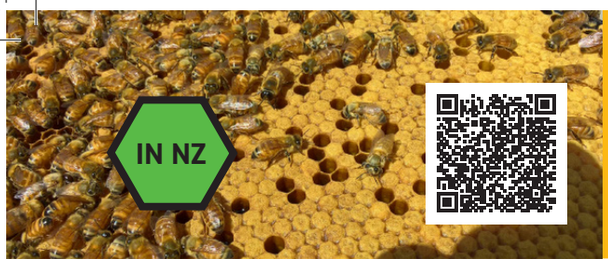

Biosecurity New Zealand
Ministry for Primary Industries
Manatū Ahu Matua

Varroa mites (*Varroa destructor*)

What is Varroa destructor?

The varroa mite (*Varroa destructor*) was first detected in New Zealand in 2000 and has since spread throughout the country. The Chatham Islands are the only significant bee population in New Zealand that remains free of this mite.

Varroa mites are one of the most problematic pests of honey bees (*Apis mellifera*). If not controlled, varroa can seriously undermine a bee by feeding on their body tissues and enhancing transmission of bee viruses. When left unchecked, varroa can spread throughout a hive very quickly, cause parasitic mite syndrome and the eventual death of the colony.

What should beekeepers look for?

Female varroa mites can be seen throughout a hive both on adult honey bees as well as developing larvae and pupae. Female mites are oval shaped, reddish to dark brown in colour, and measure up to 2 mm across.

Varroa mites are often missed by beekeepers until it is too late. **Visually detecting mites on adult bees is not a precise or effective method to determine infestation. Beekeepers should monitor for varroa routinely as part of their management.** The best methods to monitor for varroa are drone uncapping, ethanol/alcohol wash, sugar-shake and natural mite-fall. Knowing how many mites are present in a colony is vital so that you know when to take appropriate action.

What can it be confused with?

Varroa mites may be confused with pollen mites (*Mellitiphis alvearius*). Pollen mites are not harmful to honey bees but are sometimes found in hives. Varroa mites could also be confused with exotic pests that we want to keep out of New Zealand, most notably Braula fly (*Braula coeca*) and Tropilaelaps mites (*Tropilaelaps clareae* and *T. mercedesae*).

How does it spread?

Varroa is spread through the interchange of hive components, as well as drifting bees, swarms, absconding, and robbing behaviours. The transport and movement of hives, packaged bees and queen bees can also spread the mite between apiaries.

Varroa mites. Photos courtesy of Meredith Cherry

How can beekeepers protect their hives from Varroa mites?

A variety of methods can be used to control varroa within a hive. These may include the use of miticides as well as other non-chemical control methods.

Chemical control, commonly referred to as miticides, include the use of 'organic' and 'synthetic' compounds. It is important to note

that just because a miticide is considered to be organic, does not necessarily mean it is less harmful to the beekeeper, the bees, or their products. Care must be taken when using all miticides. Some of the common miticides registered for use to control varroa in New Zealand include Fluvalinate (Apistan®), Flumethrin (Bayvarol®), Armitraz (Apivar®, Apitraz®), formic acid (FormicPro™), thymol and other essential oils (Apiguard®, ApiLifeVar®) and also, the use of generic compounds; oxalic and formic acid under the own-use provision. It is important that beekeepers alternate between miticides to reduce the potential risk of resistance. Non-chemical control methods of varroa include brood removal and trapping, hive splitting, queen restriction, and mesh bottom boards.

Agricultural Compounds and Veterinary Medicines (ACVM) Act 1997

Agricultural compounds are products that help to control a pest or disease. All agricultural compounds must be authorised under the New Zealand ACVM Act 1997 and its Regulations. When using an agricultural compound, the ACVM Act 1997, Section 4, is designed to manage the following risks:

- Public health
- Trade in primary produce
- Animal welfare
- Agricultural security

The Ministry for Primary Industries has produced a guidance document to help beekeepers comply with the ACVM Act when applying any compound to a beehive: 'Advertising and own-use guidance for compounds for management of disease in beehives'. It is the responsibility of the beekeeper to stay up to date with revised versions of the ACVM Act and associated guidance. It is also important that beekeepers follow all manufacturers instructions when applying any agricultural compound to a hive. This will give the best chance of success in controlling for a pest or disease.

Further Reading

Ministry for Primary Industries. Advertising and own use guidance for compounds for management of disease in beehives. November 2019. Retrieved from https://www.mpi.govt.nz/dmsdocument/39404-guidance-document-advertising-and-own-use-guidance-for-compounds-for-management-of-disease-in-beehives-pdf

Taylor, M and Goodwin, R M. (2021). Control of varroa: a guide for New Zealand beekeepers. New Zealand Ministry of Agriculture and Forestry.

National Bee Unit UK. Varroa calculator. Retrieved from https://nationalbeeunit.com/public/BeeDiseases/varroaCalculator.cfm