

Bees Under Threat

Bee populations are dying in record numbers, both here in Australia and across the world. Have a read through the details about some of the causes below:



Pesticides

Farmers often use pesticides (chemicals) to protect crops from weeds, diseases and insects that try to eat the crops. However, there is a type of pesticide that many farmers use that seems to be killing our bee population:

Neonicotinoids (sometimes shortened to 'neonics' – “NEE-oh-Nicks”) are a relatively new type of pesticide, invented in the 1980s. The pesticide is used to treat seeds before they are planted. As the plant grows, the pesticide travels through it to the flowers and pollen. The bees pick up the pollen of a treated plant and are harmed by the pesticide.

The pesticide affects bees' ability to find food, and it makes them lost and confused. Bees can no longer find their way home to their hive and they die. Without worker bees bringing pollen back to the hive, the whole colony could be wiped out.

If a worker bee does make it back to the hive, they are covered in the contaminated pollen, which affects the other bees. The chemicals are particularly dangerous for queen honeybees. Without a queen, eggs cannot be laid and the bee colony will not survive.

Unfortunately, when sprayed on plants, these pesticides also seep into the soil, which results in other crops and plants being affected even though they haven't be sprayed directly.

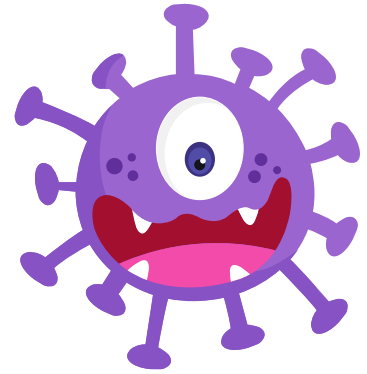
Ten years after their invention, scientists began to research the effects of neonicotinoids on bees and birds. It was found that neonics could kill bees or damage their immune system resulting in bees getting sick. In 2013, a number of countries in Europe ruled that farmers were no longer allowed to use this type of pesticide on plants that bees pollinate.

In April 2018, the European Union countries voted to ban the outdoor use of neonicotinoids because of the harm they can do to bees. We're still waiting for a similar ban here in Australia.



Viruses

Have you ever had a cold or the flu? They are both viruses that humans get. Bees also get sick in this way. Here are some of the viruses that bees might suffer from:



Paralysis virus:

This disease is common in adult bees. Affected bees tremble, tend to crawl about the entrance of the hive and are often found climbing onto the stems of grass in the near vicinity of the hive. They can cluster together on the ground or on grass stems close to the entrance of the hive. Their abdomens can appear enlarged with wings dislocated; they also become hairless, dark to shiny black in colour. Pesticide poisoning may possibly be associated with this virus.

Kashmir bee virus:

Several strains of Kashmir bee virus have been identified within Australia. This is a similar scenario to the different strains of the flu virus that humans get sick from. This virus affects bees across the world. The virus is common and is not usually associated with bee deaths. Infected adult bees are likely to die before they normally would, leading to a rapid loss of bees within a colony.

Sacbrood:

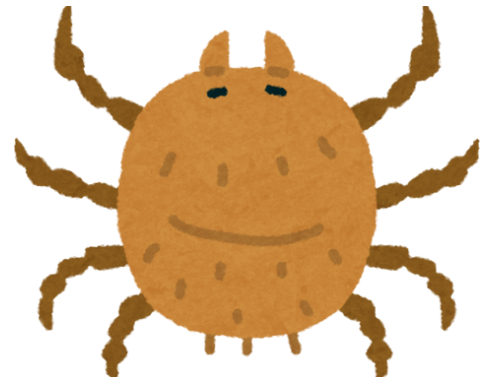
This is a well-known virus that infects larvae (baby bees), that grow in the hexagonal cells of a bee hive. Usually, baby bees grow in the hexagonal cells of a hive where the eggs are placed and then covered up by worker bees. A sign of this virus is uncovered hexagonal cells scattered amongst the healthy covered hexagonal cells.

Some other signs are: larvae die just before pupation begins (before they start turning into a bee). Once the larva dies, it is initially contained in a watery bag. It then lies along the base of the cell in a banana shape. Then the larva takes on a light-brown appearance. The dead larvae turns dark brown and is easily removed from the cell.

Source: [State of New South Wales through Department of Industry and Investment](#)

Varroa Destructor

Varroa mites (image on right) are a parasite that has killed huge numbers of bees around the world. They attach themselves to bees, suck their blood and transmit viruses and disease.



The mite can only reproduce in a honey bee colony. It attaches to the body of the bee and weakens the bee by sucking its blood! In this process, the mite spreads viruses amongst the bees in the colony. If the mites successfully infest a honey bee colony, the bees in will not survive.

The Varroa mite has had a huge impact on the beekeeping industry. It may be a contributing factor to colony collapse disorder, as research shows it is the main factor for collapsed bee colonies in Canada and the USA.

Luckily, Varroa mites have not reached Australian shores yet. It's vital that we protect Australian bees from this deadly parasite by ensuring that the mites aren't accidentally transported here on vessels such as ships and aeroplanes, in cargo, or through illegal bee importation. Tests conducted in America have shown that honeybees from Australia have no natural resistance to Varroa mites, making them a very dangerous pest.

All vessels arriving in Australia need to be cleared by quarantine officials. The officials physically check items and also keep some vessels and cargo under watch. If bee activity is detected, an entomologist (insect expert) will work to keep our bees here in Australia safe.

Habitats

Healthy bees need healthy habitats. They need things like shelter and food. Bee colonies need places to shelter and access to a wide variety of plants that flower at different times of the year to provide them with food. This makes the bees stronger and healthier so that they have a better chance of fighting off any illnesses and in the case of social bees, keep the colony strong.



Unfortunately, bees cannot escape the various and destructive impacts of farming on their environment and habitat.

When farmers plant large crops of only one type of (usually pollen-less) plants or clear land for their animals, bees' natural habitat is removed. This means that the types of habitats that provide shelter, a wide range of food and other supports for bees are wiped out - so the bees don't have anywhere to nest or any food to collect. This is thought to be the major cause of wild bee declines, with smaller effects on honeybees managed by beekeepers.

The number of different plants in an environment can be directly connected to the number of wild bees in the area. This means that the fewer plant species there are in an area, the fewer bees there will be in that area. Practices such as tillage, irrigation, and the removal of woody vegetation, destroy nesting sites of bees and can all be attributed to a decline in bee numbers.

We need to provide bees with habitats rich in pollen to help them stay healthy. Plants such as grey box eucalypts, sunflowers, oregano, sage and lavender are great food sources for bees.