2005

NORTH AMERICAN BARLEY SCAB EVALUATION NURSERY (NABSEN) INTERIM REPORT

December 2005

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INTRODUCTION

The 2005 North American Barley Scab Evaluation Nursery (NABSEN) was grown at Fargo, Langdon, Osnabrock and Casselton, ND; St. Paul and Crookston MN, Brandon, Manitoba and Toluca 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, Pat Gross and Sun Yongliang

- Irrigated
- Inoculated by grain spawn method
- 3 Replicates
- **Field flooded, NO DATA**

LANGDON, ND - – Stephen Neate, Pat Gross and Sun Yongliang

- 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

OSNABROCK, ND – Richard Horsley

- Dryland
- Inoculated by grain spawn method
- 3 Replicates
- **Field flooded, NO DATA**

CASSELTON, ND - Linnea Skoglund

- Dryland
- Inoculated by grain spawn method
- Only DON data

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

- Irrigated
- Inoculated by spore spray method
- Disease severity - percentage of infected kernels
- 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 **(NO DATA Dryland)**
- 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 measurement: Percentage of infected seed per head
- DON content (ppm) measured by ELISA technique at ECORC, Ottawa on a composite sample of 4 replicates

TOLUCA, MEXICO – Flavio Capettini

- Irrigated
- 2 replicates
- Inoculated
- Disease measurement: Percentage of infected seed per head
- Disease measurement - Spread in the head
- DON content (ppm) to be measured by ELISA technique at CIMMYT

Table 1. Mean FHB severity of entries grown in the 2005 NABSEN Nursery at five locations.

Label	Langdon	Brandon	St.Paul	Crookston irrigated	Avg.	Toluca Type I(1-5)	Toluca Type II
Stellar ND	11.8	26.8	3.7	14.2	14.1	no data	no data
ND20448	9.1	14.2	1.3	5.7	7.6	no data	no data
ND20473	5.9	7.5	1.7	3.2	4.6	2	16.3
ND20477	8.9	10.3	2.2	11.2	8.1	2	8.2
ND20481	5.9	5.8	1.4	1.9	3.8	1	8.7
ND20493	6.7	8.3	2.4	5.1	5.6	1	8.4
ND20603	3.2	8.4	5.6	3.8	5.2	1	15.7
ND20614	15.7	10.4	0.9	3.1	7.5	1.5	9.8
BM9856D-151	4.4	9.6	6.3	4.0	6.1	1	5.7
BM9856D-176	5.9	16.5	7.0	5.3	8.7	1	9.0
H192D-14	11.8	14.7	2.4	5.3	8.5	no data	no data
H195D-75	7.9	13.6	9.2	2.8	8.4	no data	no data
SB01513	8.4	9.7	6.8	6.3	7.8	1	6.9
SB00106	4.8	14.4	5.5	4.7	7.3	2	10.2
SM00599	1.7	7.5	2.0	3.5	3.7	1	15.0
SM03602	5.8	13.3	7.5	3.6	7.6	1	4.6
Shenmai 3	8.9	17.8	11.3	7.5	11.4	2	7.8
2ND22947	11.2	16.2	4.0	10.0	10.3	1	7.9
2ND19854-2	7.8	10.2	5.0	9.8	8.2	2	7.8
2ND21089	15.8	8.8	7.3	9.3	10.3	1.5	8.5
2ND21863	7.7	12.9	8.5	5.7	8.7	2	9.5
2ND21867	11.1	9.3	6.3	7.8	8.6	2	8.7
2ND22023	13.1	14.9	6.3	7.3	10.4	1.5	7.1
2ND23025	13.9	14.5	6.3	5.0	9.9	2	6.7
6B01-2221	13.0	14.4	4.7	17.0	12.3	no data	no data
6B01-2356	13.7	20.4	2.6	10.0	11.7	no data	no data
6B01-2495	12.9	22.1	5.0	15.0	13.7	no data	no data
6B01-2513	10.9	12.3	3.0	9.5	8.9	no data	no data
6B01-2604	10.5	21.5	3.4	16.3	12.9	no data	no data

Table 1. cont. Mean FHB severity of entries grown in the 2005 NABSEN Nursery at five locations.

