## Trial 4. HYC Disease Management germplasm interaction

**Objective**: To develop profitable and sustainable approaches to disease management in HRZ barley.

**Key messages:**

- The fungicide treatments were effective in reducing the incidence of foliar disease, however yield responses to fungicide were not significant at this site in 2020.
- Hv8 Nitro had greater infection of Spot Form Net Blotch (SFNB) than Planet, The addition of the seed treatment Systiva combined with a 2-spray foliar fungicide program reduced the infection levels of SFNB on Nitro. In the absence of a seed treatment the additional fungicide at GS39 had little effect on SNFB control suggest GS31 treatments are more effective.
- RGT Planet is more susceptible than HV8 Nitro to NFNB, greater control of infection was achieved in Planet with two foliar sprays compared to one application and untreated, while Nitro achieved similar control with one application at GS31. In this season the addition of Systiva as a seed treatment did not further improve control in Planet, or Nitro.
- Grain quality responses were significant and disease control enabled Planet to achieve malting specification. All fungicide treatments improved test weight by more than 1kg/hl and increased grain plumpness by between 4 – 6% larger.

**Treatments:** 4 fungicide management levels applied to 2 varieties

**Table 1.** Influence of fungicide management strategy and cultivar on grain yield (t/ha).

| | | Yield | | |
|---|---|---|---|---|
| | Fungicide Management | RGT Planet | HV8 Nitro | Mean |
| **1** | Untreated | 7.17 - | 7.72 - | 7.44 - |
| **2** | GS31 Radial 840mL/ha | 7.42 - | 7.17 - | 7.30 - |
| **3** | GS31 Radial 840mL/ha fb. GS39-49 Aviator Xpro 417mL/ha | 7.67 - | 7.49 - | 7.58 - |
| **4** | Systiva FB. GS31 Prosaro 300mL/ha fb. GS39-49 Radial 840mL/ha | 7.68 - | 7.56 - | 7.62 - |
| | Mean | 7.48 - | 7.49 - | |
| | | | | |
| **Fungicide Management** | | LSD | 0.71 | P val 0.7288 |
| **Cultivar** | | LSD | 0.26 | P val 0.9836 |
| **Fungicide x Cultivar** | | LSD | 0.52 | P val 0.1143 |
| **CV** | | 4.5 | | |

**Table 2.** Influence of fungicide management and cultivar on grain yield and grain quality.

| | | **Yield** | **Protein** | **Test Weight** | **Screenings** | **Retention** |
|---|---|---|---|---|---|---|
| | | t/ha | % | kg/hl | % | % |
| **1** | Untreated | 7.44 - | 11.3 - | 65.1 c | 4.5 a | 81.5 b |
| **2** | GS31 Radial 840mL/ha | 7.30 - | 11.3 - | 66.3 b | 3.0 b | 85.8 a |
| **3** | GS31 Radial 840mL/ha fb. GS39-49 Aviator Xpro 417mL/ha | 7.58 - | 11.2 - | 66.1 b | 2.9 b | 85.6 a |

| | | | | | | |
|---|---|---|---|---|---|---|
| **4** | Systiva FB. GS31 Prosaro 300mL/ha fb. GS39-49 Radial 840mL/ha | 7.62 - | 11.4 - | 66.7 a | 2.6 b | 87.6 a |
| | **LSD P=.05** | 0.71 | 0.2 | 0.2 | 0.9 | 2.1 |
| | **P Value** | 0.729 | 0.446 | <0.001 | 0.007 | <0.001 |
| | | | | | | |
| **1** | RGT Planet | 7.48 - | 11.1 b | 64.8 b | 3.5 a | 84.0 b |
| **2** | HV8 Nitro | 7.49 - | 11.5 a | 67.3 a | 3.0 b | 86.4 a |
| | **LSD P=.05** | 0.26 | 0.1 | 0.2 | 0.3 | 0.8 |
| | **P Value** | 0.984 | <0.001 | <0.001 | 0.011 | <0.001 |
| | | | | | | |
| | **Grand Mean** | **7.49** | **11.3** | **66.1** | **3.3** | **85.2** |

**Table 2.** Influence of fungicide management of RGT Planet on grain yield and grain quality.

| | | **Yield** | **Protein** | **Test Weight** | **Screenings** | **Retention** |
|---|---|---|---|---|---|---|
| | | t/ha | % | kg/hl | % | % |
| **1** | Untreated | 7.17 - | 11.0 c | 64.0 - | 4.4 - | 81.6 d |
| **2** | GS31 Radial 840mL/ha | 7.42 - | 11.1 bc | 64.9 - | 3.2 - | 84.1 c |
| **3** | GS31 Radial 840mL/ha fb. GS39-49 Aviator Xpro 417mL/ha | 7.67 - | 11.1 c | 64.8 - | 3.4 - | 83.7 c |
| **4** | Systiva FB. GS31 Prosaro 300mL/ha fb. GS39-49 Radial 840mL/ha | 7.68 - | 11.3 b | 65.4 - | 2.8 - | 86.4 b |
| | **LSD P=.05** | 0.71 | 0.2 | 0.2 | 0.9 | 2.1 |
| | **P Value** | 0.729 | 0.446 | <0.001 | 0.007 | <0.001 |

