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**Genetics x Fungicide – Bon Accord**
At Bon Accord in 2017, 4 CWRS (AAC Brandon, AAC Viewfield, CDC Landmark VB and Cultivar X) and 2 CPS (AAC Goodwin and SY Rowyn) cultivars were tested for their response to: 4 fungicide treatments (untreated, Trivapro at flag leaf, Prosaro applied at Fusarium head blight (FHB) timing, and dual).

**Genetics x N fertilizer Rates x PGR – Bon Accord**
At Bon Accord in 2017, the same 6 cultivars were tested for their response to: 5 Nitrogen fertilizer rates (0, 36, 71, 107, 143 lbs N/ac) applied at seeding, as urea, in a mid-row band, and 2 PGR treatments (No PGR vs Triexapac-ethyl – the new PGR from Syngenta which is currently under PMRA review for registration).

**Cultivar Specific Responses**

**AAC Brandon - CWRS**
- Slightly lower yields than AAC Viewfield (6.6% less) or CDC Landmark (3.0% less)
- Intermediate standability – Manipulator could be beneficial under ideal growing conditions
- Fungicide greatly reduced leaf disease
- Flag and Dual Fungicide increased yields by 10%; Head fungicide increased yields by 13%
- Good test weight (66 lbs/bu)
- Excellent protein (13.6%) with 164 lbs total N/ac
- Based on these findings AAC Brandon at Bon Accord in 2017 required: 164 lbs total N/ac + Manipulator + Flag or Head fungicide

**AAC Viewfield - CWRS**
- Highest yielding cultivar; yields equivalent to CPS cultivars
- Optimal yields with 128+ lbs total N/ac
- One of the best standing cultivars
- Head timing fungicide greatly reduced leaf disease
- Flag Fungicide increased yields by 12%; head fungicide increased yields by 21%; Dual Fungicide increased yields by 17%
- Highest test weight (66.9 lbs/bu)
- Low protein. Required 200 lbs total N/ac to achieve 13.5% protein
- Falling number was 410 seconds
- Based on these findings AAC Viewfield at Bon Accord in 2017 required: 200 lbs total N/ac + Head fungicide

**CDC Landmark VB - CWRS**
- 2nd highest yielding cultivar; yields equivalent to CPS cultivars
- Optimal yields with 128+ lbs total N/ac
- One of the best standing cultivars
- Increasing N rates DID NOT increase lodging
- Head fungicide resulted in the lowest disease levels
- Head fungicide increased yields by 12%; Dual Fungicide increased yields by 11%
- Head fungicide extended days to physiological maturity by 1.8 days
- Highest test weight (66.9 lbs/bu)
– Good protein. Required 164 lbs total N/ac to achieve 13.8% protein
– Highest Falling number (425) seconds
– Based on these findings CDC Landmark VB at Bon Accord in 2017 required: 164 lbs total N/ac + Head fungicide

**Cultivar X - CWRS**
– Lowest yielding cultivar; 15% less than AAC Brandon; 20% less than AAC Viewfield
– Optimal yields with 128+ lbs total N/ac
– Worst standing cultivar; PGR improved standability but still not as good as other CWRS cultivars without a PGR
– Fungicide reduced leaf disease but still this cultivar had the highest levels of leaf disease
– There was no significant yield response to fungicide
– Good test weight (65.4 lbs/μ)
– Highest protein. Required 93 lbs total N/ac to achieve 13.4% protein
– High Falling number (421 seconds)
– Based on these findings Cultivar X at Bon Accord in 2017 required: 128 lbs total N/ac + Manipulator

**AAC Goodwin - CPS**
– High yielding cultivar; 5.5% higher yields than AAC Brandon
– Optimal yields with 164+ lbs total N/ac
– One of the best standing cultivars
– Increasing N rates DID NOT increase lodging
– This cultivar had the lowest disease levels and fungicide further reduced disease
– There was no significant yield response to fungicide
– Good test weight (65.5 lbs/μ)
– High protein for CPS (12.5%). Required 57 lbs total N/ac to achieve 11.0% protein
– Falling number was 404 seconds
– Based on these findings AAC Goodwin at Bon Accord in 2017 required: 164 lbs total N/ac

**SY Rowyn - CPS**
– High yielding cultivar; 3.1% higher yields than AAC Brandon
– Highest yields with 128+ lbs total N/ac
– Intermediate standability; Manipulator improved standability
– This cultivar had relatively high disease levels
– Flag and Dual Fungicide increased yields by 9-10%; head fungicide increased yields by 7%
– Acceptable test weight (64.3 lbs/μ)
– High protein for CPS (12.5%). Required 57 lbs total N/ac to achieve 11.3% protein
– Falling number was 398 seconds
– Based on these findings SY Rowyn at Bon Accord in 2017 required: 128 lbs total N/ac + Manipulator + Flag Fungicide

**Summary**

**AAC Viewfield** was the top ranked cultivar, requiring 200 lbs total N/ac to maximize yield and protein. It also required a head fungicide.
Pro: High yield and standability
Caution: low protein risk

**CDC Landmark VB** was the second ranked cultivar, requiring 164 lbs total N/ac to maximize yield and protein. It also required a head fungicide.
Pro: High yield, standability, midge tolerance
Caution: head fungicide delayed days to physiological maturity by 1.8 d

AAC Brandon was the third ranked cultivar requiring 164 lbs total N/ac, a PGR and a flag fungicide to maximize yield, standability and protein.

