

Literature review – protecting bees from pesticides

[Environment](#), [Plants](#)



Bees have been affected by pesticides for generations. When one pesticide is banned, another is either in development or has been released just in time to fill the gap in the market. Unfortunately, more often than not, pesticides are banned as they have been found to be harmful for the applicator or due to the risk they pose to the food chain rather than the harmful effects they are already known to have on bees and other insects. It appears that pollinators are not viewed as important enough to be of concern when approving pesticides. In America, the Environmental Protection Agency don't believe pesticides are the only factor in the greater than 40% decrease in commercial honeybee colonies since the late 1940s even though fewer adult worker bees emerge from pupae and less queens are produced in colonies exposed to insecticide.

While there is a welcomed effort to remove harmful pesticides from the market, there are other ways that bees can be protected from pesticides at a local level rather than implementing a blanket ban on essential products that currently have no safer replacement. I will focus this literature review on alternative ways to protect bees from pesticides at the level of the beekeeper and crop grower rather than on the global scale of pesticide control. It is interesting to note that most bee deaths occur due to poisoning by insecticides applied to crops while the crop is in flower. I live on a farm, growing various different crops and was never aware of this. While some treatment times are unavoidable and must be done in a time-sensitive manner, I feel that some crops could be sprayed before or even after flowering and have the same protection while reducing the effects on bees. It

may also be possible to modify sprays, so they can be applied before flowering and work while the plant is in flower.

While doing research, I found that granular pesticides are far more effective than dust applications when protecting bees. Sprays that are applied in combination with other sprays, are applied in a fine mist, are water-soluble or emulsify are also better in protecting bees. Applications that contain a repellent may also be helpful. Luckily, most of the fertilisers and sprays used by crop-growers nowadays fit this description. New technologies on sprayers to reduce spray drift also lessens the effect of pesticides on bees.

In order to protect bees from the pesticides immediately after application, bees can be either moved to a safer location or confined. If confined, bees may need to have shading, a method of confinement and wet absorbent material over the hive in addition to an extra super, adequate ventilation and a source of water especially if confined for over 12 hours.

There appears to be a lack of modern solutions to protect bees. One book mentions an advanced warning system for when a toxic pesticide is going to be applied close to hives. Nowadays, farmers realise that it is in their interest to protect bees. I know some that have invested in hives themselves. More of this may be required to safeguard bees via on-farm habitats, but monetary incentives may be required also. The Department of Agriculture, Food and the Marine (DAFM) has a key role in this area.