	11.8	7.9
MN00187-3	24.3	11.9	3.2
MN01164	71.0	10.6	7.6
MN01NIL84-5-5-15	35.3	9.6	3.4
DG4152	95.3	48.5	46.6
DG3141	86.3	45.2	38.7
FI-03-2501	89.3	30.5	27.1
FI-03-2506	88.0	43.7	38.6
FI-03-2665	52.3	11.3	5.9
FI-03-2747	92.5	46.5	44.0
99S0146ES	65.0	11.8	7.7
99S0178-7	96.0	27.7	26.8
99S0196-3	95.0	28.0	26.6
99S0347-2	95.3	43.6	42.1
03CBWC-21	61.5	14.6	9.6
03CBWA3-15	72.0	23.0	16.8
HY644	62.5	30.1	20.6
HY688	90.3	41.1	37.1
HY699	100.0	48.7	48.7
Rugby	95.3	63.1	60.4
FI-97-844-8	79.8	23.7	18.9
FI-03-2318	91.0	38.3	34.5
CA-03-937	99.0	59.8	59.2
PI 189816	96.3	53.6	51.6
PI 197664	62.8	15.3	10.0
PI 225396	80.5	40.8	33.1
PI 69321	50.0	14.3	7.3
PI 74494	92.3	32.2	29.5
Mean	78.1	30.7	27.1

**Table 7. 2004 Uniform Regional Scab Nursery for Spring Wheat Parents,
Summary of Means Across Mist-Irrigated Locations.**

Line	Incidence %	Incidence Rank	Severity %	Severity Rank	Disease Index	Disease Index Rank	VSK %*	VSK Rank	DON ppm	DON Rank	Heading Days from 6-1	Heading Rank
No. of Locations	5	5	5	5	5	5	3	3	2	2	3	3
2375	87.7	43	34.4	31	33.5	31	14.4	35	15.0	27	27.8	12
Wheaton	86.0	38	60.8	45	59.6	45	52.8	45	44.5	45	29.4	29
Bacup	70.6	12	20.8	13	17.4	13	6.7	18	9.5	14	24.7	2
Oslo	87.0	40	60.3	44	58.4	44	36.1	44	25.4	39	27.3	7
ND2710	53.0	2	12.3	2	8.7	2	3.2	5	5.5	4	27.9	16
SD3895	66.4	7	17.2	5	14.1	6	8.7	23	7.4	6	27.1	6
SD3901	55.1	3	12.0	1	7.9	1	6.4	15	9.1	12	26.4	4
SD3911	76.0	19	24.1	17	21.3	18	11.3	29	11.0	21	24.5	1
SD3924	71.8	14	28.8	25	25.0	25	11.4	30	12.1	22	26.2	3
SD3936	69.1	10	17.6	6	14.9	7	7.7	21	10.2	18	27.3	7
NDSW0345	84.8	34	45.8	41	44.5	41	13.0	32	27.3	41	30.5	36
ND 3015	85.3	36	33.0	28	31.7	28	9.6	26	17.4	31	27.8	12
ND 2790	79.0	24	21.6	14	20.1	15	6.9	19	17.5	32	29.2	27
ND 03/1-15	87.3	41	35.0	32	34.2	32	13.6	33	21.1	35	28.5	23
ND 03/3-1	82.2	26	25.7	20	24.3	23	10.3	27	13.9	26	28.7	25
ND 03/1-9	76.6	21	24.6	18	22.6	19	6.3	13	13.1	25	27.8	12
MN99220-4	69.5	11	19.4	11	16.3	11	4.7	9	8.3	10	26.6	5
MN99341-2-5	72.1	16	18.1	10	16.1	10	8.1	22	10.0	16	27.7	10
MN00187-3	47.5	1	14.0	3	9.5	3	2.9	4	4.8	2	28.2	19
MN01164	74.2	17	17.7	7	15.8	9	5.4	12	8.8	11	27.7	10
MN01NIL84-5-5-15	57.4	5	17.1	4	13.9	4	7.4	20	7.4	6	28.4	22
DG014152	84.7	33	37.7	34	36.5	34	12.8	31	22.0	36	29.0	26
DG013141	82.3	27	37.5	33	35.0	33	11.2	28	15.8	29	28.6	24
FI-03-2501	76.9	23	23.4	16	20.9	16	5.3	10	12.7	24	29.3	28
FI-03-2506	76.6	21	26.7	22	24.3	23	6.5	16	16.1	30	30.6	37
FI-03-2665	57.8	6	17.8	9	13.9	4	1.7	1	3.6	1	29.5	30
FI-03-2747	76.2	20	30.8	26	28.5	27	2.5	3	7.6	9	29.6	31
99S0146ES	71.3	13	25.7	20	22.6	19	9.1	24	10.4	19	27.9	16
99S0178-7	87.5	42	44.2	39	43.0	39	22.6	40	25.8	40	27.6	9
99S0196-3	85.7	37	33.5	30	32.3	30	24.4	42	28.6	42	28.0	18
99S0347-2	85.1	35	44.7	40	43.7	40	21.4	39	29.5	43	28.3	20
03CBWC-21	67.0	8	17.7	7	14.9	7	5.3	10	7.4	6	28.3	20
03CBWA3-15	75.1	18	22.6	15	20.0	14	4.2	6	7.3	5	30.7	38
HY644	68.5	9	25.1	19	21.1	17	14.3	34	12.6	23	30.2	33
HY688	82.4	28	40.3	36	38.1	36	16.8	37	19.3	33	31.9	39
HY699	82.7	29	33.3	29	32.0	29	16.3	36	25.0	38	30.3	35
Rugby	84.1	32	43.6	37	41.7	38	20.7	38	23.8	37	30.2	33
FI-97-844-8	72.0	15	27.8	23	23.0	22	4.4	8	10.1	17	41.8	45
FI-03-2318	82.9	30	40.1	35	37.9	35	33.1	43	32.4	44	30.0	32
CA-03-937	86.8	39	54.0	42	52.9	43	23.9	41	19.8	34	27.8	12
PI 189816**	94.3	45	54.9	43	52.4	42	9.5	25	9.5	14	36.5	42
PI 197664**	83.1	31	19.8	12	17.3	12	6.3	13	9.4	13	34.8	40
PI 225396**	87.9	44	44.1	38	39.7	37	6.6	17	15.4	28	35.7	41
PI 69321**	57.2	4	28.5	24	22.9	21	2.2	2	4.9	3	37.8	43
PI 74494**	81.3	25	31.0	27	26.3	26	4.3	7	10.6	20	39.0	44
Mean	75.2		29.7		27.2		12.2		15.1		28.6	

