

LUPINS

U1. Lupin Sowing Date x Row Spacing, Lower Eyre Peninsula (Wanilla), South Australia

Aim

To determine optimum sowing dates and row spacings for maximising yield of new lupin varieties. In the higher rainfall area lupins have a reputation for producing large bulky growth that isn't being realised in grain yield. The selection of cultivar, time of sowing and row spacing are being evaluated as methods to maximise lupin yield.

Treatments

Varieties: Mandelup, Jenabillup, Jindalee, WALAN2289
Sowing dates: 29 April (Early), 18 May (Mid), 14 June (Late)
Row Spacing: Narrow = 24cm (10 inch), Wide = 48cm (20 inch)
Fertiliser: Map + Zn @ 100kg/ha at sowing

Results and Interpretation

The three times of sowing were all sown into adequate moisture for germination to occur. Emergence counts showed no differences in the establishment of each cultivar and row spacing treatment.

Seasonal conditions were mostly very favourable for lupin growth throughout the 2010 growing season at Wanilla. 380mm of growing season rainfall fell, with conditions almost reaching the point of water logging at the end of August and early September. Temperatures throughout the flowering period were quite mild. This meant that moisture and heat stress were not yield limiting factors.

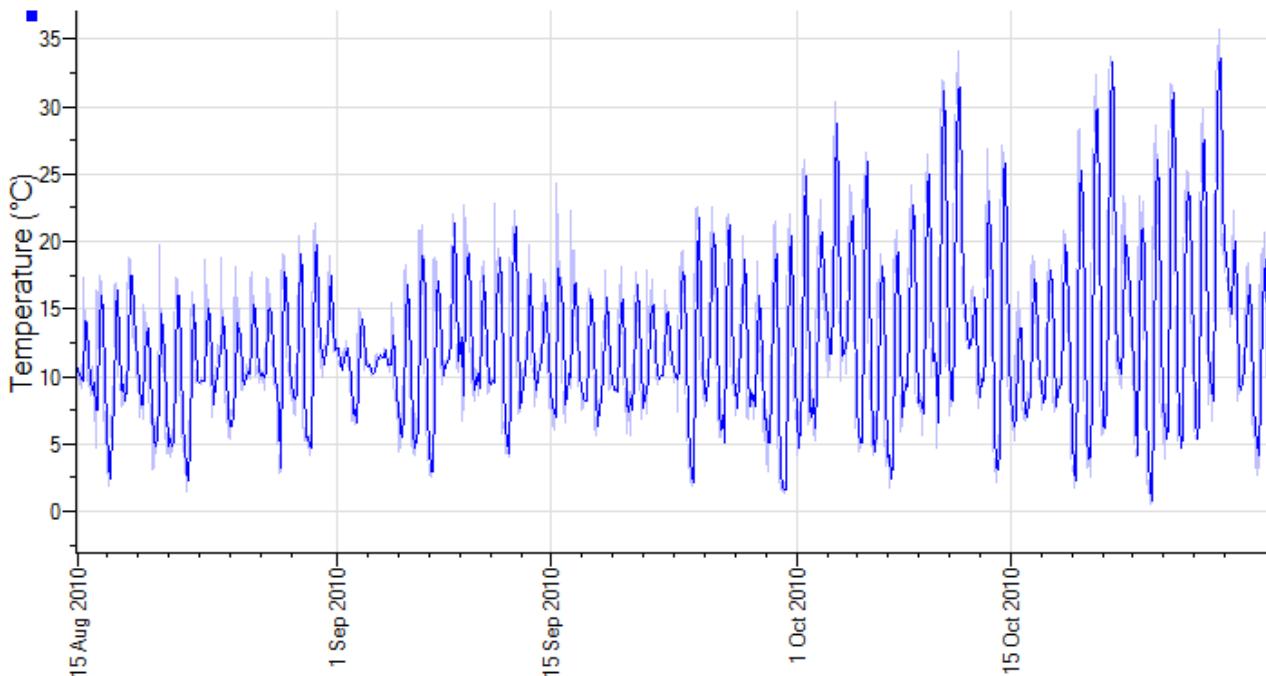


Figure U1.1. Temperature at flowering height, Wanilla, 2010

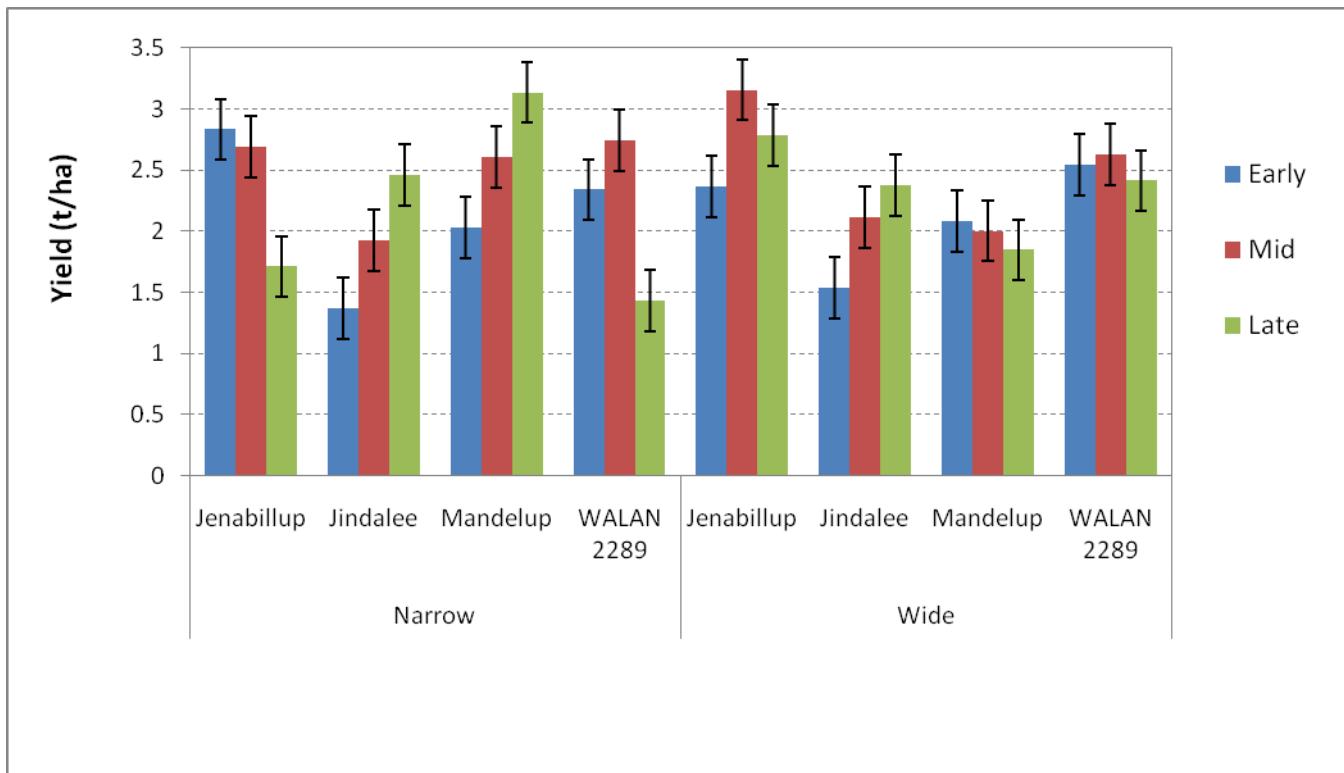


Figure U1.2. Grain Yields Wanilla TOS/ Row Spacing Lupin Trial 2010

The yield response to both row spacing and time of sowing was different for all varieties (Figure U1.2). In general terms no one sowing time produced a consistently higher yield than any other. There were no significant differences between row spacing treatments across all varieties.

