

Cereal cropping in Gippsland: Evaluating suitable wheat and barley varieties

By Corinne Celestina - SFS

Wheat

Background

The purpose of this trial was to evaluate a range of new and existing varieties of wheat suitable for early- and mid-sowing in Gippsland. The early wheat trial was sown on the 16th of May and the mid wheat trial was sown 7 weeks later on the 3rd of July.

Results

Wheat yields at Gippsland (Fig. 1) were well below the average yields recorded at SFS' other trial sites in the western districts of the state.

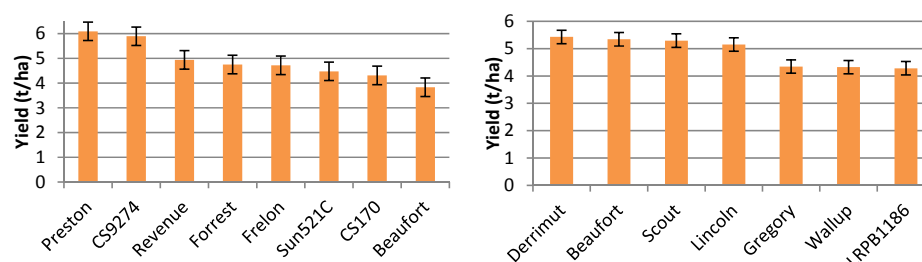


Figure 1 Yields of early- (left) and mid-sown (right) wheat at Gippsland

Preston and the unreleased variety CS9274 were the highest yielding early-sown varieties at 6.1 and 5.9 t/ha, respectively. CS9274 had a significantly lower protein and so made a lower grade at receival. Early-sown Beaufort was the worst performer with a yield of only 3.83 t/ha (Table 1 below).

Table 1 Yield, grain quality and receival grade of early wheat varieties trialled at Gippsland

| Variety | Yield (t/ha) | | Protein (%) | | Test weight (kg/hl) | | Screenings (%) | | Grade |
|--------------|--------------|----|-------------|----|---------------------|----|----------------|-----|-------|
| Preston | 6.10 | a | 10.8 | ab | 76.1 | de | 1.0 | f | APW1 |
| CS9274 | 5.89 | a | 8.9 | c | 76.6 | cd | 1.3 | ef | ASW1 |
| Revenue | 4.94 | b | 10.2 | b | 75.1 | e | 4.0 | b | ASW1 |
| Forrest | 4.75 | b | 11.0 | ab | 79.5 | a | 2.0 | def | APW1 |
| Frelon | 4.72 | b | 11.1 | ab | 78.1 | b | 3.5 | bc | APW1 |
| Sun521C | 4.48 | bc | 11.7 | a | 77.4 | bc | 2.3 | de | H2 |
| CS170 | 4.31 | bc | 10.9 | ab | 73.8 | f | 2.7 | cd | AGP1 |
| Beaufort | 3.83 | c | 10.8 | ab | 70.8 | g | 5.7 | a | AGP1 |
| LSD (P=0.05) | 0.75 | | 0.97 | | 1.25 | | 1.18 | | |
| P-value | 0.0002 | | 0.0012 | | 0.0001 | | 0.0001 | | |

Means followed by the same letter do not differ significantly.

Both Beaufort and CS170 were downgraded to AGP1 owing to high test weights and/or screenings. All other varieties were of high enough quality to be graded at ASW1 or above.

There was little variation in yields of the mid-sown wheat varieties grown at Gippsland. Of the seven varieties trialed Derrimut, Beaufort, Scout and Lincoln couldn't be separated statistically but they did yield significantly higher than the other three cultivars (Table 2).

