

2007

**NORTH AMERICAN BARLEY SCAB EVALUATION
NURSERY (NABSEN) REPORT**

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INTRODUCTION

The 2007 North American Barley Scab Evaluation Nursery (NABSEN) was grown at Fargo, Langdon, Osnabrock and Casselton, ND; St. Paul and Crookston MN, Brandon, Manitoba and El Batán, Mexico. Nurseries were either irrigated or unirrigated (dryland). Dryland nurseries provide conditions similar to those found in commercial fields. Disease in irrigated 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 irrigated 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 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

- Irrigated
- 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

- Irrigated
- 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

Casselton, ND - Linnea Skoglund

- Dryland
- No data

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

- Irrigated
- 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

CROOKSTON, MN – Kevin Smith and Ruth Dill-Macky

- Separate Irrigated and Dryland trails
- Inoculated by spore spray method
- Disease severity - percentage of infected kernels (**Only Don data Dryland**)
- 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

- Irrigated
- 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

El Batán, MEXICO – Flavio Capettini

- Irrigated
- 2 replicates
- Inoculated

TABLE OF CONTENTS

Table 1. Mean FHB severity of entries grown in the 2007 NABSEN Nursery at seven locations.....	6-7
Table 2. Mean disease incidence of entries grown in the 2007 NABSEN Nursery at six locations.....	8-9
Table 3. Mean days to heading after planting of entries grown in 2007 NABSEN Nursery at five locations.....	10-11
Table 4. Mean for DON(ppm) entries grown in 2007 NABSEN Nursery at seven locations.....	12-13
Table 5. Average means of Heading date, FHB incidence, FHB severity and DON content.....	14-15
Table 6. Correlation among locations for FHB severity in 2007.....	16
Table 7. Correlation among locations for FHB incidence in 2007.....	16
Table 8. Correlation among locations for FHB DON (ppm) in 2007.....	17
Table 9. Temperature (°F) compared to the 30-year average.....	18
Table 10. Rainfall (in.) compared to the 30-year average.....	18
Table 11. Pedigree and source of breeding lines tested for FHB resistance in 2007.....	19-20

Table 1. Mean FHB severity of entries grown in the 2007 NABSEN Nursery at seven locations.

Label	Brandon	Fargo	Langdon	St. Paul	Crookston	Type I	irrigated	Osnabrock
					irrigated	El Batán	Mean	dryland
SM04175	22.0	6.5	15.8	11.4	23.2	7.2	14.3	0.87
SM05172	17.5	9.2	11.4	8.3	2.7	10.7	10.0	2.22
SB040216	29.4	9.4	12.7	6.0	10.8	10.0	13.0	1.37
BM0207D-127	17.2	7.9	9.0	0.7	2.8	9.4	7.8	0.47
BM0207D-86	11.6	8.9	7.7	3.5	6.8	10.3	8.1	1.15
BM0058DT-5-1	10.0	8.2	11.0	10.7	5.2	8.9	9.0	0.97
EX702-4-6	13.1	5.1	6.6	9.6	7.5	7.0	8.2	0.10
H215D-17	25.6	6.3	6.4	3.8	13.8	0.7	9.5	1.29
6B03-4105	14.3	6.9	9.1	2.0	22.0	3.0	9.6	0.44
6B04-0096	6.5	5.6	10.3	3.3	25.3	5.2	9.4	0.81
6B04-0178	12.7	6.2	8.9	5.5	22.7	5.5	10.2	1.05
6B05-0837	13.2	6.5	14.7	4.8	13.5	2.2	9.2	1.23
6B05-0964	14.5	5.2	8.0	4.4	27.8	4.7	10.8	1.21
2B05-0504	23.3	9.0	10.8	10.2	5.0	14.5	12.1	0.62
2B05-0729	16.9	10.0	10.6	4.2	17.2	11.0	11.6	0.99
2B05-0837	14.9	6.8	14.7	5.0	7.8	12.5	10.3	3.04
M122	7.4	3.6	6.9	2.3	13.4	4.2	6.3	0.24
M128	8.8	5.7	10.2	3.2	13.3	3.5	7.5	1.39
M129	8.7	4.6	5.5	4.4	4.8	3.3	5.2	0.41
M130	9.4	3.3	6.9	2.7	10.5	7.5	6.7	0.89
M131	17.6	5.2	9.7	9.9	17.0	3.8	10.5	1.75
M132	10.6	5.8	10.7	5.0	6.6	2.1	6.8	0.78
FEG118-69	7.7	5.8	9.9	2.5	14.3	4.0	7.4	0.89
FEG150-42	9.8	7.6	5.3	3.4	7.5	2.3	6.0	0.51
ND20493	10.3	5.4	6.9	3.4	21.4	3.5	8.5	0.79
ND23497	10.3	6.3	6.4	6.7	16.3	3.2	8.2	0.58
ND23652	15.2	6.5	14.2	6.9	23.0	5.0	11.8	0.93
ND23657	7.0	4.5	2.8	4.4	21.2	2.2	7.0	0.91
ND23659	9.7	6.7	8.4	2.4	12.8	1.2	6.9	1.11

Table 1. cont. Mean FHB severity of entries grown in the 2007 NABSEN Nursery at seven locations.

