

# Effect of Wide Rows on Herbicide Safety in Lupins

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**Aim:** Can higher herbicide rates be used with wide row establishment in lupins?

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**Company:** Dept of Agriculture



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**Location:** Liebe Main Trial site, Jibberding Hall Rd, Wubin

**Background:** Farmers and agronomists have recently shown interest in planting lupins on much wider rows than the traditional 7–10 inches. A number of experiments have shown yield increases as the width changes from 25 to 50 cm spacings, and it is expected that growers will adopt this method of crop establishment, especially where stubble handling is an issue.

If wide rows are to be adopted in the low rainfall farming system where yield potential of lupins is lower and weed control in the lupin phase is a major issue in the farming system there are a number of issues that need to be dealt with. There is potential for increased susceptibility to increased weed build up because of the bare ground between rows where there is a lack of lupin plants to compete with weeds. Although it has been argued that the lack of disturbance of the inter-row area will result in a lower germination of weeds, it is expected that overall there will be more problems with increased weed burden. Overall it is anticipated that there will be a requirement for a greater level of weed control as a result of the new establishment system.

Where higher rates are being investigated, Diuron may have the advantage over Simazine where Simazine carryover could be an issue for some soils. If there is carryover with Diuron, then the carryover is onto the wheat phase usually where there is ample tolerance to the herbicide. Therefore, there is potential to use higher rates (up to the limit set by the label) in the lupin phase and hence provide better weed control.

Wide rows result in more plants concentrated in a row. As a result of this establishment system, each individual lupin plant is exposed to less pre-emergent soil active chemical. This might provide an opportunity for greater rates of chemical being used pre-emergent as there may be a greater degree of crop tolerance in the wide row system.

## **Trial Details:**

Plot size and replication	3.3m x 10m * 4 replications for each herbicide treatment
Soil type	Loamy sand
Sowing date	27 <sup>th</sup> May 2003
Conditions at sowing	Dry
Machinery	Cone seeder
Seeding rate	112 kg/ha Belara
Fertiliser	85 kg/ha Bigphos Mn deep banded
Herbicides and insecticides	Post emergent Brodal and Grass selective Alphamax for budworm
Paddock history	2002 = Failed lupin crop, 2001 = Wheat, 2000 = Pasture

Rates are mL/ha of 50% flowable product (g/ha of 75% granules for metribuzin). All treatments were applied immediately before seeding.

**Results:****Header Yields (kg/ha)**

<b>Pre-emergent Herbicide Treatment</b>	<b>18cm row spacing</b>	<b>36 cm row spacing</b>
<i>Simazine 2500 mL/ha</i>	859	975
Simazine 1000 mL/ha + Atrazine 1000 mL/ha	976	1017
Simazine 1500 mL/ha + Diuron 1500 mL/ha	957	909
Simazine 1000 mL/ha + Atrazine 1000 mL/ha + Diuron 1000 mL/ha	1124	1042
Simazine 500 mL/ha + Atrazine 500 mL/ha + Diuron 2000 mL/ha	1061	890
Simazine 1000 mL/ha + Diuron 1000 mL/ha + Metribuzin 1000 mL/ha	1064	912
Simazine 6000 mL/ha	698	821
Simazine 2000 mL/ha+ Diuron 2000 mL/ha	1124	922
Simazine 1000 mL/ha+ Atrazine 1000 mL/ha+ Diuron 2000 mL/ha	1029	849
Simazine 1000 mL/ha + Diuron 2000 mL/ha + Metribuzin 100 mL/ha	1070	1114

Not significant ( $P < .05$ ).

Seeding time was too late therefore lupin yields were subsequently affected. Visual effects of the herbicide treatments were subtle, transient and not consistent across the trial site. The germination was staggered as there was a dry spell following seeding. The dry spell would have reduced the efficacy of the herbicides as they require moisture to be active. There was no statistically significant effect of herbicides or wide row treatments on yield.

There was potential for some significant level of damage from the herbicide treatments given the high rates used and the creation of a defined seeding furrow into which chemical could have been washed. The lack of rain when the seedlings were small would have contributed to the absence of damage.

**Summary:**

- There was very little activity from the soil active herbicides due to conditions at the site.
- The idea that higher rates of soil active chemical might be able to be used with the wide row system was not able to be tested due to this overall lack of response to the herbicide treatments.