

### 3.3 Barley

#### 3.3.1 Barley variety trial - Inverleigh, Vic

**Location:** SFS Inverleigh Research Site

**Funding:**

This was an SFS Geelong Branch Funded Trial

**Researcher(s):**

Southern Farming Systems

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**Acknowledgements:**

Thanks to John Hamilton for providing the land for this trial

**Summary of findings:**

- The trial yielded an average of 6.5 t/ha for the 2011 season. This is marginally under its Water Limited Yield Potential of 6.65t/ha.
- The highest yielding variety was the new long season feed cultivar Oxford, yielding 0.83 t/ha over the site mean. Gairdner was the lowest yielding cultivar at 5.79t/ha – this was statistically different to the top two performing varieties of Oxford and Capstan.
- Commander has once again shown its value in being a consistent performer and was the only cultivar to achieve malting quality.
- This season, after considering yield and market value, you are better off growing feed over malt varieties.

**Background/Aim:**

To evaluate a range of commercially available varieties. These reflect the most widely grown varieties in the area and include others that may be considered in the future. They include a number of different grades, reflecting market options in Southern Victoria.

**Rainfall:**

|              |        |
|--------------|--------|
| 2011 Total:  | 595 mm |
| Avg. Annual: | 548 mm |
| 2011 G.S.R.: | 377 mm |
| Avg. G.S.R.: | 407 mm |

**Paddock History:**

|       |       |
|-------|-------|
| 2009: | Pulse |
| 2010: | Wheat |

**Soil Characteristics:**

|                      |            |
|----------------------|------------|
| Soil Type:           | Sandy loam |
| pH (1:5 CaCl):       | 5.2        |
| Deep N (kg N/ha):    | 24.4       |
| P (Colwell) (mg/kg): | 79         |
| K (Colwell) (mg/kg): | 270        |
| Organic Carbon %:    | 0.97       |

**Yield Potential:** The Water Limited Yield Potential (WLYP\*) for this trial was 6.65t/ha.

\*WLYP: Calculated using WUE values of 15kg/ha per mm rainfall for Wheat/Barley and 7kg/ha per mm rainfall for Canola, 130mm assumed evaporation and GSR of 30% Jan & Feb + 50% Mar (only if >20mm) + April to November. This calculation makes an allowance for a % of stored moisture from the summer

**Variety:** Various

**Sowing rate:** Aiming to establish 180 Plants/m<sup>2</sup>

**Sowing date:** 26-May-11

**Harvest date:** 9-Dec-11

**Plot size:** 10m x 1.45m x 4 reps.

**Plot type:** Beds

|                    |           |               |
|--------------------|-----------|---------------|
| <b>Fertiliser:</b> | 26-May-11 | MAP 100kg/ha  |
|                    | 18-Aug-11 | Urea 150kg/ha |

|                      |   |  |
|----------------------|---|--|
| <b>Herbicide:</b>    | 25-May-11   | Boxer Gold 2.5L/ha,<br>Roundup Powermax 2L/ha      |
|                      | 26-July-11  | Precept 0.5L/ha<br>Axial 0.3L/ha<br>Adigor 0.5L/ha |
|                      | 15-Sept-11  | Eclipse 7g/ha<br>Uptake 0.5%                       |
| <b>Fungicide:</b>    | 5-Sept-11   | Prosaro 0.15L/ha,<br>Hasten 1L/ha                  |
|                      | 26-Sept-11  | Prosaro 0.15L/ha,<br>Hasten 1L/ha                  |
| <b>Measurements:</b> | Cultivar yield is the primary component to be measured in this trial; however protein and screenings have also been measured in line with receival standards.   |  |
| <b>Tillage type:</b> | The trial was sown with the SFS cone seeder on 20cm row spacing's using 2.5cm knife points. Stubble burnt prior to sowing.  |  |
| <b>Diseases:</b>     | Early on in the season some net form of net blotch (NFNB) was seen on susceptible barley varieties. There was also a little scald and rust, but the dry spring reduced this pressure and they didn't cause too much of a problem. |  |

### Results & Discussion:

The trial yielded an average of 6.5 t/ha for the 2011 season. Oxford was the highest yielding variety at 7.33 t/ha or 110% of the WLYP and Gairdner was the lowest variety at 5.79 t/ha or 87% of WLYP. Gairdner and Hindmarsh yielded 0.71t/ha and 0.51t/ha below the site mean..

The longer season varieties performed best, which is to be expected given the late season rainfall. It is likely that these top yielding cultivars made the most of the above average November rainfall (83.8mm) in terms of grain fill, which would have contributed significantly to yield.

