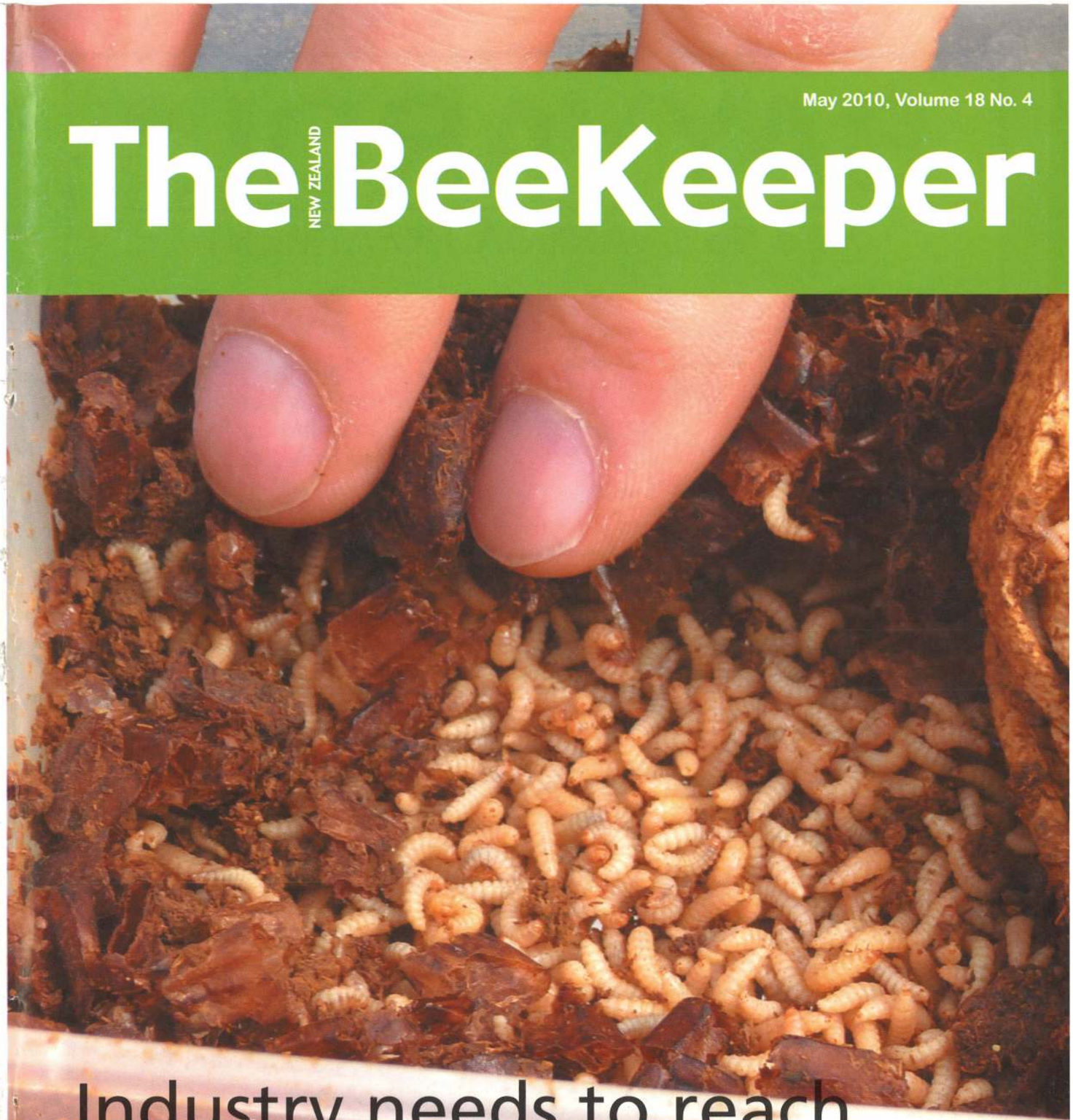
May 2010, Volume 18 No. 4

The NEW ZEALAND BeeKeeper



Industry needs to reach agreement on biosecurity responses

- Slimy honey and absconding bees
- Winter preparations
- Conference programme unveiled
- Exotic disease surveillance under way

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Cover photo: Small hive beetle larva, Hawkesbury Campus of the University of Western Sydney. Photo: Mary-Ann Lindsay.

Industry needs to reach agreement

By Frans Laas, NBA President

This is the second issue of the new-look journal. Generally there has been a positive response to this new look and the NBA continues to welcome your feedback for further improvement.

Thank you to the Publications Committee for their hard work each month in pulling the journal together.

Beekeeping bylaws

Most New Zealand territorial authorities, such as city councils, have bylaws that deal with animals such as dogs, poultry and bees. Recently the Dunedin City Council environmental staff proposed changes to the keeping of animals other than dogs or cats in residential zonings, including rural residential. Interestingly, while they were able to define and measure nuisance parameters for poultry, they were not able to do so for bees. This was up to the personal discretion of the Environmental Health Officer.

Thankfully NBA Otago Branch members' submissions, plus strong support from a rural-based councillor, saw the council decide to keep the status quo for bees. While councils do need mechanisms in place to deal with animal issues, we must consistently guard against bylaws that depend on personal ideology for enforcement.

Recently there has been a bit of a problem in the Taranaki region over the placement of hives on a farm, but near a neighbour's dwelling. While the landowner was on the receiving end of the council enforcement team, this should be a reminder to all beekeepers that they need to consider the placement of their hives on properties. The beekeeper needs to take into consideration the flight paths of the bees and proximity to houses, etc. on neighbouring properties, regardless of the wishes of the landowner who may wish to have the hives sited in a certain location for whatever reason. This would save a lot of problems for all parties and help keep local council officers on side.

This brings up the question of industry codes of ethics and practice. The Executive Council and the Secretariat are currently working on a preliminary draft for a code of ethics. Because of logistical restraints, we have had to prioritise our efforts and unfortunately this process is not moving as fast as some people would like. We welcome input from members to speed up the process, especially in moving towards an industry-accepted code of practice for such things as transporting hives, which is becoming a significant issue. If you would like to assist the executive or provide input in the drafting of the code, please contact Gemma Collier (NBA Joint CEO) on gemma@nba.org.nz.

Honey imports

This is just a reminder to keep this issue constantly in your minds. The government is still working quietly away on this and before you know it we will very likely have to confront them again on the matter.

Manuka Steering Group (MSG)

On 14 April elements within the MSG held a 'summit' meeting in Wellington to decide the way forward. As a consequence, the NBA was asked to attend a subsequent meeting with other industry representatives. This meeting, held in Christchurch on 19 April, was attended by Steve Lyttle and Greig Duncan (representing those who had attended the 'summit' meeting), Daniel Paul and me (representing the NBA), John Hartnell and Darren Clifford (from Federated Farmers Bees), and Jim Edwards (chairman of the BPSC). The 'summit' meeting representatives indicated that they needed to modify their position, which necessitated them to propose a potential solution to moving forward. They are in the process of drafting a proposal to go out for industry comment. As always, the NBA strongly advocates industry consultation on this matter and any other issues that may impact on the industry from time to time.

Government Industry Agreements (GIAs)

On 27 April Daniel, Gemma and I attended a meeting with MAF regarding the process of industry funding for incursion responses. This applies to all sectors of the primary production sector and I have discussed this matter in previous reports.

This process has some merits in the fact that each primary industry sector can now quantify their response process to a new pathogen. However, there is the issue of funding the process in partnership with the Government. The conundrum facing the beekeeping industry is that we are not the major beneficiaries of our activities. There are also some direct public-good benefits, especially within the urban environment. The bee industry should not be left to pay for the 'free riders' and the Government has recognised this in part.

The industry needs to reach an agreement—rapidly—on how it wishes to deal with potential pathogens such as EFB and Small Hive Beetle. The Management Agency of the AFB NPMS is currently working on response scenarios to deal with EFB if it ever becomes established in this country.

The consequences of not signing into a Government Industry Agreement (GIA) were made clear at the meeting. The two main consequences include: (1) no input into decision making processes; and (2) mandatory cost recovery (by compulsory levies) of any responses undertaken that benefit the bee industry.

We emphasised the importance of communicating and consulting with industry on the GIA. We hope to have a representative of MAF present at the upcoming NBA conference. We will also endeavour to distribute more information to members in the near future.

