2008

NORTH AMERICAN BARLEY SCAB EVALUATION NURSERY (NABSEN) REPORT

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INTRODUCTION

The 2008 North American Barley Scab Evaluation Nursery (NABSEN) was grown at Fargo, Langdon, Osnabrock and Casselton, ND; St. Paul and Crookston MN, and Brandon, Manitoba. Nurseries were either misted or unmisted (dryland). Dryland nurseries provide conditions similar to those found in commercial fields. Disease in misted fields are more severe than growers would observe in most years and entries with only moderate FHB resistance have high disease levels. Only entries with higher levels of resistance similar to Chevron or CIho 4196 are scored as resistant in the misted nurseries. Dryland nurseries allow discrimination of entries with moderate to low levels of FHB resistance. Each nursery included a set of common checks. The checks were CIho 4196 (resistant two-row check), Chevron (resistant six-row check), Robust and Stander (susceptible six-row checks), MNBrite (moderately resistant six-row check), and Conlon (moderately resistant two-row check). At all locations percent severity of FHB was determined at the soft to middle dough stage by determining the ratio of infected kernels to total kernels on 10-20 spikes per entry, and then multiplying by 100.

Site details are as follows;

FARGO, ND – Stephen Neate and Patrick Gross

- Misted
- Inoculated by grain spawn method
- 3 Replicates
- Disease severity - percentage of infected kernels
- Disease incidence - percentage of infected heads
- DON content (ppm) measured by GC/ECD by P Schwarz, NDSU on a composite sample of 3 replicates
- Day to heading counted from date planted to 50% of heads emerged 50%

LANGDON, ND – Stephen Neate and Patrick Gross

- Misted
- Inoculated by grain spawn method
- 3 Replicates
- Disease severity - percentage of infected kernels
- Disease incidence - percentage of infected heads
- DON content (ppm) measured by GC/ECD by P Schwarz, NDSU on a composite sample of 3 replicates
- Day to heading counted from date planted to 50% of heads emerged 50%

OSNABROCK, ND – Richard Horsley

- Dryland
- Inoculated by grain spawn method
- 3 Replicates
- Disease severity - percentage of infected kernels
- Disease incidence - percentage of infected heads
- DON content (ppm) measured by GC/ECD by P Schwarz, NDSU on a composite sample of 3 replicates

Casselton, ND - Linnea Skoglund

- Dryland
- No data

ST. PAUL, MN– Kevin Smith and Ruth Dill-Macky

- Misted
- No data

CROOKSTON, MN – Kevin Smith and Ruth Dill-Macky

- Separate Misted and Dryland trails (only data for Misted)
- Inoculated by spore spray method
- Disease severity - percentage of infected kernels
- Disease incidence - percentage of infected heads
- DON content (ppm) measured by GC/ECD by P Schwarz, NDSU on a composite sample of 3 replicates

BRANDON, MANITOBA - Bill Legge and James Tucker

- Misted
- 4 replicates RCB design
- Disease severity - percentage of infected kernels
- Disease incidence - percentage of infected heads
- DON content (ppm) measured by ELISA technique at ECORC, Ottawa on a composite sample of 4 replicates

Table 1. Mean FHB severity of entries grown in the 2008 NABSEN Nursery at five locations.