Pro: High yield and excellent protein.

Caution: lodging risk.

2017 Growing Season:

- Plots were seeded May 17, 2017 at a depth of 1” into harrowed canola stubble. Seed was treated with Raxil PRO. Soil temperature was 7.3°C and soil moisture was 22.5% at 0-6”; 21.4% at 6-12”; 15.5% at 12-24”; 11.4% at 24-48” depth. 20 lbs P2O5/ac (0-45-0) was seed placed, 15 lbs K2O/ac (0-0-51-17) was mid-row banded, 5 lbs S/ac (0-0-51-17) was mid-row banded according to soil test recommendations for a 90 bu/ac CWRS and 100 bu/ac CPS yield goal. On June 29, 2017 a foliar application of 0.2 kg Cu/ha (0.18 lbs/ac) was made.

- Pre-seed burnoff with Heat + Glyphosate was applied May 16, 2017; Stellar + Axial were applied May 31, 2017.

- PGR applications were made June 19, 2017 at BBCH 31 (1st node is at least 1cm above tillering node).

- Flag Fungicide applications were made July 4, 2017 and Fusarium Head Blight fungicide applications were made July 14, 2017.

- All herbicides and fungicides were applied at recommended label rates.

- The Genetics x Fungicide trial was harvested on September 25, 2017 and the Genetics x N x PGR trial was harvested on September 26, 2017

- Growing season precipitation was 211.5mm or 8.3”. May 17-31 = 23mm or 0.9”; June = 85mm or 3.3”; July = 46mm or 1.8”; August = 23mm or 0.9”; September 1-26 = 35mm or 1.4”

Funding Support:
The Genetics x Management research has been generously financed by: Syngenta in 2017. There is tremendous in-kind support from Alberta Agriculture and Forestry and leading ag industry companies: SeCan, Syngenta, Bayer, FP Genetics, Crop Production Services (Canada) Inc., and Galloway Seeds. Jackie Tieulie, Susan Jess, Kurt Forsch, Ashley Fitzpatrick and Ryan Gelderman provided exemplary technical support for this work. Trials are conducted in cooperation with Murray Mulligan of Tri M Farms.

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Table 1. Yield, leaf disease and days to maturity of AAC Brandon, AAC Viewfield, CDC Landmark VB, AAC Goodwin and SY Rowyn cultivars when grown with 4 fungicide treatments (untreated, Trivapro at flag leaf, Prosaro applied at Fusarium head blight (FHB) timing, and dual) at Bon Accord, AB in 2017.

<table>
<thead>
<tr>
<th></th>
<th><em>yield adjusted to 14.5% moisture (bu/ac)</em></th>
<th>14.5% moisture (bu/ac)</th>
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<tr>
<td></td>
<td>CWRS</td>
<td>CPS</td>
<td>CWRS</td>
<td>CPS</td>
<td>CWRS</td>
<td>CPS</td>
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<tr>
<td></td>
<td>AAC Brandon</td>
<td>AAC Viewfield</td>
<td>CDC Landmark VB</td>
<td>Cultivar X</td>
<td>AAC Goodwin</td>
<td>SY Rowyn</td>
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<tr>
<td>No Fungicide</td>
<td>118 a</td>
<td>127 a</td>
<td>129 a</td>
<td>101 b</td>
<td>133 a</td>
<td>125 a</td>
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<tr>
<td>Trivapro at Flag Leaf</td>
<td>130 b</td>
<td>142 b</td>
<td>138 ab</td>
<td>103 b</td>
<td>141 b</td>
<td>136 b</td>
</tr>
<tr>
<td>Prosaro at FHB</td>
<td>133 b</td>
<td>154 c</td>
<td>144 b</td>
<td>103 b</td>
<td>143 ab</td>
<td>134 ab</td>
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<tr>
<td>Dual Fungicide</td>
<td>130 b</td>
<td>148 bc</td>
<td>143 b</td>
<td>110 b</td>
<td>143 b</td>
<td>137 b</td>
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<tr>
<td>Cultivar Average</td>
<td>128 B</td>
<td>142 C</td>
<td>139 C</td>
<td>104 A</td>
<td>140 C</td>
<td>133 B</td>
</tr>
</tbody>
</table>

Note: Strip trials with AAC Brandon at John Guelly's near Pickardville showed a 6.1 bu/ac yield increase with Prosaro vs an untreated control. However this difference was not significant.

