KEY FEATURES

- Havoc is based on Mace with similar yield stability and is well adapted to all areas of WA
- AH classification in WA with a quick maturity for main season planting like Corack and Mace
- Yield increase of 2-5% on Mace over the last 3 years in WA
- Outstanding shorter canopy for crop and stubble management
- Good Stripe Rust (MR), Leaf Rust (RMR WA) and Yellow Spot (MRMS) resistance
- Improved Powdery Mildew resistance (MS) over Mace to reduce disease build up in lower canopies

AGRONOMIC FEATURES

The cross (Mace/LPB07-0980) aimed to combine Mace’s broad adaption with the superior canopy of a high yielding LongReach breeding line. Havoc has a compact plant type throughout the season with an erect open canopy with upright leaves. Havoc spends time developing tillers in a similar manner to Wyalkatchem but with noticeable broader leaves to improve competition and vigour. Importantly Havoc has retained Wyalkachem’s trait of prioritising tillering and does not rush like Mace has shown a tendency to do in warmer winters. The typical timing of heading is between Corack and Mace making Havoc a quick main season variety. The flag leaf is distinctively erect with blocky heads at grain filling and Havoc has a similar height to Cobra or Wyalkatchem at maturity. From heading to grain filling Havoc has shown it develops very fast to be a quick finishing variety at harvest.

DISEASE RESISTANCE

LRPB Havoc has good resistance to Stripe Rust (MR), Leaf Rust (RMR WA) and moderate resistance to Stem Rust (MSp). Havoc has good Yellow Spot (MRMS) resistance and solid for Black Point (MS). Havoc has also shown improved Powdery Mildew resistance (MS) with field screens over the last 2 years showing a substantial reduction in pustule severity over Mace and Wyalkatchem.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Stem Rust</th>
<th>Leaf Rust</th>
<th>Stripe Rust</th>
<th>Septoria tritici</th>
<th>Crown Rot</th>
<th>Yellow Spot</th>
<th>Powdery Mildew</th>
<th>Black Point</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WA</td>
<td>EA</td>
<td>Yr WA</td>
<td>Wr17+27+</td>
<td>Sp</td>
<td>Sp</td>
<td>MRMS</td>
<td>MS</td>
</tr>
<tr>
<td>LRPB Havoc</td>
<td>MSp</td>
<td>RMR</td>
<td>MSS</td>
<td>MSS</td>
<td>MR</td>
<td></td>
<td>MS</td>
<td>MS</td>
</tr>
</tbody>
</table>

Resistance rating: VS=Very Susceptible, S=Susceptible, MS=Moderately Susceptible, MR=Moderately Resistant, R=Resistant.

Tol Rating - T=Tolerant, MT=Moderately Tolerant, MI=Moderately Intolerant, I=Intolerant, VI=Very Intolerant.

Data sourced NVT and LongReach Plant Breeders 2017. p = Preliminary Data Based on limited data set.
YIELD PERFORMANCE

Havoc has shown its broad adaptability by consistently outyielded Mace and Corack over a wide yield range in WA. Average yield improvement over the 41 trials shows a significant upside for Havoc compared to Mace (3%), Corack (5%) and Wyalkatchem (8%).

Even in 2016 when frosts had a significant effect on yield to suit the later maturing varieties, Havoc still showed improved yield over Mace. Havoc has a sound grain package that is equal or better than Mace for protein, test weight, grain size and screenings and an AH classification in WA.

% Site Mean Yield for 16 WA LongReach trials (2014-2016)

LRPB Havoc  Mace  Corack

Long term average yield for 41 WA trials expressed as % Mace Yield for different yield ranges (18 LongReach sites, 2013-16; 23 NVT sites 2016)

<table>
<thead>
<tr>
<th>Variety</th>
<th>1-2 t/ha (3 sites)</th>
<th>2-3 t/ha (13 sites)</th>
<th>3-4 t/ha (14 sites)</th>
<th>4-5 t/ha (9 sites)</th>
<th>5-6 t/ha (2 sites)</th>
<th>Ave Yield (t/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRPB Havoc</td>
<td>112</td>
<td>102</td>
<td>104</td>
<td>102</td>
<td>102</td>
<td>3.58</td>
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<tr>
<td>Mace</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>3.48</td>
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<tr>
<td>Corack</td>
<td>105</td>
<td>94</td>
<td>100</td>
<td>100</td>
<td>96</td>
<td>3.42</td>
</tr>
<tr>
<td>Wyalkatchem</td>
<td>103</td>
<td>93</td>
<td>94</td>
<td>97</td>
<td>98</td>
<td>3.31</td>
</tr>
<tr>
<td>Mace Yield (t/ha)</td>
<td>1.63</td>
<td>2.88</td>
<td>3.42</td>
<td>4.56</td>
<td>5.67</td>
<td></td>
</tr>
</tbody>
</table>

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