3.6 Pulse

3.6.1 Faba bean & lupin variety trial - Bairnsdale, Vic

Location: SFS Dunkeld Research Site

Funding:
This was an SFS Gippsland Branch Funded Trial

Researcher(s):
Shayne Mathews, DPI Vic, Nicole Hellyer & John Waller, SFS, Gippsland

Summary of findings:
- There were no significant differences in yield between lupin or faba bean varieties.
- Farah was the highest yielding faba bean variety and Mandelup was the highest yielding lupin variety.
- Disease and weeds were a significant problem in these poorly competitive crops in this wet year in Gippsland.

Author(s): Shayne Mathews, Annieka Paridaen (SFS), Elaina Vandermark (SFS)

Acknowledgements: Thanks to the Gippsland Branch Committee

Background/Aim:
To evaluate a number of commercially available Lupin varieties and two Faba Bean varieties for yield. These reflect the most widely grown varieties in the area and include others that may be considered in the future.

Rainfall:

2011 Total:	737.4 mm
Avg. Annual:	644.7 mm
2011 G.S.R.:	496 mm
Avg. G.S.R.:	444.1 mm

Paddock History:

2009:	Canola
2010:	Winter fallow, Summer Millet

Soil Characteristics:

Soil Type:	Brown Sodosol – Sandy loam over medium-heavy clay subsoil
pH (1:5 CaCl):	5.3
P (Colwell) (mg/kg):	38
K (Colwell) (mg/kg):	87
Organic Carbon %:	1.9

Yield Potential: The Water Limited Yield Potential (WLYP) for this trial was 3.97t/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:	Target populations of 25 plants/m2 (Faba Beans) and 40 plants/m2 (Lupins)	
Sowing date:	18-May-11	
Harvest:	10th-16th Jan 2012	
Plot size:	20m x 1.26m x 3 reps	
Plots/tillage:	Flat layout. Cultivated with Vaderstad Topdown 12th May 2011 prior to sowing	
Fertiliser:	18-May-11	DAP 80kg/ha SOP 30kg/ha Seed sown with Pickle-T treatment and granular inoculants
Herbicide:	29-Mar-11	Roundup 2.5L/ha, Surpass 0.415L/ha, Goal 75ml/ha
	12-May-11	Treflan 800ml/ha incorporated with Vaderstad Topdown, Lorsban 900ml/ha incorporated with Vaderstad Topdown
	14-July-11	Verdict 100ml/ha Wetter 1L/ha
	15-Sept-11	Platinum 500ml/ha Hasten 1L/ha

Treatments: Farah and Nura faba beans with each variety replicated three times and blocked three times (nine plots of each variety). Mandelup, Jenabillup and Jindalee lupins with each variety replicated three times and blocked twice (six plots of each variety).