				Crookston			**misted**	Osnabrock
Label	Brandon	Fargo	Langdon	misted	Osnabrock	All loc	**Mean**	dryland
ND23497	23.8	8.8	18.2	11.6	1.1	12.7	**15.6**	1.1
ND23753	9.9	17.3	23.6	13.6	0.7	13.0	**16.1**	0.7
ND24978	30.9	6.4	17.5	9.6	0.5	13.0	**16.1**	0.5
ND25908	30.8	13.9	20.5	26.8	5.7	19.5	**23.0**	5.7
ND25917	29.7	9.0	9.3	12.2	0.7	12.2	**15.0**	0.7
ND25977	16.5	16.5	13.7	19.2	1.0	13.4	**16.5**	1.0
ND26086	15.7	16.1	32.6	26.2	0.9	18.3	**22.6**	0.9
ND26247	38.0	19.6	21.5	25.3	2.9	21.5	**26.1**	2.9
Pinnacle	19.9	10.6	16.5	11.3	2.3	12.1	**14.6**	2.3
2ND28167	25.2	8.4	20.3	30.7	1.9	17.3	**21.2**	1.9
2ND22182	26.5	17.8	23.6	19.7	3.0	18.1	**21.9**	3.0
2ND22927	26.9	9.5	8.5	23.5	2.0	14.1	**17.1**	2.0
2ND24238	20.2	7.1	19.1	27.2	3.2	15.4	**18.4**	3.2
2ND24263	23.0	11.6	23.2	28.5	1.3	17.5	**21.6**	1.3
2ND24388	18.8	8.9	25.0	19.7	2.3	14.9	**18.1**	2.3
2ND24393	22.5	9.8	13.5	16.3	3.8	13.2	**15.5**	3.8
M128	23.1	11.7	18.4	13.6	1.0	13.5	**16.7**	1.0
M129	13.2	8.7	16.8	11.2	2.0	10.4	**12.5**	2.0
M130	22.6	17.9	25.8	11.6	1.1	15.8	**19.5**	1.1
M132	18.8	16.8	15.3	12.2	1.2	12.8	**15.8**	1.2
M134 (FEG118-69)	15.2	16.4	15.9	10.2	0.7	11.7	**14.4**	0.7
M135 (FEG141-20)	17.4	17.7	18.4	11.2	1.8	13.3	**16.2**	1.8
M136 (FEG147-37)	24.1	10.6	17.3	12.4	2.5	13.4	**16.1**	2.5
M137 (FEG150-42)	24.0	19.1	25.6	14.1	1.3	16.8	**20.7**	1.3
6B05-0922	17.6	18.4	22.1	16.8	0.7	15.1	**18.7**	0.7
6B06-1133	24.4	19.0	26.8	26.2	3.7	20.0	**24.1**	3.7
6B06-1338	31.6	18.5	25.0	24.0	2.5	20.3	**24.8**	2.5
6B06-1392	33.7	20.8	20.3	33.1	2.2	22.0	**27.0**	2.2
6B06-1393	30.1	18.4	19.0	22.3	2.9	18.5	**22.5**	2.9

Table 1. cont. Mean FHB severity of entries grown in the 2008 NABSEN Nursery at five locations.

				Crookston			**misted**	Osnabrock
Label	Brandon	Fargo	Langdon	misted	Osnabrock	All loc	**Mean**	dryland
6B06-1394	22.1	18.3	17.4	16.0	0.9	14.9	**18.4**	0.9
6B06-1409	24.2	23.4	17.3	21.3	1.3	17.5	**21.6**	1.3
SB050696	25.5	10.6	6.4	17.3	3.6	12.7	**15.0**	3.6
SB050716	17.8	10.0	9.4	19.7	1.9	11.8	**14.2**	1.9
SM060100	17.8	2.7	9.3	11.5	0.7	8.4	**10.3**	0.7
BM0270D-152	11.2	1.5	9.5	13.0	1.1	7.3	**8.8**	1.1
BM0331D-357	17.2	2.5	6.5	13.5	0.6	8.1	**9.9**	0.6
BM0331D-373	11.4	3.2	13.3	18.2	0.3	9.3	**11.5**	0.3
BM0207D-86	17.3	3.8	14.8	9.8	1.6	9.5	**11.4**	1.6
BM0264D-60	16.1	6.8	8.0	25.3	1.7	11.6	**14.1**	1.7
Seebe	17.6	3.4	6.1	11.2	0.6	7.7	**9.5**	0.6
H94051001	17.1	2.4	1.4	8.0	1.0	6.0	**7.2**	1.0
H96035002	17.1	2.6	4.3	7.5	1.9	6.7	**7.9**	1.9
H98011002	17.9	11.9	15.7	21.8	2.2	13.9	**16.8**	2.2
MnBrite	20.8	12.4	8.5	22.4	1.7	13.1	**16.0**	1.7
Conlon	12.6	11.4	25.7	21.2	1.4	14.4	**17.7**	1.4
Robust	27.0	20.8	20.5	28.7	2.1	19.8	**24.2**	2.1
CIHO 4196	16.9	1.5	1.6	6.2	1.0	5.4	**6.5**	1.0
Chevron	5.6	1.4	5.3	9.0	0.1	4.3	**5.3**	0.1
Stander	40.7	23.1	18.0	26.3	2.4	22.1	**27.0**	2.4

Table 2. Mean disease incidence of entries grown in the 2008 NABSEN Nursery at five locations.