**Table 3.** Influence of fungicide management and cultivar on net form net blotch infection (% plot) on 25/11/2020.

| | | **Net Form Net Blotch** | | |
|---|---|---|---|---|
| | | RGT Planet | HV8 Nitro | **Mean** |
| **1** | Untreated | 73.8 a | 8.8 d | 41.3 a |
| **2** | GS31 Radial 840mL/ha | 48.8 b | 3.8 d | 26.3 b |
| **3** | GS31 Radial 840mL/ha fb. GS39-49 Aviator Xpro 417mL/ha | 27.5 c | 7.5 d | 17.5 b |
| **4** | Systiva FB. GS31 Prosaro 300mL/ha fb. GS39-49 Radial 840mL/ha | 31.3 c | 10.0 d | 20.6 b |
| **Mean** | | 45.3 a | 7.5 b | |
| **Fungicide Management** | | LSD 10.5 | | P val 0.003 |
| **Cultivar** | | LSD 5.7 | | P val <0.001 |
| **Fungicide x Cultivar** | | LSD 11.4 | | P val <0.001 |

**Table 4.** Influence of fungicide management and cultivar on spot form net blotch infection (% plot) on 25/11/2020.

| | | Spot Form Net Blotch | | | | | |
|---|---|---|---|---|---|---|---|
| | | RGT Planet | | HV8 Nitro | | **Mean** | |
| **1** | Untreated | 5.0 | b | 32.5 | a | 18.8 | - |
| **2** | GS31 Radial 840mL/ha | 3.8 | b | 22.5 | a | 13.1 | - |
| **3** | GS31 Radial 840mL/ha fb. GS39-49 Aviator Xpro 417mL/ha | 6.3 | b | 25.0 | a | 15.6 | - |
| **4** | Systiva FB. GS31 Prosaro 300mL/ha fb. GS39-49 Radial 840mL/ha | 3.8 | b | 6.3 | b | 5.0 | - |
| **Mean** | | 4.7 | b | 21.6 | a | | |
| **Fungicide Management** | | | LSD | 9.6 | | P val | 0.051 |
| **Cultivar** | | | LSD | 5.1 | | P val | <0.001 |
| **Fungicide x Cultivar** | | | LSD | 10.1 | | P val | 0.017 |

**Table 5.** Influence of fungicide management and cultivar on Scald infection (% plot) on 25/11/2020.

| | | Scald | | | | | |
|---|---|---|---|---|---|---|---|
| | | RGT Planet | | HV8 Nitro | | **Mean** | |
| **1** | Untreated | 2.5 | - | 52.5 | - | 27.5 | - |
| **2** | GS31 Radial 840mL/ha | 3.8 | - | 21.3 | - | 12.5 | - |
| **3** | GS31 Radial 840mL/ha fb. GS39-49 Aviator Xpro 417mL/ha | 2.5 | - | 21.3 | - | 11.9 | - |
| **4** | Systiva FB. GS31 Prosaro 300mL/ha fb. GS39-49 Radial 840mL/ha | 2.5 | - | 25.0 | - | 13.8 | - |
| **Mean** | | 2.8 | b | 30.0 | a | | |
| **Fungicide Management** | | | LSD | 13.1 | | P val | 0.073 |
| **Cultivar** | | | LSD | 11.5 | | P val | <0.001 |
| **Fungicide x Cultivar** | | | LSD | 23.0 | | P val | 0.153 |

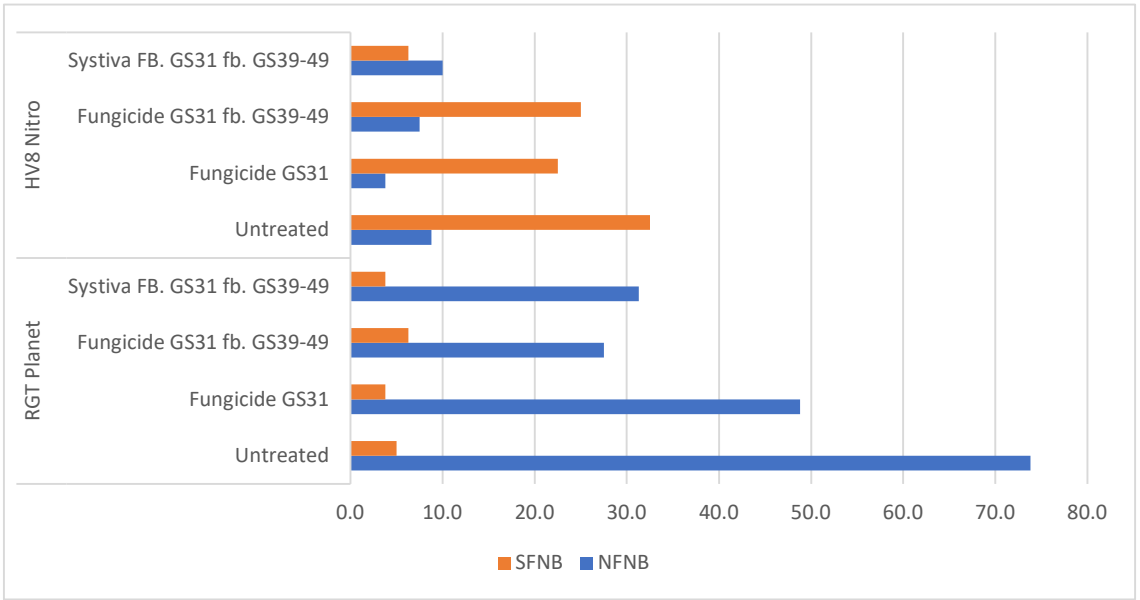


**Figure 1.** Influence of fungicide management and cultivar on net form net blotch (NFNB) and spot form net blotch (SFNB) infection (% plot) on 25/11/2020.