Label	Brandon	Fargo	Langdon	St. Paul	Crookston	Type I	irrigated	Osnabrock
					irrigated	El Batán	Mean	dryland
ND23662	13.4	9.5	10.0	12.8	17.5	5.0	11.4	0.61
ND23663	10.8	9.7	10.6	5.0	10.8	3.3	8.4	0.23
ND23753	5.8	6.0	10.0	2.2	20.0	1.9	7.7	0.54
2ND21867	8.6	8.8	12.1	6.2	4.8	8.5	8.2	1.89
2ND22182	18.0	12.7	13.7	6.0	12.2	4.9	11.2	1.17
2ND22927	16.5	9.2	11.6	5.7	16.7	9.7	11.5	1.01
2ND24238	12.1	11.9	10.2	3.8	4.5	8.8	8.6	1.03
2ND24263	8.8	8.0	16.1	11.7	7.5	3.7	9.3	2.03
2ND24518	6.0	8.9	9.0	4.5	11.0	9.4	8.1	0.91
2ND24521	12.5	9.2	13.0	6.8	10.7	4.3	9.4	3.50
2ND24527	11.9	9.4	9.1	7.0	9.3	14.3	10.2	2.44
(07IC-1)	41.1	5.1	9.6	5.7	3.8	7.7	12.2	1.66
(07IC-2)	35.3	7.1	12.1	11.7	5.8	10.3	13.7	4.76
(07IC-3)	20.4	10.9	5.0	13.3	11.8	9.7	11.9	1.81
(07IC-4)	36.7	7.5	9.5	12.7	8.5	6.7	13.6	4.53
(07IC-5)	34.1	14.1	7.5	13.2	3.7	11.2	14.0	2.91
(07IC-6)	33.4	9.7	9.4	6.7	3.3	9.1	11.9	1.14
(07IC-7)	49.2	11.3	7.4	5.7	9.8	9.7	15.5	0.84
(07IC-8)	20.5	10.9	12.8	13.2	4.2	9.2	11.8	2.67
MnBrite	8.7	4.2	10.3	8.2	16.6	1.1	8.2	0.41
Conlon	5.5	6.9	16.5	6.7	8.3	3.3	7.9	1.82
Robust	23.0	5.0	11.7	5.1	18.0	3.5	11.0	0.83
CIHO 4196	15.3	2.4	2.0	4.0	1.3	8.8	5.6	0.47
Chevron	5.8	0.4	0.6	2.1	2.3	2.0	2.2	0.43
Stander	27.4	5.3	18.2	12.5	22.7	5.5	15.3	0.51

* two reps missing

** one rep missing

Table 2. Mean disease incidence of entries grown in the 2007 NABSEN Nursery at six locations.

Label	Brandon	Fargo	Langdon	Osnabrock	Crookston		Mean
					irrigated	St. Paul	
SM04175	97.5	83.3	100.0	36.7	100	93	85.1
SM05172	87.5	90.0	90.0	33.3	50	77	71.2
SB040216	95.0	90.0	80.0	30.0	63	63	70.3
BM0207D-127	95.0	73.3	73.3	10.0	47	17	52.5
BM0207D-86	87.5	86.7	73.3	23.3	63	50	64.0
BM0058DT-5-1	75.0	73.3	86.7	16.7	63	83	66.4
EX702-4-6	100.0	80.0	90.0	6.7	77	97	75.0
H215D-17	100.0	76.7*	96.7	16.3	97	63	74.9
6B03-4105	82.5	90.0	93.3	23.3	100	60	74.9
6B04-0096	75.0	83.3	90.0	43.3	100	77	78.1
6B04-0178	95.0	90.0	90.0	30.0	100	83	81.4
6B05-0837	85.0	86.7	96.7	43.3	77	90	79.7
6B05-0964	95.0	83.3	96.7	36.7	97	77	80.8
2B05-0504	90.0	93.3	93.3	13.3	63	77	71.7
2B05-0729	90.0	80.0	83.3	26.7	73	60	68.9
2B05-0837	100.0	80.0	93.3	50.0	70	57	75.0
M122	90.0	66.7	93.3	13.3	90	53	67.8
M128	97.5	86.7	96.7	33.3	73	73	76.8
M129	92.5	70.0	90.0	26.7	63	80	70.4
M130	85.0	66.7	93.3	23.3	83	70	70.3
M131	95.0	83.3	90.0	16.7	93	97	79.2
M132	95.0	76.7	93.3	16.7	73	93	74.7
FEG118-69	92.5	80.0	93.3	26.7	97	63	75.4
FEG150-42	97.5	86.7	90.0	23.3	80	93	78.5
ND20493	87.5	76.7	83.3	23.3	100	70	73.5
ND23497	97.5	83.3	93.3	30.0	93	87	80.7
ND23652	97.5	86.7	100.0	40.0	93	80	82.9
ND23657	75.0	76.7	66.7	13.3	100	60	65.3
ND23659	90.0	93.3	83.3	33.3	87	60	74.4

