Evaluating Fungicides for Snow Mold Control on Putting Greens and Fairways in the Intermountain West 2010-11 Results

IEGCSA 2011 Pesticide Short Course
Nov. 14, 2011
Hayden Lake Country Club, Hayden Lake, ID

C.T. Golob and W.J. Johnston
Washington State University
Pullman, WA
Overview

- Snow mold ID

- Fungicides

- 2010-11 Trials
  - PAR (Proprietary pigment concentrate)
  - Fairways: Reduced rates of 2 or 3-way fungicide combinations (Chewelah)
  - Greens: Combinations with Interface, Reserve, or Tartan (Pullman, Chewelah, and McCall)
Snow molds

- **Pink snow mold**
  - *Microdochium nivale*

- **Gray snow molds**
  - *Typhula incarnata*
  - *Typhula ishikariensis*
Pink Snow Mold

(AKA: Microdochium or Fusarium patch) (*Microdochium nivale*)

- Cool moist conditions 30-60 °F (Spring, Fall, Winter)
- Does not require snow cover
- Circular patches, light gray to reddish bronze, up to 20” diameter
- Pink fungal spores build-up on leaves
Early stages of pink snow mold development
Reddish bronze fringe (active)

Pink snow mold
Gray Snow Molds

Typhula incarnata

Typhula ishikariiensis
Typhula incarnata

- >60 days continuous snow cover
- Unfrozen ground (34-36 °F)
- Circular patches of gray/white matted turf
- **Sclerotia**: spherical up to 5 mm diameter red/brown embedded in dead leaf tissue (spring). Over summer on the soil surface.
- **Sporocarps**: pink fleshy club-shaped upright structures 20 mm tall (fall only)
- Less destructive
Typhula incarnata

Sclerotia
T. incarnata sporocarps in low cut turf in the fall
Typhula ishikariensis

- >100 days continuous snow cover
- Unfrozen ground (34-36 °F)
- Circular patches of gray/white matted turf or a bleached crust of mycelium after drying

  - **Sclerotia:** <2 mm dark brown/black visible on crust (spring). Over summer on soil surface.
  - **Sporocarps:** silvery-white fleshy club-shaped; very small <15 mm tall (very rare) (fall only)

- Destructive
Typhula ishikariensis

Sclerotia
Disease Severity

Snow cover

Typhula ishikariensis

Typhula incarnata

Microdochium nivale

0 days

60 days

100 days
DMI Fungicides
(broad spectrum, systemic, resistance potential: medium)

- **Banner MAXX, Spectator Ultra**
  - propiconazole

- **Trinity, Triton FLO**
  - triticonazole

- **Lynx, Torque**
  - tebuconazole

- **Bayleton**
  - triadimefon
Strobilurin Fungicides
(broad spectrum, systemic, single-site MOA, resistance potential: high)

- **Heritage**
  - azoxystrobin
- **Compass**
  - trifloxytrobin
- **Insignia**
  - pyraclostrobin
Contact Fungicides
(broad spectrum, multi-site MOA, resistance potential: Low)

• **Daconil, Docket, Manicure Ultra**
  - chlorothalonil

• **Medallion** (inhibits germination of fungal spores)
  - fludioxonil

• **Terraclor, Turfcide 400, Revere 4000, FFII 14-3-3**
  - PCNB, Quintozene
Fungicides

• 26GT, 18 Plus
  - iprodione

• Cleary's 3336
  - thiophanate-methyl
Single formulations with 2 to 3 fungicides

- **Syngenta**
  - **Instrata** (propiconazole + fludioxonil + chlorothalonil)
  - **Headway** (propiconazole + azoxystrobin)
  - **Concert** (propiconazole + chlorothalonil)
  - **Renown** (azoxystrobin + chlorothalonil)
Single formulations with 2 fungicides

- **Bayer**
  - **Interface** (iprodione + trifloxystrobin) w/ StressGard
  - **Tartan** (triadimefon + trifloxystrobin) w/ StressGard
  - **Reserve** (triticonazole + chlorothalonil) w/ StressGard

