Biosecurity New Zealand
Ministry for Primary Industries
Manatū Ahu Matua

New Zealand Bee Biosecurity Visual ID Guide

Te Kāwanatanga o Aotearoa
New Zealand Government

May 2025

What is biosecurity?

Biosecurity is the protection of industry and the environment from harmful, biological threats.

What is bee biosecurity?

Bee biosecurity is designed to protect our bees from the entry and spread of pests and diseases. Biosecurity is the responsibility of everyone in New Zealand.

Bee biosecurity is an essential part of your business. Left unchecked, pests and diseases in an apiary will impact productivity, increase costs, and markets may be lost. The health of the honey bee industry also ensures the continued success of many other horticultural industries that rely on pollination.

Early detection and immediate reporting increase the chance of an effective and efficient eradication.

Three ways to protect your bees

Beekeepers play a vital role protecting New Zealand from biosecurity threats.

1 Training and planning for pests and diseases

It is important to keep up to date on pest and disease identification, prevention and control. How we manage pests and diseases is continually evolving making regular training important even for experienced beekeepers.

Plan ahead. Have a plan so you know what to do if you detect a new pest or disease in your apiary.

2 Regular pest and disease inspection and control

Bees, brood and hive material must be regularly inspected for pests and diseases. Early detection means faster control and minimal spread. Infected hives are less productive and threaten other colonies.

3 Report anything unusual

If you suspect a new pest or disease, or experience large-scale hive losses – report it immediately

0800 80 99 66

How to use this guide

This visual ID guide contains the most common apiculture pests and diseases, as well as some of the worst organisms that we are trying to keep out.

Whilst many honey bee pathogens do not produce characteristic symptoms that can be seen in the field, the pathogens included here produce very distinctive signs which can be spotted by the beekeeper through regular inspection of frames. This is not an exhaustive list.

This set of cards is intended to be used in an apiary to aid diagnosis. One card shows healthy brood; the others show various pathogenic organisms as well as conditions that affect bees.

Pages indicate an organism or condition that is already present in New Zealand.

Pages indicate an organism or condition that is not in New Zealand.

Healthy brood

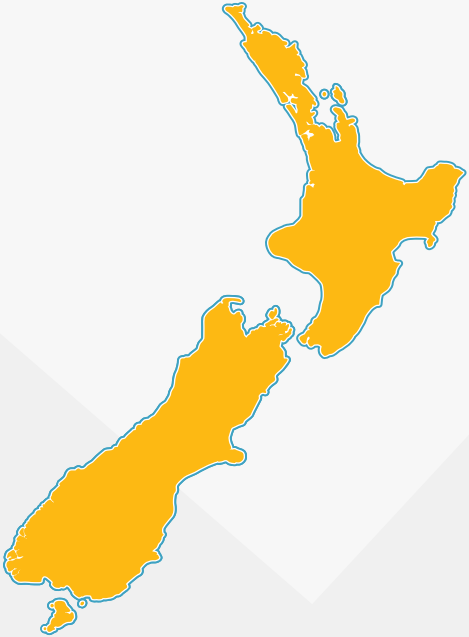
Eggs are uniformly laid at the base, one per cell.

Uncapped larvae are pearly white in colour.

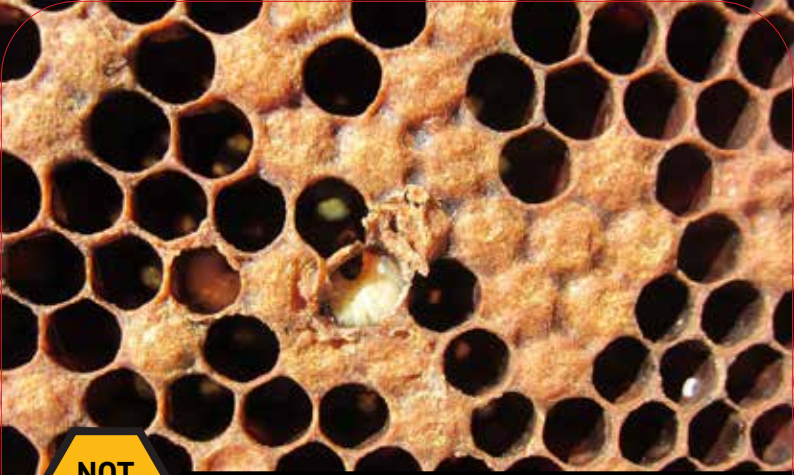
Pupating larvae are solid with even, unperforated cappings.