* For calculation of VSK %, Tombstone data considered = VSK

** Entries only planted at three locations

**Table 8. 2004 Uniform Regional Scab Nursery for Spring Wheat Parents
(Dryland Screening), St. Paul, MN.**

Line	Incidence %	Severity %	Disease Index	VSK %	DON ppm
P 2375	90.0	24.8	22.4	8.9	8.2
Wheaton	100.0	66.8	66.8	46.3	33.4
Bacup	78.8	13.2	10.8	3.0	3.3
Oslo	100.0	64.3	64.3	25.6	25.2
ND2710	26.3	2.0	0.6	1.6	2.3
SD3895	66.3	10.0	6.6	3.5	4.8
SD3901	32.5	7.0	2.8	1.4	2.0
SD3911	77.5	16.8	13.2	3.5	3.1
SD3924	75.0	19.6	15.0	2.5	3.1
SD3936	56.3	9.6	5.6	1.6	3.3
NDSW0345	97.5	63.5	62.0	22.5	18.4
ND 3015	97.5	38.4	37.4	9.4	8.3
ND 2790	91.3	15.6	14.3	5.8	7.9
ND 03/1-15	97.5	35.3	34.3	10.5	7.9
ND 03/3-1	65.0	11.1	7.2	3.5	2.9
ND 03/1-9	76.3	18.7	15.2	4.8	5.1
MN99220-4	50.0	5.2	3.1	1.3	1.2
MN99341-2-5	73.8	16.1	12.4	3.5	4.1
MN00187-3	55.0	8.0	4.7	1.8	3.1
MN01164	68.8	11.7	8.2	2.0	3.4
MN01NIL84-5-5-15	42.5	5.1	2.4	1.0	1.5
DG014152	100.0	38.9	38.9	5.8	12.5
DG013141	100.0	43.3	43.3	7.0	8.3
FI-03-2501	83.8	26.0	22.6	3.0	6.9
FI-03-2506	96.3	29.1	28.4	7.0	7.4
FI-03-2665	50.0	6.0	3.3	1.9	1.3
FI-03-2747	81.3	18.6	15.3	2.5	2.8
99S0146ES	65.0	8.4	5.6	4.8	4.1
99S0178-7	100.0	28.3	28.3	21.3	8.4
99S0196-3	98.8	24.2	23.9	18.1	11.2
99S0347-2	100.0	29.0	29.0	17.5	11.7
03CBWC-21	73.8	14.6	11.0	4.3	4.3
03CBWA3-15	97.5	42.8	41.7	7.5	9.7
HY644	90.0	29.7	28.0	6.8	6.4
HY668	100.0	62.5	62.5	14.4	10.1
HY699	88.8	26.8	24.8	5.5	8.7
Rugby	98.8	63.5	62.7	10.5	15.9
FI-97-844-8	93.8	40.8	37.8	4.3	6.7
FI-03-2318	100.0	65.5	65.5	20.6	18.9
CA-03-937	91.3	31.9	29.3	9.9	10.7
PI 189816	90.0	50.3	46.0	7.0	5.6
PI 197664	85.0	11.1	9.4	1.8	2.5
PI 225396	72.5	12.7	8.9	2.1	4.4
PI 69321	63.3	28.4	23.6	2.1	1.9
PI 74494	80.0	43.6	33.6	4.8	5.7
Mean	80.4	27.5	25.2	7.9	7.5