- *StressGard formulated products deliver superior turfgrass quality, improved health, vigor, density and color*
Trial application timing

- Close to permanent snow cover

- McCall, ID: >150 days snow cover
  - Oct 20 – 27

- Chewelah, WA: >100 days <150 days
  - Oct 25 – Nov 1

- Pullman, WA: <60 days snow cover
  - Nov 15 – 25
Application Timing

Trials

Additional pink snow mold control
Ratings

- **Disease** (% area infected)
- **Turfgrass quality** (rated 1-9; 9 = excellent)
- **Color** (rated 1-9; 9 = dark green)
Trial results

- **PAR** (Proprietary pigment concentrate)

- **Fairways:** Reduced rates of 2 or 3-way fungicide combinations (Chewelah)

- **Greens:** Combinations with Interface, Reserve, or Tartan (Pullman, Chewelah, and McCall)
PAR (proprietary pigment concentrate)

Simplot

Dark green pigment

Mixed with Fall applied fungicides for snow mold control, what effects will this have on the turf the following spring?
Instrata 9.3 fl oz + PAR
Instrata 9.3 fl oz
(Interface 6 fl oz + Triton FLO) w/StressGard
City of McCall Golf Course
10/27/10

Instrata 9.3 fl oz

(Interface 6 fl oz + Triton FLO) w/StressGard
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate</th>
<th>Disease (Pullman)</th>
<th>Color</th>
<th>Disease (Chewelah)</th>
<th>Color</th>
<th>Disease (McCall)</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTRATA</td>
<td>7 fl oz</td>
<td>0.0</td>
<td>3.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSTRATA + PAR</td>
<td>7 fl oz</td>
<td>0.0</td>
<td>4.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.37 fl oz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSTRATA</td>
<td>9.3 fl oz</td>
<td></td>
<td></td>
<td>7.3</td>
<td>4.8</td>
<td>1.0</td>
<td>4.7</td>
</tr>
<tr>
<td>INSTRATA + PAR</td>
<td>9.3 fl oz</td>
<td></td>
<td></td>
<td>2.3</td>
<td>7.0</td>
<td>0.0</td>
<td>7.8</td>
</tr>
<tr>
<td></td>
<td>0.37 fl oz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Instrata 9.3 fl oz + PAR 0.37 fl oz

Instrata 11 fl oz
Instrata + PAR

PAR 0.37 fl oz

Instrata 9.3 fl oz + PAR 0.37 fl oz

Rated: 3/30/11
125 days snow cover
Bottom line

• Tank mixing PAR 0.37 fl oz with Instrata increased turfgrass quality and color, when rated soon after snow melt, compared to Instrata alone
Fairway Trial Chewelah 2010-11

Kentucky bluegrass
perennial ryegrass
creeping bentgrass
annual bluegrass

App date: 10/29/10
Rated: 3/30/11
125 days snow cover
70% gray/30% pink
### Fairway Trial 2010-11 (Chewelah)

