Student workbook answers

What are varroa mite?

List at least three words that describe varroa mite and their place in the environment.

Answers vary, this is about student's current understanding.

tiny_____ insect _____

parasite _____ invasive_____

brown _____ deadly to honey bee colonies _____

Complete the form based on the PowerPoint you have viewed.

What are varroa mite?

Varroa mite are a tiny pest that are deadly to honey bee colonies __

Where do they live?

They live in honey bee colonies. *Varroa destructor* (the species in this outbreak) only survives within honey bee brood and on adult honey bees _____

What do they eat?

They feed on bees and bee pupae_____

Why are they a problem?

Varroa mite are easily spread from hive to hive when they attach to workers and drones (female and male bees) and through beekeeping practices. Varroa feed on bee pupae and adult bees, this spreads viruses and disease which weaken the whole honey bee colony and all unmanaged hives. Poor health and lack of production eventually kill the colony. _____

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Lifecycle of varroa mite

Number the stages of a varroa mite's lifecycle in the correct order.

Describe each stage.

4

When the brood cell is capped the mite remains inside feeding on the developing bee.

2

When the adult bee returns to the hive, the varroa mite comes with it.

7

When the adult bee emerges from the brood cell the mite and the babies emerge with it, infesting other bees.

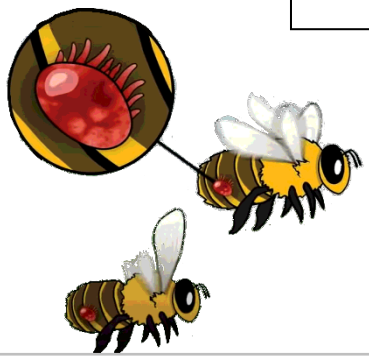
6

While inside the brood cell the adult mite lays three to four eggs.

3

Once inside the hive, the mite drops into a brood cell where bees grow from eggs to fully formed bees.

1



Varroa mite attach themselves to any adult bee and can spread fast.

Images on this page are adapted from the video *Honey bee and Varroa mites animation. How Varroa Destructor devastates honey bee colonies*, available on YouTube at https://youtu.be/h-wDgd5yURo

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How are varroa mite spread?

How many eggs can one adult varroa mite lay?

Three to four

Describe the way that varroa mite spread from one area or hive to another

When the mites emerge from the brood cell they attach to adult bees. The mites are spread from hive to hive as bees from different hives mix while they are out of the hive.

What impact does this have on efforts to control the spread of varroa mite?

This makes outbreaks of varroa mite hard to control, if the outbreak is not detected early, or control measures are not put in place quickly, the mites can spread to many hives.

The emergency response

How did beekeepers and staff in the emergency response attempt to eradicate varroa mite?

When the mites were detected NSW DPI moved quickly to put control measures in place. Emergency zones were established around all infested hives. Beekeepers were asked to notify NSW DPI of the location of their hives so that they could be checked or euthanised as required. Beekeepers across the state were restricted from moving hives and those beekeepers outside the emergency zones asked to check their hives and to notify response staff if their hives have been in the emergency zones or they find varroa mite.

Many DPI staff and volunteers provided large scale response teams to work in offices and in the field conducting surveillance to trace the spread of varroa.

When did they change the focus to management? Why?

The group managing the National response determined that the number of new detections in the later part of 2023 made it clear that the Varroa mite infestation was more widespread and had also been present for longer than first thought.

The increase in new detections and the subsequent expansion of the Eradication Emergency Zone to greater than 17,800km2 stretched the eradication team's responses to its technical limit.

What happens now?

Varroa mite will become naturalised in honey bee populations in Australia. This will eventually kill the bee colonies that become infested with varroa mites if they are not treated.

The most significant impact of varroa establishing, as experienced in other countries, is the death of all untreated honey bee colonies across the landscape. This seriously reduces the positive impact of honey bees in the environment, pollinating a range of horticultural and broadacre crops and pastoral plants.

Management of varroa mites in infested colonies will aim to reduce the spread of the mites between hives and wild colonies. This kind of environmental damage and damage to industries has the potential to adversely affect people's mental health.

More information about support is available at Assistance guide for beekeepers - Varroa (nsw.gov.au).

More information about the current situation and management, including frequently asked questions, is available at Varroa mite transition to management (nsw.gov.au).