IN NZ

Absent organisms



NOT
IN NZ



NOT IN NZ

European Foulbrood

Melissococcus plutonius (Lactobacillales: Enterococcaceae)

Typical symptoms: spotty brood pattern, dead and discoloured larvae (often yellow) in uncapped cells, sometimes a strong ammonia-like smell, larvae will often rope.

NOT IN NZ

Small hive beetle

Aethina tumida (Coleoptera: Nitidulidae)

Typical symptoms: Adult beetles are 5–7mm long, brown/black, with club-like antennae. Larvae are 10 mm long, white/tan, three pairs of prolegs, rows of small spikes down back.

larva

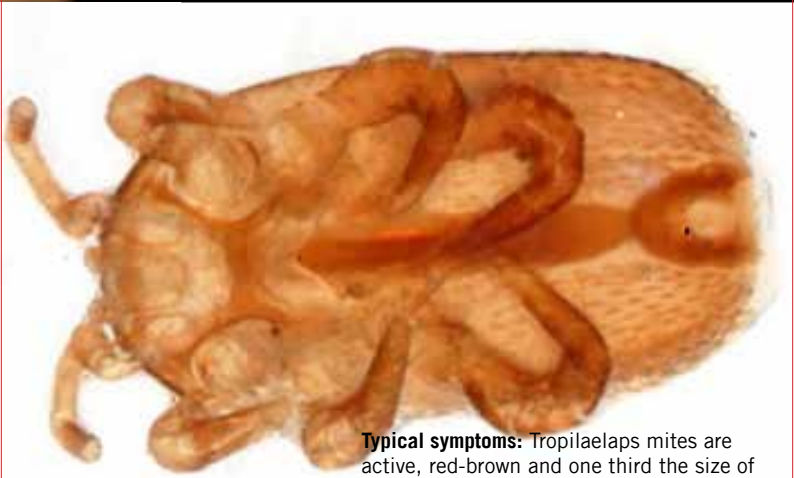
Photo courtesy of Walker, K. (2006) PaDIL

Photos courtesy of Fera Science Limited, Crown Copyright

NOT IN NZ

Tropilaelaps mites

Tropilaelaps clareae, T. mercedesae, T. koenigurum, T. thaii (Acari: Laelapidae)



Typical symptoms: Tropilaelaps mites are active, red-brown and one third the size of varroa. They can be seen on adult honey bees and in the brood.

Typical symptoms: Approximately 10 mm long, fly very quickly and erratically while feeding on floral resources, and have more prominent, evenly spaced and consistent abdominal striping.

NOT IN NZ

Asian honey bee

Apis cerana (Hymenoptera: Apidae)

Apis cerana
NOT PRESENT IN NZ

Apis mellifera
PRESENT IN NZ

5 mm

NOT IN NZ

Braula fly

Braula coeca (Diptera: Braulidae)

Typical symptoms: a small (1.5 mm long) wingless fly, that is red-brown coloured, covered in hairs and has six legs.

Photo courtesy: Scott Camazine

NOT IN NZ

Asian hornets

Vespa sp. (Vespidae: Hymenoptera)

Typical symptoms: Asian hornets are an invasive predatory pest of bees. There are dozens of known species and subspecies of the Asian hornet.

Photo courtesy: The United States Department of Agriculture (USDA)

Other Absent Organisms

Here are some additional absent organisms we are trying to keep out.

It is not possible to identify these organisms in the field or based on the symptoms they cause. They require a laboratory for proper identification.

If you suspect a new pest or disease, or experience large-scale hive losses:

Report it immediately on 0800 80 99 66.

Tracheal mite, *Acarapis woodi* (Trombidiformes: Tarsonemidae)

Other mites, *Varroa jacobsoni* (Mesostigmata: Varroidae)

Other mites, *Varroa underwoodi* (Mesostigmata: Varroidae)

Other mites, *Varroa rindereri* (Mesostigmata: Varroidae)

Other mites, *Euvarroa sinhai* (Mesostigmata: Varroidae)

Other mites, *Euvarroa wongsirii* (Mesostigmata: Varroidae)

Cape honey bee, *Apis mellifera capensis* (Hymenoptera: Apidae)