125 days snow cover  
70% gray/30% pink  
Rated: March 30, 2011

<table>
<thead>
<tr>
<th>Fungicide treatment</th>
<th>Rate (prod/M)</th>
<th>Disease (% area infected)</th>
<th>Turf Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface (iprodione + trifloxystrobin) + SG</td>
<td>6 fl oz</td>
<td>0.3 d</td>
<td>7.5 a</td>
</tr>
<tr>
<td>Instrata (propiconazole + fludioxonil + chlorothalonil)</td>
<td>9 fl oz</td>
<td>0.8 d</td>
<td>6.0 b</td>
</tr>
<tr>
<td>Concert (propiconazole + chlorothalonil) +</td>
<td>5 fl oz</td>
<td>1.8 d</td>
<td>5.8 bc</td>
</tr>
<tr>
<td>Medallion (fludioxonil)</td>
<td>0.25 oz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renown (azoxystrobin + chlorothalonil)</td>
<td>4.5 fl oz</td>
<td>2.5 d</td>
<td>5.6 bc</td>
</tr>
<tr>
<td>Instrata (propiconazole + fludioxonil + chlorothalonil)</td>
<td>5 fl oz</td>
<td>2.8 d</td>
<td>5.5 bcd</td>
</tr>
<tr>
<td>Concert (propiconazole + chlorothalonil) +</td>
<td>5 fl oz</td>
<td>3.5 cd</td>
<td>4.8 cd</td>
</tr>
<tr>
<td>Banner MAXX (propiconazole)</td>
<td>1 fl oz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concert (propiconazole + chlorothalonil) +</td>
<td>8.5 fl oz</td>
<td>4.3 cd</td>
<td>4.8 cd</td>
</tr>
<tr>
<td>Banner MAXX (propiconazole)</td>
<td>1 fl oz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concert (propiconazole + chlorothalonil)</td>
<td>8.5 fl oz</td>
<td>5.3 cd</td>
<td>4.5 ce</td>
</tr>
<tr>
<td>Concert (propiconazole + chlorothalonil)</td>
<td>5 fl oz</td>
<td>10.8 bc</td>
<td>3.5 e</td>
</tr>
<tr>
<td>Headway G (propiconazole + azoxystrobin)</td>
<td>4 lbs</td>
<td>13.8 b</td>
<td>3.6 e</td>
</tr>
<tr>
<td>Check</td>
<td>0</td>
<td>88.8 a</td>
<td>1.0 f</td>
</tr>
</tbody>
</table>
Interface 6 fl oz

Headway G 4 lbs/M

Concert 8.5 fl oz

Concert 5 fl oz + Banner MAXX 1 fl oz

Rated: 3/30/11
125 days snow cover

Fairway Trial 2010-11 (Chewelah)

Chewelah Golf and Country Club
Chewelah, WA
Fairway Trial 2010-11 (Chewelah)

Rated: 3/30/11
125 days snow cover

Chewelah Golf and Country Club
Chewelah, WA

Headway G 4 lbs/M

Renown 4.5 fl oz

Concert 8.5 fl oz + Banner MAXX 1 fl oz

Concert 8.5 fl oz
## Fairway Trial 2010-11 (Chewelah)

- **125 days snow cover**
- **70% gray/30% pink**

<table>
<thead>
<tr>
<th>Fungicide Treatment</th>
<th>Rate (prod/M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface (iprodione + trifloxystrobin) + SG</td>
<td>6 fl oz</td>
</tr>
<tr>
<td>Concert (propiconazole + chlorothalonil) +</td>
<td>5 fl oz</td>
</tr>
<tr>
<td>Medallion (fludioxonil)</td>
<td>0.25 oz</td>
</tr>
<tr>
<td>Instrata (propiconazole + fludioxonil + chlorothalonil)</td>
<td>5 fl oz</td>
</tr>
<tr>
<td>Renown (azoxystrobin + chlorothalonil)</td>
<td>4.5 fl oz</td>
</tr>
<tr>
<td>Concert (propiconazole + chlorothalonil) +</td>
<td>5 fl oz</td>
</tr>
<tr>
<td>Banner MAXX (propiconazole)</td>
<td>1 fl oz</td>
</tr>
<tr>
<td>Concert (propiconazole + chlorothalonil)</td>
<td>8.5 fl oz</td>
</tr>
</tbody>
</table>
Greens Trial 2010-11 (Pullman)

‘T-1’ creeping bentgrass

Applied: 11/17/10
Rated: 3/24/11
65 days snow cover
Pink snow mold

Rep 2
Rep 1

WSU Turfgrass and Agronomy Research Center
Pullman, WA
# Greens Trial 2010-11 (Pullman)