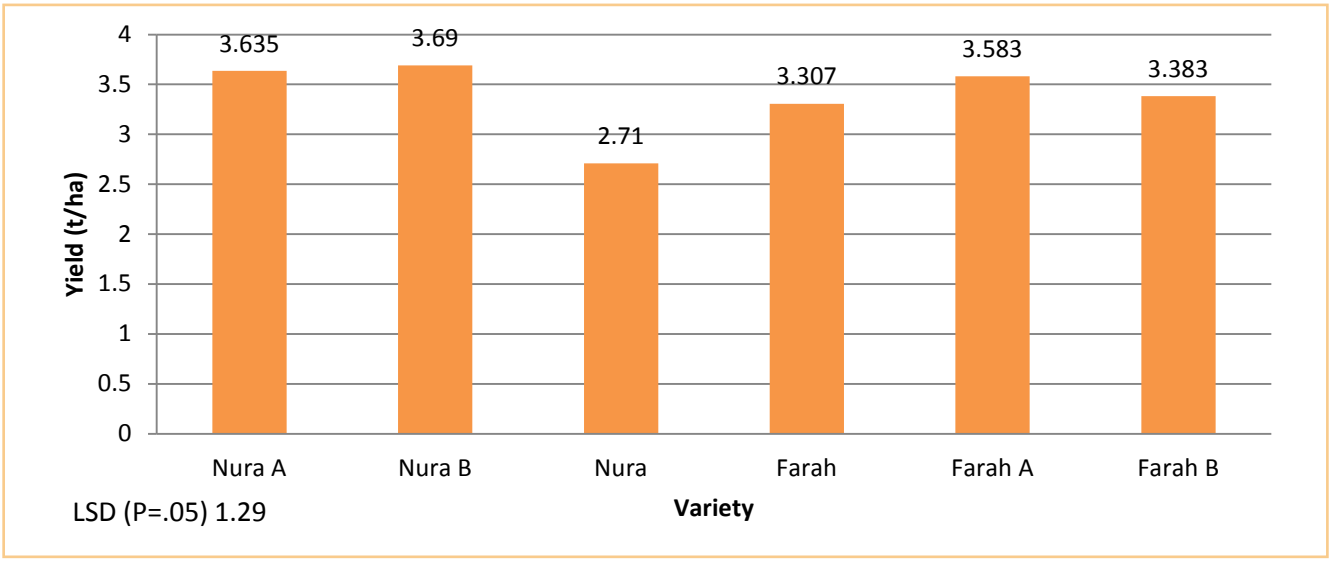
Measurements: Grain yield

Tillage type: The trial was sown with SFS Gippsland's Agriplow cone seeder on 21cm row spacing's using 2.5cm baker boot and knifepoints.

Diseases: Wet conditions early in the season and shortly after emergence resulted in lupins being severely affected by brown spot (*Pleiochaeta setosa*) and the same fungus causing pleiochaeta root rot, which severely stunted growth and reduced yield. There was also some evidence of pythium root rot in the lupins. The faba beans were infected with significant levels of cercospora, chocloate spot and rust which were not sprayed with fungicides and therefore depressed growth and yields.

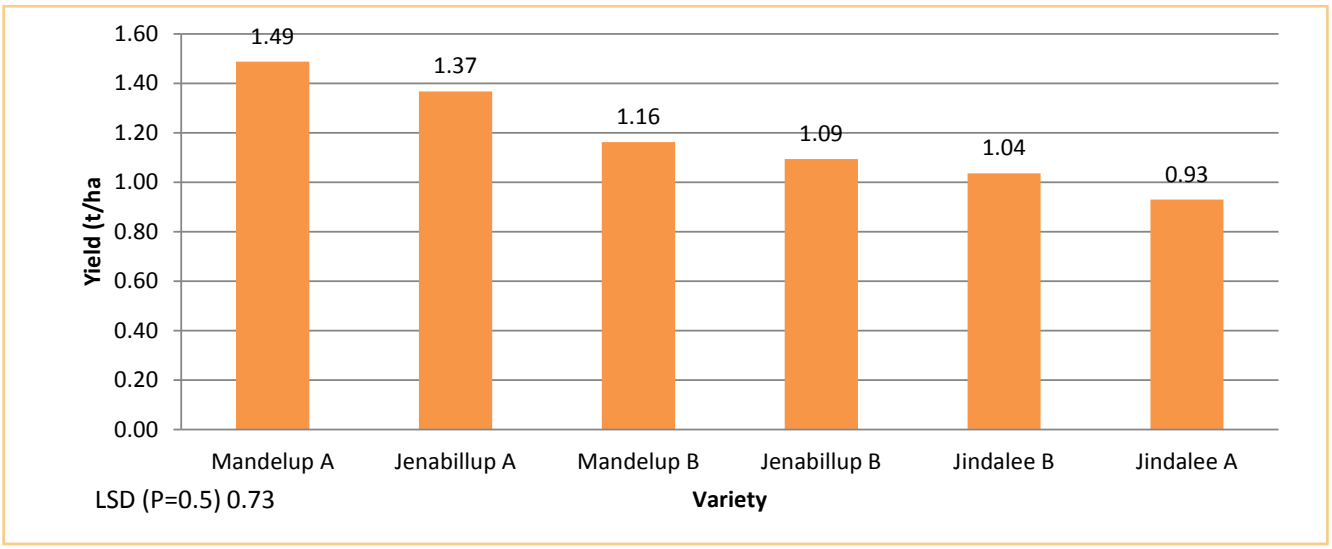
Results and discussion:

Figure 1. Yield of Faba Beans at Bairnsdale.



No significant differences between treatments (P=.05, LSD).

Figure 2. Yield of Lupins at Bairnsdale.



No significant differences between treatments (P=.05, LSD).

There was no significant difference in yield between the two faba bean varieties. When averaged across all plots Farah achieved a yield of 3.4t/ha and Nura yielded 3.3t/ha. Similarly there was no significant difference in yield among lupin varieties. The highest yielding lupin variey (average of all plots) was Mandelup (1.3t/ha) followed by Jenabillup (1.2t/ha) then Jindalee (1t/ha).

The wet year and conditions just after emergence experienced in Gippsland promoted early and severe infection of disease in lupins and faba beans, which were not adequately controlled. Similarly, weeds including annual ryegrass and tree hogweed were a persistent problem and would have likely reduced yields in these poorly competitive crops.