

## **"Cereal Disease Trials 2010"**

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### **Key Outcomes:**

- Significant yield increases were measured at Conmurra by controlling aphids to reduce the impact of BYDV
- A range of fungicide treatments, applied at GS31 increased grain yield in wheat at Conmurra by about 2 t/ha
- High levels of black point occurred at Millicent and allowed good ratings to be made.

**Trial Objectives:** To assess the impact of BYDV on wheat yield and also the effect of a range of fungicide treatments on wheat yield

**Trial Duration:** 2010

**Location:** Various

**Farmer Co-operators:** Martin and Kirsty Flower,

**Soil Type:** Various

Lachie Seeers,

**Paddock History:** Various

James & Chris Gilbertson,

**Monthly Rainfall:**

Rain	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Apr-Oct	Total
Frances (NRM)	34.4	40.8	26.8	60.6	33.6	57.6	43.8	119.2	55.4	29.8	29.2	92.2	398	601.4
Conmurra (NRM)	18	35.2	24.8	65.2	42	77.4	48.8	146.8	74.8	28.4	27.4	130.2	484.4	720
Millicent (BoM)	16	30.8	23.2	89.2	44.4	74	76.2	192.8	83.8	22.4	51.4	105.2	502.8	809.4

**Yield Limiting Factors:** Early finish

**Type of Trial:** Replicated Plot Trial

**Trial Design:** 8m Long Plots x 8 Rows at 15cm Spacings (1.2m);

3 Replicates

### **Treatments**

Trials were sown at Conmurra and Frances to investigate the effect of Barley Yellow Dwarf Virus on wheat and also to determine the effect of different fungicide options on leaf diseases of wheat. Replicated small plot trials were used.

Single rows in two replicates were sown at Millicent and grain samples were tested to determine the levels of black point in wheat varieties.

All trials were sown with small plot equipment and managed as per usual agronomic treatment. Grain yield was determined by machine harvest.