65 days snow cover  
100% pink snow mold  
Rated: March 24, 2011

<table>
<thead>
<tr>
<th>Fungicide treatment</th>
<th>Rate (prod/M)</th>
<th>Disease (% area infected)</th>
<th>Turf quality</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERFACE (iprodione + trifloxystrobin) + SG + DACONIL ULTREX (chlorothalonil)</td>
<td>6 fl oz 5 oz</td>
<td>0.0 c 5.0 ab</td>
<td>5.5 a 4.8 bc</td>
<td></td>
</tr>
<tr>
<td>INTERFACE (iprodione + trifloxystrobin) + SG + DACONIL ULTREX (chlorothalonil)</td>
<td>5 fl oz 5 oz</td>
<td>0.0 c 5.3 ab</td>
<td>5.3 ab</td>
<td></td>
</tr>
<tr>
<td>INTERFACE (iprodione + trifloxystrobin) + SG + DACONIL ULTREX (chlorothalonil)</td>
<td>4 fl oz 5 oz</td>
<td>0.0 c 5.0 ab</td>
<td>4.8 bc</td>
<td></td>
</tr>
<tr>
<td>INSTRATA (propiconazole + fludioxonil + chlorothalonil) + PAR (proprietary pigment concentrate)</td>
<td>7 fl oz 0.37 fl oz</td>
<td>0.0 c 4.0 c</td>
<td>4.5 c</td>
<td></td>
</tr>
<tr>
<td>INSTRATA (propiconazole + fludioxonil + chlorothalonil)</td>
<td>5 fl oz</td>
<td>0.0 c 4.0 c</td>
<td>3.5 d</td>
<td></td>
</tr>
<tr>
<td>INSTRATA (propiconazole + fludioxonil + chlorothalonil)</td>
<td>7 fl oz</td>
<td>0.0 c 4.0 c</td>
<td>3.3 d</td>
<td></td>
</tr>
<tr>
<td>TARTAN (triadimefon + trifloxystrobin) + SG</td>
<td>2 fl oz</td>
<td>0.3 c 5.0 ab</td>
<td>5.0 abc</td>
<td></td>
</tr>
<tr>
<td>RESERVE (triticonazole + chlorothalonil) + SG</td>
<td>4.5 fl oz</td>
<td>0.3 c 4.8 b</td>
<td>5.0 abc</td>
<td></td>
</tr>
<tr>
<td>PAR (proprietary pigment concentrate)</td>
<td>0.37 fl oz</td>
<td>5.3 b 3.3 cd</td>
<td>5.0 abc</td>
<td></td>
</tr>
<tr>
<td>CHECK</td>
<td></td>
<td>14.8 a 2.3 d</td>
<td>3.8 d</td>
<td></td>
</tr>
</tbody>
</table>
Greens Trial 2010-11 (Pullman)

<65 days snow cover
100% pink

<table>
<thead>
<tr>
<th>Fungicide treatment</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERFACE (iprodione + trifloxystrobin) + SG +</td>
<td>4 or 5 fl oz</td>
</tr>
<tr>
<td>DACONIL ULTREX (chlorothalonil)</td>
<td>5 oz</td>
</tr>
<tr>
<td>INSTRATA (propiconazole + fludioxonil + chlorothalonil) +</td>
<td>5 or 7 fl oz</td>
</tr>
<tr>
<td>PAR (proprietary pigment concentrate)</td>
<td>0.37 fl oz</td>
</tr>
<tr>
<td>TARTAN (triadimefon + trifloxystrobin) + SG</td>
<td>2 fl oz</td>
</tr>
<tr>
<td>RESERVE (triticonazole + chlorothalonil) + SG</td>
<td>4.5 fl oz</td>
</tr>
</tbody>
</table>
Greens Trial 2010-11 (Chewelah)

