

### 3.3 BARLEY

#### 3.3.1 BARLEY VARIETY BY FUNGICIDE TRIAL (INVERLEIGH VIC)

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**Location:** SFS Inverleigh Research site

**Acknowledgements:**

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**Rainfall (2005):** 500.8 mm

**GSR:** (Apr – Nov) 350.3 mm

**Summary:**

The application of a foliar fungicide to a range of barley varieties :

- Significantly increased yield (average 900 kg per hectare)
- Significantly increased grain size and test weight
- Significantly reduced screenings
- Gave no effect on grain protein

There are a few new varieties coming along which may be worth watching. Capstan, a new ABB feed barley line is showing quite a lot of promise. It would however pay to keep leaf disease low in this variety through the application of fungicides.

**Background:**

There are many barley varieties available for growers to choose from. The choice of variety will depend upon a number of factors, including yield, grain quality, disease resistance and maturity.

**Objectives:**

To evaluate different barley varieties for yield and grain quality under both a nil foliar fungicide regime and a 3 spray fungicide regime. The idea of the full foliar fungicide regime was to keep disease pressure to a minimum in order to assess the yield potential of the varieties.

**Methodology:**

The trial was a randomised block design, with each variety being replicated 4 times. 2 replicates of the trial were sprayed with a fungicide and 2 were left unsprayed. The plot length was 12 metres. The varieties were grown on 2 metre raised beds.

**Sowing Date:**

7<sup>th</sup> June 2005 with an establishment target of 200 plants/sq metre

**Foliar Fungicide:**

Tilt Xtra 250 ml/ha on 20/7/05 , 2/8/05 and 22/9/05

**Fertiliser:**

Sowing 100 kg/ha Granulock CuZn plus 100 kg/ha Nitrogen at GS31

**Seed Treatment:**

All lines were treated with Raxil before sowing

**Results**
**Table 3-21: The Effect of Foliar Disease On Grain Yield and Protein**

| Entry          | Variety    | Yield - F   | Yield + F   | Increased Yield | Increased Yield % | Protein - F  | Protein + F  |
|----------------|------------|-------------|-------------|-----------------|-------------------|--------------|--------------|
| 6              | GS05FB1    | 5229        | 5646        | 417             | 7.97              | 10.50        | 10.95        |
| 8              | GS05FB3    | 5125        | 5521        | 396             | 7.73              | 10.85        | 11.25        |
| 2              | Capstan    | 5021        | 5917        | 896             | 17.85             | 11.15        | 10.55        |
| 10             | WARBAR2312 | 5021        | 5708        | 687             | 13.68             | 11.95        | 11.55        |
| 7              | GS05FB2    | 4583        | 5792        | 1209            | 26.38             | 11.00        | 11.30        |
| 11             | WABAR2315  | 4438        | 5479        | 1041            | 23.46             | 11.00        | 11.25        |
| 5              | GS05MB1    | 4209        | 5021        | 812             | 19.29             | 10.80        | 11.30        |
| 1              | Gairdner   | 3979        | 5208        | 1229            | 30.89             | 11.65        | 10.60        |
| 9              | WARBAR2175 | 3750        | 4750        | 1000            | 26.67             | 11.30        | 11.45        |
| 3              | Baudin     | 3459        | 4417        | 958             | 27.70             | 11.20        | 10.80        |
| 4              | Vic Sloop  | 3125        | 4375        | 1250            | 40.00             | 11.50        | 11.65        |
| <b>Average</b> |            | <b>4358</b> | <b>5258</b> | <b>900</b>      | <b>20.65</b>      | <b>11.17</b> | <b>11.15</b> |
| <b>LSD 5%</b>  |            | <b>557</b>  | <b>570</b>  |                 |                   | <b>1.16</b>  | <b>1.14</b>  |

