

Chemical residue management

Paraquat application to lupins

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Over the past five years Western Australia has exported an average of 150,000 tonnes of lupins annually to customers in Europe. This is the largest premium market for WA lupins. The EU has an MRL of 0.02 mg/kg for paraquat in lupin grain, which is 50 times lower than the Australian MRL of 1 mg/kg. In order to maintain this market, along with others, it is important that we minimise paraquat residues in lupin grain.

A small plot field trial in the Geraldton area in 2020 found that delaying application of paraquat had the greatest effect on paraquat residues in grain (Figure 1). Delaying application until the lupin plants were mature reduced the paraquat residue to below the EU MRL when applied at 800 mL/ha. In practice application timing can be difficult since harvest maturity varies across a paddock and there are often areas of green lupins within a paddock. "Patching out" or staggered spraying can often be a viable option; avoiding particularly green areas of a paddock or targeting the areas of highest ryegrass density.

Increasing the rate of paraquat in the trial also significantly increased the paraquat residue in grain as would be expected. It is important to note that 800 mL/ha of a 250 g/L formulation or 560 mL/ha of a 360 g/L formulation of paraquat is the maximum rate registered for spray topping to reduce ryegrass seed set in lupins. Further investigation and analysis of the lupin pods from the treatments in this trial found that residue levels could be 30-40 times higher in the pods than in the grain.

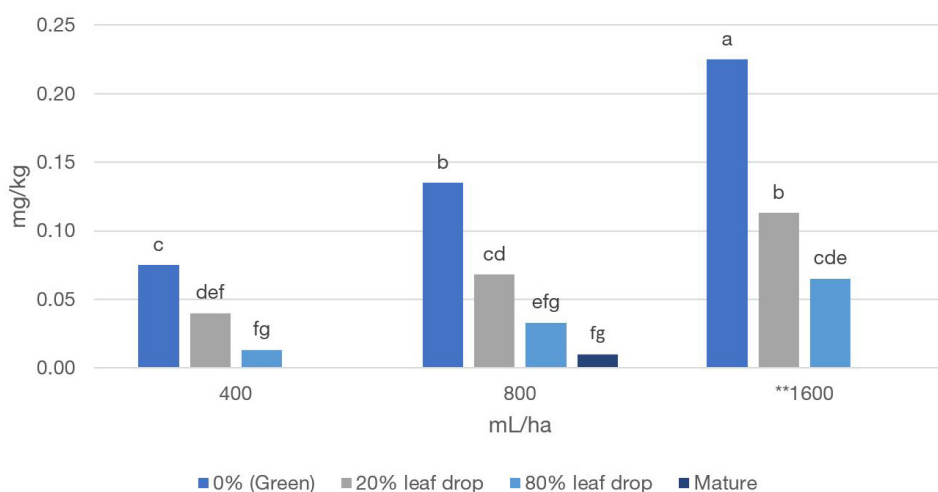


Figure 1.

Paraquat residues (mg/kg) in lupin grain from 4 application timings at 3 rates of paraquat 250 g/L. **1600 mL/ha is not registered, this is the 2x label rate

The results of this trial indicate that there are several measures that can be undertaken to minimise residues in lupin grain. CBH encourages you to discuss management options with your agronomist.



Top ten tips for reducing paraquat residues in lupin grain

- Only apply paraquat if absolutely necessary.
- Delay application as long as possible (crop stage closer to maturity). Avoid spraying green lupins, spray paddocks in sections where crop maturity is uneven.
- Apply no more than 800 mL/ha of a 250 formulation (comply with product label rates).
- Use the minimum rate applicable (utilise 400 mL/ha for low density populations).
- Target only ryegrass, use alternative products for wild radish control.
- Apply paraquat in the middle of the day, i.e. avoid application after 2pm or at night.
- Take care in harvester set-up. Avoid excessive amounts of pods or weed seeds in the sample. Lupin and wild radish pods can contain significantly higher levels of paraquat residues.
- Use a robust pre-emergent herbicide and effective in crop herbicide.
- Consider storing paraquat treated lupins on farm or selling domestically.
- Discuss management options with your agronomist.

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