Table 2. cont. Mean disease incidence of entries grown in the 2007 NABSEN Nursery at six locations.

Label	Brandon	Fargo	Langdon	Osnabrock	Crockston		Mean
					irrigated	St. Paul	
ND23662	97.5	93.3	96.7	23.3	97	100	84.6
ND23663	82.5	93.3	96.7	10.0	90	80	75.4
ND23753	80.0	96.7	93.3	20.0	100	53	73.9
2ND21867	72.5	76.7	96.7	36.7	60	77	69.9
2ND22182	97.5	96.7	93.3	20.0	97	70	79.0
2ND22927	85.0	73.3	93.3	23.3	93	57	70.8
2ND24238	80.0	93.3	86.7	23.3	57	53	65.6
2ND24263	75.0	76.7	96.7	40.0	67	77	71.9
2ND24518	55.0	90.0	73.3	13.3	77	50	59.7
2ND24521	85.0	76.7	100.0	53.3	93	73	80.3
2ND24527	77.5	80.0	73.3	30.0	77	80	69.6
(07IC-1)	100.0	63.3	70.0	26.7	50	63	62.2
(07IC-2)	87.5	43.3	86.7	50.0	70	90	71.3
(07IC-3)	92.5	86.7	63.3	30.0	73	87	72.1
(07IC-4)	100.0	80.0	76.7	43.3	77	90	77.8
(07IC-5)	100.0	93.3	73.3	46.7	57	83	75.6
(07IC-6)	97.5	80.0	76.7	23.3	50	67	65.7
(07IC-7)	100.0	30.0**	70.0	8.5	70	60	56.4
(07IC-8)	100.0	93.3	100.0	39.7	67	83	80.5
MnBrite	85.0	83.3	93.3	16.7	93	90	76.9
Conlon	62.5	56.7	93.3	36.7	73	80	67.1
Robust	100.0	86.7	100.0	36.7	97	93	85.6
CIHO 4196	100.0	70.0**	33.3	11.3	27	60	50.2
Chevron	57.5	26.7	26.7	10.0	43	53	36.3
Stander	95.0	76.7	100.0	20.0	97	100	81.4

* two reps missing

** one rep missing

Table 3. Mean days to heading after planting of entries grown in 2007 NABSEN Nursery at five locations.

Label	Brandon	Fargo	Langdon	St. Paul	Crookston	
					irrigated	Mean
SM04175	51.3	51.7	52.7	50.0	56.3	52.4
SM05172	53.3	53.7	53.3	54.0	59.0	54.7
SB040216	55.0	54.7	53.7	54.3	58.0	55.1
BM0207D-127	55.3	55.3	54.0	54.7	59.7	55.8
BM0207D-86	52.0	52.3	53.0	54.3	58.3	54.0
BM0058DT-5-1	53.0	57.7	53.7	55.7	58.7*	55.0
EX702-4-6	51.8	53.7	54.3	53.0	58.0	54.2
H215D-17	53.5	52.5*	54.3	52.0	57.7	54.4
6B03-4105	50.0	51.3	52.3	49.7	56.0	51.9
6B04-0096	48.0	52.3	52.3	49.3	55.7	51.5
6B04-0178	49.0	51.0	52.0	50.7	56.3	51.8
6B05-0837	52.8	52.3	53.7	50.0	57.0	53.2
6B05-0964	49.3	51.0	52.0	49.0	56.0	51.5
2B05-0504	55.3	54.7	54.3	54.7	59.7	55.7
2B05-0729	54.5	55.7	53.7	54.0	57.0	55.0
2B05-0837	48.8	54.7	52.7	52.7	59.0	53.6
M122	49.8	52.7	52.7	50.7	56.3	52.4
M128	49.8	52.7	52.3	51.3	56.3	52.5
M129	49.0	51.0	51.7	50.7	57.3	51.9
M130	52.0	56.3	52.7	52.0	56.0	53.8
M131	52.0	52.3	52.3	50.3	56.7	52.7
M132	50.5	52.0	53.0	51.7	57.0	52.8
FEG118-69	50.5	51.7	53.0	51.0	56.0	52.4
FEG150-42	49.3	51.3	52.7	51.0	56.3	52.1
ND20493	46.3	50.0	50.7	48.3	55.7	50.2
ND23497	47.3	52.3	52.7	50.3	56.0	51.7
ND23652	49.3	52.0	52.0	49.3	56.7	51.9
ND23657	47.3	51.3	51.3	49.3	56.0	51.1
ND23659	46.8	51.3	51.3	48.0	57.0	50.9