Label	Langdon	Brandon	St.Paul	Crookston irrigated	Avg.	Toluca Type I(1-5)	Toluca Type II
6B02-3252	16.2	28.8	9.3	23.7	19.5	no data	no data
6B02-3496	11.4	24.2	8.3	12.2	14.1	no data	no data
6B03-4111	17.8	15.3	4.4	13.2	12.7	1.5	10.6
M122 (FEG65-02)	3.5	7.7	1.3	4.0	4.1	no data	no data
FEG81-58	5.4	12.1	3.3	10.7	7.9	1.5	9.9
FEG90-35	6.0	7.7	3.7	3.1	5.1	1.5	15.1
FEG96-25	6.8	11.2	3.3	6.7	7.0	no data	no data
FEG96-41	7.8	17.4	1.6	8.2	8.8	no data	no data
FEG97-05	5.1	10.1	2.2	6.7	6.0	1	12.0
FEG98-18	10.1	12.8	4.6	8.0	8.9	no data	no data
FEG118-69	9.2	14.2	2.4	4.9	7.7	1	11.9
(05IC-1)	15.1	6.8	12.8	8.2	10.7	1.5	13.9
(05IC-2)	9.3	11.9	7.2	11.2	9.9	1	7.2
(05IC-3)	16.0	15.2	no data	no data	15.6	1	8.6
(05IC-4)	10.6	17.8	10.2	6.8	11.3	1	8.1
(05IC-5)	25.1	34.5	7.0	20.7	21.8	2	10.5
(05IC-6)	49.3	32.0	7.2	18.3	26.7	1.5	12.5
(05IC-7)	27.6	34.3	7.7	21.2	22.7	1.5	9.2
(051C-8)	12.5	33.4	5.8	23.7	18.8	1	12.1
MnBrite	9.6	10.6	2.2	4.4	6.7	no data	no data
Conlon	13.5	20.3	9.8	5.3	12.2	2	9.9
Robust	15.6	20.9	4.7	19.2	15.1	no data	no data
CIHO 4196	2.5	11.2	3.5	3.7	5.2	1	16.7
Chevron	1.5	8.4	1.0	3.7	3.7	1	9.2
Stander	20.9	20.5	9.9	19.2	17.6	no data	no data

Table 2. Mean disease incidence of entries grown in the 2005 NABSEN Nursery at two locations.

Label	Langdon	Brandon	Avg
Stellar ND	93.3	100.0	96.7
ND20448	100.0	100.0	100.0
ND20473	90.0	90.0	90.0
ND20477	90.0	100.0	95.0
ND20481	73.3	97.5	85.4
ND20493	86.7	90.0	88.3
ND20603	56.7	97.5	77.1
ND20614	100.0	82.5	91.3
BM9856D-151	46.7	85.0	65.8
BM9856D-176	53.3	97.5	75.4
H192D-14	100.0	97.5	98.8
H195D-75	83.3	90.0	86.7
SB01513	73.3	90.0	81.7
SB00106	50.0	100.0	75.0
SM00599	33.3	80.0	56.7
SM03602	56.7	97.5	77.1
Shenmai 3	86.7	97.5	92.1
2ND22947	63.3	95.0	79.2
2ND19854-2	76.7	85.0	80.8
2ND21089	83.3	87.5	85.4
2ND21863	76.7	100.0	88.3
2ND21867	80.0	92.5	86.3
2ND22023	80.0	100.0	90.0
2ND23025	86.7	95.0	90.8
6B01-2221	90.0	100.0	95.0
6B01-2356	100.0	100.0	100.0
6B01-2495	96.7	100.0	98.3
6B01-2513	93.3	100.0	96.7
6B01-2604	93.3	100.0	96.7

Table 2. cont. Mean disease incidence of entries grown in the 2005 NABSEN Nursery at two locations.