				Crookston			**misted**	Osnabrock
Label	Brandon	Fargo	Langdon	misted	Osnabrock	All loc	**Mean**	dryland
ND23497	100.0	86.7	100.0	100.0	36.7	84.7	**96.7**	36.7
ND23753	97.5	93.3	100.0	100.0	23.3	82.8	**97.7**	23.3
ND24978	100.0	83.3	100.0	100.0	23.3	81.3	**95.8**	23.3
ND25908	100.0	96.7	100.0	100.0	63.3	92.0	**99.2**	63.3
ND25917	100.0	93.3	96.7	100.0	30.0	84.0	**97.5**	30.0
ND25977	97.5	100.0	100.0	100.0	40.0	87.5	**99.4**	40.0
ND26086	100.0	100.0	100.0	100.0	30.0	86.0	**100.0**	30.0
ND26247	100.0	100.0	93.3	100.0	66.7	92.0	**98.3**	66.7
Pinnacle	87.5	93.3	80.0	80.0	46.7	77.5	**85.2**	46.7
2ND28167	100.0	90.0	86.7	100.0	40.0	83.3	**94.2**	40.0
2ND22182	97.5	96.7	96.7	100.0	50.0	88.2	**97.7**	50.0
2ND22927	97.5	90.0	60.0	100.0	36.7	76.8	**86.9**	36.7
2ND24238	100.0	83.3	90.0	100.0	60.0	86.7	**93.3**	60.0
2ND24263	100.0	86.7	86.7	100.0	23.3	79.3	**93.3**	23.3
2ND24388	92.5	96.7	93.3	100.0	40.0	84.5	**95.6**	40.0
2ND24393	97.5	93.3	86.7	93.3	53.3	84.8	**92.7**	53.3
M128	97.5	96.7	96.7	100.0	36.7	85.5	**97.7**	36.7
M129	95.0	93.3	96.7	96.7	63.3	89.0	**95.4**	63.3
M130	100.0	93.3	100.0	100.0	43.3	87.3	**98.3**	43.3
M132	100.0	100.0	96.7	100.0	50.0	89.3	**99.2**	50.0
M134 (FEG118-69)	100.0	100.0	100.0	93.3	26.7	84.0	**98.3**	26.7
M135 (FEG141-20)	97.5	100.0	100.0	96.7	63.3	91.5	**98.5**	63.3
M136 (FEG147-37)	100.0	83.3	96.7	100.0	50.0	86.0	**95.0**	50.0
M137 (FEG150-42)	97.5	100.0	96.7	100.0	36.7	86.2	**98.5**	36.7
6B05-0922	97.5	96.7	100.0	100.0	30.0	84.8	**98.5**	30.0
6B06-1133	100.0	100.0	100.0	100.0	70.0	94.0	**100.0**	70.0
6B06-1338	100.0	100.0	100.0	100.0	63.3	92.7	**100.0**	63.3
6B06-1392	100.0	100.0	96.7	100.0	43.3	88.0	**99.2**	43.3
6B06-1393	100.0	100.0	100.0	100.0	60.0	92.0	**100.0**	60.0

Table 2. cont. Mean disease incidence of entries grown in the 2008 NABSEN Nursery at five locations.