**Table 3-22: The Effect Of Leaf Disease On Grain Quality**

| Entry          | Variety    | Ret 2.5 - F  | Ret 2.5 + F  | Screen - F   | Screen + F   | Test Wt - F  | Test Wt + F  | TGW - F      | TGW + F      |
|----------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 6              | GS05FB1    | 96.09        | 95.88        | 1.135        | 1.125        | 66.00        | 67.00        | 43.80        | 43.00        |
| 8              | GS05FB3    | 89.52        | 95.71        | 2.560        | 1.045        | 62.10        | 64.09        | 41.80        | 41.40        |
| 2              | Capstan    | 69.16        | 89.65        | 9.705        | 2.700        | 61.97        | 64.40        | 40.00        | 44.20        |
| 10             | WARBAR2312 | 96.36        | 97.55        | 1.065        | 0.800        | 65.92        | 64.97        | 44.00        | 45.80        |
| 7              | GS05FB2    | 66.42        | 82.08        | 5.925        | 2.775        | 57.29        | 62.43        | 37.80        | 38.00        |
| 11             | WABAR2315  | 94.81        | 97.87        | 1.275        | 0.745        | 63.90        | 65.93        | 45.20        | 46.40        |
| 5              | GS05MB1    | 93.36        | 96.97        | 1.860        | 0.850        | 61.93        | 67.10        | 36.40        | 43.00        |
| 1              | Gairdner   | 75.28        | 94.05        | 4.095        | 1.560        | 64.70        | 67.57        | 41.80        | 45.40        |
| 9              | WARBAR2175 | 93.10        | 97.68        | 1.980        | 0.635        | 64.39        | 68.01        | 40.80        | 44.40        |
| 3              | Baudin     | 64.88        | 96.68        | 5.570        | 0.945        | 60.39        | 65.46        | 33.20        | 41.60        |
| 4              | Vic Sloop  | 91.66        | 96.99        | 2.465        | 0.935        | 64.51        | 66.03        | 44.40        | 48.40        |
| <b>Average</b> |            | <b>84.60</b> | <b>94.64</b> | <b>3.421</b> | <b>1.283</b> | <b>63.01</b> | <b>65.68</b> | <b>40.84</b> | <b>43.78</b> |
| <b>LSD 5%</b>  |            | <b>13.26</b> | <b>1.89</b>  | <b>3.559</b> | <b>0.464</b> | <b>4.05</b>  | <b>2.27</b>  |              |              |

Note:

- F = no foliar fungicide

+ F = foliar fungicide applied

**Table 3-23: Statistical Analysis of + And – Fungicides Across All Varieties**

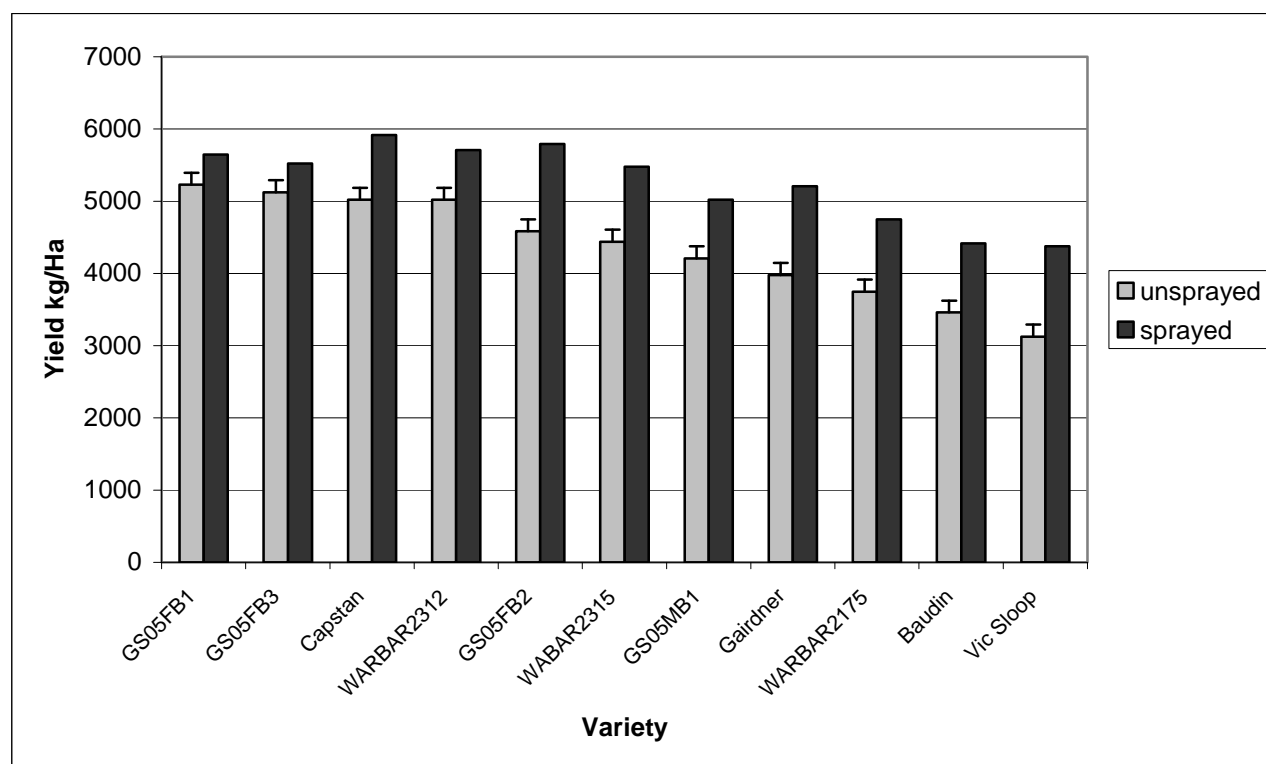
| Influence of Fungicide on Yield & Quality |       |         |         |         |        |         |       |
|---|-------|---------|---------|---------|--------|---------|-------|
| Treatment                                 | Yield | Protein | Ret 2.2 | Ret 2.5 | Screen | Test Wt | TGW   |
| + Fungicide                               | 5258  | 11.15   | 99.96   | 94.64   | 1.283  | 65.68   | 43.78 |
| -Fungicide                                | 4358  | 11.17   | 99.88   | 84.60   | 3.421  | 63.01   | 40.84 |
| LSD 5%                                    | 166   | 3.12    | 0.034   | 4.19    | 0.948  | 1.03    |       |
| Sig Diff                                  | yes   | No      | yes     | yes     | yes    | yes     |       |

**Table 3-24: Maturity, Height, Head Drop And Stem Lodging**

| Entry | Variety    | Maturity | Height | Head drop | Stem Lodging |
|-------|------------|----------|--------|-----------|--------------|
| 6     | GS05FB1    | 125      | 69     | 1         | 3            |
| 8     | GS05FB3    | 124      | 64     | 1         | 1            |
| 2     | Capstan    | 126      | 50     | 0         | 0            |
| 10    | WARBAR2312 | 119      | 65     | 0         | 1            |
| 7     | GS05FB2    | 124      | 60     | 1         | 3            |
| 11    | WABAR2315  | 121      | 64     | 1         | 1            |
| 5     | GS05MB1    | 123      | 67     | 2         | 3            |
| 1     | Gairdner   | 123      | 70     | 1         | 1            |
| 9     | WARBAR2175 | 120      | 78     | 1         | 2            |
| 3     | Baudin     | 123      | 55     | 1         | 1            |
| 4     | Vic Sloop  | 121      | 70     | 3         | 2            |

Key: Head drop 0 = nil, 1 = slight, 5 = extreme (approx 2%)

Stem lodging 0 = nil, 5 = 2%

**Figure 3-3: The Effect Of Leaf Disease On Barley Yield**

## Discussion

Leaf rust, net blotch and barley scald were evident in the trial. The average yield response as a result of spraying with a fungicide was 900 kg/ha. Controlling leaf disease with the use of a fungicide significantly increased grain retention, reduced screenings and increased test weights. There was no significant effect on grain protein.

Where the varieties were sprayed with a fungicide, Capstan was the highest yielding. This is a variety worth considering, being a medium to late maturity feed type.

It is a very short variety with excellent standability. It did not shed any heads prior to harvest as did Gairdner and Vic Sloop. You would however need to make sure that leaf disease was kept out of the variety given the significant effect disease had on test weight, screenings and grain retention.

Both Gairdner and Vic Sloop were starting to drop heads and lodge quite badly just prior to harvest. As a result windrowing may need to be carried out to reduce the potential losses.