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The New Zealand BeeKeeper

Hives in the central North Island

Photos by Frank Lindsay.

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Deadline for articles and advertising

March issue: 10 February

April issue: 10 March

(NB: April issue goes to all registered beekeepers in NZ)

All articles/letters/photos to be with the Editor via fax, email or post:

Nancy Fithian
email: editor@nba.org.nz
(See page 2 for full details)

President's report

Welcome to the new year. As you may have noticed I have not contributed my monthly report to the last two journals. The 'spring from hell' meant that I have had to focus on keeping my bees in good order. When I became President I was advised not to let the presidential role become detrimental to my work, and this was one of those occasions where I had to put my work first.

NBA enters new era with MAF

Since the decision by the Government to create an Import Health Standard for the importation of honey from Australia, the NBA has been fighting strongly to prevent this happening on the basis of the unacceptable risk to the beekeeping and pollination industries. As a consequence our relationship with MAF has been somewhat strained.

On 17 October, Vice President Barry Foster and I had a meeting with Peter Thomson (Director, Post-Border for Biosecurity New Zealand, and who also has the task of industry liaison with a number of primary industry groups, including the beekeeping sector. We had a frank and cordial discussion about a wide range of matters involving our industry. It became clear that the senior MAF officials had limited knowledge of our industry and they felt the need to be more in touch with us. To this effect they have appointed an account manager (Katie Owen) to interface with the beekeeping industry. Joint CEO, Gemma Collier, has met with Katie, and while I have not yet had the opportunity, I am cautiously optimistic that we are about to enter a new era in the NBA's relationship with MAF.

During our meeting with Peter, one of the discussion points was the usual subject of honey imports. We questioned MAF's approach and also discussed the consequences of any failure in biosecurity to the industry.

It became clear that government is taking a segmented approach to the likely consequences of honey importation into this country. For example MAF's responsibility is to ensure "safe" (in the sense of biosecurity) trade of goods: other departments are responsible for reviewing the effect on production and trading of the local product as a consequence of MAF's decision.

Another issue we brought to the attention of Peter is the integrity of the certification of honey leaving Australia. We cited examples of the resulting problems with Canadian and US regulatory authorities.

Peter Thomson was receptive to our comments and we take this as a sign that MAF is as committed as the NBA is to ensuring we establish a better working relationship between the two organisations.

Honey imports (again)

Those of you who were at the 2007 Dunedin Conference should remember a talk given by the University of Otago about using geo-tracing to determine the geographic origin of an organic object. They have now created a company called Oritain to market this service.

In early December I attended the Southern Beekeepers' Discussion Group meeting. At that meeting Oritain staff gave a presentation, and also discussed the overseas practice of laundering of honey by using various intermediary countries to hide the actual country of origin, to ensure that product could enter the United States and other higher paying markets. Australia is noted as being one of those countries of concern to the US authorities.

Just after that meeting I was in Australia on a training course. When discussing the honey import issue with the beekeepers and other officials, consistent themes were: (a) criticism of the New Zealand government allowing imports of honey into New Zealand; and (b) the honey would not comply with the IHS as it would be blended with non-Australian honey. It seems clear that on the trade side of the honey import argument, it is highly likely that if we fail to prevent honey imports into this country then we could be used as a laundering facility. This would present quite a challenge to both MAF (which has to ensure that the IHS for Australian honey is complied with) and NZFSA to ensure that any honey leaving New Zealand is exactly what is declared by the exporter. I wonder what protocols and processes they have developed to ensure these standards are met.

Getting back to the process of certifying the origin of honey. The Oritain presenters gave one example where they obtained a container of honey in the United States that claimed to be active manuka honey from New Zealand. The brand label was a bit unorthodox, as well as having no address or other contact details. This raised a red flag. They compared this honey against known samples of New Zealand honey. Oritain was able to determine that it was indeed from New Zealand and came from the East Coast of the North Island, which was a great relief. Still, the inappropriate labelling of the product was of concern. The use of geo-tracing is becoming more commonplace in the food industry, and at least two South Island beekeeping enterprises are using it to give their markets confidence in the integrity of their product.