Commander was the only variety to achieve malting grade, Gairdner just missing out with a mean protein 0.1 over the 12.8 classification standard for MALT 3 grade. However none of the proteins in this trial were significantly different and so we cannot draw any conclusive statements in regard to these results.

**Table 1.** Yield and quality of barley varieties in Inverleigh

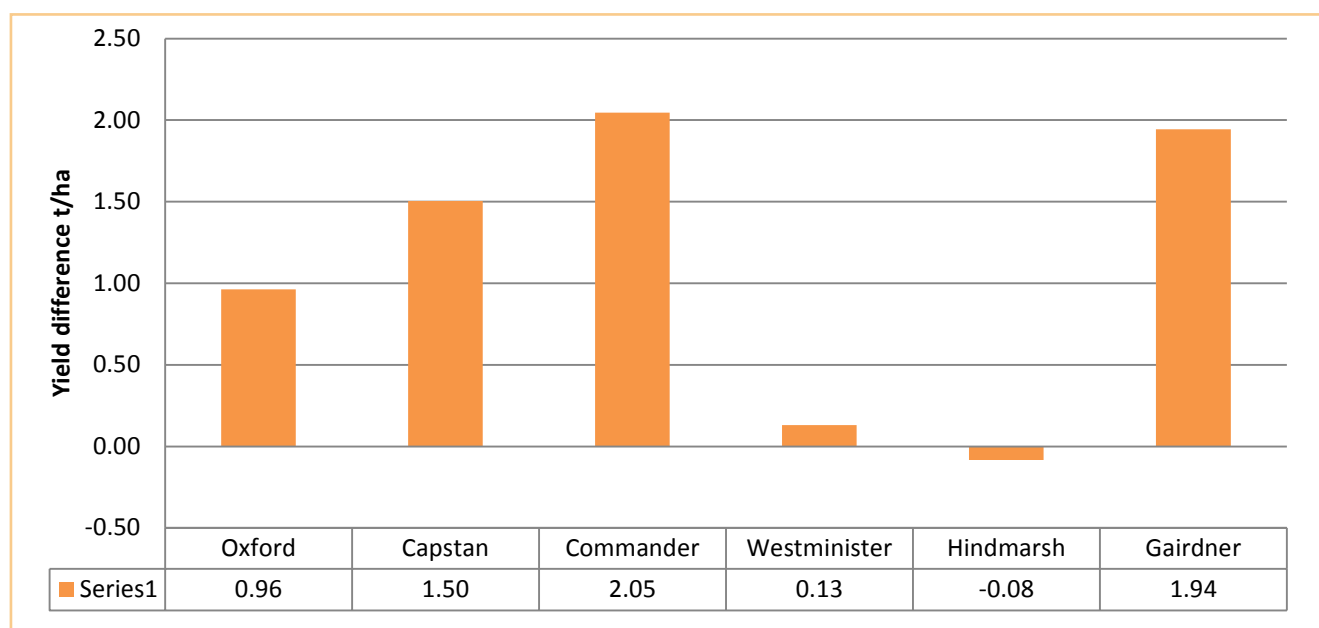
| Variety     | Yield Treated (t/ha) | WLYP % of 6.65t/ha | % of site mean | Protein (%) | Test Weight | Retention (%) | Grade  | Gross Income (\$/ha) |
|-------------|----------------------|--------------------|----------------|-------------|-------------|---------------|--------|----------------------|
| Oxford      | 7.33 a               | 110                | 113            | 11.4        | 65.9        | 96.3          | FEED 1 | 1,466                |
| Capstan     | 6.81 ab              | 102                | 105            | 12.7        | 63.7        | 92.3          | FEED 1 | 1,362                |
| Commander   | 6.53 ab              | 98                 | 100            | 12.3        | 65.1        | 96.0          | MALT 3 | 1,338.7              |
| Westminster | 6.52 bc              | 98                 | 100            | 12.6        | 66.8        | 96.7          | FEED 1 | 1,304                |
| Hindmarsh   | 5.99 bc              | 90                 | 92             | 13.0        | 65.4        | 93.7          | FEED 1 | 1,198                |
| Gairdner    | 5.79 c               | 87                 | 89             | 12.9        | 67.5        | 96.7          | FEED 1 | 1,158                |
| Mean        | 6.5                  |                    |                | 12.5        | 65.7        | 95.3          |        |                      |

*\*Means followed by same letter do not significantly differ (P=.05, LSD). Grain yields were corrected to 12.5% moisture. Gross incomes represent the mean yield of each variety. Grain prices for Malt: \$205/t, Feed: \$200/t (Harvest delivery to Geelong Port. Source: Riordan Grain)*

Oxford had the lowest proteins of the trial, 0.9 below the site mean of 12.5. This suggests that there may have been additional yield gains possible and therefore its yield advantage over the rest could have been further increased, adding more weight in this particular year to growing longer season high yielding feed over malt cultivars.