Table 3. cont. Mean days to heading after planting of entries grown in 2007 NABSEN Nursery at five locations.

Label	Brandon	Fargo	Langdon	St. Paul	Crookston irrigated	Mean
ND23662	49.8	52.0	52.3	50.7	56.7	52.3
ND23663	48.5	53.0	51.7	50.3	57.0	52.1
ND23753	47.5	52.3	51.7	49.3	56.0	51.4
2ND21867	51.3	51.3	50.7	49.0	56.7	51.8
2ND22182	48.5	50.0	48.7	47.3	56.0	50.1
2ND22927	51.3	52.0	51.0	51.3	56.3	52.4
2ND24238	50.0	50.7	52.0	50.0	57.0	51.9
2ND24263	49.8	50.0	51.3	50.7	56.7	51.7
2ND24518	47.0	50.0	50.3	47.7	57.3**	48.8
2ND24521	47.5	50.3	50.7	48.0	55.3	50.4
2ND24527	51.3	53.7	51.7	51.7	58.0	53.3
(07IC-1)	56.8	62.3	56.0	55.0	59.7	58.0
(07IC-2)	55.0	62.3	55.3	52.3	59.7	56.9
(07IC-3)	54.3	59.0	53.7	53.3	57.3	55.5
(07IC-4)	54.0	57.0	53.3	52.0	58.0	54.9
(07IC-5)	55.8	58.3	54.3	53.7	60.0**	55.5
(07IC-6)	56.0	62.3	55.7	55.3	60.0	57.9
(07IC-7)	-	63**	58.0	58.0	59.0	58.3
(07IC-8)	53.3	59.0	53.3	54.0	59.7	55.9
MnBrite	50.5	51.7	52.7	50.7	56.0	52.3
Conlon	50.0	51.0	49.3	48.0	56.3	50.9
Robust	52.0	51.7	52.7	50.0	56.0	52.5
CIHO 4196	-	63**	57.3	53.3	57.7	56.1
Chevron	53.5	56.3	55.7	55.3	59.7	56.1
Stander	50.5	52.3	52.7	51.0	56.3	52.6

* two reps missing

** one rep missing

Table 4. Mean for DON (ppm) entries grown in 2007 NABSEN Nursery at seven locations.