				Crookston			**misted**	Osnabrock
Label	Brandon	Fargo	Langdon	misted	Osnabrock	All loc	**Mean**	dryland
6B06-1394	100.0	100.0	96.7	100.0	23.3	84.0	**99.2**	23.3
6B06-1409	100.0	100.0	93.3	100.0	50.0	88.7	**98.3**	50.0
SB050696	100.0	96.7	70.0	96.7	50.0	82.7	**90.8**	50.0
SB050716	97.5	90.0	76.7	100.0	40.0	80.8	**91.0**	40.0
SM060100	100.0	53.3	66.7	96.7	16.7	66.7	**79.2**	16.7
BM0270D-152	85.0	43.3	86.7	100.0	26.7	68.3	**78.8**	26.7
BM0331D-357	97.5	60.0	53.3	100.0	13.3	64.8	**77.7**	13.3
BM0331D-373	87.5	63.3	93.3	90.0	6.7	68.2	**83.5**	6.7
BM0207D-86	97.5	56.7	93.3	100.0	33.3	76.2	**86.9**	33.3
BM0264D-60	95.0	80.0	83.3	100.0	30.0	77.7	**89.6**	30.0
Seebe	100.0	70.0	70.0	100.0	16.7	71.3	**85.0**	16.7
H94051001	100.0	50.0	26.7	96.7	23.3	59.3	**68.3**	23.3
H96035002	97.5	60.0	60.0	83.3	40.0	68.2	**75.2**	40.0
H98011002	100.0	90.0	83.3	100.0	46.7	84.0	**93.3**	46.7
MnBrite	100.0	93.3	90.0	100.0	60.0	88.7	**95.8**	60.0
Conlon	87.5	100.0	100.0	100.0	26.7	82.8	**96.9**	26.7
Robust	100.0	96.7	100.0	100.0	56.7	90.7	**99.2**	56.7
CIHO 4196	87.5	50.0	20.0	76.7	23.3	51.5	**58.5**	23.3
Chevron	72.5	56.7	63.3	100.0	6.7	59.8	**73.1**	6.7
Stander	100.0	100.0	100.0	100.0	53.3	90.7	**100.0**	53.3

Table 3. Mean days to heading after planting of entries grown in 2008 NABSEN Nursery at four locations.

Name	Brandon	Fargo	Langdon	Crookston misted	Mean
ND23497	51.3	61	52	58	55
ND23753	51.5	58	51	58	55
ND24978	55.5	63	56	63	59
ND25908	53.0	61	52	59	56
ND25917	53.0	60	52	60	56
ND25977	52.0	61	52	60	56
ND26086	51.0	59	51	57	54
ND26247	52.0	59	52	58	55
Pinnacle	56.5	61	53	60	58
2ND28167	53.8	61	51	55	55
2ND22182	51.3	58	50	59	54
2ND22927	53.5	59	51	58	55
2ND24238	53.0	61	49	57	55
2ND24263	52.5	58	49	56	54
2ND24388	52.5	57	48	56	53
2ND24393	51.8	57	47	57	53
M128	53.0	60	52	61	57
M129	51.5	58	51	57	54
M130	53.0	60	52	59	56
M132	53.0	59	52	59	56
M134 (FEG118-69)	52.3	59	52	60	56
M135 (FEG141-20)	51.8	60	52	59	56
M136 (FEG147-37)	53.0	61	51	60	56
M137 (FEG150-42)	51.8	59	51	58	55
6B05-0922	53.0	62	52	58	56
6B06-1133	50.3	59	52	58	55
6B06-1338	53.0	62	51	58	56
6B06-1392	52.8	59	54	61	57
6B06-1393	52.5	61	55	60	57

Table 3. cont. Mean days to heading after planting of entries grown in 2008 NABSEN Nursery at four locations.

Name	Brandon	Fargo	Langdon	Crookston misted	Mean
6B06-1394	52.8	61	54	61	57
6B06-1395	50.0	60	53	58	55
6B06-1409	53.0	61	52	60	57
SB050696	52.5	59	49	58	55
SB050716	54.5	60	50	59	56
SM060100	56.3	62	54	63	59
BM0270D-152	57.5	64	55	62	60
BM0331D-357	56.0	63	54	62	59
BM0331D-373	55.3	63	54	63	59
BM0207D-86	54.3	62	55	63	58
BM0264D-60	56.3	63	52	62	58
Seebe	58.3	65	55	65	61
H94051001	55.5	63	54	62	59
H96035002	57.5	65	55	64	60
H98011002	54.8	60	53	59	57
MnBrite	53.5	62	53	58	57
Conlon	50.5	57	50	55	53
Robust	52.5	63	52	58	56
CIHO 4196	59.0	65	53	63	60
Chevron	58.5	65	54	63	60
Stander	53.0	62	52	59	57

Table 4. Mean for DON (ppm) entries grown in 2008 NABSEN Nursery at four locations.