- creeping bentgrass
- annual bluegrass

App date: 10/29/10
Rated: 3/30/11
125 days snow cover
60% gray/40% pink
<table>
<thead>
<tr>
<th>Fungicide treatment</th>
<th>Rate (prod/M)</th>
<th>Disease (% area infected)</th>
<th>Turf quality</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TARTAN</strong> (triadimefon + trifloxystrobin) + SG</td>
<td>2 fl oz</td>
<td>1.0 d</td>
<td>6.5 a</td>
<td>6.5 b</td>
</tr>
<tr>
<td><strong>DACONIL ULTEX</strong> (chlorothalonil)</td>
<td>5 oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RESERVE</strong> (triticonazole + chlorothalonil) + SG</td>
<td>4.5 fl oz</td>
<td>1.3 d</td>
<td>6.0 ab</td>
<td>6.0 c</td>
</tr>
<tr>
<td><strong>COMPASS</strong> (trifloxystrobin)</td>
<td>0.25 oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INTERFACE</strong> (iprodione + trifloxystrobin) + SG</td>
<td>5 fl oz</td>
<td>1.8 cd</td>
<td>6.3 ab</td>
<td>7.0 a</td>
</tr>
<tr>
<td><strong>TRITON FLO</strong> (triticonazole) + SG</td>
<td>0.85 fl oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INSTRATA</strong> (propiconazole + fludioxonil + chlorothalonil) + SG</td>
<td>9.3 fl oz</td>
<td>2.3 cd</td>
<td>6.5 a</td>
<td>7.0 a</td>
</tr>
<tr>
<td><strong>PAR</strong> (proprietary pigment concentrate)</td>
<td>0.37 fl oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INSTRATA</strong> (propiconazole + fludioxonil + chlorothalonil)</td>
<td>11 fl oz</td>
<td>3.8 cd</td>
<td>5.3 abc</td>
<td>5.3 d</td>
</tr>
<tr>
<td><strong>INTERFACE</strong> (iprodione + trifloxystrobin) + SG</td>
<td>6 fl oz</td>
<td>6.5 cd</td>
<td>6.0 ab</td>
<td>7.0 a</td>
</tr>
<tr>
<td><strong>TRITON FLO</strong> (triticonazole) + SG</td>
<td>0.85 fl oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INTERFACE</strong> (iprodione + trifloxystrobin) + SG</td>
<td>3 fl oz</td>
<td>7.3 cd</td>
<td>5.0 bc</td>
<td>6.0 c</td>
</tr>
<tr>
<td><strong>TRITON FLO</strong> (triticonazole) + SG</td>
<td>0.5 fl oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INSTRATA</strong> (propiconazole + fludioxonil + chlorothalonil)</td>
<td>9.3 fl oz</td>
<td>7.3 cd</td>
<td>4.3 c</td>
<td>4.8 e</td>
</tr>
<tr>
<td><strong>INTERFACE</strong> (iprodione + trifloxystrobin) + SG</td>
<td>4 fl oz</td>
<td>8.8 c</td>
<td>4.0 c</td>
<td>6.3 bc</td>
</tr>
<tr>
<td><strong>TRITON FLO</strong> (triticonazole) + SG</td>
<td>0.85 fl oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PAR</strong> (proprietary pigment concentrate)</td>
<td>0.37 fl oz</td>
<td>78.8 b</td>
<td>1.0 d</td>
<td>1.0 f</td>
</tr>
<tr>
<td><strong>CHECK</strong></td>
<td>0</td>
<td>86.3 a</td>
<td>1.0 d</td>
<td>1.0 f</td>
</tr>
</tbody>
</table>
Greens Trial 2010-11 (Chewelah)

Interface 5 fl oz + TritonFLO 0.85 fl oz
Interface 6 fl oz + TritonFLO 0.85 fl oz
Instrata 9.3 fl oz + PAR 0.37 fl oz
Check

Rated: 3/30/11
125 days snow cover
Chewelah Golf and Country Club
Instrata 11 fl oz

Reserve 4.5 fl oz + Compass 0.25 oz

Reserve 4.5 fl oz + Compass 0.25 oz

Tartan 2 fl oz + Daconil Ultrex 5 oz

Instrata 11 fl oz

Reserve 4.5 fl oz + Compass 0.25 oz

Rated: 3/30/11

125 days snow cover

Greens Trial 2010-11 (Chewelah)
<table>
<thead>
<tr>
<th>Instrata  9.3 fl oz + PAR 0.37 fl oz</th>
<th>PAR 0.37 fl oz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tartan 2 fl oz + Daconil Ultrex 5 oz</td>
<td>Interface 3 fl oz + Triton FLO 0.5 fl oz</td>
</tr>
</tbody>
</table>

