

# Honey bee exotic disease surveillance report

Honey bee exotic disease surveillance is conducted byASUREQuality Limited on behalf of MAF Biosecurity New Zealand (MAFBNZ). It is a multifaceted programme consisting of:

- hive inspection and sampling
- maintaining records of beekeepers, apiaries, hives and bee diseases in an apiary database
- beekeeper extension and education
- screening of exotic bee disease enquiries
- reporting on activities and findings.

Surveillance is conducted for the following exotic honey bee diseases, pests and undesirable genetic strains (henceforth collectively called bee disease/s):

- European foulbrood (*Melissococcus plutonius*)
- small hive beetle (*Aethina tumida*)
- the parasitic fly (*Braula coeca*)
- tracheal mite (*Acarapis woodi*)
- Asian mites (*Tropilaelaps clareae* and *T. koenigerum*)
- Africanised honey bee (*Apis mellifera scutellata*)
- Cape bee (*Apis mellifera capensis*)
- *Apis* species other than *mellifera*.

## Hive inspection and sampling

The hive inspection and sampling programme has three components:

- high-risk area inspection and sampling
- sampling of adult bees from apiaries supplying bees for export
- investigation of suspect exotic honey bee diseases.

## High-risk areas

Throughout New Zealand, 23 geographic areas – 13 in the North Island and 10 in the South Island – have been classified as high risk because they have the greatest potential for entry of exotic honey bee diseases. They include ports, airports, cities and tourist destinations.

The target is to inspect and sample a total of 350 apiaries from the high-risk areas. All hives in each apiary are:

- inspected for signs of exotic bee disease, and any suspicious bees or larvae are taken for testing. Suspect life stages of small hive beetle and *Braula* are also taken for lab diagnosis
- sampled by taking at least 80 bees from each hive and testing a percentage of them (normally 14) for internal mites using the tracheal sectioning method
- tested for external mites using a 24-hour miticide and sticky board.

This report summarises ASUREQuality Ltd's honey bee exotic disease surveillance activity for the year from 1 July 2008 to 30 June 2009.

This season 352 high-risk apiaries were inspected, which slightly exceeded the target of 350. Of these apiaries 10 contained hives that had recently died or were too weak to enable collection of adult bee and sticky board samples. The hives in these apiaries received a brood inspection and were also inspected for small hive beetles. In all cases it was found that the cause of weakness or death was not related to an exotic disease or pest. The programme field delivery was completed to specification this year, with all areas being inspected by Authorised Persons – Level 2 (AP2s) with at least one season's experience on the programme. All performed at or above expectations, which was very pleasing.

Desk audits were completed in Hamilton and Christchurch. Both audits focused on the quality of samples (adult bees and sticky boards) and paperwork sent back by AP2s, and assessed returns against the work instructions provided to AP2s. The outcome of both audits was acceptable and AP2s were found to operate substantially in compliance with the work instructions provided.

## Export apiaries

Each beekeeper who supplied bees for export had to provide a sample of bees from up to 25 of the supply apiaries. This makes up the low-risk component of the programme. The bees are tested for external and internal mites, with a target of 300 samples.

Samples from 619 apiaries contributed to the programme this year, which was more than double the target. The number of samples requested from each beekeeper was kept at 25 despite thoughts of reducing the requirement to 20. Given the expected demand for live bees offshore and the relative stability of suppliers, it is likely that the number will be reduced next season.

## Investigation of suspected exotic honey bee diseases

Each year MAFBNZ and ASUREQuality Limited receive a number of calls from beekeepers reporting suspected exotic bee diseases or unusual symptoms in hives. ASUREQuality worked with MAFBNZ's IDC Wallaceville to screen these calls and determine whether sampling was justified. Nine calls were received, seven of which resulted in further sampling being required. Three calls related to deformed wing virus, two to external mites, one to *Nosema ceranae*, one to colony collapse disorder, one to small hive beetle and one to suspected *Apis florea* (red dwarf honey bee). The outcomes of all investigations were negative for exotic diseases or pests (Table 1).

**Table 1: Number of apiaries surveyed and samples taken in 2008–2009**

Samples tested to 30 June 2009 for:	Routine samples (apiaries)	Suspect samples	MAF specification
Internal parasites	342*	1	350
External parasites	342*	2	350
European foulbrood	352	0	350 inspections, with any suspect larvae sampled for laboratory diagnosis
Small hive beetle	352	1	350 inspections, with any suspect beetles or larvae sampled for laboratory diagnosis
Exotic bee species	342*	1	350 inspections, with any suspect bees sampled for laboratory diagnosis
Colony collapse disorder	352	1	350 inspections, with any suspect bees or larvae sampled for laboratory diagnosis

\* Hives in 352 apiaries were inspected but hives in ten apiaries were either too weak to sample or had died out.

Samples were tested by MAFBNZ Investigation and Diagnostic Centre (IDC) in Tamaki, Auckland.

## Results

All hives inspected, sampled and tested for the listed exotic bee diseases were negative.

## Reports

Each year,ASUREQuality Limited, on behalf of MAFBNZ, reports on exotic surveillance activities in Surveillance and *The New Zealand Beekeeper* magazine. These reports are used to meet international reporting requirements of New Zealand's bee health status, and for keeping New Zealand beekeepers informed of surveillance activities.

## Apiary database

ASUREQuality Limited maintains an apiary database that contained information on 2,655 beekeepers, 21,680 apiaries and 368,664 hives. It is a legal requirement that all beekeepers are registered and provide the location of their apiaries. Apiaries are geo-referenced, which enables planning of detailed disease surveys. Beekeepers are required to inspect their hives annually and report any cases of American foulbrood disease (*Paenibacillus larvae larvae*) as well as suspected exotic honey bee diseases. Beekeepers must also furnish a return each year updating all apiary records and stating that their hives have been inspected.

## Beekeeper extension and education

A series of articles was written for beekeepers and submitted for publication in *The New Zealand Beekeeper* magazine. The articles covered surveillance issues relating to exotic bee pests and diseases, and their relevance to the New Zealand beekeeping industry. During the 2008–2009 season, three technical articles were published as well as an article on the surveillance programme. The technical articles were on *Nosema ceranae*, European foulbrood and honey bee viruses, and were published in the magazine. A further article summarising the results of the surveillance programme will be published in the October issue, which is one of the two issues mailed annually to all beekeepers, not just subscribers.

## Extension

Talks on exotic bee diseases were given to a number of hobby clubs, beekeeping meetings and commercial beekeeper field days as well as Inspecting Beekeepers who clear apiaries for export.

## Technical development

To ensure the technical robustness of the surveillance programme is maintained, relevant national and international literature on surveillance techniques and exotic bee diseases and pests was reviewed. Additionally, a half-day technical meeting was held for apiculture officers as part of technical up-skilling.

ASUREQuality Limited maintained a group of apicultural technical experts who are competent in bee disease recognition and control.

*Byron Taylor*  
Apicultural Technical Advisor  
ASUREQuality Limited