<table>
<thead>
<tr>
<th>Foliar Disease Ratings McFadden Scale, 1991 (1 = no disease; 11 = &gt;50% leaf disease on lower and mid canopy and 26-50%</th>
<th>CWRS</th>
<th>CPS</th>
</tr>
</thead>
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<td>Foliar Disease Ratings McFadden Scale, 1991 (1 = no disease; 11 = &gt;50% leaf disease on lower and mid canopy and 26-50%</td>
<td>CWRS</td>
<td>CPS</td>
</tr>
<tr>
<td>No Fungicide</td>
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<td>10.2 a</td>
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<tr>
<td>Trivapro at Flag Leaf</td>
<td>8.1 b</td>
<td>8.6 b</td>
</tr>
<tr>
<td>Prosaro at FHB</td>
<td>7.8 b</td>
<td>7.1 c</td>
</tr>
<tr>
<td>Dual Fungicide</td>
<td>7.8 b</td>
<td>7.3 c</td>
</tr>
<tr>
<td>Cultivar Average</td>
<td>8.6 B</td>
<td>8.3 B</td>
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<table>
<thead>
<tr>
<th>Days from Seeding to Physiological Maturity (days)</th>
<th>CWRS</th>
<th>CPS</th>
</tr>
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<tbody>
<tr>
<td>Days from Seeding to Physiological Maturity (days)</td>
<td>CWRS</td>
<td>CPS</td>
</tr>
<tr>
<td>No Fungicide</td>
<td>109.5</td>
<td>108.5</td>
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<tr>
<td>Trivapro at Flag Leaf</td>
<td>108.9</td>
<td>108.4</td>
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<td>Prosaro at FHB</td>
<td>110.4</td>
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<td>Dual Fungicide</td>
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<tr>
<td>Cultivar Average</td>
<td>109.70 D</td>
<td>108.91 CD</td>
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</table>

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<table>
<thead>
<tr>
<th></th>
<th>Yield adjusted to 14.5% moisture (bu/ac)</th>
<th>CPS</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CWRS</td>
<td>CPS</td>
<td></td>
</tr>
<tr>
<td>0 lbs N/ac</td>
<td>AAC Brandon 122</td>
<td>AAC Viewfield 125 a</td>
<td>CDC Landmark VB 122 a</td>
</tr>
<tr>
<td>36 lbs N/ac</td>
<td>AAC Brandon 126</td>
<td>AAC Viewfield 135 b</td>
<td>CDC Landmark VB 128 a</td>
</tr>
<tr>
<td>71 lbs N/ac</td>
<td>AAC Brandon 130</td>
<td>AAC Viewfield 140 bc</td>
<td>CDC Landmark VB 133 ab</td>
</tr>
<tr>
<td>107 lbs N/ac</td>
<td>AAC Brandon 129</td>
<td>AAC Viewfield 138 b</td>
<td>CDC Landmark VB 135 ab</td>
</tr>
<tr>
<td>143 lbs N/ac</td>
<td>AAC Brandon 133</td>
<td>AAC Viewfield 147 c</td>
<td>CDC Landmark VB 141 b</td>
</tr>
<tr>
<td>No PGR</td>
<td>AAC Brandon 126</td>
<td>AAC Viewfield 138</td>
<td>CDC Landmark VB 132</td>
</tr>
<tr>
<td>Trinexapac-ethyl PGR</td>
<td>AAC Brandon 130</td>
<td>AAC Viewfield 136</td>
<td>CDC Landmark VB 131</td>
</tr>
<tr>
<td>Cultivar Average</td>
<td>AAC Brandon 128 B</td>
<td>AAC Viewfield 137 C</td>
<td>CDC Landmark VB 132 BC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Lodging (1=upright; 9=flat)</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>0 lbs N/ac</td>
<td>AAC Brandon 2.5 a</td>
<td>AAC Viewfield 1.3 a</td>
</tr>
<tr>
<td>36 lbs N/ac</td>
<td>AAC Brandon 2.6 a</td>
<td>AAC Viewfield 1.4 ab</td>
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<tr>
<td>71 lbs N/ac</td>
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<td>AAC Viewfield 1.8 ab</td>
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<td>107 lbs N/ac</td>
<td>AAC Brandon 3.4 b</td>
<td>AAC Viewfield 2.1 b</td>
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<tr>
<td>143 lbs N/ac</td>
<td>AAC Brandon 3.4 b</td>
<td>AAC Viewfield 3.1 c</td>
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<tr>
<td>No PGR</td>
<td>AAC Brandon 3.1 b</td>
<td>AAC Viewfield 2.1 b</td>
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<tr>
<td>Trinexapac-ethyl PGR</td>
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<td>AAC Viewfield 1.9 A</td>
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Seed Protein Content in Response to Increasing N Fertilizer Rates

Grain Protein adjusted to 14.5% moisture content (%)

N Fertilizer Rate at Time of Seeding (lbs N/ac)

AAC Brandon
CDC Landmark VB
AAC Viewfield
Cultivar X

Seed Protein Content in Response to Increasing N Fertilizer Rates

0 lbs N/ac
36 lbs N/ac
71 lbs N/ac
107 lbs N/ac
143 lbs N/ac

AAC Brandon
AAC Viewfield
CDC Landmark VB
Cultivar X