

Lentil, Herbicide Tolerance (Group B simulated residue), Mallee (Pinnaroo), South Australia.
Field Pea, Herbicide Tolerance (Group B simulated residue), Mallee (Pinnaroo), South Australia.
Faba Bean, Herbicide Tolerance (Group B simulated residue), Mallee (Pinnaroo), South Australia.

Authors

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Aim

To evaluate imidazolinone herbicide tolerant varieties of lentil, field pea and faba bean to simulated residues of Group B herbicide.

Treatments

Varieties: See Table 1

Herbicide treatments: See Table 2. Approximately one month prior to sowing the Group B herbicides were applied to the soil surface to simulate residue treatments.

Table 1. Varieties

Crop	Conventional Varieties	Group B Tolerant Varieties
Lentil	PBA Jumbo2	PBA Hurricane XT, PBA Hallmark XT, GIA1701L-1
Field Pea	PBA Wharton, PBA Oura	GIA Kastar, GIA Ourstar
Faba Bean	PBA Samira	PBA Bendoc

Table 2. Herbicide treatments

Herbicide treatments	Rate
Nil	NA
Imazamox (33g/L) + Imazapyr (15g/L)	375 ml/ha
Imazamox (33g/L) + Imazapyr (15g/L)	750 ml/ha
Chlorsulfuron (750 g/kg)	10 g/ha
Chlorsulfuron (750 g/kg)	20 g/ha
Metsulfuron-Methyl (600 g/kg)	5 g/ha

District practice agronomy was applied to each crop throughout the season, including the application of pre-emergent group C herbicides

***Some of the herbicide treatments in this research contain unregistered herbicides, application rates and timings and were undertaken for experimental purposes only. The results within this document do not constitute a recommendation for that particular use by the author or author's organization.*

Table 3. Other Site Details

	Pinnaroo
Sowing Date	31 May
Plant Density (plants/m ²)	Lentils: 120 Field Pea: 40 Faba Bean: 25
Stubble height (cm)	5
Row Spacing (cm)	28
Fertiliser (kg/ha) ¹	50

¹ Granulock Z (N 11, P 21.8, S 4, Zn 1)

Results and Interpretation

- Key messages: The grain yields of group B herbicide tolerant lentil and faba bean varieties were not decreased due to simulated residues of Group B herbicides. However, the grain yield of GIA Kastar, which is a group B herbicide tolerant field pea variety, was decreased by Chlorsulfuron and Metsulfuron-Methyl simulated residues.
- Lentil*: All imidazolinone tolerant lentil varieties-maintained grain yield potential in the presence of imazamox + imazapyr (I+I) residues. Although not statistically significant, there was a slight reduction in

grain yields from sulfonylurea residues (SU). PBA Jumbo2 was killed by SU residues and had grain yields reduced by more than 50% from I+I residues.

- *Field pea*: The imazamox + imazapyr (I+I) residues had no impact on any field pea varieties including the intolerant varieties, PBA Oura and PBA Wharton. The new field pea variety GIA Ourstar was the only variety to show a high level of tolerance to SU residues. In the absence of residues, the conventional variety PBA Oura was the superior yielding variety.
- *Faba bean*: The grain yield of PBA Bendoc was not significantly affected by any of the simulated group B residues. The conventional variety PBA Samira withstood low levels imazamox + imazapyr residues (375 ml/ha). However significant grain yield reductions were evident when high rates of imazamox + imazapyr residues (750 ml/ha) were simulated or when Metsulfuron-Methyl was applied. Chlorsulfuron residues resulted in near crop failure of PBA Samira.

