

4.11 LUPIN AGRONOMY TRIAL

Location: Cavendish

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Background:

Lupins are the main pulse crop grown in the western districts of Victoria. Widely adapted they are fairly easy to grow as long as waterlogging can be controlled. However observations over the last few years have shown that while the crops have appeared to grow very successfully and put on massive vegetative growth they have not reached their full potential by yielding well. Yields in many cases have been in the vicinity of 1.5 to 2 tonnes per hectare, which is probably about half of what should be possible.

Aim:

To evaluate some simple agronomic changes to lupin sowing rates and fertiliser rates to see if it has an impact on yield.

Methodology:

Sown in early May with Wonga Lupins each plot was sown with conventional farming equipment and were 8 metres wide by 80 metres long. Every third plot was a control (standard treatment) so that basic statistical analysis could be performed. Harvested with conventional equipment the yield was obtained using a grain-weighing bin. Four differing sowing rates were used (100 kg/ha up to 200 kg/ha) with two different fertiliser rates used (the equivalent of 24 and 48 kg/ha of phosphorus) giving a total of eight different treatments. As well as yield, emergence counts were taken four weeks after sowing.

The site chosen has underground drainage installed and hence waterlogging did not limit the yields.

Annual Rainfall: 682 mm
Growing season rainfall (April-Oct): 464 mm

Results:

SOWING RATE	YIELD (t/ha)	
	Normal Fertiliser Rate	Double Fertiliser Rate
100 kg/ha	2.37	2.40
125 kg/ha	2.56	2.62
150 kg/ha	2.72	2.35
200 kg/ha	2.06	2.12
Least significant difference (LSD 5%)	0.16 t/ha	
Coefficient of Variation	1.9	

Conclusions:

Emergence counts early in season showed that there was no significant difference between the emergences of lupins at the three lower sowing rates. About 85 plants/m² compared with 120 plants/m² for the highest sowing rate. Interestingly enough the yields later in the season did not follow this trend. The yields between the different sowing rates were generally significantly different with the optimum sowing rate appearing to be somewhere between 125 and 150 kg/ha. However doubling the fertiliser rate had no impact on the yield except at the sowing rate of 150 kg/ha where the yield was significantly depressed. There is no obvious answer as to why this happened. While the yields obtained indicate that there needs to be more work done on lupin sowing rates in the high rainfall zone, they are still not approaching the type of yields we should expect to get. Sowing rate while important, does not appear to be the main limiting factor preventing us from obtaining higher yields.