



## Living in Harmony - Pesticides and Bees

### Introduction

Bees, as pollinators of flowering crops, play an integral role in many primary production systems, as well as being an important primary industry themselves. Despite this shared benefit, past experience has shown that bees are susceptible to being poisoned by inappropriate use of agricultural chemicals.

Most bee poisoning events can be traced back to a lack of communication between the apiarist and the chemical user. In this scenario the end result is that neither person can take steps to manage the risks associated with chemical use.

### How does Bee Poisoning occur?

There are several ways that bee poisoning can occur:

- When a chemical has been used on crops that are flowering, and foraging bees are subsequently exposed to contaminated foliage, nectar and/or pollen; or
- When a chemical has been used on a crop that is not flowering, but other plants in the target area are flowering ie: weeds in flower in a lucerne crop; weeds on the orchard floor; or
- When a chemical is directly applied to bees that are present in or flying over the target area; or
- When bees access water that contains pesticide residues.
- When spray drift occurs and the chemical drifts onto the bees, hives or flowering plants.

Also, bees can take contaminated pollen and/or nectar back to the hive and in turn cause the contamination and death of the honey bee colony.

### Legal Consequences

The *Agricultural and Veterinary Chemicals (Control of Use) Act 1992* contains an offence for a person to use chemical in contravention of a prohibitive label statements ie: 'DO NOT' statements. Many agricultural chemicals, particularly insecticides, contain statements under the Protection of Livestock section of the label that relate to bees. For example:

'DO NOT apply where bees from managed hives are known to be foraging, and crops, weeds or cover crops are in flower at the time of spraying, or are expected to flower within 28 days (7 days for pastures and sorghum)'.

However, sometimes a user cannot address all of the risks associated with the use of a chemical simply by complying with the label. Taking the additional steps outlined below may assist to address some of these risks.



*Photo: Mass bee death caused by pesticides*

### How to Manage the Risks – Landholders and Chemical Users

- Take action under the principles of Integrated Pest Management (IPM) to control any pest. For example, is there a method of control that doesn't involve chemicals ie: slashing?
- If you determine you need to use chemicals, conduct a risk assessment. This will identify any risks your spraying may pose and addressing those risks before spraying. For example, contact apiarists with hives in the area to ensure they know you are planning to spray. This will allow them to take any necessary precautions to minimise the risk to their bees.

- Make sure to inform any licensed spray contractors of any hives located near the target area.
- Read, understand and comply with the label, including all relevant **'DO NOT'** statements and the Directions for Use.
- Spray in appropriate conditions to avoid spraydrift onto sensitive areas, including potential sources of pollen and nectar. Also monitor weather conditions throughout spraying to ensure they continue to be appropriate.
- Inspect the target area prior to spraying to ensure no bees are foraging. Not spraying when managed bees are foraging is required by some chemical labels.
- Use buffer zones where appropriate.
- Understand the risks posed to bees that are associated with residual chemicals. The longer a chemical remains active after application, the greater the potential for poisoning to occur.
- Discuss chemical use with your agronomist and your pollinating apiarist to ensure you use chemicals that reduce the risk of bee poisoning. This can usually be achieved without compromising your objectives. If possible, choose a chemical that has a short residual hazard to bees.
- Advise the apiarist of your intention to apply chemical so that he/she may take steps to reduce the risk. Prior notice of 48 hours is preferred so that, if it is necessary, arrangements can be made to remove the hives from the target area before application commences.
- Establish a holding area located a sufficient distance away from the crop where the hives may be temporarily placed whilst spraying occurs.
- Ensure bees have access to water that does not contain pesticide residues.
- Inspect hives regularly to enable early detection and reporting of symptoms of bee poisoning.



***Photo: Spraying a potentially sensitive area is risky without effective communication between apiarist and farmer.***

If poisoning of bees is suspected, contact DPI immediately on 136 186. Desiccation of bees can occur quickly during summer which will have an impact of the success of chemical residue testing.

In times of emergencies such as locust plagues, chemical users have to adapt to changing circumstances which may require them to protect their crops/orchards by spraying at short notice. It is essential in this scenarios that time is taken to consider the possible risks associated with spraying and that apiarists and chemical users communicate any changes as soon as possible.

### Further References

For further information on bees and pesticides please call the Customer Service Centre on 136 186 and ask to speak to your local Apiary Inspector or Chemical Standards Officer. To learn more about the appropriate chemical use visit [www.dpi.vic.gov.au/chemicalstandards](http://www.dpi.vic.gov.au/chemicalstandards).

### Acknowledgements

This Agnote was developed by Steven Field, Farm Services Victoria – Chemical Standards Field Services, October 2008.

## How to Manage the Risks – Apiarists

- Before placing hives to pollinate a crop or produce honey, work with the grower to establish a mutually acceptable chemical program for both parties. For example, it may be possible to apply chemical before the bees are introduced to the crop.
- Leave your full, written contact details with the landholder so that if an issue occurs you can be contacted quickly.
- Ensure one or more hives are marked with contact details so that if an issue occurs you can be contacted quickly. This is important when the landholder is not present on the property and you need to be contacted in an emergency.
- Don't place hives in an area where chemicals may routinely be used ie: orchards or cropping paddocks without notifying neighbouring landholders.
- Place hives in sheltered areas to reduce the risk of spraydrift.
- Understand the residual nature of chemicals so that you can avoid damage to your bees by returning them to the target area after the residual chemical has dissipated.

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