Small Grain Disease Update

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Bacterial Leaf Streak and Black Chaff

- “Flag Leaf” Disease
- Storms and other injury events
- Survives on residue and seed
Host Resistance
North Dakota

Hard Red Spring Wheat

Variety Trial Results for 2019 and Selection Guide

Joel Ransom, Andrew Green, Senay Simsek, Andrew Friskop, Matt Breiland, Tim Friesen, Zhaohui Liu and Shaobin Zhong (NDSU Main Station); John Rickertsen (Hettinger Research Extension Center); Eric Eriksmoen (North Central Research Extension Center, Minot); Bryan Hanson (Langdon Research Extension Center); Glenn Martin (Dickinson Research Extension Center); Gautam Pradhan (Williston Research Extension Center); Mike Ostlie (Carrington Research Extension Center)
BLS Score = 2-3
BLS Score = 5-6
BLS Score = 8-9
Importance of Varietal Resistance
2019 HRSW Variety Trials

- Joel Ransom and Andrew Green
- Steele County and Thompson
- High level of BLS and a yield limiting factor
- Significant yield differences
Hard Red Spring Wheat Variety Resistance Score

Yield (bu/A)
Another Way to Look at the Data

• Average yield of three Eastern ND (non BLS) locations (Carrington, Langdon and Casselton)
• Average yield from Steele Co. and Thompson
• Calculated yield loss (%) between non-BLS and BLS locations
• Determine the point where the “greatest risk” occurs based on HRSW variety score
Fusarium Head Blight

*Remember Integrated Management is BEST!!
FHB Risk in 2019
Onset of flowering (Fks. 10.51) AND up to 7 days after
Onset of flowering (Fks. 10.51) AND up to 7 days after
Fungicide Before, At, or After Early Flowering

- Uniform Fungicide Trials from 1995-2013

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<thead>
<tr>
<th>Treatment</th>
<th>Rate</th>
<th>Timing</th>
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<tbody>
<tr>
<td>Non-treated Check</td>
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<td>Prosaro</td>
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<td>Fks. 10.5</td>
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HRSW – DON Suppression

% Suppression

- PRO_Early: 29
- PRO_FLWR: 45
- PRO_Late: 47
- CAR_Early: 24
- CAR_FLWR: 49
- CAR_Late: 51
Same trend in Spring Barley?
Complete head emergence (Fks. 10.5) AND up to 7 days after
Barley - DON Suppression

% Suppression

PRO_Early: 9
PRO_Head: 50
PRO_Late: 58
CAR_Early: 21
CAR_FLWR: 43
CAR_Late: 45
Evaluating Efficacy of Miravis Ace

- Miravis Ace is pydiflumetofen (FRAC 7/SDHI) + propiconazole (FRAC 3/DMI)

- Reports of adequate efficacy at Fks. 10.3

- Robust multi-state effort to quantify level of efficacy of Miravis ACE
### Fungicide Efficacy Trials - USWBSI

2018-2019 – 10 states – 24 trials

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Efficacy Trials – Field Severity

- MIR fb PRO: 5.1
- MIR fb CAR: 5.0
- MIR_Late: 7.6
- MIR_FLW: 6.5
- MIR_Head: 8.7
- PRO_FLW: 8.6
- CAR_FLW: 9.4
- NTC: 19.2

FHB Index Value
Efficacy Trials – DON Levels

- MIR fb PRO: 3.1 ppm
- MIR fb CAR: 3.1 ppm
- MIR_Late: 4.2 ppm
- MIR_FLW: 4.0 ppm
- MIR_Head: 6.5 ppm
- PRO_FLW: 4.8 ppm
- CAR_FLW: 4.9 ppm
- NTC: 7.2 ppm

Deoxynivalenol (ppm)
ND Durum Data - Four Locs
Low to Moderate Disease Pressure
Durum – Low Disease - DON Levels

- MA_LATE: 1.3 ppm
- MA_FLWR: 1.1 ppm
- MA_HEAD: 1.6 ppm
- PRO_LATE: 1.3 ppm
- PRO_FLWR: 1.6 ppm
- NTC: 2.2 ppm

Deoxynivalenol (ppm)
ND Durum Data - One Loc
Very High Disease Pressure
Durum – Very High Disease - DON Levels

- MA_LATE: 23.8 ppm
- MA_FLWR: 25.0 ppm
- MA_HEAD: 32.9 ppm
- PRO_LATE: 23.2 ppm
- PRO_FLWR: 24.0 ppm
- NTC: 38.8 ppm

Deoxynivalenol (ppm)
• Variety selection is our best management tool for BLS

• FHB fungicide timing should occur at early-flowering for wheat and at full-head for barley AND up to 4-7 days after

• Miravis Ace is an effective product, yet timing recommendation is the same as triazoles