## Trial Results

**Table 1: Effect of Barley Yellow Dwarf Virus on grain yield of wheat varieties at Communal, 2010**

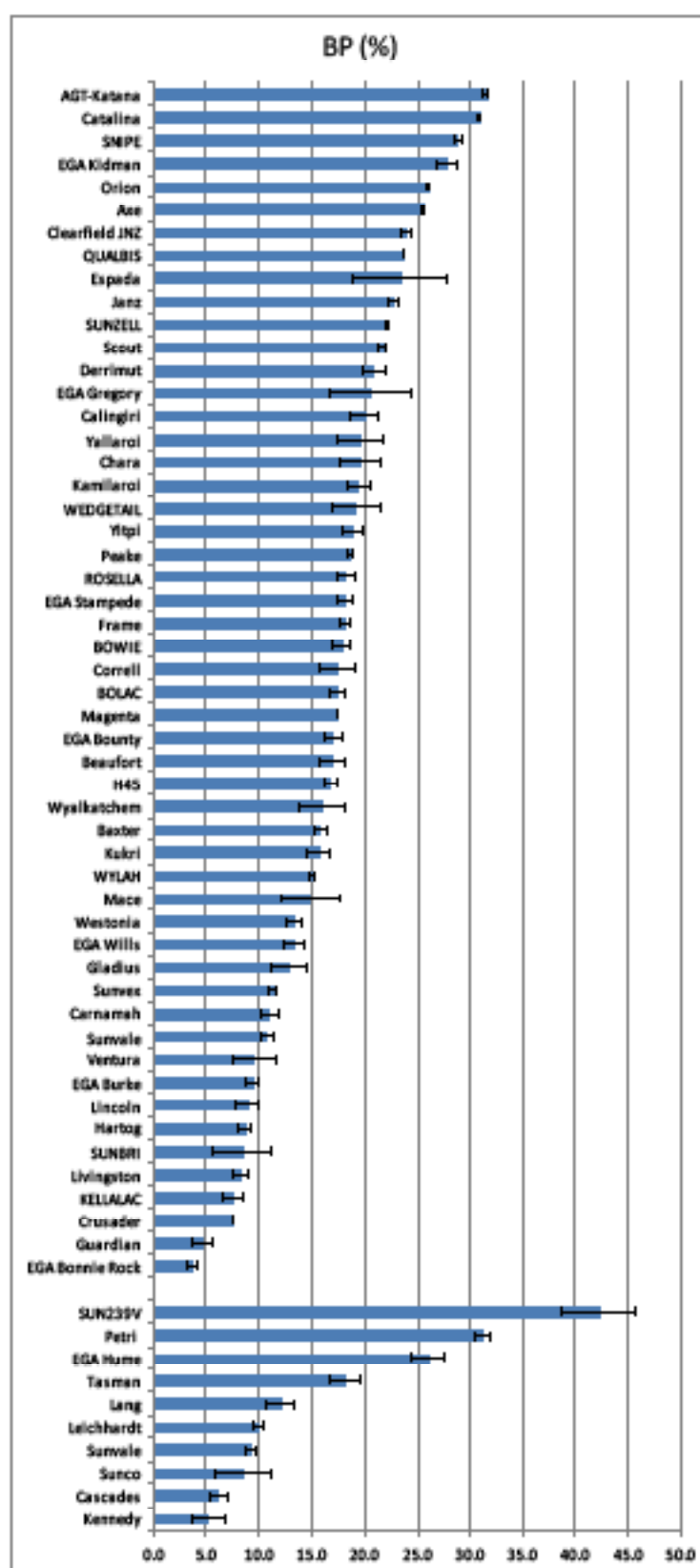
entry	Nil treatment		Sprayed		Difference
	kg/ha	% site mean	kg/ha2	% site mean3	kg/ha
HRZ06.2489	6664	91	6776	92	112
<b>HRZ06.2480</b>	<b>6631</b>	<b>90</b>	<b>6816</b>	<b>93</b>	<b>185</b>
MacKellar	7587	103	7773	106	186
<b>Preston</b>	<b>8927</b>	<b>122</b>	<b>9199</b>	<b>125</b>	<b>272</b>
Brennan	6661	91	7033	96	372
<b>HRZ06.2534</b>	<b>8108</b>	<b>110</b>	<b>8527</b>	<b>116</b>	<b>419</b>
HRZ06.2551	5825	79	6252	85	427
<b>SCP-Revenue</b>	<b>7808</b>	<b>106</b>	<b>8620</b>	<b>117</b>	<b>812</b>
Sentinel	8080	110	8970	122	890
<b>Pugsley</b>	<b>5309</b>	<b>72</b>	<b>6278</b>	<b>85</b>	<b>969</b>
Rudd	6537	89	7630	104	1093
<b>Espada</b>	<b>6446</b>	<b>88</b>	<b>7876</b>	<b>107</b>	<b>1430</b>

Site mean	7347
CV%	8
Isd(0.05)	985.9

**Table 2: Effect of fungicide treatment on wheat grain (H46 wheat) at Communal, 2010**

Treatment	kg/ha	% site mean
Nil	680	29
<b>TriadGS31+GS39</b>	<b>2261</b>	<b>97</b>
ProsaroGS31+GS39	2402	103
<b>AmistarXtraGS31+GS39</b>	<b>2453</b>	<b>105</b>
TriadGS31+ProsaroGS39	2528	108
<b>OpusGS31+GS39</b>	<b>2622</b>	<b>112</b>
TriadGS31+OpusGS39	2804	120
<b>ProsaroGS39</b>	<b>2988</b>	<b>128</b>