Name	Fargo	Langdon	Brandon	Osnabrock	all loc	misted	dryland
ND23497	5.3	40.4	17.0	2.0	16.2	20.9	2.0
ND23753	5.9	31.6	9.7	2.8	12.5	15.7	2.8
ND24978	8.0	64.6	29.3	4.1	26.5	34.0	4.1
ND25908	8.4	40.0	27.9	3.8	20.0	25.4	3.8
ND25917	5.1	35.2	18.9	3.6	15.7	19.7	3.6
ND25977	6.4	33.1	21.0	2.4	15.7	20.1	2.4
ND26086	7.5	57.2	20.4	5.2	22.6	28.4	5.2
ND26247	8.5	49.7	30.7	5.7	23.6	29.6	5.7
Pinnacle	5.3	33.5	20.8	3.0	15.7	19.9	3.0
2ND28167	4.8	30.4	18.4	2.3	14.0	17.9	2.3
2ND22182	8.5	43.4	17.2	2.2	17.8	23.0	2.2
2ND22927	5.3	26.6	13.4	2.9	12.0	15.1	2.9
2ND24238	4.7	21.0	8.6	2.7	9.3	11.4	2.7
2ND24263	5.4	34.4	13.7	2.6	14.0	17.8	2.6
2ND24388	7.4	30.2	12.6	2.2	13.1	16.7	2.2
2ND24393	6.5	26.8	16.3	1.8	12.9	16.5	1.8
M128	6.7	28.6	22.7	2.8	15.2	19.3	2.8
M129	6.8	41.9	16.4	2.7	16.9	21.7	2.7
M130	8.3	41.0	23.0	3.5	18.9	24.1	3.5
M132	6.6	51.8	15.6	2.6	19.2	24.7	2.6
M134 (FEG118-69)	7.8	35.7	14.8	2.4	15.2	19.4	2.4
M135 (FEG141-20)	6.1	44.1	14.1	2.5	16.7	21.4	2.5
M136 (FEG147-37)	7.7	42.9	28.6	3.6	20.7	26.4	3.6
M137 (FEG150-42)	8.8	49.5	20.9	1.6	20.2	26.4	1.6
6B05-0922	7.0	49.8	22.9	2.8	20.6	26.5	2.8
6B06-1133	9.8	49.5	16.5	2.6	19.6	25.2	2.6
6B06-1338	9.2	37.9	25.0	2.6	18.7	24.0	2.6
6B06-1392	9.5	59.4	27.1	3.5	24.9	32.0	3.5
6B06-1393	7.6	70.0	21.3	5.9	26.2	33.0	5.9

Table 4. cont. Mean for DON (ppm) entries grown in 2008 NABSEN Nursery at four locations.

Name	Fargo	Langdon	Brandon	Osnabrock	all loc	misted	dryland
6B06-1394	10.7	57.7	30.7	3.0	25.5	33.0	3.0
6B06-1395	10.9	59.2	24.4	4.3	24.7	31.5	4.3
6B06-1409	11.6	49.9	25.1	2.6	22.3	28.9	2.6
SB050696	5.7	45.6	15.8	3.5	17.7	22.4	3.5
SB050716	4.1	22.9	13.8	2.6	10.9	13.6	2.6
SM060100	4.9	23.3	23.1	2.4	13.4	17.1	2.4
BM0270D-152	4.4	26.8	15.2	0.8	11.8	15.5	0.8
BM0331D-357	3.3	38.4	17.7	2.5	15.5	19.8	2.5
BM0331D-373	2.6	27.6	13.8	1.2	11.3	14.7	1.2
BM0207D-86	3.4	35.6	19.0	1.5	14.9	19.3	1.5
BM0264D-60	4.6	30.2	13.1	1.0	12.3	16.0	1.0
Seebe	4.6	16.7	15.9	1.7	9.7	12.4	1.7
H94051001	3.2	30.6	13.7	2.0	12.4	15.8	2.0
H96035002	3.8	30.9	20.4	2.6	14.4	18.4	2.6
H98011002	3.9	34.0	18.4	1.6	14.5	18.8	1.6
MnBrite	7.8	40.3	21.7	3.7	18.4	23.3	3.7
Conlon	3.8	22.7	10.3	2.3	9.8	12.2	2.3
Robust	10.5	47.9	23.0	2.7	21.0	27.1	2.7
CIHO 4196	3.6	26.6	26.3	2.7	14.8	18.9	2.7
Chevron	1.9	39.1	13.1	1.1	13.8	18.0	1.1
Stander	15.2	51.2	36.0	3.4	26.5	34.1	3.4

