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# Grange and Henley – Preliminary evaluation of two potential new malt varieties for the north

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## Introduction

Grange and Henley are two new barley varieties that are licensed to Seedmark. Both varieties have been developed in Europe along with the recently released variety Oxford<sup>Ⓛ</sup> and all have a mid-late maturity. Grange is targeting domestic malt markets while Henley is targeting export malt markets and both have just completed the 1st stage of malt accreditation (a 3 year process). Both varieties have been included in NVT trials over the past 3 years with Grange yielding slightly better than Oxford<sup>Ⓛ</sup>, while Henley has performed worse than Oxford<sup>Ⓛ</sup>. Both varieties are either MS or S to spot form net blotch and have better straw strength than Gairdner<sup>Ⓛ</sup>. These varieties are thought to be soon released into the market place; however, little is known about their agronomy under conditions in north western NSW. In 2011, three trials were conducted using Grange and Henley to look at their performance and agronomic suitability for the region.

## Site details

<b>Location:</b>	Breeza	“Hyland”, Bithramere	Tamworth
<b>Co-operator:</b>	NSW DPI	Gavin Hombsch	NSW DPI
<b>Sowing Date:</b>	29th June 2011	10th June 2011	28th June 2011

## Treatments

Variety by population trials were run at Breeza, Bithramere and Tamworth in 2011. At each site two varieties were used – Grange and Henley. At Breeza plant populations of 60, 100 and 140 plants/m<sup>2</sup> were targeted, whereas at Bithramere and Tamworth the 3 target populations were 60, 80 and 100 plants/m<sup>2</sup>. All three trials were co-located with other agronomy trials to give an indication of performance against current commercial varieties.

## Results

- Grain yields for Grange, 3.4 and 3.9 t/ha, and Henley, 3.3 and 3.8 t/ha, were similar at Bithramere and Tamworth, respectively. Yields for Gairdner<sup>Ⓛ</sup> sown on the same date as these population trials was 3.4 and 4.2 t/ha, for Bithramere and Tamworth, respectively.
- At Breeza, Grange (6.4 t/ha) had significantly greater yields than Henley (5.6 t/ha). Commander<sup>Ⓛ</sup> and Gairdner<sup>Ⓛ</sup> at the same site yielded 5.6 and 4.5 t/ha, respectively. The Breeza site received a single irrigation at early tillering.
- Minimal or no lodging was observed for Grange and Henley at any of the sites, including Breeza, which had high lodging pressure late in the season.

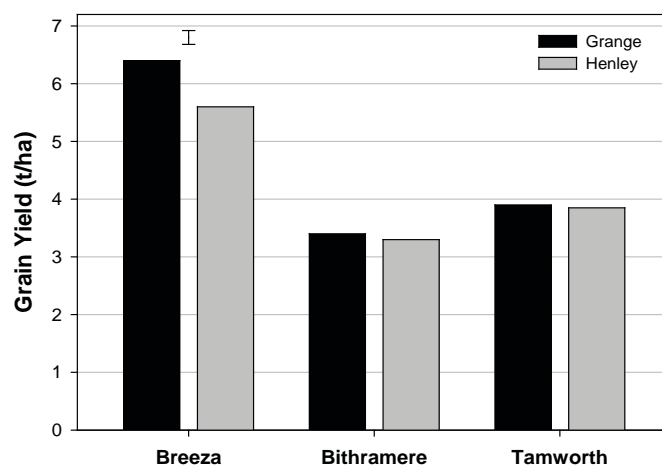
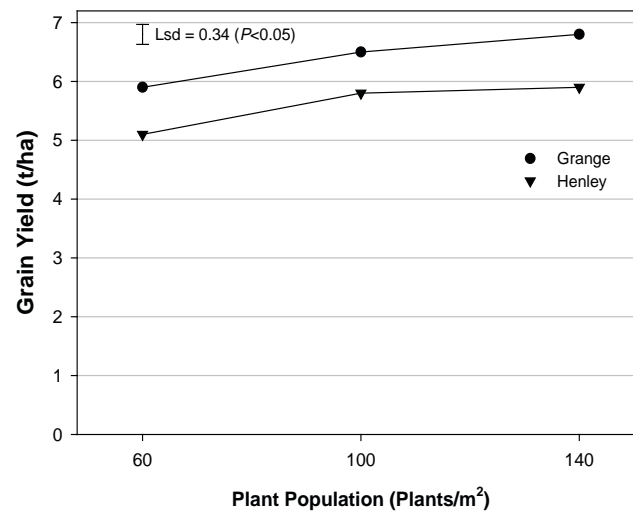


Figure 1. Average grain yield of Grange and Henley at Breeza, Bithramere and Tamworth in 2011.

- At Breeza, increasing plant populations from 60 to 100 plants/m<sup>2</sup> significantly increased grain yields by 0.6 and 0.7 t/ha for Grange and Henley, respectively. No significant yield benefit was observed for increasing plant populations beyond 100 plants/m<sup>2</sup>.
- No response to plant population was observed at Bithramere or Tamworth.



**Figure 2. Effect of plant population on grain yield of Grange and Henley at Breeza in 2011**

- At Breeza, Grange had significantly lower screenings and protein than Henley (but protein was still in excess of malt specifications), while having significantly greater 1000 grain weight, retention and test weight.

**Table 1. Grain quality parameters for Grange and Henley at Breeza. Grain quality for Gairdner<sup>db</sup> was included for comparison at the same site (not same trial). Values designated with different letters within the same row are significantly different (P<0.05) (Gairdner<sup>db</sup> not included in analysis).**

Quality Parameter	Grange	Henley	Gairdner <sup>db</sup> (same site)
Protein (%)	14.3b	14.7a	15.9
1000 Grain Weight (g)	48.3a	43.5b	42.5
Retention (%)	93.8a	89.8b	74.8
Screenings (%)	1.9b	2.7a	6.8
Test Weight (kg/hL)	63.8a	60.5b	64.6

## Summary

Preliminary results suggest that under favourable conditions such as Breeza both Grange and Henley have comparable or higher yield potential than existing commercial varieties. Under the high yielding conditions of Breeza target plant populations of 100 plants/m<sup>2</sup> were optimal for yield. The grain quality results from Breeza suggests that both varieties would not meet malt specification due to test weight (needs to be >65 kg/hL) and protein as Breeza was a high protein site. Test weights for Grange (63.6 kg/hL) and Henley (62.9 kg/hL) were also low at Tamworth. At both the Breeza and Tamworth the trials received significant rainfall prior to harvest, which may have reduced the test weights. The failure to achieve malt, when a suitable variety has been selected, can result in significant financial penalties when producing barley, hence growers requirement for a reliable malt variety. Therefore, any risk of new varieties not meeting malt specification may limit their uptake by growers. Grange and Henley will be included in further agronomic trials in 2012.

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