Our overseas markets currently have confidence that any honey that is exported from New Zealand actually is produced in this country. If the government still wants to import honey from Australia, then there is a likelihood that market perceptions may change. The industry will be lumbered with another layer of testing and bureaucracy to prove that we are true to label if it is declared as solely of New Zealand origin, rather than a blend with Australian honey.

- Frans Laas

[Editor's note: for more information on Oritain, see page 25 of this issue, and go to their website http://www.oritain.com]

Comment from the Treasurer

Money, money, money.

Without it this organisation would not exist.

Many of you will have paid your 2010 subscription, and many of you will be about to. Some of you will be hesitating: a poor year, thoughts of "What do I get for my money?" or even, heaven forbid, "I will let someone else pay for the organisation and I will get a free ride".

I encourage all beekeepers to be members of the NBA and to pay your subscription at the correct rate. Without the efforts of the NBA in communicating with government and in initiating and funding research, many of us would no longer be in the business of beekeeping. Your subscription is a business investment and as such, increases the ability of us all as participants in this industry to increase our business profits.

For the hobbyist/enthusiast beekeepers, your membership allows you to access information and have your interests represented to government.

Again, I encourage you all to pay the correct amount of subscription appropriate to your hive number category.

If you do it, I do it and your neighbouring beekeeper does it, the NBA will go forward, and so will your beekeeping and so will your business.

- Glenn Kelly, Treasurer

Whangarei Bee Club extraction plant opens

Congratulations to the Whangarei Bee Club on the opening of their new RMP-registered extraction facility on 5 December 2009.

Left to right: Whangarei Bee Club secretary Melissa Wallace, president Kevin Wallace and NBA Executive Council Northern Ward representative Maureen Maxwell.

Photo supplied by Maureen Maxwell.

2010 Member Subscriptions Due

As you will be aware, now is the time to send in your subscription form for 2010 NBA membership. If you require a membership form, please visit www.nba.org.nz, hold your mouse over the 'About Us' section and click 'How to Join' for a copy of the subscription form and member benefit information. Alternatively, you can email secretary@nba.org.nz. Subscriptions allow the NBA to work for the benefit of all our members.

Be Cautious!

With the large number of pollination hive movements over summer, resistant mites could show up anywhere.
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First reports of varroa resistance in New Zealand

Dr Mark Goodwin, Dr Oksana Borowik and Heather McBrydie
The New Zealand Institute for Plant & Food Research Limited

Adult mite on larva.

Recent reports of varroa mites resistant to synthetic treatments in New Zealand are of concern. As yet we do not have a clear picture of whether resistance is truly present, the chemicals to which varroa have developed resistance and how far the resistant varroa have spread. Because of this, we have to be very cautious about what advice we can give to beekeepers on how to deal with this problem.

This article outlines the importance of the proper use of miticide treatments in varroa control and methods to determine whether resistance has developed in your hives.

Overseas, varroa mites have developed resistance to all the synthetic chemicals used to kill varroa in New Zealand. We expect eventually that the same will occur here. To avoid major losses it is important to slow the development of miticide resistance in New Zealand and detect it quickly when it occurs.

Slowing resistance

Varroa resistance is where varroa becomes more and more able to withstand the toxicity of the miticide being used. This means that the miticide no longer kills varroa mites effectively. Resistance occurs when a genetic mutation or mutations occurs in the varroa mite, changing it from being susceptible to resistant to a miticide or class of miticides. If the varroa population is repeatedly treated with the same miticide or class of miticides, susceptible mites die, leaving a population largely made up of resistant mites.

Applying Bayvarol® strips.

This process is discussed in more detail in the *Control of Varroa* manual (page 53 in the original edition; page 3 in the revised edition).