Site mean	2342
CV%	18.68
Isd(0.05)	548.9



**Figure 1: Black point at Mündent 2010 (some varieties in figure, rather than in Table 3 below)**

**Table 3: Black point scores from Millicent 2009 and 2010**

Line	Percentage of Plants Infected			Rating	
	Rep 1	Rep 2	Mean	2010	2009
Axe	27.8	25.3	26.6	S	S
<b>Correll</b>	<b>16.6</b>	<b>16</b>	<b>16.3</b>	<b>MS/S</b>	<b>MS/S</b>
Espada	14.8	19.3	17.1	MS/S	MS
<b>Frame</b>	<b>20</b>	<b>20.7</b>	<b>20.3</b>	<b>MS/S</b>	
Gladius	8	10.7	9.3	MS	MS
<b>CLF Janz</b>	<b>27.2</b>	<b>27.7</b>	<b>27.4</b>	<b>S</b>	<b>S</b>
Lincoln	3.8	4	3.9	MR	
<b>Mace</b>	<b>15.6</b>	<b>14.3</b>	<b>15</b>	<b>MS</b>	<b>MS/S</b>
Magenta	16.8	16.7	16.7	MS/S	
<b>Wyallatchem</b>	<b>18.6</b>	<b>17.3</b>	<b>18</b>	<b>MS/S</b>	<b>MS</b>
Yitpi	8.2	13.7	10.9	MS	MS
<b>Kennedy</b>	<b>2.8</b>	<b>3.3</b>	<b>3.1</b>	<b>MR</b>	
Petrie	33	30.7	31.8	S/VS	
<b>AGT Katana</b>	<b>25.4</b>	<b>31.3</b>	<b>28.4</b>	<b>S</b>	<b>MS/S</b>
RAC1412 (Estoc)	7.6	5.3	6.5	MR/MS	MR/MS
<b>SOP Revenue</b>	<b>18.4</b>	<b>20.3</b>	<b>19.4</b>	<b>MS/S</b>	<b>MS</b>
Orion	44	31.3	37.7	S/VS	
<b>Scout</b>	<b>20.6</b>	<b>16.3</b>	<b>18.5</b>	<b>MS/S</b>	<b>S</b>
Hyperno	19	3.7	11.3	MS	MS/S
<b>Kalka</b>	<b>30.4</b>	<b>27</b>	<b>28.7</b>	<b>S</b>	<b>S/VS</b>
Tamaroi	9.4	9.7	9.5	MS	
<b>Caparoi</b>	<b>10</b>	<b>9</b>	<b>9.5</b>	<b>MS</b>	<b>S</b>
Jandaroi	2.2	2.7	2.4	MR	MS/S
<b>Saintly</b>	<b>14.8</b>	<b>9.7</b>	<b>12.2</b>	<b>MS</b>	<b>MS/S</b>
Guardian	3.6	2.3	3	MR	
<b>Bullet</b>	<b>3.3</b>	<b>3.3</b>	<b>3.3</b>	<b>MR</b>	<b>MR/MS</b>
Sentinal	3.4	5.3	4.4	MR	
<b>Einstien</b>	<b>5.6</b>	<b>5</b>	<b>5.3</b>	<b>MR/MS</b>	
Beaufort	8	5.3	6.7	MR/MS	MR/MS
<b>Young</b>	<b>8.4</b>	<b>5.7</b>	<b>7</b>	<b>MR/MS</b>	
Gascoigne	9.6	5.3	7.5	MR/MS	MS
<b>Brennan</b>	<b>9</b>	<b>6.7</b>	<b>7.8</b>	<b>MR/MS</b>	<b>MS/S</b>
Preston	10.6	4.3	7.5	MR/MS	MR/MS
<b>Pugsley</b>	<b>9.4</b>	<b>9.3</b>	<b>9.4</b>	<b>MS</b>	
Bowie	20	17	18.5	MS	
<b>Barham</b>	<b>12.4</b>	<b>16.3</b>	<b>14.4</b>	<b>MS</b>	
Peake	20	13.3	16.7	MS/S	
<b>Kidman</b>	<b>19.8</b>	<b>16.3</b>	<b>18.1</b>	<b>MS/S</b>	
Derrimut	19.4	19.7	19.5	MS/S	
<b>MacKellar</b>	<b>19.6</b>	<b>18.3</b>	<b>19</b>	<b>MS/S</b>	<b>MS/S</b>
Chara	23.2	21.3	22.3	S	
<b>Bolac</b>	<b>24.6</b>	<b>25</b>	<b>24.8</b>	<b>S</b>	
Yenda	27.4	26	26.7	S	
<b>Gregory</b>	<b>34.2</b>	<b>31.3</b>	<b>32.8</b>	<b>S/VS</b>	

### *Conclusion and into the paddock*

At the higher rainfall sites such as Conmurra, consideration should be given to spraying to control aphids in order to reduce the early infection of cereals by BYDV. At lower rainfall sites such as Frances this may only be a viable proposition in years with high summer and autumn rainfall that may allow increased aphid survival. The development of new varieties with increased tolerance to BYDV will reduce this need to spray. CSIRO has wheat lines in their breeding program that have this tolerance.

While fungicides would normally be used when disease is present, there are some circumstances where yield increases can be recorded even in the absence of disease.

### *Acknowledgements*

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**GRDC** Grains Research & Development Corporation