Conference

The organisers of the Conference are busy getting things finalised for the big day. It is helpful for the organising committee if those attending put their registrations in as early as possible. Not having a good estimate of the numbers attending is always stressful.

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Slimy honey and absconding bees

By Marco Gonzalez, Apiculture Officer, AsureQuality Limited

The Small Hive Beetle (SHB), now endemic in many parts of eastern Australia and therefore right on our doorstep, is a serious threat to the New Zealand beekeeping industry.

Every year one million visitors from Australia travel to New Zealand. This, added to the fact that the screening process for visitors from Australia may be relaxed, means a greater chance that the SHB will pay us a visit sooner rather than later.

The SHB is considered to be a minor pest among beekeepers in Africa. However, it is proving to be a serious pest in European bee colonies in both the USA and in Australia, in particular where it is hot and humid.

SHB was identified in Australia in October 2002, although it had probably been there for up to two years before being found. Five years after discovery the beetle had spread through all New South Wales, most parts of Eastern Queensland, Victoria and the Kimberley region of Western Australia.

The damage caused by SHB in Australia has been even more dramatic than those seen in the USA. However, it took a while for the impact to be evident. This delay in showing its dramatic effects could be explained, in part, by the fact that in Australia they are still free from varroa infestation so the hives are kept strong and the weather is dry in most areas.

Because SHB is not dependent on live bees for its survival a number of other vectors, such as ripe fruit, can contribute to the spread of SHB. Import regulations, border inspections and screening are our best defence against the introduction of the SHB into New Zealand.

> "Small Hive Beetle can spread as fast as 100 km per hour (in the back of a beekeeper's truck)!"

SHB could arrive into New Zealand by any of the following means:

- in swarms of bees or feral colonies on or in shipping containers or air cargo
- in used beekeeping equipment, comb, beeswax or queens smuggled into the country
- on imported fruits, such as ripe melons
- in soil material, for instance, with imported plants or carried on heavy machinery
- in containers or airplanes with hitchhiking adult beetles.

Small Hive Beetle can spread as fast as 100 km per hour (in the back of a beekeeper's truck)!

Once the beetle arrives into the country and completes its life cycle it usually spreads through one or more of the methods shown below.

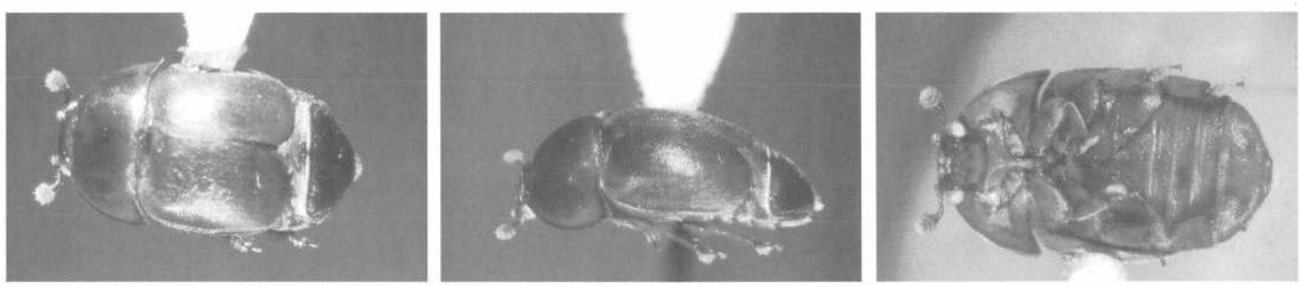
1. **Flying adult beetles:** SHB can cover more than 10 kilometres.
2. **Swarms:** SHB follows or accompanies swarms from infested hives.
3. **Absconding:** SHB usually follows an absconding bee colony.
4. **Beekeeper-assisted colony migration:** This is probably the most efficient and dangerous means of spreading SHB, particularly migratory beekeeping and pollination movements.
5. **Adult beetles hitchhiking** in cars, buses, trucks, boats or aeroplanes.
6. **With feral hives** being moved in logs or movable houses. The feral colony does not need to be alive as SHB can survive for a certain period in the abandoned hives by feeding on dead brood.

Recognising the enemy

Adult beetle anatomy

Adult beetles are oval in shape. There is variation in size depending on larval diet, climatic conditions and the gender of the beetle, but on average they are about one third of a worker bee in size. In general, male beetles are smaller than their female counterparts. However, the size of both sexes ranges between 5–7 mm long and 3–4.5 mm wide.

Immediately after emergence, the colour of adult beetles is reddish-brown, but darkens to dark brown or black when fully mature. They have characteristic club-shaped antennae; their bodies are broad and compressed from top to bottom. Their wing cases are covered with fine hairs (which make them difficult for beekeepers



Aethina tumida dorsal, lateral and ventral view. Source: www.beetlelady.com/?page_id=5. Photo S. A. Stephens.

to pick up by hand) and are short so that few segments of the abdomen are visible.

Life cycle

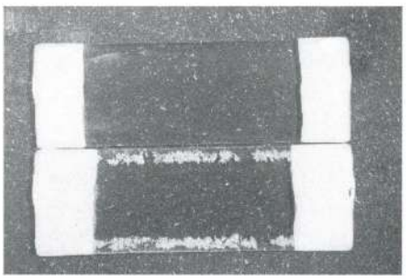
As with all beetles, SHB have a complete metamorphosis that includes egg, larva, pupa, and adult stages. The beetle requires warm conditions (above 10°C) and sandy soils for pupation and completion of the life cycle.

Under laboratory conditions the life cycle can also be completed on fruits and in bumblebee colonies. However, the level of reproduction and feeding on fruits in the wild has not been studied.

Egg stage

Adult beetles need to feed on protein before they can start laying eggs. Egg laying is stimulated by hive disturbance.

SHB eggs are laid in irregular masses in crevices or combs containing pollen or brood. The eggs are pearly white and about two-thirds the size of honey bee eggs. Each female is capable of laying up to a thousand eggs during their 4–6 month lifespan.



SHB hive beetle eggs on glass slides. Source: AsureQuality Ltd.

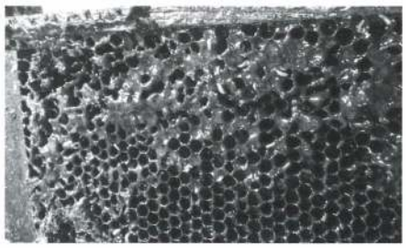
Larval stage

The larval stage is, by far, the most destructive life stage. After 2–6 days SHB eggs hatch and the young beetle larvae begin to feed. Beetle larvae eat brood, pollen and honey, tunnelling through comb and ruining stored honey with its faeces. This has a repellent effect on bees and causes them to abandon infested frames and can ultimately lead to absconding.

Honey ferments and bubbles out of the cells. The fermenting honey is said to have the smell of decaying oranges.

After 10 to 14 days, the larvae have completed their growth and measure 10–11 mm in length. There is no webbing or particles of comb debris as found with wax moth infestation, but instead infested combs have a 'slimy' appearance.

Mature larvae will often mass on the bottom board and in corners of frames before moving outside the hive. →

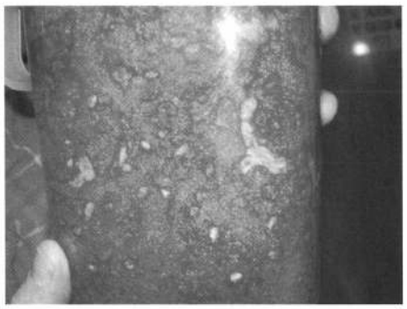


Larvae on comb full of honey. Source: AsureQuality Limited.

Pupation

The pupation stage lasts between 8 and 60 days and takes place in the soil. They move towards the light at the hive entrance and then exit the hive and burrow into the soil close to the hive entrance. They pupate in smooth-walled earthen cells; pupae are white and darken as metamorphosis takes place.

Pupation is a vulnerable stage for SHB and there is probably a high natural mortality rate. Beekeepers can control SHB during the pupation stage by applying pesticides to the soil.



Small Hive Beetle pupating in a jar full of soil. Source: AsureQuality Limited, 2007.

