

Demonstrating the Metribuzin Tolerance of Mandelup

Aim: To demonstrate the metribuzin tolerance of the new lupin variety Mandelup.

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Location: Liebe Main Trial Site

Background: The tolerance of lupin varieties to Metribuzin (Lexone®) is a concern to farmers who use this herbicide to control double-gees and radish. This has become a more critical consideration in the breeding program because it has been shown that Tanjil has less tolerance to this chemical than older varieties such as Kalya and Gungurru. An experiment conducted at Wongan Hills in 2002 showed that Mandelup and Belara tolerated a Metribuzin/Brodal/Simazine mix to the same degree, with approximately 25 per cent loss in yield compared to non-sprayed plots. Under the same conditions Tanjil and Wonga lost 46 per cent yield when sprayed with Metribuzin alone. These figures show the relative tolerance of these varieties to Metribuzin, while the level of yield loss will vary depending on the conditions under which the herbicide is used.

Trial Details:

Plot size and replication	Plots 3.1 x 10m, 3 replications
Soil type	Sandy loam
Sowing date	13 th May 2004
Conditions at sowing	Moist, 18mm in the previous 2 days
Machinery	Cone seeder – knife points, press wheels 250mL spacing
Seeding rate	Range of 77 -100 kg/ha for the different varieties to achieve 52 plants/m ²
Fertiliser	85 kg/ha Big Phos + Mn
Herbicides and Insecticides	Prior to seeding: 1.1 kg/ha Simagranz (900 g/kg) 0.8 L/ha Sprayseed 250 24 th June: 150 mL/ha Brodal Nil plots 9 th July: 250mL Select + Hasten over whole trial
Paddock History	2003 = wheat, 2002 = wheat, 2001 = lupins

Post emergent herbicide treatments

1. 100mL Brodal® + 100 g/ha Metribuzin + 500 mL/ha Simazine
2. 250 g/ha Metribuzin
3. nil

Both treatments were applied on 24th June when the lupins were 6-10 leaf in size.

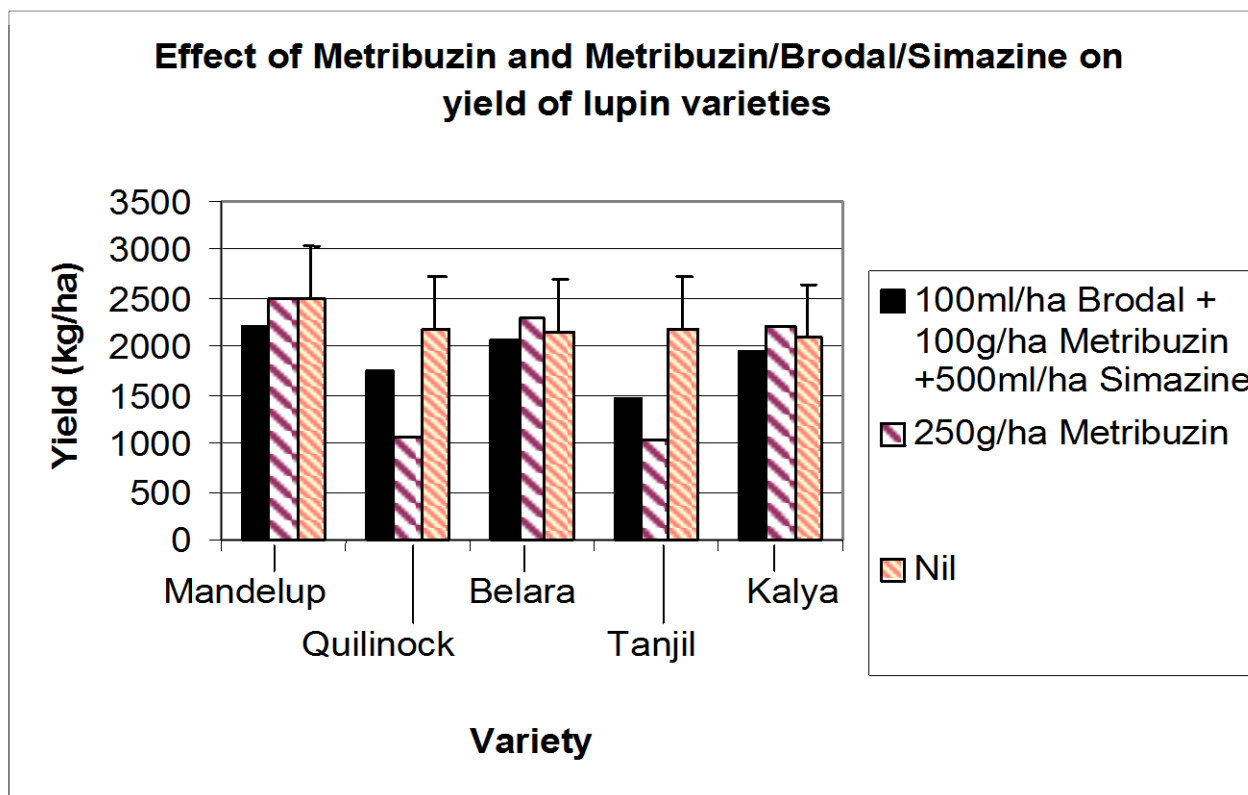
Weed levels were very low and nil treatments (alone) were given a basal post-emergent application of Brodal to make sure they were not over-run with radish.

Results:

Excluding the effect of the herbicide treatments, the performance of Mandelup was outstanding with its yield significantly higher than the other varieties.

The response to herbicides was significant (LSD =536 at P.05) with Tanjil being significantly affected by both spray treatments and Quilnock by the Metribuzin treatment only. The yield of Tanjil was reduced by 52% by

the Metribuzin treatment and by 32% by the 3-way mix. The yields of Mandelup, Belara and Kalya were not significantly affected by either treatment in this trial. However, in other trials, Belara has been shown to not be particularly tolerant to Metribuzin.



Please note:

The new wheat variety EGA Eagle Rock provides an opportunity for growers to apply Metribuzin as a pre-emergent herbicide for the suppression of brome grass and other broadleaf weeds. However, using Metribuzin in EGA Eagle Rock grown in rotation with Mandelup lupins is not a recommended practice. Metribuzin is very closely related to the triazine herbicides. Growing EGA Eagle Rock with Metribuzin in rotation with lupins with Simazine / Atrazine increases the risk of the development of herbicide resistant weeds such as wild radish. Where growers choose to use Metribuzin in the wheat phase they are encouraged to consider options for destroying surviving weed seeds at harvest and / or grow lupins less frequently than every second year. Growers who do use Metribuzin pre-sowing of EGA Eagle Rock should consider applying a different mode of action herbicide post emergent to kill any resistant individuals that may have survived the Metribuzin.

Summary:

- Mandelup performed as expected and significantly outperformed the other varieties.
- Mandelup exhibited tolerance to both the herbicide treatments, as did Kalya and Belara.
- Tanjil and Quilinock showed a lack of tolerance to Metribuzin on it's own, and Tanjil also showed a lack of tolerance to the Brodal/Metribuzin/Simazine mix.
- The higher yield of Mandelup and its tolerance to Metribuzin is useful in the north eastern wheatbelt where growers can select paddocks with populations of doublegee and radish for treatment with these mixes.
- Mandelup is clearly the replacement lupin variety in the north eastern wheatbelt.

Technically reviewed by: Bob French