Label	Langdon	Brandon	Avg
6B02-3252	100.0	100.0	100.0
6B02-3496	96.7	100.0	98.3
6B03-4111	100.0	97.5	98.8
M122 (FEG65-02)	66.7	100.0	83.3
FEG81-58	83.3	100.0	91.7
FEG90-35	80.0	95.0	87.5
FEG96-25	90.0	92.5	91.3
FEG96-41	86.7	100.0	93.3
FEG97-05	83.3	95.0	89.2
FEG98-18	90.0	97.5	93.8
FEG118-69	93.3	100.0	96.7
(05IC-1)	100.0	75.0	87.5
(05IC-2)	76.7	75.0	75.8
(05IC-3)	100.0	100.0	100.0
(05IC-4)	83.3	100.0	91.7
(05IC-5)	93.3	100.0	96.7
(05IC-6)	100.0	100.0	100.0
(05IC-7)	96.7	97.5	97.1
(051C-8)	90.0	100.0	95.0
MnBrite	96.7	100.0	98.3
Conlon	73.3	97.5	85.4
Robust	96.7	100.0	98.3
CIHO 4196	43.3	95.0	69.2
Chevron	56.7	100.0	78.3
Stander	93.3	100.0	96.7

Table 3. Mean days to heading after planting of entries grown in 2005 NABSEN Nursery at four locations.

Label	Langdon	Brandon	St. Paul	Crookston irrigated	Avg
Stellar ND	48	50.5	54	57	52.5
ND20448	49	50.5	54	56	52.5
ND20473	52	51.8	55	57	53.9
ND20477	52	52.5	57	57	54.6
ND20481	47	49.8	53	56	51.4
ND20493	52	49.0	53	56	52.6
ND20603	52	58.0	59	60	57.3
ND20614	49	49.3	55	56	52.2
BM9856D-151	53	58.5	57	59	56.8
BM9856D-176	54	61.3	58	59	58.1
H192D-14	52	51.3	55	56	53.6
H195D-75	55	55.8	57	59	56.9
SB01513	48	56.5	56	59	55.0
SB00106	49	56.5	56	59	55.1
SM00599	56	66.7	59	64	61.4
SM03602	55	56.5	58	61	57.5
Shenmai 3	53	47.0	51	56	51.9
2ND22947	47	51.0	55	57	52.5
2ND19854-2	43	51.0	54	58	51.3
2ND21089	40	49.3	52	57	49.7
2ND21863	44	55.8	55	58	53.4
2ND21867	45	54.8	55	58	53.1
2ND22023	45	53.5	53	57	52.2
2ND23025	46	53.5	55	57	52.9
6B01-2221	48	53.3	55	57	53.5
6B01-2356	47	51.8	55	57	52.9
6B01-2495	50	53.8	55	57	54.0

Table 3. cont. Mean days to heading after planting of entries grown in 2005 NABSEN Nursery at four locations.

Label	Langdon	Brandon	St. Paul	Crookston irrigated	Avg
6B01-2513	48	51.5	54	57	52.8
6B01-2604	48	53.3	55	57	53.5
6B02-3252	49	52.5	56	58	53.8
6B02-3496	49	54.0	55	58	54.0
6B03-4111	46	47.3	53	57	50.7
M122 (FEG65-02)	49	52.8	55	58	53.6
FEG81-58	49	53.8	55	57	53.7
FEG90-35	52	55.0	56	58	55.3
FEG96-25	48	51.0	54	57	52.5
FEG96-41	47	52.3	54	56	52.4
FEG97-05	47	51.5	53	56	51.9
FEG98-18	49	51.0	54	57	52.6
FEG118-69	56	52.0	55	57	55.1
(05IC-1)	39	43.3	51	57	47.7
(05IC-2)	40	43.0	51	58	48.0
(05IC-3)	48	54.5	no data	no data	51.3
(05IC-4)	47	54.0	56	57	53.5
(05IC-5)	45	49.8	53	56	51.1
(05IC-6)	45	49.3	53	58	51.1
(05IC-7)	46	54.0	53	56	52.3
(051C-8)	42	51.0	52	57	50.6
MnBrite	47	55.0	54	57	53.3
Conlon	45	52.3	51	56	51.1
Robust	49	52.8	55	57	53.3
CIHO 4196	55	63.0	60	62	60.0
Chevron	55	60.8	58	62	58.9
Stander	50	54.3	55	57	54.0