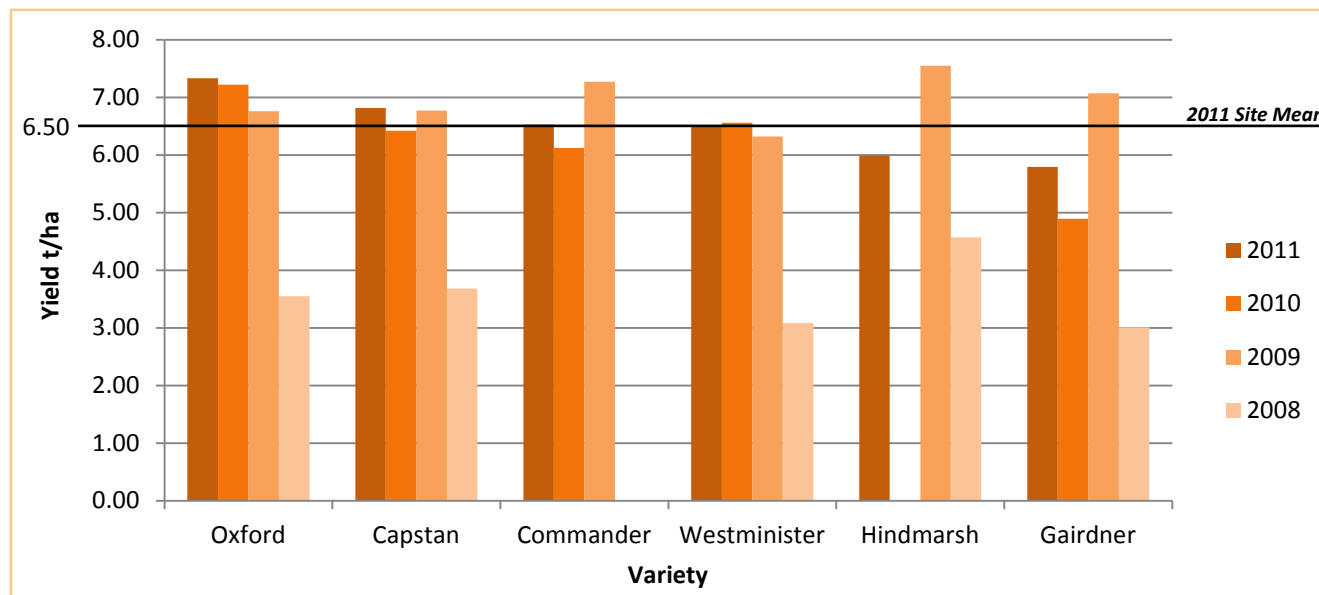
The 2011 season has highlighted the yield penalty that can be experienced when growing malting varieties. With the malt price offering just \$5/t premium over the feed price the returns from growing malt varieties are much reduced compared to feed varieties.

One replicate of the four in the trial received no fungicide. This enabled us to observe the potential yield effect (positive or negative) that fungicide applications have on each of the six varieties. The graph below indicates a positive yield response in the majority of the varieties. Commander experienced a 2.05 t/ha increase in performance when treated with two applications of Prosaro fungicide. This may have been expected given Commanders' susceptibility to scald and leaf rust, however it still reinforces the need for management of foliar diseases.

**Graph 1.** Yield difference as a result of fungicide treated vs untreated

*These yield differences must be treated with caution as statistically they cannot be confirmed due to only one of the 4 reps being left untreated.*

Graph 2 below shows the performance of the varieties over the past four years. It is useful in displaying those consistent performers year on year and is a valuable exercise to do when choosing varieties for the forthcoming season. Oxford, Capstan, Commander and Westminister have been reliable performers, all above 6t/ha over the past 3 seasons. Investigating the gross margin performance of these cultivars, based on market prices and costs in those years would provide further data from which to base cropping decisions. In 2008 the Inverleigh site received 130mm below the average GSR, hence the marked reduction in yield. It is interesting to note the higher performance of the shorter season variety, Hindmarsh, and weaker performance of the longer season varieties when the growing season was drier.

**Graph 2.** Variety performances, 2008-2011

*Data taken from variety trials at Inverleigh from 2008-2011. No trial data for Commander 2008 or Hindmarsh 2010.*