Label	Crookston			St. Paul	Brandon	Irrigated	Osnabrock	Crookston	dryland
	Fargo	Langdon	irrigated			mean		dryland	mean
SM04175	5.6	22.2	21.7	14.6	3.8	13.6	1.10	0.2	0.63
SM05172	1.9	16.7	11.8	13.1	2.7	9.2	0.62	0.0	0.32
SB040216	0.7	23.0	12.8	9.1	11.0	11.3	0.24	0.2	0.23
BM0207D-127	0.2	14.4	7.4	5.1	6.7	6.7	0.22	0.1	0.16
BM0207D-86	1.5	13.2	6.2	3.5	4.0	5.7	0.14	0.1	0.13
BM0058DT-5-1	0.3	8.6	12.6	4.6	1.8	5.6	0.12	0.0	0.07
EX702-4-6	1.7	9.9	9.3	6.8	4.1	6.3	0.25	0.0	0.13
H215D-17	4.5**	6.0	14.2**	4.3	6.0	5.5	0.17	0.1	0.13
6B03-4105	6.2	20.3	20.5	4.2	4.6	11.2	0.36	0.2	0.26
6B04-0096	5.1	20.8	22.9	5.0	2.0	11.1	0.12	0.1	0.10
6B04-0178	12.4	27.3	29.7	9.7	8.2	17.5	0.13	0.5	0.29
6B05-0837	7.7	15.1	24.9	6.8	3.9	11.7	1.07	2.1	1.59
6B05-0964	5.7	12.3	21.8	8.8	4.1	10.5	0.27	0.6	0.44
2B05-0504	0.4	11.4	17.5	6.1	5.0	8.1	0.16	0.1	0.11
2B05-0729	1.6	9.9	20.8	5.5	6.7	8.9	0.09	0.1	0.11
2B05-0837	1.9*	28.4	16.1	6.2	8.4	14.8	0.06	0.0	0.05
M122	1.6	15.3	25.5	3.1	6.4	10.4	0.23	0.1	0.15
M128	3.8	16.2	25.2	6.3	6.0	11.5	0.21	0.1	0.16
M129	6.7	15.1	19.4	6.2	3.8	10.3	0.37	0.0	0.21
M130	1.8	27.9	25.0	8.5	5.6	13.8	0.91	0.3	0.59
M131	4.7	25.7	30.9	9.6	11.6	16.5	0.39	0.3	0.33
M132	2.7	18.5	20.5	6.7	5.5	10.8	0.18	0.1	0.12
FEG118-69	5.1	20.4	19.1	6.0	3.6	10.8	0.56	0.2	0.37
FEG150-42	4.5	18.3	23.0	9.6	4.8	12.0	0.25	0.2	0.21
ND20493	5.8	6.9	14.4	4.8	0.7	6.5	1.01	0.2	0.60
ND23497	5.1	24.7	25.0	6.7	3.9	13.1	0.22	0.2	0.21
ND23652	4.2	17.5	24.0	7.3	3.4	11.3	0.57	0.3	0.44
ND23657	3.4	7.9	17.2	2.5	2.2	6.6	0.05	0.1	0.06
ND23659	7.3	11.3	17.9	5.2	5.6	9.5	0.34	0.1	0.23

* two reps missing

** one rep missing

Table 4. cont. Mean for DON (ppm) entries grown in 2007 NABSEN Nursery at seven locations.

Label	Crookston		St. Paul	Brandon	Irrigated mean	Osnabrock	Crookston		dryland mean
	Fargo	Langdon					irrigated	dryland	
ND23662	3.7	16.7	19.3	8.4	5.9	10.8	0.21	0.6	0.38
ND23663	2.0	16.4	18.3	6.1	3.1	9.2	0.30	0.1	0.22
ND23753	7.0	23.3	18.9	3.8	5.1	11.6	0.14	0.2	0.17
2ND21867	5.1	14.7	17.2	4.5	3.4	9.0	0.21	0.1	0.15
2ND22182	14.4	16.3	19.9	10.5	3.2	12.9	0.24	0.1	0.19
2ND22927	4.4	12.5	23.9	5.3	2.6	9.7	0.13	0.1	0.12
2ND24238	4.7	7.3	8.9	4.8	2.3	5.6	0.05	0.0	0.03
2ND24263	4.7	10.7	9.8	6.3	3.6	7.0	0.02	0.0	0.01
2ND24518	8.9	13.9	22.2	8.2	2.3	11.1	0.25	0.1	0.15
2ND24521	6.9	7.5	18.8	2.5	1.6	7.5	0.49	0.1	0.28
2ND24527	3.6	6.8	13*	5.9	2.2	4.6	0.09	0.1	0.07
(07IC-1)	0.1	20.2	13.6	6.0	21.3	12.2	0.28	0.0	0.16
(07IC-2)	*0.1	23.3	21.3	7.2	5.1	14.2	0.18	0.3	0.25
(07IC-3)	2.3**	14.2	14.6	9.5	11.8	12.5	0.16	0.0	0.09
(07IC-4)	0.2	18.6	33.4	8.5	21.6	16.5	0.04	0.2	0.10
(07IC-5)	0.9	16.1	12.2	6.6	13.7	9.9	0.14	0.1	0.11
(07IC-6)	2.8*	20.2	32.9	4.8	10.8	17.2	0.49	0.5	0.51
(07IC-)03/1T0069	0.81*	9.6	12.8*	4.0	13.3	8.9	0.05	0.2	0.11
(07IC-8)	0.29*	19.1	27.0	9.1	9.6	16.2	0.23	0.1	0.14
MnBrite	5.2	17.2	26.0	7.1	3.3	11.8	0.69	0.3	0.49
Conlon	6.5	7.7	13.2	3.1	1.9	6.5	0.15	0.2	0.18
Robust	5.4	30.2	25.3	4.6	5.9	14.3	0.28	0.1	0.19
CIHO 4196	0.19*	11.8	29.3	4.5	6.1	12.9	0.13	0.2	0.14
Chevron	0.4	5.9	10.7	2.5	5.6	5.0	0.18	0.0	0.11
Stander	6.7	43.4	33.7	12.8	11.7	21.7	0.28	0.3	0.31