Adult stage

About one week after emergence adult beetles are attracted to bee colonies to mate and reproduce. They disperse rapidly over long distances and can detect stressed colonies due to disease or management techniques from a distance of about 13–16 kilometres Field observations in the USA have noted a large influx of beetles the day following an apiary inspection. Also, opening the hive triggers beetles already present in the hive to lay eggs. Adult beetles lay large numbers of eggs in the hive and the cycle restarts.

Queen breeders have found it difficult to maintain mating nucs. Beetles invade when they are queenless.

The SHB uses chemical signals emitted from hives to locate apiaries and these signals potentially form the basis of future control methods, such as bait traps.

Adults can survive for 15 days without food and water, 50 days on used comb and several months on fruit.

The SHB can survive very low temperatures, much lower than New Zealand winter temperatures. The adult beetle can survive during winter, in the actual bee cluster, and can therefore survive in any location where bees are kept.

Most beetle damage comes from the feeding habits of adults and larvae which eat honey, pollen, and, preferentially, bee brood and eggs. However, as a secondary effect of adult and larval feeding, stored honey in a colony is rendered useless as it quickly fouls and ferments. Bees are likely to abscond at advanced stages of infestation.

The SHB effects are even worse in colonies infested with varroa and some colonies can be completely destroyed within two weeks.

The major economic damage is done by larvae found in unprotected honey supers, when combs of honey stand for long periods in the honey house prior to extraction, especially those that contain pollen. Cappings set aside during the extracting process may also become a breeding ground for the SHB.

Detection

There are several methods used to detect SHB that all exploit different behavioural characteristics of SHB. These methods include:

Scanning combs and boxes

Adult beetles are likely to be found on the corners of the bottom board running away from the light and hiding in crevices or under debris. In warm weather, adult beetles will be mostly on the hive floor and under the lid. In colder weather they hide within the bee cluster. Also, look for clusters of eggs in irregular masses, usually in cracks and crevices in the hive. Finally, look for larvae in the combs or on the bottom board. Remove combs one at a time and carefully examine each of them for evidence of larvae or adults. The larvae will be attracted to light.

Corrugated plastic board hive floor inserts

This method exploits the beetle's tendency to seek dark crevices in which to hide. A corrugated plastic board (with the plastic removed on one side to expose the corrugations) is placed corrugated-side down on the bottom board towards the rear of the hive. Regularly examine the debris under this insert for evidence of adult beetles or eggs.

Light near the floor in the honey house

This method exploits the larvae's tendency to seek light. Regularly examine the floor around the light for evidence of SHB larvae or pupae.

If you find something suspicious collect as many samples as possible, put them in a plastic container, and keep it in the fridge. Contact your nearest Apicultural Officer at AsureQuality Limited, who can arrange for laboratory identification, or call the MAF hot line 0800 80 99 66.

Fighting the enemy

The first line of defence for small hive beetle is sanitation in the bee yard and honey house. There are several different methods of SHB control available overseas that include chemicals and non-chemical methods.

Chemical control

There is a limited range of products that can be used to kill SHB in the presence of bees. This is because bees are more closely related to SHB than to say, varroa, so a chemical that kills SHB is more likely to kill bees too!

In the hive

Check Mite+® strips (Bayer Corporation) have been approved for use in hives for the control of small hive beetles in some states of the USA under an emergency registration. This is an organophosphate (10% Coumaphos) that is not currently registered for use in New Zealand. Unfortunately its use creates residue problems in wax and honey.

Soil around the hive

Using products containing 500g/L permethryn (Permex®) as their only active constituent. A solution is prepared by mixing 1 ml product in 1 litre of water. Application must be done when bees are inactive (late evening or early morning). The prepared solution is applied to the ground in front of the beehives (45–60 cm wide) at a rate of 4 litres per square metre. Repeat the application monthly. Grass in the area to treat must be cut prior to application to improve soil penetration.

Other pesticides, such as fipronil, have also been shown to be effective under lab conditions, but this chemical is extremely toxic to bees too!

In the storeroom

Phostoxin® (aluminium phosphide) has been used successfully to kill all stages of SHB. However, Phostoxin® is not registered for this purpose in New Zealand and honey from supers treated with this chemical may only be used to feed bees.

The development of sustainable control methods is desirable to avoid resistance to chemical treatment in the long run.

Non-chemical control methods

Increased public concern about environmental and public health issues with the use of chemical control methods has increased the search for alternative safe control methods.

Traps

Several different models of traps are available with varying degrees of effectiveness. Some are used inside the hive and others outside. One of the latest and more effective trap models is based on a type of yeast carried by the small hive beetle. The yeast releases potent attractants for the beetle when it ferments pollen that has been collected by honey bees.

Biological control

Tests undertaken under laboratory conditions have shown that at least three species of entomopathogenic nematodes (*Steinernema riobrave, S. carpocapsae,* and *Heterorhabditis megidis*) are effective in killing SHB at the pupal stage. Also, a couple of entomopathogenic fungi (*Metarhizium anisopliae* and *Beauveria bassiana*) have shown to be effective in killing SHB at both the pupal and adult stages. *Metarhizium* is being evaluated for controlling varroa.

Genetic selection

There are variations in the severity of SHB infestation even between hives in the same apiary and there is evidence that genetic traits must be responsible for this. A breeding program toward resistance to SHB may assist with varroa control also.

Physical methods

Freezing supers at -12°C for 24 hours kills all stages of SHB.

Cool rooms slow or prevent the development of SHB and restrict the damage they can do to honey or stored combs. Beekeepers will need to construct cool rooms but such facilities will also help combat wax moths.

Low humidity (<50 percent) inhibits the hatchability of small hive beetle eggs. Hive beetle damage is prevented by simply circulating air through stacks of stored honey, thereby reducing the humidity.

Diatomaceous earth around the hive and in traps can tear the insect's surface, causing them to dehydrate and die.

Managerial control methods

These include:

- keeping colonies strong, healthy (disease free), requeening regularly, feeding them properly
- extracting honey from supers without delay
- removing and treating all dead out hives without delay
- avoiding returning wet supers to weak hives, and
- keeping a high level of hygiene in and around the honey house.

The best line of defence is good management. An integrated pest management strategy should be used for reducing the impact of the beetle. This involves hitting SHB at different levels and stages of its life through a combination of improved hygiene, managerial practices and control methods cited above.

Impact of SHB in New Zealand

It is difficult to predict the impact of the small hive beetle in New Zealand. It is likely that its effect will be different for different parts of the country depending on soil type, and climatic conditions. However, because varroa has decimated the feral bee population in most of the country and most of the country is cooler than the state of Victoria, it is likely that we would have a good chance of attempting eradication if we find it early enough.

If the SHB gets established, the organic beekeeping industry will probably be the more severely affected, as currently there are limited organic alternatives to control this pest.

As a secondary effect, important export markets (both live bees and bee products) could be lost due to the presence of this pest, or residue problems could arise from combating SHB.

Beekeepers must be aware of this pest and include it within their regular inspections for exotic diseases.

Even though it is hard to predict the impact of this pest in New Zealand, it is likely that it will be severe at least in the warmer areas of the country.

In case the SHB became established in New Zealand, the prompt development of a national guideline on control of the SHB would be essential to restrict the detrimental effect of SHB on the beekeeping industry.

Further reading

- http://apis.ifas.ufl.edu/apis98/aethina/aethina1.htm
- http://creatures.ifas.ufl.edu/misc/bees/small_hive_beetle.htm
- http://www.csl.gov.uk/science/organ/environ/bee/diseases/exoticpests/documents/SHB_factsheet.pdf
- http://www.mainebee.com/articles/hive%20beetle.php
- http://www.rirdc.gov.au/reports/HBE/03-050.pdf
- Rhodes, J. (2008). Small hive beetle – an in-hive control device using diatomaceous earth. NSW DPI. Available online at: www.dpy.nsw.gov.au
- Annand, N. (2008). Small Hive Beetle Management Options. NSW DPI Primefact 764. Available online at: www.dpi.nsw.gov.au/primefacts.
- Leemon, D. and McMahon, J. (2009). *Feasibility Study into In-Hive Fungal Bio-Control of Small Hive Beetle* (RIRDC Publication No 09/090 RIRDC Project No PRJ-000037). Canberra, Australia: RIRDC. Available online at: www.rirdc.gov.au
- Stredman, M. (2006). *Small Hive Beetle* (SHB): Aethina tumida *Murray (Coleoptera: Nitidulidae)*. (PIRSA Publication FC 03/06). Available online at: www.pir.sa.gov.au/factsheets.