Table 5. Average means of Heading date, FHB Incidence, FHB severity and DON content.

	Days to [1]	FHB Incidence[2]		FHB SEVERITY[3]		DON ppm[4]	
Label	head	**misted**	dryland	**misted**	dryland	**misted**	dryland
ND23497	55	**96.7**	36.7	**15.6**	1.1	20.9	2.0
ND23753	55	**97.7**	23.3	**16.1**	0.7	15.7	2.8
ND24978	59	**95.8**	23.3	**16.1**	0.5	34.0	4.1
ND25908	56	**99.2**	63.3	**23.0**	5.7	25.4	3.8
ND25917	56	**97.5**	30.0	**15.0**	0.7	19.7	3.6
ND25977	56	**99.4**	40.0	**16.5**	1.0	20.1	2.4
ND26086	54	**100.0**	30.0	**22.6**	0.9	28.4	5.2
ND26247	55	**98.3**	66.7	**26.1**	2.9	29.6	5.7
Pinnacle	58	**85.2**	46.7	**14.6**	2.3	19.9	3.0
2ND28167	55	**94.2**	40.0	**21.2**	1.9	17.9	2.3
2ND22182	54	**97.7**	50.0	**21.9**	3.0	23.0	2.2
2ND22927	55	**86.9**	36.7	**17.1**	2.0	15.1	2.9
2ND24238	55	**93.3**	60.0	**18.4**	3.2	11.4	2.7
2ND24263	54	**93.3**	23.3	**21.6**	1.3	17.8	2.6
2ND24388	53	**95.6**	40.0	**18.1**	2.3	16.7	2.2
2ND24393	53	**92.7**	53.3	**15.5**	3.8	16.5	1.8
M128	57	**97.7**	36.7	**16.7**	1.0	19.3	2.8
M129	54	**95.4**	63.3	**12.5**	2.0	21.7	2.7
M130	56	**98.3**	43.3	**19.5**	1.1	24.1	3.5
M132	56	**99.2**	50.0	**15.8**	1.2	24.7	2.6
M134 (FEG118-69)	56	**98.3**	26.7	**14.4**	0.7	19.4	2.4
M135 (FEG141-20)	56	**98.5**	63.3	**16.2**	1.8	21.4	2.5
M136 (FEG147-37)	56	**95.0**	50.0	**16.1**	2.5	26.4	3.6
M137 (FEG150-42)	55	**98.5**	36.7	**20.7**	1.3	26.4	1.6
6B05-0922	56	**98.5**	30.0	**18.7**	0.7	26.5	2.8
6B06-1133	55	**100.0**	70.0	**24.1**	3.7	25.2	2.6
6B06-1338	56	**100.0**	63.3	**24.8**	2.5	24.0	2.6
6B06-1392	57	**99.2**	43.3	**27.0**	2.2	32.0	3.5
6B06-1393	57	**100.0**	60.0	**22.5**	2.9	33.0	5.9

Table 5. cont. Average means of Heading date, FHB Incidence, FHB severity and DON content.