* two rep missing

** one rep missing

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

Label	<u>Days to</u> ¹ Head	<u>FHB</u> ² Incidence%	<u>FHB</u> ³ Severity%	<u>Don(ppm)</u> ⁴ irrigated	<u>Don(ppm)</u> ⁴ dryland
SM04175	52.4	85.1	13.3	13.6	0.63
SM05172	54.7	71.2	8.5	9.2	0.32
SB040216	55.1	70.3	11.6	11.3	0.23
BM0207D-127	55.8	52.5	6.3	6.7	0.16
BM0207D-86	54.0	64.0	6.6	5.7	0.13
BM0058DT-5-1	55.7	66.4	7.7	5.6	0.07
EX702-4-6	54.2	75.0	7.0	6.3	0.13
H215D-17	54.4	74.9	9.6	5.5	0.13
6B03-4105	51.9	74.9	9.1	11.2	0.26
6B04-0096	51.5	78.1	8.6	11.1	0.10
6B04-0178	51.8	81.4	9.5	17.5	0.29
6B05-0837	53.2	79.7	9.0	11.7	1.59
6B05-0964	51.5	80.8	10.2	10.5	0.44
2B05-0504	55.7	71.7	9.8	8.1	0.11
2B05-0729	55.0	68.9	10.0	8.9	0.11
2B05-0837	53.6	75.0	8.7	14.8	0.05
M122	52.4	67.8	5.7	10.4	0.15
M128	52.5	76.8	7.1	11.5	0.16
M129	51.9	70.4	4.7	10.3	0.21
M130	53.8	70.3	5.6	13.8	0.59
M131	52.7	79.2	10.2	16.5	0.33
M132	52.8	74.7	6.6	10.8	0.12
FEG118-69	52.4	75.4	6.8	10.8	0.37
FEG150-42	52.1	78.5	5.7	12.0	0.21
ND20493	50.2	73.5	8.0	6.5	0.60
ND23497	51.7	80.7	7.8	13.1	0.21
ND23652	51.9	82.9	11.1	11.3	0.44
ND23657	51.1	65.3	6.8	6.6	0.06
ND23659	50.9	74.4	6.9	9.5	0.23

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

Label	<u>Days to</u> ¹ Head	<u>FHB</u> ² Incidence%	<u>FHB</u> ³ Severity%	<u>Don(ppm)</u> ⁴ irrigated	<u>Don(ppm)</u> ⁴ dryland
ND23662	52.3	84.6	10.7	10.8	0.38
ND23663	52.1	75.4	7.9	9.2	0.22
ND23753	51.4	73.9	7.4	11.6	0.17
2ND21867	51.8	69.9	7.1	9.0	0.15
2ND22182	50.1	79.0	10.6	12.9	0.19
2ND22927	52.4	70.8	10.1	9.7	0.12
2ND24238	51.9	65.6	7.3	5.6	0.03
2ND24263	51.7	71.9	9.0	7.0	0.01
2ND24518	50.5	59.7	6.7	11.1	0.15
2ND24521	50.4	80.3	9.3	7.5	0.28
2ND24527	53.3	69.6	8.2	4.6	0.07
(07IC-1)	58.0	62.2	11.2	12.2	0.16
(07IC-2)	56.9	71.3	12.8	14.2	0.25
(07IC-3)	55.5	72.1	10.6	12.5	0.09
(07IC-4)	54.9	77.8	13.2	16.5	0.10
(07IC-5)	56.4	75.6	12.6	9.9	0.11
(07IC-6)	57.9	65.7	10.6	17.2	0.51
(07IC-7)	58.3	56.4	14.0	8.9	0.11
(07IC-8)	55.9	80.5	10.7	16.2	0.14
MnBrite	52.3	76.9	8.1	11.8	0.49
Conlon	50.9	67.1	7.6	6.5	0.18
Robust	52.5	85.6	10.6	14.3	0.19
CIHO 4196	56.1	50.2	4.3	12.9	0.14
Chevron	56.1	36.3	1.9	5.0	0.11
Stander	52.6	81.4	14.4	21.7	0.31

¹ Heading data from date of planting to 50% of heads 50% emerged at five locations.