Table 4. Mean for DON entries grown in 2005 NABSEN Nursery at seven locations

					Crookston	Crookston		Average		
Label	Langdon	Casselton	Brandon	Osnabrock	irrigated	dryland	St. Paul	All loc	Irrigated	Dryland
Stellar ND	16.3	5.9	7.4	0.4	5.9	4.4	1.3	5.9	7.7	3.5
ND20448	6.0	3.3	3.5	0.1	3.3	2.0	1.5	2.8	3.6	1.8
ND20473	9.3	1.1	3.2	0.3	3.4	2.0	2.2	3.1	4.5	1.1
ND20477	9.6	1.7	4.7	0.4	3.8	1.9	1.0	3.3	4.8	1.3
ND20481	10.1	1.9	3.9	0.3	3.3	1.8	1.3	3.2	4.6	1.3
ND20493	7.5	2.8	1.5	0.4	2.0	2.1	1.4	2.5	3.1	1.8
ND20603	5.9	0.9	3.6	0.1	0.8	0.4	0.6	1.7	2.7	0.4
ND20614	9.7	2.3	6.1	0.0	2.2	0.7	1.5	3.2	4.9	1.0
BM9856D-151	8.0	0.8	2.4	0.1	0.8	0.2	1.0	1.9	3.0	0.3
BM9856D-176	3.9	1.0	4.2	0.0	0.7	0.1	0.9	1.5	2.4	0.4
H192D-14	3.6	1.3	3.5	0.1	1.3	0.8	1.0	1.7	2.4	0.8
H195D-75	4.8	0.6	1.1	0.0	0.8	0.1	1.4	1.3	2.0	0.2
SB01513	4.1	1.7	5.9	0.1	1.7	0.5	0.5	2.1	3.1	0.7
SB00106	4.8	0.8	5.7	0.2	1.0	0.3	0.5	1.9	3.0	0.4
SM00599	5.0	1.0	1.5	0.2	0.9	0.3	0.8	1.4	2.0	0.5
SM03602	8.4	1.6	6.7	0.1	1.2	0.3	0.3	2.6	4.1	0.6
Shenmai 3	13.9	4.9	2.2	0.7	2.9	1.6	6.1	4.6	6.3	2.4
2ND22947	14.1	3.1	2.5	0.1	2.6	12.0	2.9	5.3	5.5	5.1
2ND19854-2	7.0	2.4	2.2	0.4	2.2	1.2	1.2	2.4	3.2	1.3
2ND21089	14.2	4.0	3.7	0.6	2.8	1.5	1.3	4.0	5.5	2.0
2ND21863	10.4	1.7	2.8	0.1	2.1	0.9	1.8	2.8	4.3	0.9
2ND21867	9.2	1.2	2.4	0.1	2.1	1.0	0.9	2.4	3.7	0.8
2ND22023	5.7	1.6	2.5	0.1	1.2	0.9	1.4	1.9	2.7	0.9
2ND23025	4.1	0.9	2.3	0.0	0.8	0.7	1.6	1.5	2.2	0.5
6B01-2221	13.6	5.7	4.6	0.2	5.6	2.2	2.3	4.9	6.5	2.7
6B01-2356	17.5	2.6	3.7	0.2	4.5	2.4	1.4	4.6	6.8	1.7
6B01-2495	20.8	5.1	6.0	0.8	4.6	4.2	3.4	6.4	8.7	3.4
6B01-2513	16.0	3.5	3.1	0.4	3.2	1.9	1.9	4.3	6.0	1.9
6B01-2604	13.3	1.9	8.0	0.9	4.6	2.6	1.7	4.7	6.9	1.8

Table 4 cont. Mean for DON entries grown in 2005 NABSEN Nursery at seven locations