The narrow row treatments of Jenabillup and WALAN2289 showed a yield penalty at the later sowing date which was not evident at the wide row treatment. Jenabillup, while flowering only slightly later than Mandelup, does take longer to mature and usually favours sites with extended growing seasons, which helps to explain this result.

Mandelup had the earliest flowering times and was relatively quick to mature. The early sowing time produced a tremendous amount of growth, which wasn't realised in grain yield. The later sowing times produced much less biomass but exceptional grain yields, especially at the narrow row spacing. Mandelup showed yield improvements with each sowing delay at the narrow row spacing, while there was no sowing date response at wide row spacing.

The later flowering Jindalee produced a surprising result. It would be thought that early sowing times would favour Jindalee, however this trial showed the converse with later sowing producing equal or highest yields. Jinderlee showed no row spacing response for any sowing date.

The potential Mandelup replacement breeding line, WALAN2289, produced its highest yields at the middle sowing date.

The different row spacing treatments on individual varieties proved inconclusive and needs further investigation.

Key Findings and Comments

This trial demonstrates that the varieties trialed have the potential to react differently to sowing time and row spacing in the higher rainfall environment and in the favourable growing season of 2010. The development of specifically tailored management packages designed to maximise yield of each variety will be developed with the continuation of this trial over the coming years.