	Days to[1]	FHB Incidence[2]		FHB SEVERITY[3]		DON ppm[4]	
Label	head	**misted**	dryland	**misted**	dryland	**misted**	dryland
6B06-1394	57	**99.2**	23.3	**18.4**	0.9	33.0	3.0
6B06-1395	55	**100.0**	70.0	**18.2**	2.9	31.5	4.3
6B06-1409	57	**98.3**	50.0	**21.6**	1.3	28.9	2.6
SB050696	55	**90.8**	50.0	**15.0**	3.6	22.4	3.5
SB050716	56	**91.0**	40.0	**14.2**	1.9	13.6	2.6
SM060100	59	**79.2**	16.7	**10.3**	0.7	17.1	2.4
BM0270D-152	60	**78.8**	26.7	**8.8**	1.1	15.5	0.8
BM0331D-357	59	**77.7**	13.3	**9.9**	0.6	19.8	2.5
BM0331D-373	59	**83.5**	6.7	**11.5**	0.3	14.7	1.2
BM0207D-86	58	**86.9**	33.3	**11.4**	1.6	19.3	1.5
BM0264D-60	58	**89.6**	30.0	**14.1**	1.7	16.0	1.0
Seebe	61	**85.0**	16.7	**9.5**	0.6	12.4	1.7
H94051001	59	**68.3**	23.3	**7.2**	1.0	15.8	2.0
H96035002	60	**75.2**	40.0	**7.9**	1.9	18.4	2.6
H98011002	57	**93.3**	46.7	**16.8**	2.2	18.8	1.6
MnBrite	57	**95.8**	60.0	**16.0**	1.7	23.3	3.7
Conlon	53	**96.9**	26.7	**17.7**	1.4	12.2	2.3
Robust	56	**99.2**	56.7	**24.2**	2.1	27.1	2.7
CIHO 4196	60	**58.5**	23.3	**6.5**	1.0	18.9	2.7
Chevron	60	**73.1**	6.7	**5.3**	0.1	18.0	1.1
Stander	57	**100.0**	53.3	**27.0**	2.4	34.1	3.4

[1] Date from planting to 50% of heads 50% emerged at four locations.
[2] FHB incidence means at five locations.
[3] FHB severity means at five locations.
[4] DON content means at four locations.

Table 6. Correlation among locations for FHB severity in 2008

Location	Brandon	Fargo	Langdon	Crookston-misted	Osnabrock
Brandon	1	0.45	0.29	0.35*	0.42*
Fargo	0.45*	1	0.71**	0.35*	0.60**
Langdon	0.29	0.71**	1	0.51**	0.41*
Crookston-Misted	0.35*	0.35*	0.51**	1	0.13
Osnabrock	0.42*	0.60**	0.41*	0.13	1

*,** r-values significantly different from 0.0 at P<0.05 and P<0.01, respectively

Table 7. Correlation among locations for FHB incidence in 2008

Location	Brandon	Fargo	Langdon	Crookston-misted	Osnabrock
Brandon	1	0.50**	0.25	0.45**	0.46**
Fargo	0.50**	1	0.68**	0.49**	0.29*
Langdon	0.25	0.68**	1	0.48**	0.25
Crookston-Misted	0.45**	0.49**	0.48**	1	0.49**
Osnabrock	0.46**	0.29*	0.25	0.49**	1

*,** r-values significantly different from 0.0 at P<0.05 and P<0.01, respectively

Table 8. Temperature (^{o}F) compared to the 30-year average.

Location	May	June	July	August
Fargo	-3.4	-2.2	0.40	1.00
Langdon	-4.6	-2.5	-0.40	1.80
Crookston,MN	-5.7	-3.3	-1.90	-0.20
Brandon, Manitoba	NA	-2.3	-1.98	1.98

Table 9. Rainfall (in.) compared to the 30-year average.

Location	May	June	July	August
Fargo	-0.51	2.88	-1.23	2.02
Langdon	-1.67	0.96	-0.89	-0.08
Crookston,MN	-1.55	0.57	-0.97	1.6
Brandon, Manitoba	NA	2.45	1.59	-1.27

Table 10. Pedigree and source of breeding lines tested for FHB resistance in 2008.