					Crookston	Crookston		Average		
Label	Langdon	Casselton	Brandon	Osnabrock	irrigated	dryland	St. Paul	All loc	Irrigated	Dryland
6B02-3252	19.2	5.3	8.8	0.4	6.1	4.8	1.2	6.5	8.8	3.5
6B02-3496	14.9	3.7	5.1	0.8	3.9	2.6	1.8	4.7	6.4	2.4
6B03-4111	17.4	9.1	4.7	0.3	5.7	3.5	2.3	6.1	7.5	4.3
M122 (FEG65-02)	8.2	1.4	3.2	0.6	2.3	0.7	1.0	2.5	3.7	0.9
FEG81-58	9.2	1.4	3.8	0.5	2.5	0.6	1.1	2.7	4.1	0.8
FEG90-35	13.2	2.9	2.6	0.5	2.7	0.8	1.4	3.5	5.0	1.4
FEG96-25	9.5	2.3	3.9	0.5	2.4	1.4	1.4	3.1	4.3	1.4
FEG96-41	11.6	4.1	5.0	1.1	2.6	0.7	1.2	3.8	5.1	2.0
FEG97-05	11.3	3.2	3.1	0.9	3.7	1.5	1.3	3.6	4.9	1.9
FEG98-18	13.4	6.3	3.9	0.6	3.3	2.6	2.1	4.6	5.7	3.2
FEG118-69	12.5	4.3	4.7	0.2	3.4	1.6	1.1	4.0	5.4	2.0
(05IC-1)	17.0	7.5	1.6	0.9	1.4	3.8	8.4	5.8	7.1	4.1
(05IC-2)	17.7	8.4	4.4	0.3	1.6	3.1	5.4	5.9	7.3	3.9
(05IC-3)	13.3	4.3	10.5	0.6	4.3	2.4	1.8	5.3	7.5	2.4
(05IC-4)	6.7	2.4	2.8	0.9	1.3	0.6	3.9	2.6	3.7	1.3
(05IC-5)	13.3	2.4	7.6	0.7	2.9	1.5	1.4	4.2	6.3	1.5
(05IC-6)	28.5	8.1	4.3	8.4	4.5	8.0	5.6	9.6	10.7	8.2
(05IC-7)	18.3	2.2	8.5	0.3	3.3	1.7	1.8	5.1	8.0	1.4
(051C-8)	18.5	6.8	2.7	6.3	4.3	4.1	1.9	6.4	6.8	5.7
MnBrite	12.4	1.8	3.8	0.2	2.8	2.2	1.2	3.5	5.1	1.4
Conlon	5.6	1.0	1.8	0.3	0.7	1.2	2.6	1.9	2.7	0.8
Robust	17.5	4.0	4.8	0.6	4.6	3.5	1.4	5.2	7.1	2.7
CIHO 4196	6.6	1.0	2.4	0.1	0.6	0.2	0.9	1.7	2.6	0.4
Chevron	1.1	1.3	2.0	0.3	0.7	0.2	0.7	0.9	1.1	0.6
Stander	27.1	4.2	6.9	1.8	7.5	7.3	3.2	8.3	11.2	4.4

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

Label	Heading date[1]	Incidence %[2]	FHB %[3]	DON (ppm)[4]
Stellar ND	52.5	96.7	14.1	5.9
ND20448	52.5	100.0	7.6	2.8
ND20473	53.9	90.0	4.6	3.1
ND20477	54.6	95.0	8.1	3.3
ND20481	51.4	85.4	3.8	3.2
ND20493	52.6	88.3	5.6	2.5
ND20603	57.3	77.1	5.2	1.7
ND20614	52.2	91.3	7.5	3.2
BM9856D-151	56.8	65.8	6.1	1.9
BM9856D-176	58.1	75.4	8.7	1.5
H192D-14	53.6	98.8	8.5	1.7
H195D-75	56.9	86.7	8.4	1.3
SB01513	55.0	81.7	7.8	2.1
SB00106	55.1	75.0	7.3	1.9
SM00599	61.4	56.7	3.7	1.4
SM03602	57.5	77.1	7.6	2.6
Shenmai 3	51.9	92.1	11.4	4.6
2ND22947	52.5	79.2	10.3	5.3
2ND19854-2	51.3	80.8	8.2	2.4
2ND21089	49.7	85.4	10.3	4.0
2ND21863	53.4	88.3	8.7	2.8
2ND21867	53.1	86.3	8.6	2.4
2ND22023	52.2	90.0	10.4	1.9
2ND23025	52.9	90.8	9.9	1.5
6B01-2221	53.5	95.0	12.3	4.9
6B01-2356	52.9	100.0	11.7	4.6
6B01-2495	54.0	98.3	13.7	6.4
6B01-2513	52.8	96.7	8.9	4.3