Slowing resistance can be accomplished by the proper use of miticides:

- **only use products approved for varroa control in New Zealand**
- **follow the instructions on the label fully**
- **use the recommended concentration of miticide** so that varroa mites are not exposed to low concentrations. Low concentrations can build up resistance while not achieving control.
- **remove the miticide when recommended** so varroa mites are not exposed to low concentrations of the chemical. A useful tip to avoid long-term exposure is to mark the hive with the date of application and the number of strips. This way it is obvious when all the strips need to be removed.
- **do not re-use strips**
- **do not rely on just one miticide.** Alternate miticides that are from different chemical classes to reduce the chance of resistance, e.g., use Apivar® in the autumn and Apistan®/Bayvarol® in the spring, rather than alternating between Apistan® and Bayvarol® (which are from the same chemical class
- **encourage other beekeepers to use techniques that will delay resistance.** Resistant varroa mites from other beekeepers will eventually find their way into your hives.

What else can be done to control varroa this autumn?

Without a clear picture of the chemicals to which varroa are resistant and where the resistant varroa are, we need to be cautious over what advice we can give. The best advice we can give is the following:

1. don't assume your spring treatment worked. Varroa levels in your hives may be higher than you expect. You should check varroa levels as early in the autumn as possible.

2. don't assume that any treatment you are going to use will work.
3. treat as early as possible this autumn, so that if the treatment doesn't work you will have time to re-treat the colonies with something else before they are damaged or killed by varroa.

   This is the same advice we have always given to beekeepers using organic chemicals, which give variable and sometimes low levels of varroa control.

   Those are relatively simple things to do. However, the next recommendations for dealing with potentially resistant varroa make control much more difficult than when varroa first appeared in New Zealand 10 years ago. For many beekeepers with their current business structures, the following advice will both be unpalatable and in many cases very difficult to carry out. However, this does not lessen the importance for carrying it out.

4. to avoid colony losses, after treating colonies you will need to check whether the treatment has worked by measuring varroa levels in all hives.
5. do NOT assume that because varroa has been controlled in one hive in an apiary, that it has been controlled in all hives. Likewise, don't assume if varroa has been controlled in one apiary, that it has been controlled in all apiaries.

Identifying varroa resistance

Suspect resistance if you still see varroa mites or symptoms of parasitic mite syndrome in a hive immediately after the hive has been treated with Apistan®, Bayvarol® or Apivar® for the recommended time.

To determine the number of varroa mites still in the hive, carry out a sugar shake.

Sugar shake

Sugar shake using icing sugar.

Continued on page 8

Continued from page 7
Steps:

1. collect about 300 bees in a 500-ml jar (about one-third full) and add about 1 dessertspoon of icing sugar to the bees by rubbing it through a mesh lid (2-mm holes).
2. gently roll the jar of bees for about 10 seconds, ensuring each bee is coated with icing sugar.
3. turn the jar upside down and vigorously shake the jar above a white tray. The varroa mites and sugar should pass through the mesh, but the bees will remain in the jar.

If there are more than five varroa mites, or if you can't carry out a sugar shake but still suspect resistance, contact the person who sold you the strips. However, it may take some time for an investigation to happen.

Resistance testing

You can do this yourself in a couple of days by using a sticky board test or a jar test.

Sticky board test

The sticky board test is done by placing a sticky board in the hive and a new set of strips to which you think the varroa mites are resistant. After 24 hours, remove the board and strips and replace them with a new board and a different brand of strips for another 24 hours. If there are twice as many varroa mites using the different product, then you may have resistance to the first product.

Mesh on board.

Jar test

The jar test is carried out with the same jar and mesh lid as used for the sugar shake.

Steps:

1. staple a small piece of a new strip 9 mm x 12.5 mm of the same brand to which you think the varroa might be resistant, to the top centre of a 150 mm x 100 mm index card or similar
2. place about 300 bees in the jar (about one-third full) and a sugar cube to keep them alive
3. place the cardboard and piece of strip in the jar so the cardboard curls around the inner wall of the jar, with the piece of the strip facing into the centre of the jar
4. place the wire mesh lid over the jar to stop the bees from escaping. The holes in the mesh should be large enough to let varroa mites through easily
5. place the jar in a warm room in the dark for 24 hours. After 24 hours, invert the jar above a piece of white paper and hit the bottom of the jar with the palm of your hand until no more varroa mites fall out
6. count the number of varroa mites. This is the 'initial kill' figure
7. place the jar of bees in the freezer to kill them
8. remove the cardboard and fill the jar halfway with methylated spirits. Be careful not to inhale the fumes
9. remove the mesh lid and replace with the original solid lid for the jar, then shake the jar vigorously for five minutes.
10. replace the solid lid with the mesh lid to keep the bees in the jar
11. pour the methylated spirits though a funnel lined with a paper towel. Refill the jar with methylated spirits
12. swirl the bees around and tip the spirits into the paper towel again
13. remove the paper towel and count the number of varroa mites. If there are fewer than 50 varroa mites, you will need to repeat the test until there are more than 50 varroa mites recorded.

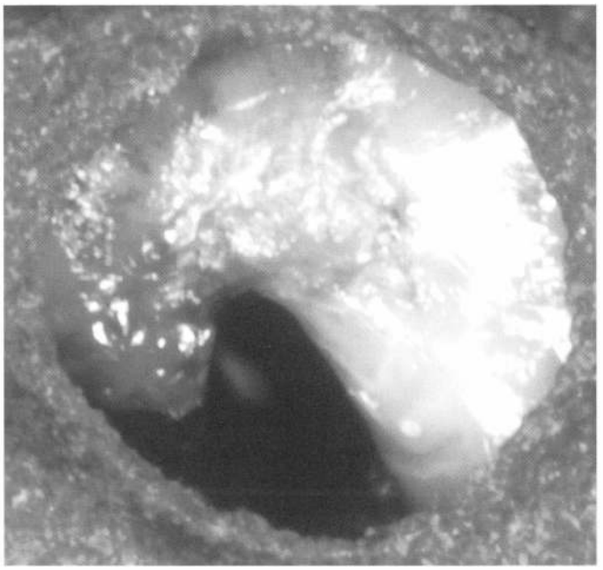
Alcohol wash.

To calculate the percentage of varroa mites killed, divide the number of varroa mites that fell on the white paper before the bees were placed in the freezer by the total number of varroa mites recovered (both on the white paper and on the paper towel). Multiply this number by 100 to get the % of varroa mites killed by the strip.

$$\% = \frac{\text{initial kill}}{\text{(initial + final kill)}} \times 100$$

If fewer than 50% of the varroa mites were killed by the varroa control product, the varroa mites may be resistant and should be tested with a more sensitive laboratory test. Contact the person who sold you the strips.

If your colony has parasitic mite syndrome-like symptoms and you do not find any varroa mites when you test the hives, it might be European Foulbrood (EFB). EFB has similar symptoms to Parasitic Mite Syndrome and is not thought to be in New Zealand. In this case, you should contact the MAF Exotic Disease Hotline (phone 0800 809 966).



Parasitic mite syndrome.

In conclusion, it is important to follow the guidelines for more effective control to slow the development of resistance. As resistance develops, varroa will become harder and more expensive to control. If this is not recognised by beekeepers, it will result in hive losses. It is, however, possible to minimise the loss of colonies by recognising resistance when it is present and being careful to ensure the resistance problem does not become worse.

The research for this article was funded by MAF Biosecurity New Zealand, Ecroyd Beekeeping Supplies Ltd., the New Zealand National Beekeepers' Association, and Bayer New Zealand Ltd. Photos provided by the New Zealand Institute for Plant and Food Research Ltd.

Kaitaia Beekeeping Training School

Telford Rural Polytechnic, in conjunction with Northtec and the Te Rarawa iwi, has established a beekeeping training school based in Kaitaia. The new beekeeping school is called Te Kura Kohi Miere or The School of Honey Gatherers.

Beekeeping training will begin in early 2010 with the official opening at the Te Kura Kohi Miere facility at 10 am on Friday, 26 February, (23 Mathews Avenue, Tokatumoana, Kaitaia). During the first month, students will undertake the Certificate in Applied Work Practice (Level 3) run by Northtec. This will be followed by the full-time programme run by Telford Rural Polytechnic starting on 1 March, which includes the Telford Certificate in Apiculture (Level 3) and the Telford Certificate in Queen Bee Rearing (Level 4) and finishes on 3 December.

