

Lentil Variety x herbicides on lighter textured topsoil – Grass Patch

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Key Messages

- PBA Highland XT produced higher yields than the standard variety PBA Bolt
- PBA Highland XT appeared to have better herbicide tolerance than PBA Bolt
- Deeper sowing and rolling immediately after sowing increased crop safety and yields
- Applying soil active herbicides prior to sowing increased crop safety

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 which are the most widely used herbicides on grain legumes and canola in WA.

In recent years' lentil varieties such as PBA Hurricane XT, PBA Hallmark XT and PBA Highland 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.

In 2021 we expect a new herbicide Reflex (fomesafen) to be released to growers. This will provide another option for lentil growers – it will offer extended control of brassica weeds.

Aims

- Demonstrate how to improve the safety of soil applied herbicides by the timing of application and the condition of the furrow.
- To demonstrate tolerance of latest lentil varieties to old and new herbicides.

Trial Details

Property	Graeme Perks Kent Road, Grass Patch East, GPS - 33.186623°S 121.857784°E
Plot size & replication	1.8 m centres x 10 m sown x 3 reps
Soil type	Sandy loam duplex
Soil pH (CaCl₂)	0-10 cm: 6.5.6 10-20 cm: 6.4
EC (dS/m)	0-10 cm: 0.133 10-20 cm: 0.143
Sowing date	13/5/2020.
Sowing rate	Variety dependent: Target 100 p/m ²
Fertiliser	100 kg/ha Superphosphate
Herbicides, insecticides & fungicides	13 th May 1.5 L/ha Sprayseed + 1.2 L/ha Triflurex, 13 th May IBS and PSPE treatments applied, 8 th June 1 L/ha Pyrinex Super (400 g/L chlorpyrifos + 20 g/L bifenthrin), 3 rd July Postem treatments applied, 21 st July 100 mL/ha Factor + 38 mL/ha Haloxypop 520 + 1% Hasten, 6 th August 500 mL/ha Sumisclex, 15 th October 30 mL/ha of Trojan (150 g/L gamma- cyhalothrin)
Harvested	20 th November – machine harvest
Growing season rainfall	148 mm

Treatments

40 treatments – Factorial combinations of

- 2 varieties (PBA Bolt or PBA Highland XT)
- 5 herbicide mixes
 1. 860 g/ha of Terbyne Xtreme (875 g/kg terbutylazine)
 2. 860 g/ha of Terbyne Xtreme + 1 L/ha Reflex (240 g/L fomesafen)
 3. 830 g/ha of Diuron 900 DF (900 g/kg diuron)
 4. 830 g/ha of Diuron + 1 L/ha Reflex
 5. 830 g/ha of Diuron + post-emergent application of 750 mL/ha of Intercept (33g/L imazamox + 15g/L imazapyr)
- 2 time of application (IBS or PSPE)
- 2 depths of sowing (Normal/Shallow and Deep)
- 2 times of rolling (IAS or 3 node)

Results

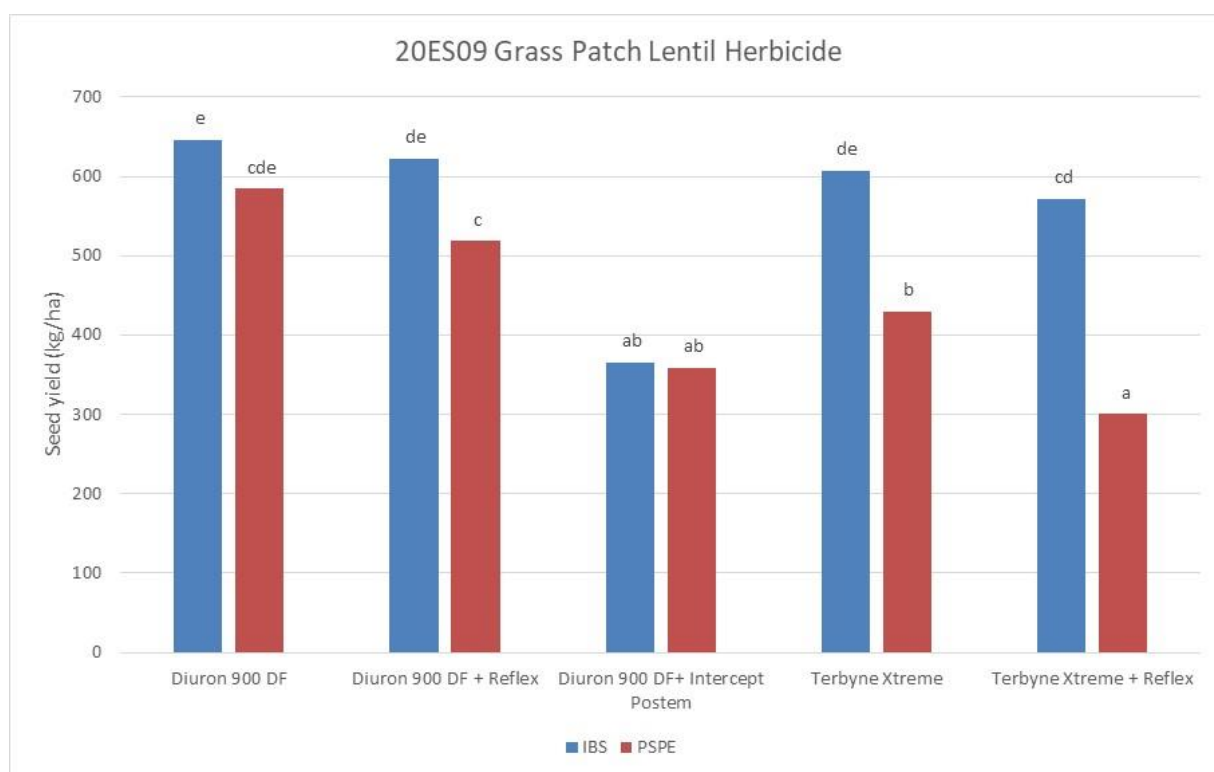


Figure 1 Timing of herbicide effect on the seed yield of lentils (kg/ha) at Perk's Grass Patch in 2020 (20ES09) – Bars labelled with the same letters are not significantly different