² FHB incidence means at six locations.

³ FHB severity means at seven locations.

⁴ DON content means at seven locations.

Table 6. Correlation among locations for FHB severity in 2007

	Brandon	Fargo	Langdon	St. Paul	<u>Crookston</u> irrigated	EI Batán	Osnabrock
Brandon	1	0.35**	0.12	0.42**	-0.19	0.41**	0.40**
Fargo	0.35**	1	0.31*	0.37**	-0.24	0.52**	0.32*
Langdon	0.12	0.31*	1	0.36**	0.16	0.11	0.29*
St. Paul	0.42**	0.37**	0.36**	1	-0.11	0.32*	0.47**
Crookston-irrigated	-0.19	-0.24	0.016	-0.11	1	-0.41**	-0.28*
EI Batán	0.41**	0.52**	0.11	0.32*	-0.41**	1	0.35*
Osnabrock	0.40**	0.32*	0.29*	0.47**	-0.28*	0.35*	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 2007

	Brandon	Fargo	Langdon	Osnabrock	St. Paul	<u>Crookston</u> irrigated
Brandon	1	0.22	0.2	0.1	0.24	0.05
Fargo	0.22	1	0.45**	0.16	0.17	0.31*
Langdon	0.2	0.45**	1	0.34*	0.40**	0.59**
Osnabrock	0.1	0.16	0.34*	1	0.29*	0.08
St. Paul	0.05	0.31*	0.59**	0.08	1	0.30*
Crookston-irrigated	0.25	0.17	0.40**	0.29*	0.30*	1

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

Table 8. Correlation among locations for FHB Don (ppm) in 2007

	Fargo	Langdon	<u>Crookston</u> irrigated	St. Paul	Brandon	Osnabrock	<u>Crookston</u> dryland
Fargo	1	0.14	0.58	0.19	*-0.37	0.2	0.26
Langdon	0.14	1	**0.57	**0.52	*0.35	0.16	0.14
Crookston-Irrigated	0.25	**0.57	1	*0.32	0.23	0.2	*0.35
St. Paul	0.19	**0.52	*0.32	1	0.21	*0.33	0.14
Brandon	0.37	*0.35	0.23	0.21	1	-0.22	-0.02
Osnabrock	0.2	0.16	0.2	*0.33	-0.22	1	*0.47
Crookston-dryland	0.26	0.14	*0.35	0.14	-0.02	*0.47	1

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

Table 9. Temperature (°F) compared to the 30-year average.

	May	June	July	August
Fargo	2.8	3.5	3.3	-1.4
Langdon	0.9	2.1	4.1	-2.0
Crookston,MN	1.6	0.8	1.5	-3.0
St. Paul,MN	5.0	3.2	1.4	0.7
Brandon, Manitoba	na	0.3	3.8	-3.70

Table 10. Rainfall (in.) compared to the 30-year average.

	May	June	July	August
Fargo	1.45	1.82	-1.74	0.10
Langdon	3.14	0.73	1.52	-2.05
Crookston,MN	1.28	1.35	-1.24	0.43
St. Paul,MN	-0.94	-3.55	-2.23	1.37
Brandon, Manitoba	na	0.37	-1.12	-0.99

Table 11. Pedigree and source of breeding lines tested for FHB resistance in 2007.