Exotic disease surveillance under way

By Byron Taylor, Apicultural Officer, AsureQuality Limited

The field surveillance component of the Honey Bee Exotic Disease Surveillance programme is under way for 2010 and is following a similar but updated plan from previous years.

Every year a number of apiaries throughout New Zealand are selected to provide samples for the programme. Hives are surveyed during the autumn by experienced apicultural professionals who have a keen interest in the wellbeing of the New Zealand beekeeping industry.

The annual surveillance programme has two primary goals:

1) to detect an exotic pest or disease early enough for an eradication attempt to be considered.
2) to enable New Zealand to make country freedom statements with respect to exotic pests and diseases which help facilitate the negotiation of more favourable overseas market access conditions.

The sampling specifications for the programme this year have remained largely unchanged from last year. A total of 650 apiaries in two risk categories will be sampled for a range of pests and diseases of importance to the beekeeping industry. Every hive in each of the apiaries is required to be inspected and tested in order to maintain the sensitivity of the surveillance programme.

Exotic pests and diseases of interest have not changed from previous years and include:

- Africanised Honey Bee *(Apis mellifera scutellata)*
- Cape Honey Bee *(Apis mellifera capensis)*
- Other *Apis* species *(cerana, dorsata etc)*
- Asian mite *(Tropilaelaps clareae, Tropilaelaps koenigerum)*
- other Varroa species *(Varroa jacobsoni, Varroa underwoodi, Euvarroa sinhai)*
- Tracheal mite *(Acarapis woodi)*
- European foulbrood *(Mellisococcus plutonius)*
- Small Hive Beetle *(Aethina tumida)*
- the Parasitic Fly *(Braula coeca)*

Inspection programme outline

The programme is split into two components:

1) the inspection and sampling of a number of apiaries in high-risk areas, as shown in the following maps.
2) the testing of bee samples provided from apiaries for which clearance is required to supply bees for export.

High-risk areas

350 apiaries from within high-risk areas will be inspected and sampled for the exotic pests and diseases mentioned above. High-risk areas are areas that have been identified as most likely points of introduction of an exotic bee disease and include:

- seaports
- airports
- large population centres
- tourist areas.

Traditionally we have concentrated our efforts on 23 high-risk areas spread throughout the country. This year we have reduced the number of high-risk areas by four, leaving 12 areas in the North Island and seven in the South Island. This has meant that we are able to increase the average percentage of apiaries inspected in the remaining areas, thus increasing the sensitivity. Areas which are no longer surveyed include Taupo, Westport, Greymouth and Oamaru.

"This year we have reduced the number of high-risk areas by four, leaving 12 areas in the North Island and seven in the South Island."

The beekeepers carrying out the inspections, in addition to being highly experienced, are recognised as Authorised Persons (Level 2) under section 103 of the Biosecurity Act. This means that they have the legal authority to enter property for the purpose of inspection and sampling hives under the direction of an Authorised Person (Level 1) who is an AsureQuality Apicultural Officer. However, the inspector will endeavour to contact the owner prior to any hives being inspected to arrange a suitable inspection time.

Sticky boards being removed after a 24-hour miticide and sticky board test. Photo: Murray Reid.

In order to achieve the required detection sensitivity, every hive in each of the selected apiaries is to be tested. Hives will receive a 24-hour miticide and sticky board test to detect infestations of external mites and will have an adult bee sample taken to be tested for Tracheal mites *(Acarapis woodi)*.

In addition to the routine sampling, hives will receive a visual inspection for signs of European foulbrood, Small Hive Beetle, Africanised Honey Bee, Cape Bee, other *Apis* species and *Braula*. In some cases, suspect samples will be taken, while in others (particularly if there is a threat to human safety), the hive will be reassembled and marked for further investigation and/or sampling. The inspectors will also note any unusual symptoms.

As was the case last year, AP2s will be carrying field test kits for European foulbrood suspects. The kits are compact and easy to use and look very much like pregnancy test kits with a similar mode of operation. Inspectors will take 5–6 suspect larval samples, mix them in a solution and place a drop of the resulting mix into the well on the test strip. After a short wait, the result panel will display one bar to confirm that the test has been successful and a second bar if the sample is positive. This will allow for faster differential diagnosis and will improve our response time should the need arise.

If your apiary/s is selected to be inspected you will not be advised of the results of the tests unless they are positive. If a test does come back positive, an exotic disease response will most likely be launched.

> "Read the pamphlet on exotic bee pests and diseases of honey bees and when you are inspecting your hives, always look for signs of an exotic disease."

Bee samples from export supply apiaries

300 apiaries, from the population of apiaries supplying bees for export, will have an adult bee sample taken and tested for both internal and external mites. Each supplier is required to provide samples from up to 25 apiaries that they use to harvest bees for export.

As with the high-risk samples, beekeepers are not informed of negative test results.

Apiary database

The Honey Bee Exotic Disease Surveillance Programme relies heavily on the apiary database for the design of the surveillance programme and the selection of apiaries to inspect. Because of this, Biosecurity New Zealand provides 25% of the funds required to collect and maintain the information on the database.

What you can do

While it is important for the surveillance programme to inspect and sample hives, it is even more important for all beekeepers to be always on the lookout for an exotic pest or disease. Read the pamphlet on exotic bee pests and diseases of honey bees and when you are inspecting your hives, always look for signs of an exotic disease. If you suspect an exotic pest or disease ring the MAF Exotic Disease Hotline 0800 809 966, or contact your local AsureQuality Apicultural Officer.

Lastly, thanks to all those beekeepers who are taking part in the 2010 programme. Your continued support is very much appreciated.

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Studying bee brains to understand ours

By Allan Pimm, Bay of Plenty Ward study group representative

The Queensland Brain Institute was founded in 2003 with the aim of "Discovering the fundamental mechanisms that regulate brain function".

This very impressive institute differs from other neuroscience research centres by studying the fundamental mechanisms that regulate brain function, rather than specific diseases or conditions.

To better understand the human brain, researchers at the Institute are studying brain function in mice, honeybees, fruit fly, zebra fish and flatworms. We spent a portion of a morning in the company of researchers in the bee unit.

The Australian state and federal governments, the University of Queensland and the Atlantic Philanthropies all assist with funding; however, as for research institutes throughout the world, additional funding is required. This funding comes from two main sources: health and military.

Why use bees to help understand how the human brain functions?

A bee's brain operates in much the same way as ours, so can be used as a model for our own brain function. Bees can also be manipulated and used experimentally to help understand how the brain is functioning (not a PC thing to do with humans). In addition, bees are relatively long-lived, so extensive experiments can be carried out with the same bees.

Among the major areas of work we viewed were experiments involving bees' odometer and odour receptors. A number of cleverly designed experiments are aimed at understanding how a bee recognises a food source and can navigate back and forth from the hive until finished before moving on to the next source. We know bees are good at these things, but what makes the bees such good subjects for research? Being a closed population, the odour receptors and odometers of the foraging bees are much more highly developed than other insects so are therefore easier to study.

And why? Are there real-world applications from studying the bee's brain and training bees? I am sure beekeepers can think of many applications, such as pollination and high-value honeys, but would we really want our bees foraging entirely on one source? Many of us would say no as bees (especially drones) are susceptible to stress because of their social environment. So why would we want to limit their diet and potentially bring on stress-related issues?

"Are there real-world applications from studying the bee's brain and training bees?"

A number of industries are willing to fund this type of work, however. There are huge potential applications in the military for unmanned flight through understanding how the odometer/navigation/flight/landing/take-off functions work. As for odour receptors, the potential exists to find undetonated land mines and bombs. Perhaps a more pleasant application is in evaluating wine potential, where aroma is an important ingredient in the finished product; or in the health sector, where a particular aroma has a claimed effect to reduce aggression.

So how do they manage to carry out this work?

There are four hives at the Queensland Brain Institute: two inside and two outside, with a number of experiments being carried out at any one point in time. The bees are marked so they can study individuals. Most of the trials are using bees living in conditions as natural as is possible to create, and the researchers have found that some bees are smarter than others. Why is this? Just one of the many questions still to be answered. Monitoring of the bees uses up-to-date computer and camera technology so the reaction to different conditions is recorded and analysed.

