# Lentil Variety x herbicides on lighter textured topsoil – Grass Patch



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#### Key Messages

- PBA Hallmark XT handled SU residues better than PBA Bolt
- Lentils should not be sprayed with Metribuzin on light lands until metribuzin tolerant varieties are made available.
- Until that time IMI herbicides and XT lentils are probably the safest option on light lands in WA or consider alternative species.

#### Aim

To demonstrate tolerance of latest lentil varieties to herbicides.

#### Background

Lentils are rapidly expanding in the Esperance region and have a fit elsewhere in WA. Lentils appear to have poor tolerance to herbicides in our environment. Inevitably, with our mix of soil types and large paddocks we need more information on the tolerance of lentil across a range of soil types. Typically, lentils show improved tolerance on loams and clays and less tolerance on sandy loams. On lighter soil types we have observed poorer tolerance to Group C herbicides that are the most widely used herbicides on grain legumes and canola in WA. In this experiment, we hoped to demonstrate this failing and to investigate lower rates of Group C herbicide.

In recent years lentil varieties such as PBA Hurricane XT and PBA Hallmark XT, which are more tolerant of Group B, residues and IMI herbicides have been made available to growers. These provide an option for WA growers particularly if they have chemical residues or are growing lentils on paddocks with lighter soil types and wish to avoid using Group C chemicals.

Property	Graeme Perks Kent Road, Grass Patch East, GPS - 33.213971 <sup>o</sup> S, 121.879491 <sup>o</sup> E
Plot size & replication	1.8 m centres x 10 m sown x 3 reps
Soil type	Sandy loam duplex
Soil pH (CaCl <sub>2</sub> )	0-10 cm:6.4 10-20 cm: 8.2
EC (dS/m)	0-10 cm: 0.108 10-20 cm: 0.287
Sowing date	21/5/2019 most plots were rolled IAS, except for one treatment, which was rolled at 3 node.
Sowing rate	Variety dependent: Target 100 p/m <sup>2</sup>
Fertiliser	100 kg/ha Superphosphate
Herbicides, insecticides	21st May 1.5 L/ha Sprayseed, 30th May 1 L/ha Pyrinex Super (400 g/L chlorpyrifos +
& fungicides	20 g/L bifenthrin), 17th July 500 mL/ha Select + 38 mL/ha Verdict + 1% Hasten, 2nd
	October 30 mL/ha of Trojan (150 g/L gamma- cyhalothrin), 4th November 3 L/ha
	Reglone
Harvested	14 <sup>th</sup> November – hand harvest
Growing season rainfall	167 mm

## **Trial Details**

## Results

Grass Patch has its second lowest rainfall year in 2019. There was virtually no summer or autumn rainfall. Consequently, we delayed sowing until May 21 to ensure reasonable establishment. Both varieties established similar number of plants – in the range of 93-103 plants/m<sup>2</sup>. Most herbicides had no effect on plant establishment. Brodal applied PSPE reduced the establishment of PBA Bolt.

In July, a crop rating showed that the treatment that had been rolled at 3 node rather than IAS was more vigorous. Similarly the 0.43 kg/ha rate of Terbyne Xtreme looked better than the label rate of 0.83 kg/ha. Metribuzin 360 g/ha PSPE treatment and the Brodal PSPE treatment were also rated lower than most other treatments, with plants missing (killed) in both treatments.

By September, all of the Metribuzin treatments were affecting both varieties. The Glean and Ally treatments took time to show their effects, but by September, it was clear PBA Hallmark XT was handling the simulated SU residues much better than PBA Bolt. Plots that had been rolled post emergent at 3 node that initially looked the most vigorous had gone backwards and were rated behind the Terbyne Xtreme IBS, Spinnaker PSPE and Brodal PSPE treatments. Before rolling, we would have moved soil and Terbyne Xtreme out of the furrows and reduced the concentration around the plants. Rolling at 3 nodes will have pushed some of the soil into the furrows and reduced the distance between the topsoil/herbicide and the plants roots. This may have delayed the plants picking up Terbyne Xtreme, but when they did take up the chemical, they appear to have not tolerated it particularly well.

Due to continuing dry conditions and poor growth, we were unable to machine harvest this trial. We took hand harvest cuts at selected areas in the plots. In the very poor plots where plant numbers had been severely reduced we cut where plants had grown best, and then used an estimate of percentage bare plot area to adjust dry matter and yield data. Interestingly some of the plots that had plant death and had low populations at the end of the year appeared to pod better in the very dry spring.



Figure 1 Crop rating (Sept 2) of lentils following herbicide treatments at Grass Patch 2019, 19ES04. LSD herbicide = 8, variety = 24, variety x herbicide = 18 except with same variety = 11

# Comments

Due to the vagaries of the season, it may be better to consider our final ratings and dry matter cuts rather than seed yield, when assessing crop safety on the sandy duplex soils in the WA mallee in 2019.

Using that criterion, it was evident that:

- PBA Hallmark XT handled SU residues better than PBA Bolt
- Lentils should not be sprayed with Metribuzin on light lands until the metribuzin tolerant varieties are made available.
- Until that time IMI herbicides and XT lentils are probably the safest option on light lands in WA.

For other reports related to this trial visit GRDC's on-farm trial web site at https://www.farmtrials.com.au

# Acknowledgements

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# Paper reviewed by: Stacey Hansch

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