2007 Nabsen list

Entry	Label	Code	Pedigree	Contributor
1	SM04175	SR420	SM99748/SM99153	CDC, Univ. of Saskatchewan
2	SM05172		BT 962/BT474	CDC, Univ. of Saskatchewan
3	SB040216	TR07392	CDC Trey/Rivers	CDC, Univ. of Saskatchewan
4	BM0207D-127	TR07298	TR361/Newdale	AAFC-Brandon (Legge)
5	BM0207D-86	TR07299	TR361/Newdale	AAFC-Brandon (Legge)
6	BM0058DT-5-1	HB705	CDC Freedom/Rivers (Bran CC 053-2/Stein/Elice/ Norbert/Bonanza/Harrington/ Legacy)/Bacon	AAFC-Brandon (Legge)
7	EX702-4-6	HB115		AAFC-Brandon (Therrien)
8	H215D-17	HB116	Bran NZ CC/HB 110	AAFC-Brandon (Therrien)
9	6B03-4105		6B97-2195 // LEGACY / 6B97-2311	Busch Ag.
10	6B04-0096		6B94-8253 // 6B97-2232 / 6B98-9022	Busch Ag.
11	6B04-0178		TRADITION /3/ 6B97-2063 // 6B94-8253 / 6B97-2245	Busch Ag.
12	6B05-0837		TRADITION / 6B00-1506	Busch Ag.
13	6B05-0964		6B99-6779 / 6B00-1166	Busch Ag.
14	2B05-0504		2B97-4004/2B99-2771	Busch Ag.
15	2B05-0729		GARNETT/2B97-4004	Busch Ag.
16	2B05-0837		2B97-4299/2B98-5312	Busch Ag.
17	M122	(FEG65-02)	FEG18-20/M110	University of Minnesota
18	M128	(FEG90-31)	FEG26-50/FEG18-27	University of Minnesota
19	M129	(FEG96-55)	FEG59-09/M110	University of Minnesota
20	M130	(FEG90-35)	FEG26-50/FEG18-27	University of Minnesota
21	M131	(FEG100-17)	M96-203/FEG55-14	University of Minnesota
22	M132	(FEG100-44)	M96-203/FEG55-14	University of Minnesota
23	FEG118-69		FEG69-38/M114	University of Minnesota
24	FEG150-42		ND20493/M109	University of Minnesota
25	ND20493	FHB Elite	ND16918*2/CIHO6611	North Dakota State Univ.
26	ND23497	06SDS	Drummond/ND20414	North Dakota State Univ.
27	ND23652	06SDS	ND18546/ND20469	North Dakota State Univ.
28	ND23657	06SDS	ND18546/ND20493	North Dakota State Univ.
29	ND23659	06SDS	ND18546/ND20493	North Dakota State Univ.
30	ND23662	06SDS	ND18546/ND20493	North Dakota State Univ.
31	ND23663	06SDS	ND18546/ND20493	North Dakota State Univ.

32	ND23753	06SDS	ND18546/ND20407	North Dakota State Univ.
33	2ND21867	06LDS	ND18172/ND19130	North Dakota State Univ.
34	2ND22182	06LDS	ND18413/ND19134//ND19164	North Dakota State Univ.
35	2ND22927	06LDS	ND19119-1/ND19931	North Dakota State Univ.
36	2ND24238	06SDS	ND19854//ND20028/ND19119-1	North Dakota State Univ.
37	2ND24263	06SDS	ND19869/3/ND18998//ND16092/ND17268	North Dakota State Univ.
38	2ND24518	06SDS	ND19872//ND19119-1/PI386392	North Dakota State Univ.
39	2ND24521	06SDS	ND19922/ND19130	North Dakota State Univ.
40	2ND24527	06SDS	ND20135-2/ND20794	North Dakota State Univ.
41	(07IC-1)CBSS01Y00605T-G-0Y-9M-0M-Y-0M	Prel FHB 05	RECLA//34//SHYRI/GRIT/3/AZAF	ICARDA/CIMMYT
42	(07IC-2)CBSS01Y00628T-J-0Y-11M-Y-0M	Prel FHB 05	SHYRI/GRIT//GOB96DH/3/ATAH92/GOB	ICARDA/CIMMYT
43	(07IC-3)CBSS01Y00638T-A-0Y-8M-0M-1Y-0M	Prel FHB 05	RECLA 112/AZAF//BR2	ICARDA/CIMMYT
44	(07IC-4)CBSS00M00138S-5M-1Y-1M-0M-0Y	Prel FHB 05	TOCTE//GOB/HUMAI10/3/ATAH92/ALELI/4/CANELA/G0B	ICARDA/CIMMYT
45	(07IC-5)CBS00B00046S-6M-2Y-1M-0M-0Y	Prel FHB 05	SHYRI/GRIT//GOB21DH	ICARDA/CIMMYT
46	(07IC-6)CBSS00B00040S-11M-2Y-1M-OM-0Y	Prel FHB 05	SHYRI/GRIT//AZAF	ICARDA/CIMMYT
47	(07IC-7)03/1T0069	Alberta FHB 05	H96035004	ICARDA/CIMMYT
48	(07IC-8)CBSS98Y00597T-E-0Y-OM-1Y-2M-0Y-6FGR-1Y-0FGR	F10cebadascx tid5565	ALELI/GOB96DH//MSEL	ICARDA/CIMMYT
49	MnBrite	Check	M90-89/M69	
50	Conlon	Check	BOWMAN*2/DWS1008/ND10232	
51	Robust	Check	MOREX/MANKER	
52	CIHO 4196	Check	UNKNOWN	
53	Chevron	Check	UNKNOWN	
54	Stander	Check	ROBUST*2/3/CREE/BONANZA//MANKER/4/ROBUST BUMBER	