Outdoor experimental hives at the Queensland Brain Institute. Photo: Sarah Peacey.

Understanding how the brain tracks moving objects has applications ranging from robotics in manufacturing (e.g., spray painting vehicles) to missile tracking for the military. Flying is one thing: landing, take off and return navigation is more complicated and these experiments aim to determine how the brain functions to achieve this.

Indoor experimental hive. Photo: Sarah Peacey.

The bees recognised the regular staff at the institute but when we arrived in the room the bees came over to check us all out. We must have met with approval, as after scrutiny they went back to their tasks.

The next photo shows just one of the many experiments being carried out to help understand vision. The bees fly down the clear perspex tube in the middle. The

What is correct frame spacing?

By Ron Morison

Following on from Kumar Vetharaniam's excellently researched article in the April issue, consider the lateral spacing of frames.

If one examines a feral nest, one will find the combs are evenly spaced at 30–32 mm between centres, with the possible exception of the outside combs. Brood or nectar storage may be found in any comb. The cells that have formerly held brood are preferred for storing nectar. Hence the queen is most likely to be laying in new comb, giving an important clue to bees' hygienic behaviour.

Why is the spacing 30–32 mm? Cells that are ready for the queen to lay in are 11–12 mm deep. Accepting a width to depth ratio of about 1:2, smaller diameter cells are shallower and larger cells are deeper. Remembering that the only time the cell is fully occupied is just before the pupae/bees emerge, it follows that smaller cells produce smaller bees. So it is the width to depth ratio that dictates the size of the bees.

With an average cell depth of 11.5 mm, the comb width is 2 x 11.5 = 23 mm. Subtracting this figure from an average 32 mm leaves a space of 9 mm between the faces of opposing combs. This 9 mm is the space required for worker bees to pass on adjacent combs with their wings brushing. Thermoregulation is thus most efficiently achieved. If the spacing is wider, more bees are required to maintain the optimum temperature of the brood; therefore less brood is produced.

When brood comb is later required for nectar storage the cells are extended to leave a single bee width of 5–6 mm; but if these cells are to be used for brood next spring, they will need to be trimmed to the correct depth.

When moveable frames are used different conditions are encountered. Bees are forced to build their comb using the foundation of either embedded wax or formed plastic. If queen excluders are used the queen is forced to reuse cells more than once, until fresh foundation is supplied. The beekeeper can dictate the space between comb faces and the number of frames available to the bees. This increase in the size of the hive tends to discourage swarming. Because of the risk of disease and the reduced size of the bees, brood frames should be replaced regularly.

> "The beekeeper can dictate the space between comb faces and the number of frames available to the bees."

One small difference between natural comb and rigid frames, either wire reinforced or plastic, is that the bees cannot transmit vibrations as readily. Remembering that the inside of the hive is dark, the bees' foraging dance can only be communicated by vibrations. To assist this, the bees will often remove some of the foundation wax from the bottom bars and sidebars.

What, then, is the optimum frame spacing? With narrow sidebars it is possible to fit 12 frames in a hive box, and some beekeepers use only eight. Brood frames are best spaced at 35 mm using 12 to a box as this closely copies a feral nest. Brood frames should not be spaced wider than 37 mm (that is, 11 frames per box) for best thermoregulation, leading to maximum brood. Frames containing foundation for drawing should be 11 frames per box, as wider spacing leads to irregular drawing of combs.

The conclusion is that 12 frames are ideal in the brood chamber, but once drawn the frames can be spaced to suit the extraction system. Wider spacing leads to more wax cappings beyond the frame width, thus leading to more honey being taken off with the cappings. As long as a satisfactory method for separating wax from honey is available, this is ideal as wax is mostly worth more than honey, with manuka being the exception.

[Author's note: this article is based on an entry in the February 2010 Beecraft.*]*

Beekeeper's finger

Finger joints swell after a few days' work lifting heavy supers. This is very painful and takes days for the swelling to subside. The problem: you are getting old and arthritis is setting in. Change your diet. Start using mechanical aids to do the lifting. Don't rely on anti-inflammatories.

We'd like your feedback!

As you can see, we've revamped the format of the *BeeKeeper* to give it a fresh new look. We hope you like the new format and features, and we're interested in your feedback: contact the NBA at secretary@nba.org.nz or 04 4716254.

Conference programme unveiled
Rutherford Hotel, Trafalgar Square, Nelson

Sunday 27 June

Small and New Beekeepers' Forum: 9.30 am–3.30 pm

The Art of Beekeeping

- Local, national & international speakers
- Maintaining a beehive
- Disease control
- Apitherapy
- Health & safety

Contact
Rae Butler
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Specialty Group Meetings

- NZ Honey Packers and Exporters Association 11.00 am–12.30 pm
- NZ Queen Producers Association 12.30–1.30 pm
- NZ Honey Bee Pollination Group 1.30–3.00 pm
- Active Manuka Honey Association 3.00–5.00 pm

Mix and Mingle in the evening: 6.30–8.00 pm

Monday 28 June

Seminar Day 1: 8 am–5.30 pm

- Insurance—Farmers Mutual Group
- Artistic Bee Photography—Michael Traynor, USA
- European Queen Breeding—Kirsten and Michael Traynor
- Compounds in NZ nectar and honey as chemical fingerprints of origin—Dr Jonathan Stephens and Dr Ralf Schlothauer, Comvita
- Ingredients of Manuka and Kanuka honey that relate to healing properties—Dr Jonathan Stephens and Dr Ralf Schlothauer, Comvita
- Organic products for varroa control: does it have a place?—Michelle Taylor, Plant and Food Research
- AFB/EFB Pest Management strategies—Rex Baynes
- Tutin standard review—Jim Sim, NZ Food Safety Authority
- Breeding honey bees that disturb varroa reproduction—Michelle Taylor, Plant and Food Research
- Setting Standards for the Manuka Industry—Steve Lyttle
- Sugar testing: what every good beekeeper should know—Karyne Rogers, National Isotope Centre, GNS Science, Lower Hutt
- Topic TBA—Peter Bray, Airborne Honey

Sponsors Night: 6.30–8.30 pm

Tuesday 29 June

Seminar Day 2: 8 am–3.30 pm

- Brood pheromone: how a hive communicates—Kirsten and Michael Traynor, USA
- Restructuring the Bee Products Standards Council—John Hartnell
- What's all this about Science Based Industry Standards?—Jim Edwards
- Conference photo
- Hive Rotation System: an easy management technique to minimise varroa and maximise honey—Kirsten and Michael Traynor, USA
- Science and marketing—two speakers (see article below)
- Marketing workshop
- Outdoor equipment demonstration (3.30 pm)

Dinner and Dance: 7 pm–midnight

Wednesday 30 June

AGM of the National Beekeepers' Association 8.30 am–3.00 pm

Our seminar program is looking very full and interesting. There will inevitably be some changes to the proposed topics and speakers.

Remember the three competitions:

- the Roy Paterson Trophy for your innovative ideas
- 2010 Ecroyd/NBA Photo Competition
- the honey competition

Early Registration: closing date is 31 May. Save yourself $30 and help us with planning!

Stop Press! The Rutherford Hotel have dropped their room rates. **Now $135 per night** (or $145 including breakfast).

Stop Press! Kirsten and Michael Traynor from the USA (conference guest speakers) are going to be in the North Island from June 10–17 and the South Island from June 17– 26. They would love to meet beekeepers, queen breeders, suppliers, etc. If anyone is interested in hosting Kirsten and Michael for a night or two or just meeting with them, email info@mdbee.com They would like to keep their travel costs down and enjoy exchanging information and ideas. Read the April *BeeKeeper* for more info on Kirsten and Michael.

Science and marketing seminar

In the last two decades a number of successful products have emerged from the New Zealand beekeeping and apiary industry, with manuka honey products being the icon. All producers in the industry have not shared the success of manuka, for example, and that's life. Many producers feel that potential new opportunities could be developed and promoted.

How will the New Zealand beekeeping industry of the future continue to harvest new ideas and take them to market? It is essential that there be a wider understanding within the industry of the processes that facilitate the success of iconic products such as manuka.

For the industry to be successful in a broader sense a wider base of revenue and value-earning opportunities is needed, with the producers having greater confidence that the new opportunities will deliver greater returns to the industry as a whole.

