SKIP ROW SPACING IN MANDELUP LUPINS

Lara Swift, Project Coordinator, Liebe Group

AIM

To evaluate the effectiveness of skip row spacing of lupins in a medium to low rainfall environment.

BACKGROUND

This trial is an on-farm demonstration for the Liebe Group's GRDC funded adoption project **'Growers critically analysing new technologies for improved farming systems'**.

Skip row seeding is the practice of missing some seeding rows, effectively increasing the row spacing and thus decreasing competition for moisture and nutrients between lupin plants. This is a strategy that allows for greater moisture retention during grain fill, particularly important in dry years which may lower the risk of crop failure due to terminal drought. In this trial every third row was skipped.

There are two opposing influences of row spacing on lupin grain yield. Firstly, lupins in wide or skip row spacing intercept less solar radiation and so grow more slowly under stress-free conditions, producing less biomass than lupins grown in narrow rows. But wide rows extract soil water more slowly, suffering less stress during grain filling and so sometimes convert biomass into grain more efficiently (French and Harries 2006).

It has also been suggested that wide rows in lupins can be safely adopted for agronomic reasons other than yield, however the predominant influence of yield depends on the environment (French and Harries 2006).

TRIAL DETAILS

Property	Michael and Narelle Dodd, west Buntine (trial conducted through Ross Fitzsimons)
Plot size & replication	150m x 13.7m x 3 replicates
Soil type	Pear tree sand over gravel
Sowing date	30/4/08
Seeding rate	80 kg/ha
Fertiliser	50 kg/ha Legume Plus
Herbicides	30/4/08: 586 mL/ha Roundup Power MAX, 1.11 kg/ha Simagranz
Growing Season Rainfall	330mm

RESULTS

Table 1: Average yield and grain protein of lupins grown with and without skip row seeding.

Treatment	Yield (t/ha)	Protein (%)
Control	2.50b	29.2
Skip row	2.12a	29.2
LSD (5%)	0.34	

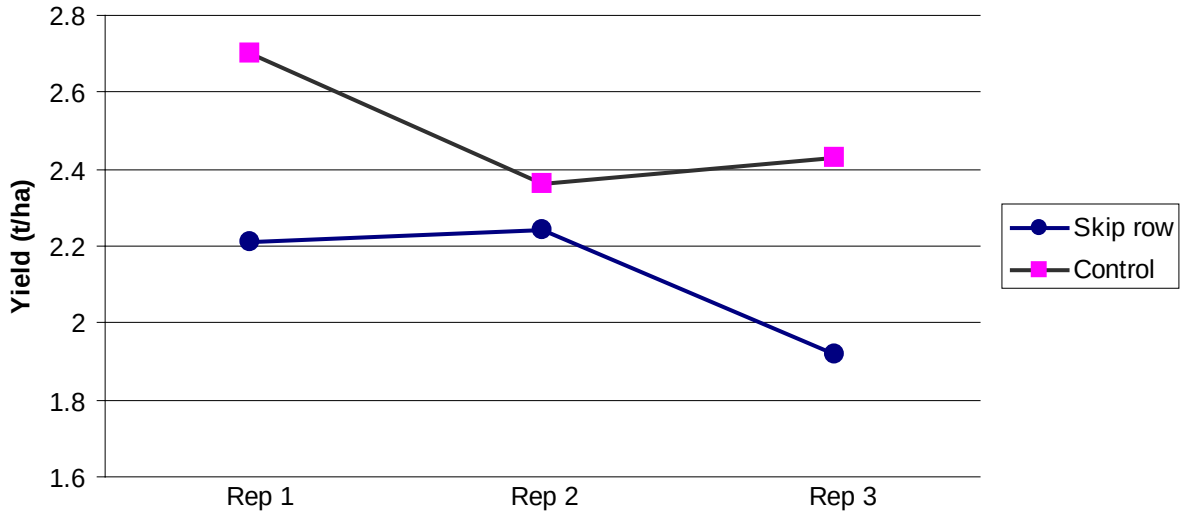

Figure 1: Yield of lupins sown with and without skip rows in 2008.

Results for this trial showed lupins grown in the control plots yielded 15% higher than those grown in a skip row environment, while protein levels were identical for both treatments (table 1). Figure 1 shows that control plots out yielded skip row plots in each replicate.

COMMENTS

- The skip row treatments were visually much more susceptible to weed competition. Furthermore, the total growing season rainfall for the trial paddock was 330mm, and the April sowing date meant that the crop matured under relatively cool conditions, so plant competition for water was not as intense as it would be in a drier year. So, although skip row planting was not beneficial for lupins in 2008, it is still possible that it has a place in the Liebe group area in other seasons.

- Further analysis and trials are necessary to gain a better understanding of the implications of skip row seeding in lupins and the impact the environment has on its effectiveness.

ACKNOWLEDGEMENTS

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- Also, thanks to Emma Wilson (formerly Liebe Group) for the initial setup of the trial, Chris O'Callaghan (Liebe Group) for assistance with harvest and the CBH Group for grain analysis.

REFERENCES

- French, B. and Harries, M. 2006, *A role for wide rows in lupin cultivation in Western Australia'*. In: "Ground-breaking stuff". (Eds Turner NC, Acuna T and Johnson, RC) Proceedings of the 13th Australian Society of Agronomy Conference, 10-14th September, Perth, Western Australia. Australian Society of Agronomy
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PAPER REVIEWED BY: DR. BOB FRENCH.

CONTACT:

Lara Swift
Email: lara@liebegroup.asn.au
Ph: (08) 9664 2030