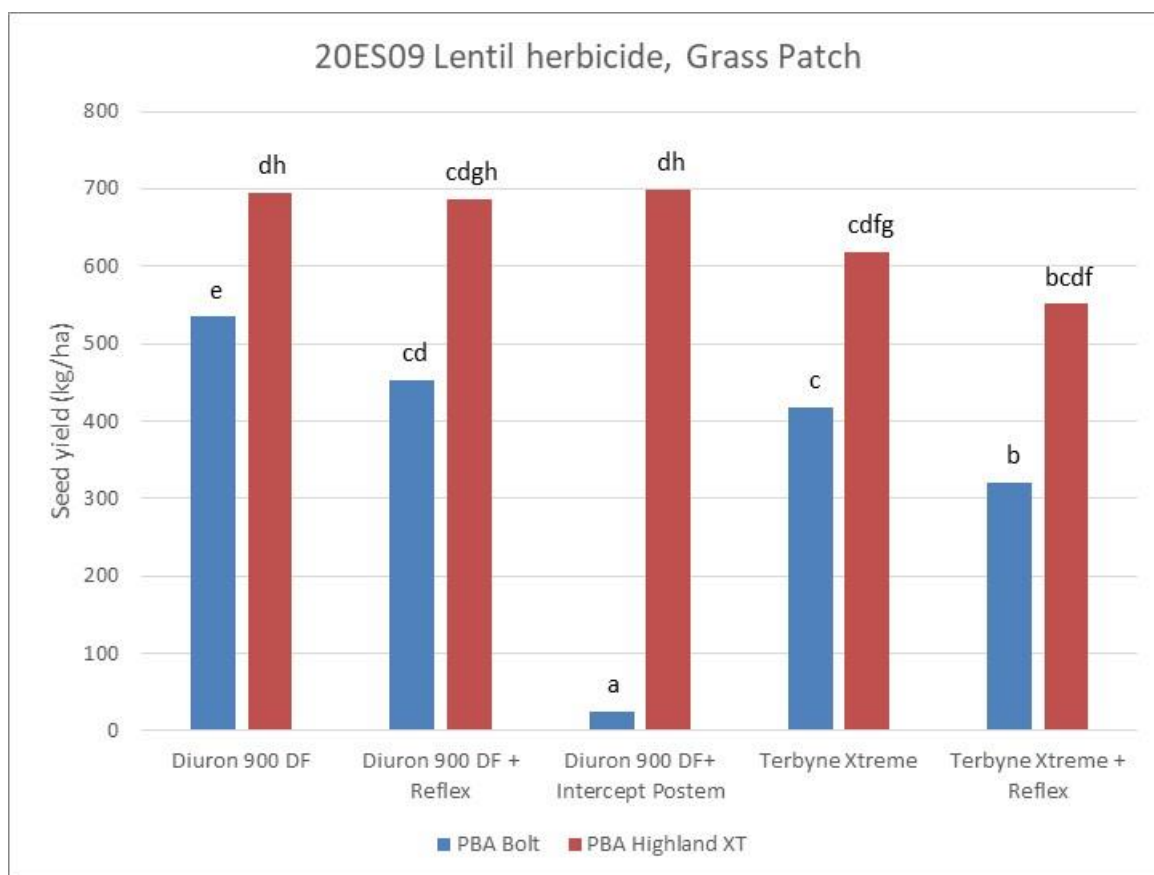


Figure 2 PBA Highland XT seed yields were less affected by herbicides than PBA Bolt at Perk's Grass Patch in 2020 (20ES09) – Bars labelled with the same letters are not significantly different

Comments

Timing influenced the safety of herbicides and herbicide mixes with IBS treatments being on average 22% higher yielding than equivalent PSPE treatments. Similarly, deeper sowing increased yield by 9% compared to shallow sowing and rolling immediately after sowing increased yield by 8% compared to rolling at 3 node stage.

PBA Highland XT produced higher yields than PBA Bolt at Grass Patch in 2020 and appeared to handle the herbicides better. As expected PBA Bolt growth and yields were severely reduced following the application of Intercept. However, PBA Bolt's yield was also reduced by Diuron + Reflex, Terbyne Xtreme and Terbyne Xtreme + Reflex compared to the Diuron alone treatments. To safely use Terbyne Xtreme on PBA Bolt required the chemical to be applied immediately before sowing and the seed to be sown deep and the plots to be rolled immediately after sowing.

This trial also demonstrated that adding Reflex to label rates of Terbyne Xtreme on PBA Bolt increases the risk of damage and yield loss – but risks can be reduced by following the label and sowing deep and only applying the herbicide before sowing.

PBA Highland XT shows promise in overcoming some of the issues Esperance growers have with lentils on their lighter mallee soils.

Acknowledgements

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Thanks to the Esperance TSU for trial management, and the Perk’s family, SEPWA and PASE for their continued support. Pam Burgess provided technical assistance to ensure all measurements occurred in a timely and accurate fashion.

Links

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

For more information contact

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