Label	Pedigree	Contributor	Row type
ND23497	Drummond/ND20414	North Dakota State Univ.	6 row
ND23753	ND18546/ND20407	North Dakota State Univ.	6 row
ND24978	Stellar-ND/6B99-6774	North Dakota State Univ.	6 row
ND25908	ND19655/ND20542	North Dakota State Univ.	6 row
ND25917	ND19655/ND20542	North Dakota State Univ.	6 row
ND25977	ND20303/ND20473	North Dakota State Univ.	6 row
ND26086	ND20477/ND20666	North Dakota State Univ.	6 row
ND26247	ND10655/FEG65-2	North Dakota State Univ.	6 row
Pinnacle	ND18172/ND19130	North Dakota State Univ.	2 row
2ND28167	ND18172/ND19130	North Dakota State Univ.	2 row
2ND22182	ND18413/ND19134//ND19164	North Dakota State Univ.	2 row
2ND22927	ND19119-1/ND19931	North Dakota State Univ.	2 row
2ND24238	ND19854//ND20028/ND19119-1	North Dakota State Univ.	2 row
2ND24263	ND19869/3/ND18998//ND16092/ND17268	North Dakota State Univ.	2 row
2ND24388	ND17274/ND19119//ND19854	North Dakota State Univ.	2 row
2ND24393	ND17274/ND19119//ND19854	North Dakota State Univ.	2 row
M128	FEG26-50 / FEG18-27	University of Minnesota	6 row
M129	FEG59-09 / M110	University of Minnesota	6 row
M130	FEG26-50 / FEG18-27	University of Minnesota	6 row
M132	M96-203 / FEG55-14	University of Minnesota	6 row
M134 (FEG118-69)	FEG69-38 / M114	University of Minnesota	6 row
M135 (FEG141-20)	FEG97-44 / M118	University of Minnesota	6 row
M136 (FEG147-37)	FEG90-31 / M118	University of Minnesota	6 row
M137 (FEG150-42)	ND20493 / M109	University of Minnesota	6 row
6B05-0922	6B99-6557/6B00-1328	BAR - LLC	6 row
6B06-1133	6B98-9022/6B01-2535	BAR - LLC	6 row
6B06-1338	6B99-6517/C02-6922	BAR - LLC	6 row
6B06-1392	6B00-0906/6B99-6557	BAR - LLC	6 row

Table 10. cont. Pedigree and source of breeding lines tested for FHB resistance in 2008

Label	Pedigree	Contributor	Row type
6B06-1394	6B00-0906/6B99-6557	BAR - LLC	6 row
6B06-1395	6B00-0906/6B99-6557	BAR - LLC	6 row
6B06-1409	6B00-1106/6B00-1335	BAR - LLC	6 row
SB050696	SH00749/TR01364	CDC, University of Saskatchewan	2-row
SB050716	SH00749/TR01364	CDC, University of Saskatchewan	2-row
SM060100	SM02353/SM02687	CDC, University of Saskatchewan	2-row
BM0270D-152	TR04282/Newdale	AAFC-Brandon	2-row
BM0331D-357	Conlon/TR03273	AAFC-Brandon	2-row
BM0331D-373	Conlon/TR03273	AAFC-Brandon	2-row
BM0207D-86	TR361/Newdale	AAFC-Brandon	2-row
BM0264D-60	BM9671-23/Newdale	AAFC-Brandon	2-row
Seebe	Masurka//Muller/Heydla	FCDC, Alberta Agriculture and Food	2-row
H94051001	H93126/SEEBE	FCDC, Alberta Agriculture and Food	2-row
H96035002	I94304/TR251	FCDC, Alberta Agriculture and Food	2-row
H98011002	H95009/H97047	FCDC, Alberta Agriculture and Food	2-row
MnBrite	Check	M90-89/M69	6-row
Conlon	Check	BOWMAN*2/DWS1008/ND10232	2-row
Robust	Check	MOREX/MANKER	6-row
CIHO 4196	Check	UNKNOWN	2-row
Chevron	Check	UNKNOWN	6-row
Stander	Check	ROBUST*2/3/CREE/BONANZA//MANKER/4/ROBUST/ BUMBER	6-row