

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

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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 | Mean |
|--------------|---------|-------|---------|----------|-----------|-------------|
| | | | | | irrigated | |
| 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 | | | | | Irrigated | Osnabrock | Crookston | dryland |
|--------------|-----------|---------|-----------|----------|---------|-------------|-----------|-----------|-------------|
| | Fargo | Langdon | irrigated | St. Paul | Brandon | 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 to¹</u> Head | <u>FHB²</u> Incidence% | <u>FHB³</u> Severity% | <u>Don(ppm)⁴</u> irrigated | <u>Don(ppm)⁴</u> 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/ | AAFC-Brandon (Legge) |
| 7 | EX702-4-6 | HB115 | Legacy)/Bacon | 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-0M-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 | |