A number of new market opportunities have opened in recent times. Many of

those new products and market successes have followed significant science research and technology development. How can this happen and who needs to be involved? What are the dynamics that make this successful?

It is time to stop looking over the fence and use science and technology to add value to your unique product. Learn how you too can be part of a successful new product development where the stage has already been set with proven success.

Join us for the seminar on Tuesday 29 June where you can hear presentations from two speakers, both of whom have a successful science and marketing background. Then in the afternoon, be part of a workshop and learn the systems and processes that bring successful products to market.

NB: CONFERENCE REGISTRATION FORM CHANGES!

The registration form insert in the April issue had a couple of errors on page 3 pertaining to what is included in the costs of conference events. The correct information is given below:

New and Small Beekeepers' Forum: lunch is not included for this day. Morning and afternoon teas are included.
Seminar days: price includes lunch and morning/afternoon teas.
Mix & Mingle: Includes snacks and two complimentary drinks—bar available to purchase additional drinks at own cost thereafter.
Sponsors night: Includes finger food meal and two complimentary drinks—bar available to purchase additional drinks at own cost thereafter.
Dinner will be at the Rutherford Hotel. Bring your dancing feet!

Also, we deeply regret that due to an email oversight, we omitted to acknowledge AsureQuality Limited for sponsoring the NBA conference insert. We apologise to AsureQuality Limited for this error and thank them for their continued support.

Get snapping now!

The inaugural photo competition was such a success last year that we have brought it back in 2010.

This year the 2010 Ecroyd/NBA Photo Competition will be split into three categories:

1.Then what happened (two photos);
2. Staff at work;
3. Lunch/picnic spot.

For more information and how to enter, visit www.nba.org.nz/node/782 or contact at secretary@nba.org or 04 471 6254.

E B S
www.ecroyd.com

OUT AND ABOUT

Auckland Beekeepers' Club Honey Show

By Maureen Maxwell, Executive Council member, Northern Ward

On 27 March the Auckland Beekeepers' Club Inc. held their annual honey show.

I joined Dennis Wait as one of the judges.

The sum of the top six scores of an individual determines the overall winner, which this year went to the club's vice president and secretary, Carol Downer. As I have found in the past, the Auckland urban honey was complex, sometimes unusual, well presented and excellent to the palate.

Honey show winner Carol Downer receiving "The Shield": a magnificent silver trophy, which has been hotly contested for many years. Photo: Sue Wait.

Honey competitions in Ireland and Scotland

To whet your appetites for the NBA honey competition, here's a report about two honey shows in Great Britain, attended by Executive Council Northern Ward member Maureen Maxwell.

Samples for judging at the Irish honey show.

The Irish honey show is run by the Federation of Irish Beekeepers, alongside a very informative live-in summer school lasting one week.

Workshops and examinations available included: food hygiene, beekeeping at three levels (preliminary, intermediate and advanced), judging, lecturing and presentation. Additional workshops covered many skills from honey baking, mead making, hive building, candles and French polishing furniture restoration using beeswax through to queen rearing, artificial insemination, morphometry and microscopy.

Maureen going out with two of the lady lecturers for a practical demonstration of bee fashions, Irish style.

It is a very commendable and informative programme, both theoretical and practical.

The Scottish National Honey Show is run at Dundee alongside the Dundee Food and Flower Festival. It is quite an event with thousands of visitors and honey sales alongside.

There is also honey tasting, an education section and the flower show pays for the materials for beekeeper volunteers assisting children making their own beeswax candles to take home.

Maureen assisting Peter Mathews, the chief judge of the Scottish National Honey Show. Photos supplied by Maureen Maxwell.

Tips on handling Thymol

Three rules when handling thymol:

1. don't get it in your eyes
2. don't get it in your eyes
3. don't get it in your eyes.

Wear goggles—it might not be a good look but could save you a lot of pain.

If you do get thymol in your eye(s), flush continuously with running water.

Experiencing the charms of the Chathams

By Maureen Maxwell, Executive Council member, Northern Ward

Mid-March saw me exploring the Chathams. I went fishing, pig hunting, bird and seal watching, diving for paua and kina and I tasted my first confit of weka!

What a great place, with very friendly locals.

As soon as the beekeepers heard I was on the island, a meeting was called. Most of the beekeepers on the island are women; a wonderful bunch of enthusiasts who produce some lovely, delicate honey despite the sometimes-rugged conditions. Strong winds buffer the islands but they have some very fertile bush and farmland.

I gave a talk to try and inspire them to grow their cottage industry and how to add value to their honey crop. We then had a tasting of all their honeys, which was a revelation to the assembled group as to how different they were!

There are currently only a couple of NBA members on the islands, so I endeavoured to encourage them to join, visit for conferences or field days and update their skills.

All in all, it was a fantastic adventure.

'Queen Bee' of the Chathams honey industry Lois Croon (left) with Maureen Maxwell. Lois has a fabulous garden at Admiral Farm, featured in the March issue of NZ House & Garden *under the title 'Unforgettable Blues'. Photo provided by Maureen Maxwell.*

BURNING QUESTIONS

Removing 'frosting' from honey

Once honey is poured into plastic transparent containers, white streaks appear against the plastic sides as the colder weather comes. Is there any way of avoiding this, as it has an impact on presentation?

The crystals, or 'frosting' as it is called, is caused during granulation. As the honey granulates, it shrinks slightly in the container, leaving a small gap in which the frosting (glucose oxide) can form. This is especially prevalent in honeys that are high in glucose, such as pohutukawa and rata.

When granulating honey, commercial beekeepers add a fine-grain starter honey to a tank of honey and keep the honey slowly moving with a stirrer (without introducing air bubbles), while keeping the temperature between 15 and 13°C to induce granulation (crystallisation). Once a bloom has formed in the honey, it is packed and then stored in a cool room where the temperature is kept at a constant 13°C for a week. By keeping the temperature stable while the honey is granulating, frosting on the surface of the container does not develop.

Another way to achieve a fine grain is to connect a pump to the honey tank (100–200 kg) and turn it on after putting in the starter (6 kg of last year's fine grain honey). It will only take an hour or so to set up granulation once the honey is cool.

How to select a starter honey

Purchase a small pot of South Island clover honey. Test it: it should dissolve on the tongue without any crystals being detected—smooth as.

However, it is often difficult for the small beekeeper to achieve a constant temperature unless you have a cool basement. When frosting appears, heat the outside of the pot with a hairdryer or a hot air gun or pop it in a microwave only long enough to melt the frosting but not to heat the honey. The honey is usually eaten before the frosting reappears.

Auckland open farm day a success

By Maureen Maxwell, Executive Council member, Northern Ward

The National Beekeepers' Association and Federated Farmers are working together to educate the public about the importance of honey bees in our ecosystem.

On Sunday 28 March, several hundred visitors descended upon Duder's dairy farm at Clevedon for a hot and sunny open farm day. I attended along with NBA Joint CEO Gemma Collier.

The Auckland Team in action: Mike Bunter at the observation hive and Maureen with a display of products from the hive, fun handouts for the children with information about the importance of bees in our ecosystem and how best to help them, bee club information and plenty of "Trees for Bees" flyers.

Maureen with Mike at the observation hive.

I joined forces with resident beekeeper Mike Bunter to explain the value of bee pollination and promote how New Zealanders can help support our beekeepers by buying, eating and enjoying honey and hive products, and planting 'trees for bees' at our homes, on our farms and in our public spaces.

'Swarms' of visitors came to the bee display. The groups were queued up waiting for our talks and tastings; some people returning a second time for more information.

We received very positive feedback from the Auckland Branch of Federated Farmers for our presentations on the day.

Passing around the honey pot ... always a popular way to conclude a bee talk! Photos: Bob Russell.

New deadlines for advertising and articles

Advertisers and contributors to *The New Zealand BeeKeeper* are advised there have been changes to the advertising and material deadlines. These changes will allow us to ensure that the journal hits beekeepers' hands at the same date each month. If you have any questions, please email ceo@nba.org.nz

Advertising deadlines

Advertising is now due on the 6th of the month prior to publication. Material received after the 15th of the month and prior to publication may not be published. In order to be fair to all advertisers who occasionally offer deals for a limited time period in their ads, there will be no exception to these rules from the July 2010 issue on.

Article deadlines

Articles are now due on the 6th of the month prior to publication. Material received after the 15th of the month and prior to publication may not be published. These changes will take effect from the July 2010 issue onwards.