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

Label	Heading date[1]	Incidence %[2]	FHB %[3]	DON (ppm)[4]
6B01-2604	53.5	96.7	12.9	4.7
6B02-3252	53.8	100.0	19.5	6.5
6B02-3496	54.0	98.3	14.1	4.7
6B03-4111	50.7	98.8	12.7	6.1
M122 (FEG65-02)	53.6	83.3	4.1	2.5
FEG81-58	53.7	91.7	7.9	2.7
FEG90-35	55.3	87.5	5.1	3.5
FEG96-25	52.5	91.3	7.0	3.1
FEG96-41	52.4	93.3	8.8	3.8
FEG97-05	51.9	89.2	6.0	3.6
FEG98-18	52.6	93.8	8.9	4.6
FEG118-69	55.1	96.7	7.7	4.0
(05IC-1)	47.7	87.5	10.7	5.8
(05IC-2)	48.0	75.8	9.9	5.9
(05IC-3)	51.3	100.0	15.6	5.3
(05IC-4)	53.5	91.7	11.3	2.6
(05IC-5)	51.1	96.7	21.8	4.2
(05IC-6)	51.1	100.0	26.7	9.6
(05IC-7)	52.3	97.1	22.7	5.1
(051C-8)	50.6	95.0	18.8	6.4
MnBrite	53.3	98.3	6.7	3.5
Conlon	51.1	85.4	12.2	1.9
Robust	53.3	98.3	15.1	5.2
CIHO 4196	60.0	69.2	5.2	1.7
Chevron	58.9	78.3	3.7	0.9
Stander	54.0	96.7	17.6	8.3

[1] Heading data from date of planting to 50% of heads 50% emerged at four locations.
[2] FHB incidence means at two locations.
[3] FHB severity means at four locations.
[4] DON content means at seven locations.

Table 6. Correlation among locations for FHB severity in 2005

					Crookston		
	Langdon	Casselton	Brandon	Osnabrock	irrigated	dryland	St. Paul
Langdon	1	0.75**	0.41*	0.54**	0.78**	0.72**	0.51**
Casselton	0.75**	1	0.21	0.48*	0.58**	0.56**	0.62**
Brandon	0.41*	0.21	1	0.02	0.55**	0.2	-0.13
Osnabrock	0.54**	0.48*	0.02	1	0.31*	0.45*	0.36*
Crookston-irrigated	0.78**	0.58**	0.55**	0.31*	1	0.59**	0.14
Crookston-dryland	0.72**	0.56**	0.2	0.45*	0.59**	1	0.45*
St. Paul	0.51**	0.62**	-0.13	0.36*	0.14	0.45*	1