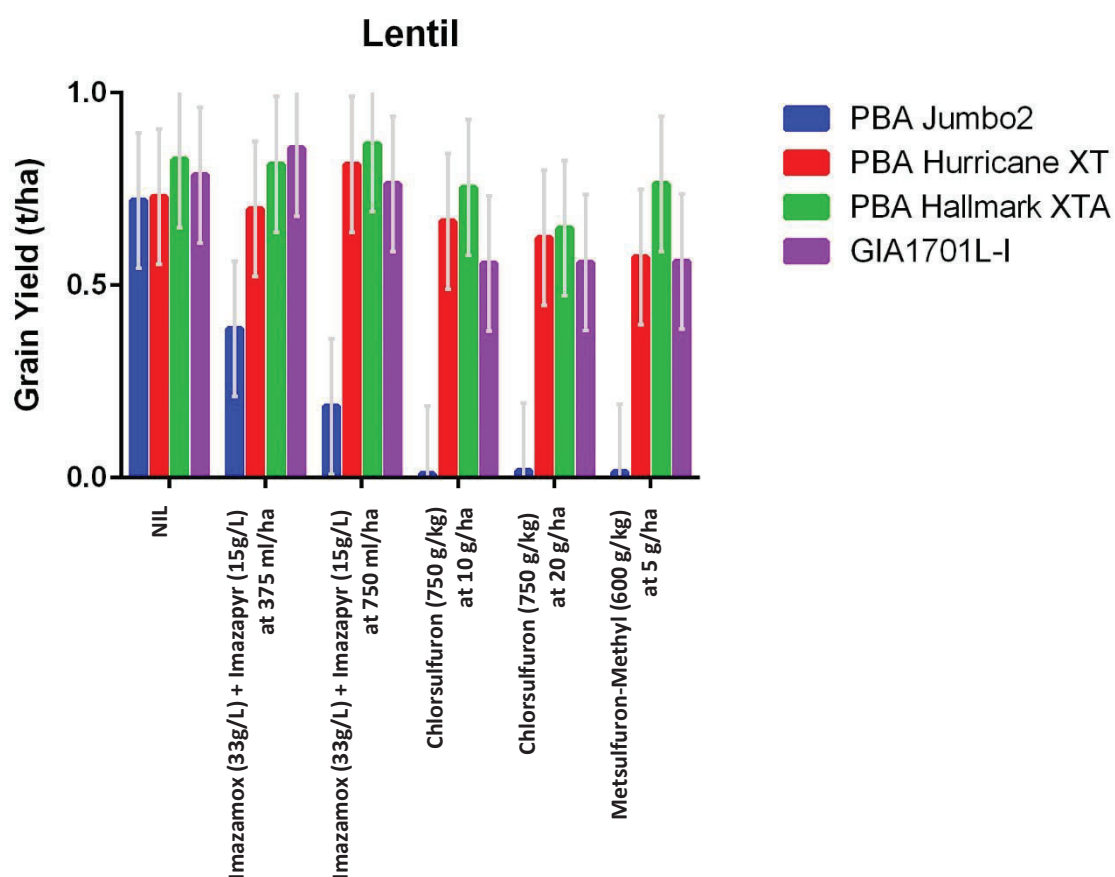


Figure 1. Effect of simulated group B herbicide residues on the grain yield of lentils. Error bars are LSD