Timing varroa treatments for winter survival

By Tjeerd Blacquiere, Bram Cornelissen, Lonne Gerritsen, Jozef van der Stehen
Plant Research International, Wageningen University & Research, PO Box 69 6700, AB Wageningen, The Netherlands, Email: tjeerd.blacquiere@wur.nl

Infestation by varroa mites of a cell with a pupa causes the developing bee to have a shorter life expectancy, which may be especially crucial in case of winter bees.

In two consecutive experiments the effect of the timing of varroa control treatments (July, August, September or December) on the life span of individual bees and the survival of colonies during winter was examined.

Results:

- most winter bees hatched in September and October
- life span in late treated colonies was less than in early treated
- early treated colonies showed less infestation before and during hatching of winter bees
- late treated colonies had prolonged brood rearing in autumn
- many of the late treated colonies died during winter, no losses were recorded when colonies were early treated
- differences between season 2005–06 and 2006–07 reflected different climatic conditions.

[Editor's note: the seasons listed refer to northern hemisphere months. The full title of this abstract is 'Winter survival of honeybee colonies depends on the timing of varroa control'. Over the course of this year we will reprint some abstracts of the approximately 500 papers and other presentations to the 41st Apimondia Congress in Montpellier, France, 15–20 September 2009.]

FROM THE COLONIES

Bay of Plenty Branch

On 31 March the branch held its first meeting for the year. 53 beekeepers attended, with guest speakers from Zespri and DMS (Direct Management Services) packhouse. The main topic of conversation was pollination of kiwifruit and the role beekeepers and their hives play. Shane Max (Zespri) and Linda Peacock (DMS) outlined how they regarded auditing of hives and the outcomes of this season's auditing, followed by a very interesting discussion regarding the future.

Closer to the spring and the next round of kiwifruit pollination there will be another meeting; in the meantime, there will be ongoing discussion with the working group already set up to discuss the whys and wherefores of auditing. As a branch we will be further discussing any points we would like to forward to this working group at our April meeting. Open discussion is the key to everyone finding the correct solution for them on this topic.

Meanwhile, back at the hive, it still hasn't rained so both the pastoral farmers and the beekeepers are having a difficult time. We are feeding to ensure the bees have stores going into winter as there is little available from the environment.

We have received no reports of resistance to chemicals for mite treatment; however, vigilance is as always required.

With the hives all home on their winter/spring sites, it is time to get the chores done before winter sets in and to take a break.

- Barbara Pimm, Branch Secretary

Waikato Branch

Recently I turned my computer on to check emails and read the latest news on the Fairfax media website, Stuff. One of the leading stories began with "Bee visitors put mother through hell" (http://www.stuff.co.nz/taranaki-daily-news/news/3592702/Bee-visitors-put-mother-through-hell). The story is about the placement of 40 hives on a neighbouring property and how it was affecting the adjacent landowners' family by invading their house, and that the New Plymouth District Council is threatening prosecution with a maximum fine of $20,000. The beekeeper concerned, from outside Taranaki, had swamped the area with hives to chase manuka.

When will the 'silly beekeepers' wise up and realise the damage they are causing the industry? Most beekeepers will make every effort to ensure the local community is happy and supportive of their hives, because without this support it is very hard to maintain a successful business. When talking with other beekeepers, it seems to me that they are disappointed by the poor conduct of some of their fellow apiarists, but the proposed beekeeping code of conduct never seems to progress. Does this mean we are all hypocrites? Do we want something but don't want it?

There's plenty of beekeeping activity at the moment: taking the honey off, putting strips in and, for several beekeepers, collecting bees for packages overseas (resulting in accumulating stacks of full honey supers in sheds).

The branch has yet to confirm a date for the next branch meeting but remits for the upcoming conference are being sought.

- Stephen Black

Hawke's Bay Branch

Parts of Hawke's Bay are heading for the fourth autumn drought in a row but at least there is lots of grass from the overabundance of rain during the summer. Generally speaking, coastal hives are wintering down very well, while those towards the mountains required quite a bit of feeding.
Wasps are starting to show up again but don't appear to be too bad this year. For some reason bees tend to build wax between the ends of the plastic frames and the box. Where this is not cleaned off regularly it has been causing problems for people doing hive inspections. In a movable frame hive it helps if the frames are movable. If anyone has an answer to this problem (other than lots of scraping), I'm sure that people doing hive inspections throughout the country would love to hear about it.

- John Berry, Branch President

Southern North Island Branch

On Saturday 10 April, over 100 beekeepers, friends and family attended the SNI autumn field day. The venue was the Wairarapa Manuka Ltd honey factory just out of Carterton, hosted by Peter Ferris. It was an absolutely lovely autumn day, but what was especially pleasing was the number of beekeeping suppliers who travelled considerable distances to be there.

The Sinkinson family enjoying the sun at lunchtime.

The morning consisted of short presentations. John Cahill from the NZ Food Safety Authority (NZFSA) told us of his auditing of the Tutin Regulations and how beekeepers were adapting to them. This year NZFSA had gathered samples and were having them tested. John recommended that each stirrer tank should have a minimum of two paddles in the tank, and found that it wasn't possible for commercial beekeepers to inspect each apiary district each week. Most were getting honey tested to meet the regulations. *(We need changes in the regulation for the Southern North Island area, as I have only seen three adult hoppers on one small tutu bush this year, while blackberry bushes were covered in hoppers in the Otaki area. All other areas were free of the hopper, including the lower Wairarapa).*

Glenbrook Machinery Co talking about the new Avant machine.

AFB NPMS Manager Rex Baynes said we should make him redundant. AFB is a beekeeper problem and we should fix it. Rex has looked at statistics and found that hive numbers had risen considerably, possibly as a result of helicopter surveillance.

Steve Lyttle, a member of the Manuka Steering Group, gave us a background as to what was happening. The group is only seeking a change to the regulations to have honey added to the Horticultural Export Regulations as a backstop.

Peter Ferris (host) and Gary Milne of Southern Sun Apiaries Ltd., who supplied the queens for marking.

Peter Lyttle, Stuart Ecroyd and Reuben Stanley told us of their products and stressed the need for varying the types of varroa treatments to prevent resistance.

After lunch Frank Lindsay gave a demonstration with his new Ezyloader, and Glenbrook Machinery Co gave a lifting demonstration with their new Avant machine. We then looked at the wintering down of hives, followed by our district competition between bee clubs. Groups had to construct an electric fence, answer bee-related questions and mark queen bees. This last activity caused the most hilarity, watching beekeepers trying to catch and mark queens inside against a window and return them into cages. All of these activities were designed to add to beekeepers' knowledge. The Palmerston North group took the Merv Farrington Shield, with the Wanganui group placing second.

Anne Hulme (Wanganui Beekeepers' club) handing over the Merv Farrington Shield to James Gellen (Manawatu Beekeepers' Club). Photos: Frank Lindsay.

Afterwards small groups were taken through Wairarapa Manuka Ltd's honey factory. Some commented that this factory has set a new standard for honey houses.

- Frank Lindsay, NBA Life Member

Nelson Branch

Conference update

Come to sunny Nelson and enjoy some 'Top of the South' hospitality. Conference 2010 isn't so far away now. Why not build in your winter break either side of conference? There is something for everyone in this part of the country!

If it is arts and crafts that you like, there is plenty here for you. You will find potteries, glass art, jewellers and painters. The Nelson Market (Saturday mornings) is also well worth exploring. Nelson is the home of the World of Wearable Art and Classic Cars Museum.

Want something more physical? You can do pretty much any outdoor sport here. We have a diverse playground. You can access three national parks within 90 minutes drive of Nelson and find places to ski, tramp, kayak and mountain bike. Take a boat ride into the Abel Tasman. Have a picnic or do a short walk, then get picked up again.

Maybe you just want to eat and drink! We have that too. You can find a great selection of places for fine wining and dining.

If you fancy going further afield, it is not so far to Golden Bay or to Marlborough. Taking a trip 'over the hill' will get you into Golden Bay. You can do the arts and crafts trail here too, plus visit some great natural wonders. Farewell Spit is New Zealand's longest sand spit and is an important bird sanctuary. Waikoropupu Springs are the Southern Hemisphere's largest freshwater springs. Marlborough is home to many fine vineyards. Maybe you could take a ride on the mail boat and visit remote parts of the Marlborough Sounds.
Register for conference now if you haven't already. We would love to see you!