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

Table 7. Pedigree and source of breeding lines tested for FHB resistance in 2005

Label	Pedigree	Contributor
Stellar	Foster//ND12204/6B88-3213	North Dak. State Univ./Horsley
ND20448	ND16918/C98-10-155-3	North Dak. State Univ./Horsley
ND20473	ND16918*2/CIho 7163	North Dak. State Univ./Horsley
ND20477	ND16918*2/CIho 7163	North Dak. State Univ./Horsley
ND20481	ND16918*2/CIho 7163	North Dak. State Univ./Horsley
ND20493	ND16918*2/CIho 6611	North Dak. State Univ./Horsley
ND20603	ND16918*2/CIho 6610	North Dak. State Univ./Horsley
ND20614	Drummond/C98-3-47-1	North Dak. State Univ./Horsley
BM9856D-151	Harbin/TR253//TR253	AAFC-Brandon/ Legge
BM9856D-176	Harbin/TR253//TR253	AAFC-Brandon/ Legge
H192D-14	Earl//Tupper/Dual/HB101)/(Bran CC053-2/B1602/BT347/ Argyle/Conquest/Minn. M83)/Legacy	AAFC-Brandon/ Therrien
H195D-75	Bran CC053-2/HB109	AAFC-Brandon/ Therrien
SB01513	HB350/SB96002	U of SK/ CDC / Rossnagel & Zatorski
SB00106	TR339/TR252	U of SK/ CDC / Rossnagel & Zatorski
SM00599	SM95152/BM9014-10	U of SK/ CDC / Harvey & Lefol
SM03602	SM98427/SM98787	U of SK/ CDC / Harvey & Lefol
Shenmai 3	Gobernadora/Humai 10	North Dak. State Univ./Franckowiak
2ND22947	ND19119-1/ND19931	North Dak. State Univ./Franckowiak
2ND19854-2	ND15403-3/ND16462	North Dak. State Univ./Franckowiak
2ND21089	ND18172/ND18076	North Dak. State Univ./Fracnkowiak
2ND21863	ND18172/ND19130	North Dak. State Univ./Franckowiak
2ND21867	ND18172/ND19130	North Dak. State Univ./Franckowiak
2ND22023	ND19088//ND17291/ND19098	North Dak. State Univ./Franckowiak
2ND23025	ND19931/ND18172-1	North Dak. State Univ./Franckowiak
6B01-2221	LEGACY // 6B88-3213 / LEGACY	Busch Ag.
6B01-2356	LEGACY / MNBRITE // LEGACY / 6B94-7378	Busch Ag.
6B01-2495	LEGACY // 6B88-3213 / M83	Busch Ag.
6B01-2513	LEGACY / 6B95-6311	Busch Ag.

Table 7. cont. Pedigree and source of breeding lines tested for FHB resistance in 2005

Label	Pedigree	Contributor
6B01-2604	LEGACY // LEGACY / 6B94-7378	Busch Ag.
6B02-3252	6B94-8253 / 6B97-2326	Busch Ag.
6B02-3496	LEGACY // LEGACY / 6B95-2089	Busch Ag.
6B03-4111	6B98-9015 // Legacy / 6B97-2245	Busch Ag.
M122 (FEG65-02)	FEG18-20 / M110	University of Minnesota
FEG81-58	FEG19-92 / M110	University of Minnesota
FEG90-35	FEG26-50 / FEG18-27	University of Minnesota
FEG96-25	FEG59-09 / M110	University of Minnesota
FEG96-41	FEG59-09 / M110	University of Minnesota
FEG97-05	FEG59-21 / M115	University of Minnesota
FEG98-18	M112 / FEG31-68	University of Minnesota
FEG118-69	FEG69-38 / M114	University of Minnesota
(05IC-1)	ARUPO/K8755//MORA/3/GOB/HUMA110/4/LIMON/BICHY2000	ICARDA/CIMMYT
(05IC-2)	GOB/HUMA110//MSEL/3/ARUPO/K8755//MORA	ICARDA/CIMMYT
(05IC-3)	PETUNIA 2/CABUYA/3/CHAMICO/TOCTE//CONGONA	ICARDA/CIMMYT
(05IC-4)	SVANHALS-BAR/CANELA//MSEL	ICARDA/CIMMYT
(05IC-5)	SVANHALS-BAR/ALELI	ICARDA/CIMMYT
(05IC-6)	CHAMICO/TOCTE//CONGONA/3/MNS4	ICARDA/CIMMYT
(05IC-7)	SVANHALS-BAR/ALELI	ICARDA/CIMMYT
(051C-8)	CHAMICO/TOCTE//CONGONA/3/MNS4	ICARDA/CIMMYT
MnBrite	M90-89/M69	Check
Conlon	BOWMAN*2/DWS1008/ND10232	Check
Robust	MOREX/MANKER	Check
CIHO 4196	UNKNOWN	Check
Chevron	UNKNOWN	Check
Stander	ROBUST*2/3/CREE/BONANZA//MANKER/4/ROBUST/BUMBER	Check