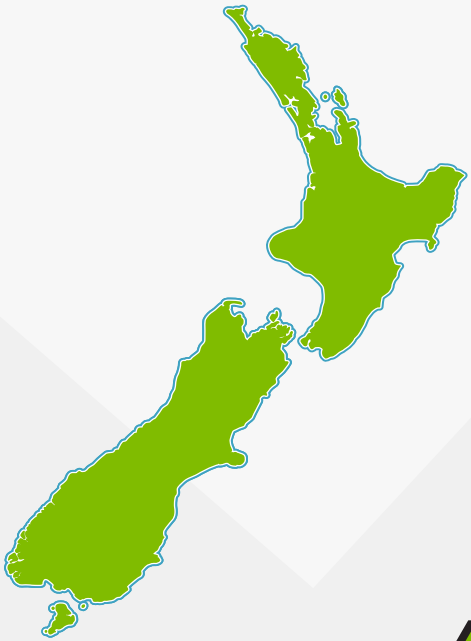
African honey bee and hybrids, *Apis mellifera scutella* (Hymenoptera: Apidae)

Acute bee paralysis virus (Piconavirales: Dicistroviridae)

Israeli acute paralysis virus (Piconavirales: Dicistroviridae)

Slow bee paralysis virus (Piconavirales: Iflaviridae)

Present Organisms and Conditions



IN NZ

IN NZ

American Foulbrood

Paenibacillus larvae (Sphingobacteriales: Flexibacteraceae)

Typical symptoms: spotty brood pattern, dead and discoloured larvae (often yellow) in uncapped cells, sometimes a strong ammonia-like smell, larvae will often rope.

If you suspect you have AFB, visit **https://afb.org.nz/i-think-i-have-afb/** for more information.

IN NZ

Sacbrood virus
(Picornavirales: Iflaviridae)

Typical symptoms: spotty brood pattern, sunken and perforated cappings, dead and discoloured larvae (often brown), banana-shaped larvae die after capping, skin of the dead larva may change to a sac that can be removed.

IN NZ

Black queen cell virus
(Picornavirales: Dicistroviridae)

Typical symptoms: queen bee pupae turn yellow and the skin of the pupae to become sac-like. At later stages, the dead queen bee changes to brown-black.

Photos courtesy of Rob Snyder, Bee Informed Partnership

Deformed wing virus
(Picornavirales: Iflaviridae)

IN NZ

Typical symptoms: shrivelled or greatly reduced wings, decreased body size and discoloration.

Photos courtesy of Frank Lindsay and David Evans, University of St Andrews

IN NZ

Chalkbrood fungus

Ascosphaera apis (Onygenales: Ascosphaeraceae)

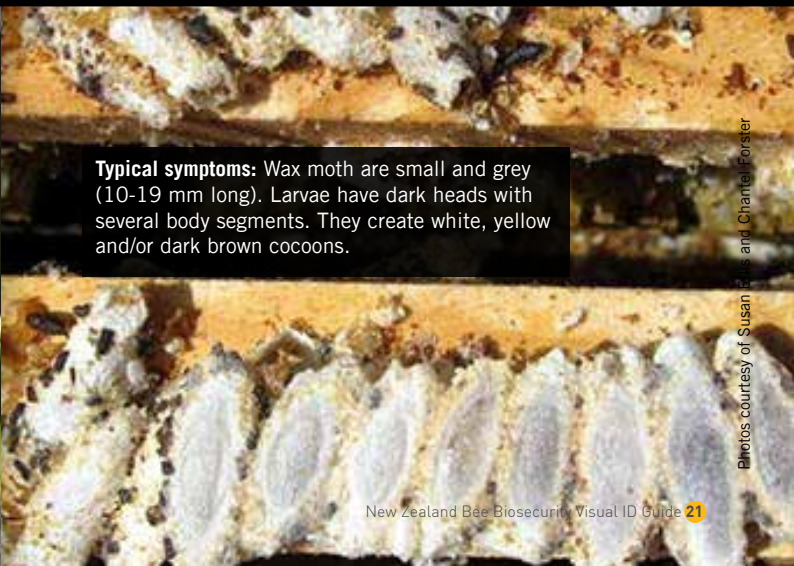
Typical symptoms: : hard, shrunken chalk-like mummies in the brood and in and around the entrance to the hive. Mummies may be white to grey-black in colour.

Photos courtesy of Rob Snyder, Bee Informed Partnership and Bens Bees, bensbees.co.au

IN NZ

Wax Moth

Achroia grisella and *Galleria mellonella* (Lepidoptera: Pyralidae)



Typical symptoms: Wax moth are small and grey (10-19 mm long). Larvae have dark heads with several body segments. They create white, yellow and/or dark brown cocoons.