Important change: The Rutherford Hotel has dropped their room rates. The price is now $135 per night, or $145 including breakfast.

- Kerry Gentleman,
Conference Organising Committee

IN THE NEWS

April cover grabs attention

Thanks to the NBA's quirky take on American Foulbrood in last month's issue of *The New Zealand BeeKeeper,* the NBA (and the cover of this journal) featured in several media publications during April.

For those who missed the issue, the journal urged beekeepers to make AFB National Pest Management Strategy manager, Rex Baynes redundant by eliminating AFB from New Zealand.

The High Country Herald, Northland Age, Te Awamutu Courier, BtBonline, and *Farmchat* all ran articles on Rex. And many of the publications also included a picture of the front cover of the *BeeKeeper.*

The *Rural News'* Hound also commented on the "novel approach" of the NBA in "getting this important message out to the public."

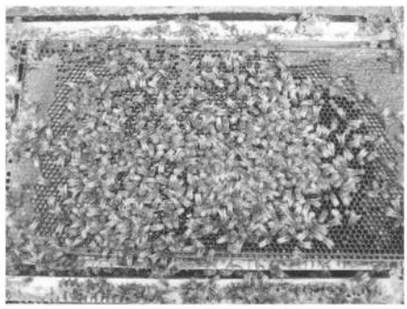
Wintering well

By Frank Lindsay, NBA Life Member

Hives in most places are now settling into winter mode.

The drones are being thrown out and the bees are moving honey that hadn't been capped from the outside frames into the brood nest where the winter cluster will form. The bees will also be out collecting nectar and pollen from the last of the flowering trees and plants to top things up. If the opportunity offers they will also rob any hive that is down in bee numbers, or where the bees fail to protect their honey reserves.

Actually the differences in hives from apiary to apiary are quite surprising. Some are as I've described above, where the last of the brood is just emerging; while in apiary sites close to towns, queens are still laying and some hives still have three frames of sealed brood. I even came across one hive with a supersedure cell. I made a split with it as I don't think it will mate successfully this late in the season, and the main hive could end up queenless or with a drone layer.



Bees packing nectar into the middle of the frame; last of the brood on the right.

Feeding and feeders

New autumn queens tend to keep laying longer into the autumn; therefore the bees could be using the super of honey you left on the hive in February as winter stores to produce bees. Hives should be heavy going into winter. Standing beside a two-storey hive, it should be difficult to lift the back of the hive off the stand using the top super's handhold (this is called 'hefting'). If the bees have used a good proportion of their winter honey, it will have to be replaced by either feeding thick sugar syrup, (two parts of sugar to one of water), or you will need to replace the empty frames with reserve honey frames. It's OK to put frames of honey back into your hives when you only have a few hives as long as you know the disease history of your hives. Those with more than one apiary should stick to feeding sugar as it's safer.

For the small-scale beekeeper, fill a container 7/8ths full with white sugar and top up with boiling water, stirring until the sugar is dissolved. You could add a pinch of tartaric acid to stop the sugar from fermenting but generally this is not necessary.

> "It only takes one feral hive to collapse to cause re-invasion of a whole apiary close by."

Commercial beekeepers buy in bulk syrup or bags of sugar and dissolve it in cold water. I have seen old agitator washing machines used to good effect but most use a tank and recirculate the water with a pump. Water is taken off the top and recirculated back in through the bottom outlet for an hour or so.

You can make a feeder from just about any container: anything from an old Agee jar with a dozen small brad holes in the lid, to large 20-litre plastic pails inverted over the top super to provide a means of feeding the bees. At the last meeting of the Wellington Beekeepers' Club a member showed a video he took in Denmark, where the beekeeper removed most of the frames at the end of the season and replaced them with foundation frames. He then put on a 30-litre pail of syrup (purchased as a bee food from Germany) but instead of inverting the container, he covered the syrup surface with small commercially produced pieces of pumice. The bees quickly took down the syrup and drew out the foundation and stored the rest as winter food.

Commercial beekeepers mostly use five-litre frame feeders to top up the bees' reserves but some use trough feeders on top of the hives, filled with pig fern to stop the bees drowning in the syrup.

During this last feeding round, commercial beekeepers also will be assessing varroa numbers in a number of hives and determining whether to put in another treatment, especially South Island beekeepers in areas where the mite is still advancing rapidly south. Beekeepers in areas where there has been massive spring swarming will also have to consider mite re-invasion possibilities when the now-feral hives break down due to varroa. In areas just being invaded by mites it can take as long as three years for a lone feral hive to collapse (varroa are introduced by drones coming into the hive following swarming). It only takes one feral hive to collapse to cause re-invasion of a whole apiary close by.

Parasitic mite syndrome

I have been quite late putting in my varroa treatments and found that two or three hives in an apiary had developed parasitic mite syndrome (PMS). PMS symptoms include bees emerging without wings and deformed bodies, patchy brood with a lot of sacbrood, etc. Generally a hive with PMS will take a couple of months to recover but if PMS develops late in the autumn, the bees will not have time to recover and will most probably die early in the winter. However by swapping its location with a strong hive and by adding a frame or two of emerging brood and bees, the hive will recover quickly and will make it through the winter. *Always, before swapping brood, check that both hives are free of AFB.* This means that you have to uncap quite a lot of brood in the PMS hive just to confirm it is free of AFB.

Actually it's also been surprising to find a number of hives that have hardly any varroa in them, judging from the fall of mites below the mesh bottom boards. Other beekeepers have reported the same thing in our district.

Late requeening

I've also seen occasional requeening failures this autumn. One queen, instead of going into the bottom super, set up her brood nest below the mesh bottom board. Other bees quickly robbed out the honey and she and her little hive died. The odd one turned out to a be drone layer. Then there are the surprises: a few that I thought were queenless on my first inspection have now good laying queens in them.

Any small hive with an old queen at this time of the year should have the old queen removed and the hive united with another using two sheets of newsprint. It is better to overwinter strong hives and make splits in the spring to get numbers back up again.

Hive set for winter, roped for Wellington winds, additional entrance optional (rotten corner). Photos: Frank Lindsay.

Things to do this month

Winter down hives, sell your honey crop. Grade and sort combs into brood, extracting, damaged or dark frames (some beekeepers do this during extraction). Check stored supers for wax moth. (I like to leave mine on the hives until the first frost then store them away.) Check for wasps: they are late this year and are now just becoming a nuisance. Finish the maintenance in the apiaries and keep the grass around the hives short.

NBA MEMBER PROFILE

Insect inmates serve sentence

"Beekeeping is a holiday," says Feilding beekeeper Gary Sinkinson, "compared to raising three daughters."

After purchasing the Ohura Prison's beekeeping business in 2004, beekeeping became a full-time 'hobby', and the father of three has now been producing manuka honey for six years in the Dannevirke area.

"I purchased 450 hives from the prison when it closed down and added that to 100 of my own."

The King Country prison used to teach NZQA-recognised courses in beekeeping for inmates.

The hives are now serving out the rest of their sentence on the Sinkinson's 415-acre farm—minus the black and white stripes.

To Gary the most enjoyable aspect of his job is the hours.

"The sense of belonging you get from being a member of the NBA is the real benefit..."

"Flexible hours are definitely what attracted me to honey producing. I keep my hive numbers manageable, and hire casual labour to remove the honey during peak season, but other than that I'm a one-man-band," Gary says.

Alongside his bee (warden) duties and active branch membership, Gary has a strong interest in hunting.

Gary with a stag destined for the freezer.

"Pig and deer hunting, duck shooting—you name it! I generally shoot one or two stags a year—enough to keep the freezer full of meat anyway.

"Feeding our large magnitude of pets also keeps me fit. With three daughters, and a 10-acre actively farmed block, we nearly have a pet of every kind."

For Gary, being a member of the NBA not only means association with others but also staying informed of industry issues.

"The sense of belonging you get from being a member of the NBA is the real benefit—plus I love keeping up-to-date with industry issues and information from our monthly beekeeping bible."

Gary says he's happy to be a part of the beekeeping industry and enjoys getting to know others involved.

"To me beekeeping is about being part of it all—getting to know others and keeping in touch and up-to-date with everyone bee-minded and everything bee-like."