

Honey bee exotic pest and disease surveillance report

This report summarises surveillance activities for the year 1 July 2014 to 30 June 2015.

Honey bee exotic disease surveillance is conducted byASUREQuality Ltd on behalf of the Ministry for Primary Industries (MPI). It is a multifaceted programme consisting of:

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

Surveillance is conducted for the following exotic honey bee diseases and pests:

- 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*);
- African and Africanised honey bee (*Apis mellifera scutellata*);
- Cape honey bee (*Apis mellifera capensis*); and
- other exotic *Apis* species (e.g., the Asian honey bee, *Apis cerana*); and
- bee viruses such as Israeli acute paralysis virus (IAPV).

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; and
- investigation of suspect exotic honey bee diseases.

High-risk areas

Throughout New Zealand, 19 geographic areas – 12 in the North Island and seven in the South Island – have been

classified as high risk because they have the greatest potential for entry of exotic honey bee diseases and pests. They include ports, airports, Transitional Facilities, cities and tourist destinations, and areas of high hive concentration (e.g., kiwifruit-growing areas). Four of these high-risk areas (Auckland, Wellington, Christchurch and Dunedin) have received further analysis and had “elevated risk zones” identified within the high-risk area. In these four areas, at least 50 percent of targeted apiaries are located in these elevated risk zones.

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 diseases and pests, with any suspicious bees or larvae and pupae and suspect life stages of small hive beetle and *Braula* being taken for testing and lab diagnosis;
- sampled by taking at least 80 bees from each hive and testing some for internal mites using the tracheal sectioning method; and
- tested for external mites by applying a 24-hour miticide treatment and a sticky board.

In total, 339 apiaries were inspected as part of high risk site surveillance, against a target of 350 apiaries. These apiaries were all inspected by Authorised Persons – Level 2. The target was not reached because many of the apiaries selected

no longer had live bees in them. Varroa appeared to be the main reason for the large number of dead hives; it should be noted that a lot of these hives belonged to relatively new hobbyist beekeepers who lacked both experience with and knowledge of varroa control. Beekeepers are also reporting that the treatments are not effective and there is some anecdotal evidence that the varroa mite is developing resistance to the miticides used.

Export apiaries

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

The target was well exceeded this year, with samples from 521 low-risk apiaries contributing to the programme. The MPI Investigation Diagnostic and Response lab at Tamaki has committed to testing all additional samples above the target numbers, which increases the overall sensitivity of the programme. No exotic mites were detected.

Investigation of suspected exotic honey bee diseases

Each year MPI and ASUREQuality Ltd receive calls from beekeepers reporting suspected exotic bee diseases or unusual symptoms in hives. ASUREQuality works

Table 1: Number of apiaries surveyed and samples taken in 2014–2015

Samples tested	Routine samples (apiaries)	Suspect samples	Results	MPI specification for routine samples
Internal parasites	339	0	All negative	350
External parasites	339	1	All negative	350
European foulbrood	339	2	All negative	350 inspections, with any suspect larvae sampled for laboratory diagnosis
Small hive beetle	339	3	All negative	350 inspections, with any suspect beetle or larvae sampled for laboratory diagnosis
Exotic bee species	339	0	–	350 inspections, with any suspect bees sampled for laboratory diagnosis

with MPI's Surveillance and Incursion Investigation (Animals and Marine) team at Wallaceville to screen these calls and determine whether sampling is justified. Eight calls were received that resulted in further sampling. Two of the calls were regarding suspect European foulbrood, one was about a suspect external mite, three were related to unexplained bee deaths and two were for suspect small hive beetle. Two other investigations were for imported wax foundation and imported Indonesian honey. A number of additional calls were received but not further investigated after it was determined that the observed symptoms could be explained by endemic bee diseases.

All tests were negative for exotic pests and diseases in the 10 cases investigated (Table 1).

Results

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

Reports

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

Beekeeper extension and education

As in previous years, five articles were written for publication in *The New Zealand Beekeeper* magazine, on surveillance issues relating to exotic bee pests and diseases and their relevance to the NZ beekeeping industry. These articles covered Africanised bees, the Asian honey bee (*Apis cerana*) and the Asian mite (*Tropilaelaps* sp.). An overview article is published at the beginning of the field season, outlining the plan for the current season and drawing particular attention to changes from previous years. At the end of the field season a summary article is written

reporting on the results of surveillance activities.

During the 12-month period, ASUREQuality Apiculture Technical Advisers (ATAs) were invited to a number of hobby clubs, beekeeping meetings and commercial beekeeper field days. ATAs take these opportunities to provide information on exotic pests and diseases of honey bees. Additionally, our trading partners are increasingly requiring greater assurance of the disease-free status of exported live bees. To help provide this assurance, ATAs train Inspecting Beekeepers (who clear apiaries for export) in the identification of apiculture pests and diseases.

Apiary database

ASUREQuality Ltd maintains an apiary database that contains information on beekeeping enterprises in New Zealand. As at 30 June 2015 there were 5 551 beekeepers managing 575 872 hives on 34 476 apiaries. New beekeepers are still entering the industry at a record rate, with 1 082 new registrations in the 12 months to 30 June. Almost 34 percent of beekeepers have less than two seasons of experience. This highlights the need to provide ongoing education about exotic disease identification, which is paramount to increasing the sensitivity of the passive surveillance programme. Educating the industry in the identification of exotic pests and diseases greatly increases the chances of finding an incursion sooner. This is because vastly more hives can be inspected by an educated industry than by targeted surveillance at high-risk sites.

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 (*Paenibacillus larvae larvae*) and suspect exotic honey bee diseases. They must also furnish a return each year updating all apiary records and stating that their hives have been inspected.

Technical development

To maintain technical development of the surveillance programme, relevant national and international literature on surveillance techniques and exotic bee diseases and pests was reviewed. Additionally, the annual half-day technical meeting was held for apiculture officers as part of their training.

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

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