Greens Trial 2010-11 (Chewelah)
**Greens Trial 2010-11 (Chewelah)**

125 days snow cover  
60% gray/40% pink

<table>
<thead>
<tr>
<th>Fungicide treatment</th>
<th>Rate (prod/M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TARTAN (triadimefon + trifloxystrobin) + SG +</td>
<td>2 fl oz</td>
</tr>
<tr>
<td>DACONIL ULTREX (chlorothalonil)</td>
<td>5 oz</td>
</tr>
<tr>
<td>RESERVE (triticonazole + chlorothalonil) + SG +</td>
<td>4.5 fl oz</td>
</tr>
<tr>
<td>COMPASS (trifloxystrobin)</td>
<td>0.25 oz</td>
</tr>
<tr>
<td>INTERFACE (iprodione + trifloxystrobin) + SG +</td>
<td>5 or 6 fl oz</td>
</tr>
<tr>
<td>TRITON FLO (triticonazole) + SG</td>
<td>0.85 fl oz</td>
</tr>
<tr>
<td>INSTRATA (propiconazole + fludioxonil + chlorothalonil) + PAR (proprietary pigment concentrate)</td>
<td>9.3 or 11 fl oz</td>
</tr>
<tr>
<td></td>
<td>0.37 fl oz</td>
</tr>
</tbody>
</table>
Greens Trial 2010-11 (McCall)

- creeping bentgrass
- annual bluegrass

App date: 10/27/10
Rated: 5/2/11
160 days snow cover

3 weeks prior to putting out trial, green was treated with Banner MAXX 3 fl oz + Daconil 5 oz
Greens Trial 2010-11 (McCall)

160 days snow cover
Rated: May 2, 2011

<table>
<thead>
<tr>
<th>Fungicide treatment*</th>
<th>Rate (prod/M)</th>
<th>Disease (% area infected)</th>
<th>Turf quality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INSTRATA</strong> (propiconazole + fludioxonil + chlorothalonil) + PAR (proprietary pigment concentrate)</td>
<td>9.3 fl oz + 0.37 fl oz</td>
<td>0.0 b + 0.0 b</td>
<td>7.8 a + 7.7 ab</td>
</tr>
<tr>
<td><strong>RESERVE</strong> (triticonazole + chlorothalonil) + SG + INTERFACE (iprodione + trifloxystrobin) + SG</td>
<td>5.4 fl oz + 6 fl oz</td>
<td>0.3 b + 1.0 b</td>
<td>7.7 ab + 6.3 b</td>
</tr>
<tr>
<td><strong>INSTRATA</strong> (propiconazole + fludioxonil + chlorothalonil)</td>
<td>11 fl oz</td>
<td>0.3 b</td>
<td>4.3 c</td>
</tr>
<tr>
<td><strong>RESERVE</strong> (triticonazole + chlorothalonil) + SG</td>
<td>5.4 fl oz</td>
<td>1.0 b</td>
<td>6.3 b</td>
</tr>
<tr>
<td><strong>COMPASS</strong> (trifloxystrobin) + SG</td>
<td>0.25 oz</td>
<td>18.7 a</td>
<td>4.0 c</td>
</tr>
<tr>
<td><strong>INSTRATA</strong> (propiconazole + fludioxonil + chlorothalonil)</td>
<td>9.3 fl oz</td>
<td>1.0 b</td>
<td>4.7 c</td>
</tr>
<tr>
<td><strong>INTERFACE</strong> (iprodione + trifloxystrobin) + SG + TRITON FLO (triticonazole) + SG</td>
<td>3 fl oz + 0.5 fl oz</td>
<td>21.7 a</td>
<td>3.8 c</td>
</tr>
<tr>
<td><strong>INTERFACE</strong> (iprodione + trifloxystrobin) + SG</td>
<td>6 fl oz</td>
<td>21.7 a</td>
<td>3.8 c</td>
</tr>
<tr>
<td><strong>TRITON FLO</strong> (triticonazole) + SG</td>
<td>0.85 fl oz</td>
<td>21.7 a</td>
<td>3.8 c</td>
</tr>
<tr>
<td><strong>CHECK</strong></td>
<td>0</td>
<td>22.3 a</td>
<td>2.3 d</td>
</tr>
</tbody>
</table>