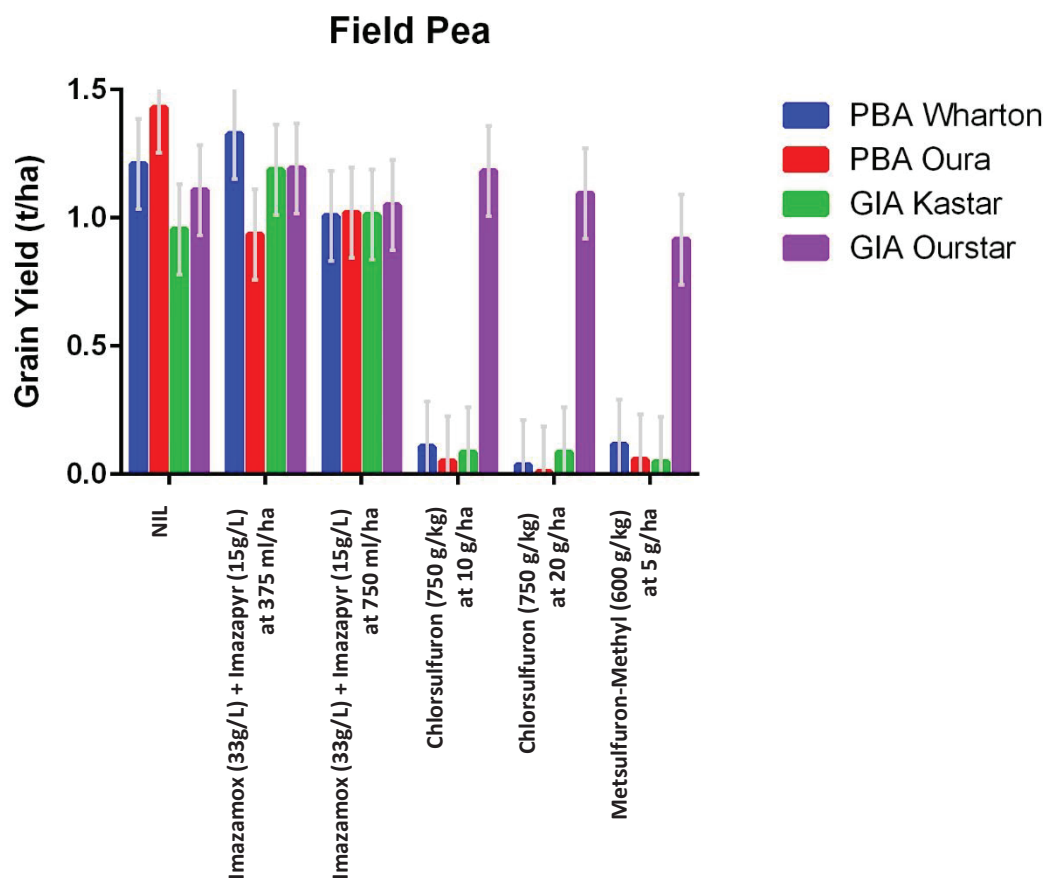


Figure 2. Effect of simulated group B herbicide residues on the grain yield of field pea. Error bars are LSD

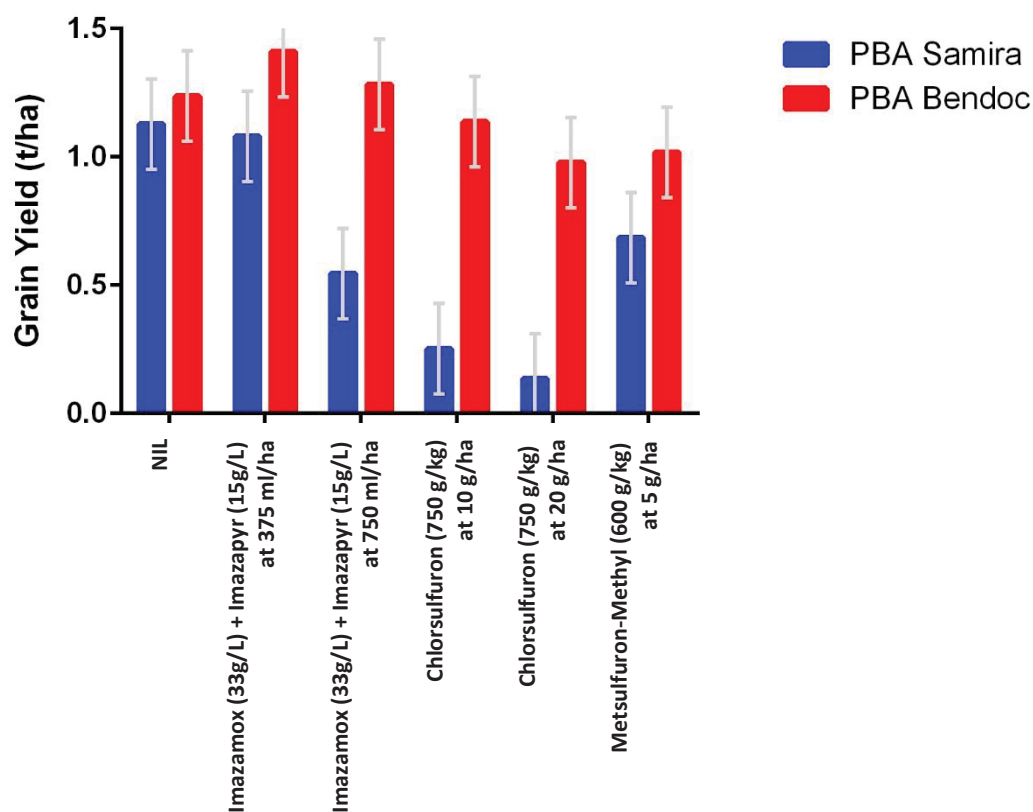


Figure 3. Effect of simulated group B herbicide residues on the grain yield of faba beans. Error bars are LSD

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