**Table 9. 2004 Uniform Regional Scab Nursery for Spring Wheat Parents
(Dryland Screening), Crookston, MN.**

Line	Incidence %	Severity %	Disease Index	VSK %	DON ppm
P 2375	90.0	50.2	45.3	27.5	11.2
Wheaton	98.8	80.8	79.9	75.0	37.4
Bacup	85.0	24.5	21.7	6.3	5.4
Oslo	98.3	79.2	78.0	37.5	30.5
ND2710	46.3	8.1	4.1	3.3	2.6
SD3895	58.8	17.8	10.8	7.0	3.6
SD3901	51.3	11.1	5.8	5.3	3.4
SD3911	83.8	32.0	27.9	13.1	6.6
SD3924	77.5	39.3	30.9	13.8	9.0
SD3936	58.8	14.5	9.1	6.8	4.2
NDSW0345	96.3	75.9	73.2	21.9	17.7
ND 3015	90.0	56.4	52.0	26.3	12.0
ND 2790	77.5	29.6	23.6	14.4	10.2
ND 03/1-15	96.3	58.5	56.6	26.9	11.2
ND 03/3-1	85.0	25.5	21.6	8.5	5.2
ND 03/1-9	80.0	45.4	36.4	18.8	8.9
MN99220-4	77.5	16.8	12.9	4.8	3.6
MN99341-2-5	66.7	14.0	9.5	8.0	5.0
MN00187-3	43.8	9.6	5.1	2.0	0.8
MN01164	76.3	19.1	15.3	5.0	3.0
MN01NIL84-5-5-15	31.3	5.1	1.8	2.0	1.5
DG014152	93.8	32.1	29.9	15.0	12.6
DG013141	91.3	26.6	24.4	7.3	7.2
FI-03-2501	77.5	33.1	25.9	9.6	4.8
FI-03-2506	86.3	24.8	22.0	8.3	5.3
FI-03-2665	62.5	9.5	6.4	4.0	1.5
FI-03-2747	85.0	40.5	35.6	7.8	3.4
99S0146ES	65.0	18.7	12.8	6.8	3.7
99S0178-7	96.3	55.4	53.9	27.5	11.1
99S0196-3	97.5	38.4	37.5	26.9	12.8
99S0347-2	98.3	61.4	60.3	29.2	14.9
03CBWC-21	70.0	30.1	22.1	7.8	3.9
03CBWA3-15	73.8	18.5	14.0	6.3	3.7
HY644	62.5	15.3	10.6	12.0	6.4
HY668	85.0	40.7	35.0	23.3	10.1
HY699	90.0	32.9	29.9	22.5	16.5
Rugby	95.0	68.6	65.4	33.1	17.9
FI-97-844-8	48.8	14.5	7.5	10.5	7.0
FI-03-2318	93.8	62.0	58.4	41.9	23.0
CA-03-937	100.0	63.2	63.2	36.3	15.4
PI 189816	87.5	58.7	52.2	7.8	5.1
PI 197664	75.0	34.4	28.8	14.4	5.9
PI 225396	82.5	42.4	36.1	11.6	8.3
PI 69321	32.5	9.8	3.6	1.4	0.8
PI 74494	50.0	21.9	13.0	3.7	2.3
Mean	77.1	34.8	30.4	15.7	8.8