Table 2 Yield, grain quality and receival grade of mid wheat varieties trialled at Gippsland

| Variety | Yield (t/ha) | | Protein (%) | | Test weight (kg/hl) | | Screenings (%) | | Grade |
|--------------|--------------|---|-------------|----|---------------------|----|----------------|----|---------|
| Derrimut | 5.43 | a | 11.0 | de | 80.93 | a | 1.5 | bc | APW1 |
| Beaufort | 5.34 | a | 10.7 | e | 75.53 | d | 2.3 | a | APW1 |
| Scout | 5.29 | a | 11.5 | c | 81.00 | a | 1.3 | bc | H2 |
| Lincoln | 5.15 | a | 11.4 | cd | 79.50 | bc | 1.8 | ab | APW1 |
| Gregory | 4.34 | b | 10.9 | e | 79.23 | bc | 2.3 | a | APW1 |
| Wallup | 4.32 | b | 12.1 | b | 78.93 | c | 1 | c | H2 |
| LRPB1186 | 4.28 | b | 13.5 | a | 79.98 | b | 1.5 | bc | APH2/H1 |
| LSD (P=0.05) | 0.49 | | 0.49 | | 0.91 | | 0.72 | | |
| P-value | 0.0001 | | 0.0001 | | 0.0001 | | 0.0127 | | |

Means followed by the same letter do not differ significantly.

All but three varieties were graded APW1 for receival. Scout and Wallup had proteins above 11.5% and were graded at H2. The unreleased variety LRPB1186 was graded at APH2/H1 as it had a protein of 13.5%, the highest of all seven mid-sown varieties. There were no issues with test weights or screenings for any of the wheats sown early July.

Barley

Background

The purpose of this trial was to compare a range of commercially available barley varieties grown for the feed market. Eight different varieties were sown on the 3rd of July.

Results

As with the wheat variety trials, the barley yields recorded at Gippsland were below average yields recorded elsewhere in the state.

The highest yielding varieties were Henley, Gairdner and Oxford, which all yielded over 5.8t/ha. Hindmarsh was the lowest yielding variety at 4.4t/ha although it couldn't be separated statistically from Capstan which yielded 4.6t/ha. Table 3 below summarises the grain yields and quality for each variety trialed.

Table 3 Yield, grain quality and receival grade of mid wheat varieties trialled at Gippsland

| Variety | Yield (t/ha) | | Protein (%) | | Test weight (kg/hl) | | Retention (%) | | Screenings (%) | | Grade |
|-------------|--------------|----|-------------|----|---------------------|-----|---------------|----|----------------|---|-------|
| Henley | 6.10 | a | 11.2 | de | 60.7 | cde | 96.8 | a | 1.0 | b | Feed |
| Gairdner | 5.98 | ab | 12.2 | bc | 64.4 | a | 95.3 | ab | 1.5 | b | Feed |
| Oxford | 5.86 | ab | 10.7 | e | 62.7 | abc | 93.5 | b | 1.8 | b | Feed |
| Westminster | 5.54 | bc | 11.6 | cd | 63.6 | ab | 95.3 | ab | 1.5 | b | Feed |
| Wimmera | 5.37 | cd | 13.4 | a | 61.4 | bcd | 95.0 | ab | 1.8 | b | Feed |
| Commander | 4.92 | de | 12.8 | ab | 59.3 | de | 95.0 | ab | 1.8 | b | Feed |
| Capstan | 4.57 | ef | 13.3 | a | 58.2 | e | 92.3 | b | 2.5 | b | Feed |
| Hindmarsh | 4.38 | f | 13.6 | a | 59.7 | de | 83.8 | c | 8.3 | a | Feed |
| LSD P=0.05) | 0.4858 | | 0.969 | | 2.888 | | 3.02 | | 1.63 | | |
| P-value | 0.0001 | | 0.0001 | | 0.0019 | | 0.0001 | | 0.0001 | | |

Means followed by the same letter do not differ significantly.

All eight barley varieties were graded as feed quality, owing mainly to low grain size and high protein contents (Table 3). In general retention and screenings were excellent and well above minimum standards although Hindmarsh had significantly lower quality than all other varieties.