Photos courtesy of Susan [illegible] and Charles Forster

IN NZ

Varroa mites

Varroa destructor (Parasitiformes: Varroidae)

Typical symptoms: Varroa mites are oval, flat, red-brown coloured, around 1.1 mm long and 1.5 mm wide. They can be seen on adult honey bees and in the brood.

Photos courtesy of Meredith Cherry.

Photo courtesy: Manaaki Whenua Landcare Research

Vespa vulgaris – common wasp

IN NZ

Vespula Wasps

Vespa germanica (German wasp) and
Vespa vulgaris (common wasp) (Vespidae: Hymenoptera)

Typical symptoms: German and common wasps look very similar. They have spread throughout most of the country and are a significant pest of urban, rural, and native ecosystems.

Vespa germanica – German wasp

Other Present Organisms

Here are some additional present organisms in New Zealand.

It is not possible to identify these organisms in the field or based on the symptoms they cause. They require a laboratory for proper identification.

Nosema apis (Dissociodihaplophasida: Nosematidae)

Nosema ceranae (Dissociodihaplophasida: Nosematidae)

Kashmir Bee Virus (Picornavirales: Dicistroviridae)

Lotmaria passim (Kinetoplastea: Trypanosomatidae)

Chronic bee paralysis virus (unclassified)

Moku virus (Iflavirus)

Lake Sinai virus (Sinaivirus)

IN NZ

Starvation

Typical symptoms: decrease in stored resources, dwindling bee number low productivity, bees clustering with their heads in cells and/or cannibalising larvae.

Photo courtesy of Jared Watkins

IN NZ

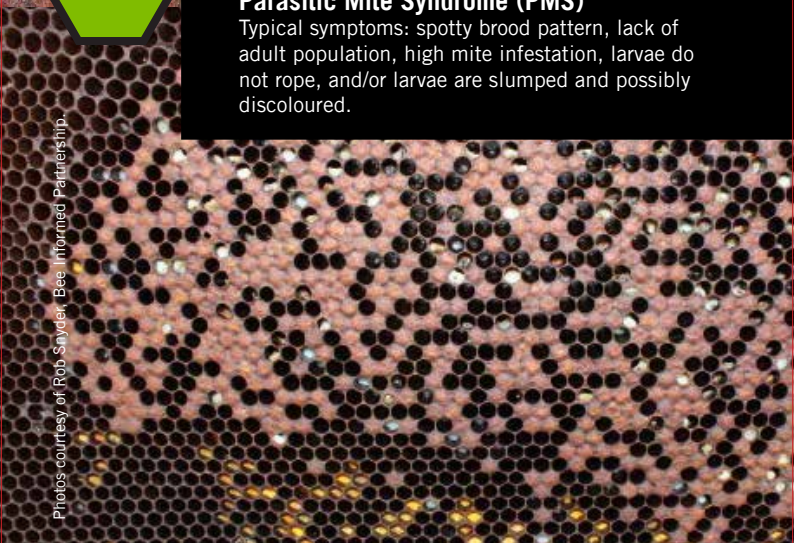
Poisoning

Typical symptoms: Excessive number of dead bees, disorientated and/or dwindling forager population.

Photos courtesy of Ian Carter

IN NZ

Parasitic Mite Syndrome (PMS)
Typical symptoms: spotty brood pattern, lack of adult population, high mite infestation, larvae do not rope, and/or larvae are slumped and possibly discoloured.



Photos courtesy of Rob Snyder, Bee Informed Partnership

IN NZ

Queen Problems

Typical symptoms: dead or neglected brood, exclusively laying drones, laying worker in hive and/or multiple eggs per cell.

Photos courtesy of Rob Snyder, Bee-Informed Partnership.

IN NZ

Dysentry
Typical symptoms: voided bee faeces on hive ware.

Photos courtesy of Pablo German and Chris Vanneal

For more information on bee health and biosecurity visit:
www.biosecurity.govt.nz

If you suspect a new pest or disease, or experience large-scale hive losses – report it immediately

0800 80 99 66

Publisher:

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This publication is available on Biosecurity New Zealand's website at: www.biosecurity.govt.nz

Further copies can be requested from Hayley.Pragert@mpi.govt.nz

ISBN: 978-1-991345-78-3 (print)

ISBN: 978-1-991345-79-0 (online)

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