**Table 10. 2004 Uniform Regional Scab Nursery for Spring Wheat Parents,
Summary of Means Across Dryland Locations.**

Line	Incidence %	Incidence Rank	Severity %	Severity Rank	Disease Index	Disease Index Rank	VSK %	VSK Rank	DON ppm	DON Rank
P 2375	90.0	30	37.5	33	33.9	31	18.2	34	9.7	32
Wheaton	99.4	45	73.8	45	73.3	45	60.6	45	35.4	45
Bacup	81.9	24	18.9	13	16.2	14	4.7	11	4.3	17
Oslo	99.2	43	71.7	44	71.2	44	31.6	44	27.8	44
ND2710	36.3	1	5.1	1	2.3	2	2.4	4	2.5	6
SD3895	62.5	8	13.9	9	8.7	8	5.3	13	4.2	15
SD3901	41.9	3	9.1	5	4.3	3	3.3	7	2.7	7
SD3911	80.6	22	24.4	19	20.6	19	8.3	27	4.9	19
SD3924	76.3	17	29.5	23	22.9	22	8.1	25	6.0	22
SD3936	57.5	7	12.1	7	7.4	6	4.2	9	3.7	10
NDSW0345	96.9	36	69.7	43	67.6	43	22.2	38	18.0	42
ND 3015	93.8	33	47.4	37	44.7	35	17.8	33	10.1	34
ND 2790	84.4	26	22.6	17	18.9	16	10.1	29	9.1	30
ND 03/1-15	96.9	36	46.9	36	45.4	37	18.7	35	9.5	31
ND 03/3-1	75.0	16	18.3	12	14.4	13	6.0	16	4.1	13
ND 03/1-9	78.1	20	32.0	29	25.8	27	11.8	31	7.0	28
MN99220-4	63.8	9	11.0	6	8.0	7	3.0	6	2.4	5
MN99341-2-5	70.2	12	15.0	10	10.9	10	5.8	14	4.6	18
MN00187-3	49.4	5	8.8	4	4.9	4	1.9	3	2.0	4
MN01164	72.5	15	15.4	11	11.7	11	3.5	8	3.2	9
MN01NIL84-5-5-15	36.9	2	5.1	1	2.1	1	1.5	1	1.5	3
DG014152	96.9	36	35.5	32	34.4	33	10.4	30	12.5	37
DG013141	95.6	34	34.9	31	33.9	31	7.1	21	7.7	29
FI-03-2501	80.6	22	29.6	24	24.2	24	6.3	18	5.8	21
FI-03-2506	91.3	31	27.0	20	25.2	25	7.6	24	6.3	23
FI-03-2665	56.3	6	7.7	3	4.9	4	2.9	5	1.4	2
FI-03-2747	83.1	25	29.6	24	25.4	26	5.1	12	3.1	8
99S0146ES	65.0	10	13.5	8	9.2	9	5.8	14	3.9	11
99S0178-7	98.1	41	41.8	34	41.1	34	24.4	42	9.7	32
99S0196-3	98.1	41	31.3	28	30.7	30	22.5	39	12.0	36
99S0347-2	99.2	43	45.2	35	44.7	35	23.3	41	13.3	40
03CBWC-21	71.9	14	22.4	15	16.5	15	6.0	16	4.1	13
03CBWA3-15	85.6	27	30.7	27	27.8	29	6.9	19	6.7	26
HY644	76.3	17	22.5	16	19.3	18	9.4	28	6.4	25
HY668	92.5	32	51.6	39	48.7	39	18.9	36	10.1	34
HY699	89.4	29	29.9	26	27.4	28	14.0	32	12.6	38
Rugby	96.9	36	66.0	42	64.0	42	21.8	37	16.9	41
FI-97-844-8	71.3	13	27.6	22	22.6	21	7.4	22	6.8	27
FI-03-2318	96.9	36	63.7	41	61.9	41	31.3	43	20.9	43
CA-03-937	95.6	34	47.6	38	46.3	38	23.1	40	13.0	39
PI 189816	88.8	28	54.5	40	49.1	40	7.4	22	5.3	20
PI 197664	80.0	21	22.8	18	19.1	17	8.1	25	4.2	15
PI 225396	77.5	19	27.5	21	22.5	20	6.9	19	6.3	23
PI 69321	47.9	4	19.1	14	13.6	12	1.8	2	1.3	1
PI 74494	65.0	10	32.7	30	23.3	23	4.2	9	4.0	12
Mean	78.7		31.2		27.8		11.8		8.2	

Table 11. Correlation coefficients* among traits for Mist-Irrigated and Dryland Locations.

	Incidence %	Severity %	Disease Index	VSK %	DON ppm
Incidence %		0.80	0.82	0.67	0.68
Severity %	0.77		1.00	0.83	0.86
Disease Index	0.80	1.00		0.85	0.88
VSK %	0.52	0.75	0.76		0.95
DON ppm	0.66	0.75	0.78	0.89	

Note: Dryland Correlation Coefficients are above the diagonal, Mist-Irrigated are below the diagonal.

* Correlation coefficients were calculated using the summary of means data.

Table 12. Means and correlation coefficients between Mist-Irrigated and Dryland Locations.

Means across locations	Incidence %	Severity %	Disease Index	VSK %	DON ppm
Mist-Irrigated	75.2	29.7	27.2	12.2	15.1
Dryland	78.7	31.2	27.8	8.2	11.8

Correlation Coefficients					
Mist-Irrigated vs. Dryland	0.89	0.89	0.91	0.95	0.90