* Prior (early October 2010) to the study the entire practice green was treated with Banner MAXX 3 fl oz + Daconil 5 oz.
Greens Trial 2010-11 (McCall)

Rated 5/2/11
160 days snow cover

Interface 6 fl oz + Triton FLO 0.85 fl oz
Greens Trial 2010-11 (McCall)
Greens Trial 2010-11 (McCall)

CHECK

Interface 3 fl oz + Triton FLO 0.5 fl oz

Reserve 5.4 fl oz + Interface 6 fl oz

Reserve 5.4 fl oz + Compass 0.25 oz

Rated 5/2/11
160 days snow cover

City of McCall Golf Course
McCall, ID
Greens Trial 2010-11 (McCall)
## Greens Trial 2010-11 (McCall)

160 days snow cover
Gray/pink snow mold

<table>
<thead>
<tr>
<th>Fungicide treatment*</th>
<th>Rate (prod/M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTRATA (propiconazole + fludioxonil + chlorothalonil) + PAR (proprietary pigment concentrate)</td>
<td>9.3 or 11 fl oz 0.37 fl oz</td>
</tr>
<tr>
<td>RESERVE (triticonazole + chlorothalonil) + SG + INTERFACE (iprodione + trifloxystrobin) + SG</td>
<td>5.4 fl oz 6 fl oz</td>
</tr>
<tr>
<td>RESERVE (triticonazole + chlorothalonil) + SG + COMPASS (trifloxystrobin) + SG</td>
<td>5.4 fl oz 0.25 oz</td>
</tr>
</tbody>
</table>

* Prior (early October 2010) to the study the entire practice green was treated with Banner MAXX 3 fl oz + Daconil 5 oz.
Snow Mold Research 2011-12

- **Petro-Canada:**
  - **Greens:** Reduced fungicide rates with Civitas + Harmonizer

- **Syngenta:**
  - **Greens:** A9898A and A7087F (Secure)

- **Bayer:**
  - **Fairways:** Fungicides vs PCNB
  - **Greens**
“Some of the pesticides discussed in this presentation were tested under an experimental use permit granted by WSDA. Application of a pesticide to a crop or site that is not on the label is a violation of pesticide law and may subject the applicator to civil penalties up to $7,500. In addition, such an application may also result in illegal residues that could subject the crop to seizure or embargo action by WSDA and/or the U.S. Food and Drug Administration. **It is your responsibility to check the label before using the product to ensure lawful use and obtain all necessary permits in advance.**”
Questions?

http://turf.wsu.edu/
PCNB is it back?

• August 19, 2011 EPA overturned the stop sale order on PCNB

• Will it ever be available?
Single formulations with 2 fungicides

- **Bayer**
  - **Interface** (iprodione + trifloxystrobin) w/ StressGard
  - **Tartan** (triadimefon + trifloxystrobin) w/ StressGard
  - **Reserve** (triticonazole + chlorothalonil) w/ StressGard

- **Cleary's**
  - **Spectro 90** (thiophanate-methyl + chlorothalonil)
Fairway Trial 2010-11 (Chewelah)

Concert 8.5 fl oz + Banner MAXX 1 fl oz

Concert 5 fl oz + Medallion 0.25 oz

Concert 5 fl oz

Concert 5 fl oz + Banner MAXX 1 fl oz

Rated: 3/30/11
125 days snow cover

Chewelah Golf and Country Club
Chewelah, WA
McCall, ID

167 days snow cover
95% *T. ishikariensis*
5% *T. incarnata*

CHECK

Typhula Blight = OMG