The second course is part-time for those currently working in the beekeeping industry with at least one year's full-time experience in beekeeping. This course started on 25 January with one-week block courses, once per month, throughout the year. This course will also include study by correspondence. The course aims to provide training towards completion of the National Certificate in Apiculture Level 2 and Level 3 and the Telford Certificate in Queen Bee Rearing (Level 4). Positions are still available on this course.

For further enquiries contact David Woodward at Telford Rural Polytechnic on (03) 419 0300, or Bronwyn Hunt at Te Rununga o Te Rarawa on (09) 408 1971.

Selecting for varroa resistance

A number of years ago, I had a breeder queen and her daughters all seem to mate up to a week earlier than queens from other breeders.

Being curious, I decided to time the emerging time of the workers and found that they emerged up to two days earlier than the 21 days that we are told it takes for worker brood. With this in mind and knowing that the Asian bee has a shorter brood cycle and seems to cope with the varroa mites, I am taking note of the time it takes for new queens to start laying. One breeder seems to consistently produce early mating queens, so I now have to start recording the emerging time for workers again.

The original early mating breeder went over a bank and was killed. I foolishly let another person move my breeders to another location and he ran off the road, killing several breeders in the process. I have learnt from this: never trust anyone else to even look at your breeders, as if any bee gets killed, it could be the breeder.

Hopefully we can concentrate this early emerging trend to work in our favour to reduce varroa infestation, especially as now it appears we have resistant mites in New Zealand.

If you are interested in the idea, perhaps you can also record the emerging time for your own worker brood to see what can be achieved in this direction.

- Gary Jeffery, Westport

NIWA's seasonal climate outlook: February–April 2010

A cool end to summer, and continuing drier than normal in the north

The current El Niño continues at moderate strength in the equatorial Pacific, but is likely to weaken during the autumn. The NIWA National Climate Centre says that means temperatures are likely to continue to be on the cool side, and drier than normal conditions are also likely to continue in the north of the North Island.

The centre's latest outlook states that on average over the three months February-April, mean sea level pressures are likely to be higher than normal to the north of the country, associated with slightly stronger than normal westerlies over New Zealand.

Current drier than normal soil conditions are likely to continue in the north of the North Island, and are likely to prevail in the east of the North Island, where below normal stream flows and soil moisture levels are likely through to April.

The centre says February to April rainfall totals are likely to be in the normal or below normal range in the north and east of the North Island and in Marlborough, normal or above normal in the western South Island, and in the normal range in other regions.

Temperatures are likely to be near average or below average in all regions, over the three months of February to April as a whole. There will still be variability, with some warm spells at times, especially in eastern regions in north-westerly wind conditions.

River flows and soil moistures are likely to be near normal or below normal in the North Island, near normal in the north and east of the South Island, and normal or above normal in the western South Island.

Overall picture

Temperature:

Air temperatures are likely to be average or below average everywhere. Sea surface temperatures are expected to remain below average around and east of the South Island, and near average to the north of New Zealand.

Rainfall, soil moisture, and stream flows:

Rainfall is likely to be normal or below normal over the north and east of the North Island and in Marlborough, normal or above normal in the west and south of the South Island, and near normal elsewhere. River flows and soil moistures are likely to be near normal or below normal in the North Island, near normal in the north and east of the South Island, and normal or above normal in the west and south of the South Island.

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From the colonies

Waikato Branch

It seems that the silly season is upon us again; I don't mean the Christmas season but the manuka season. I call it the silly season because there seems to be some silly beekeepers about who are making it hard for the rest of us.

Beekeepers along the silk trail to the Taranaki manuka grounds have for some time taken the brunt of complaints about silly beekeepers. This year seems to be one of the worst. One of our members recently had to deal with the wrath of a café owner after a beekeeper stopped in during the day with a load of hives or bee-laden supers, leaving large numbers of bees behind that took several days to dissipate.

Another member was questioned by police about the procedure for moving bees, during the course of a police investigation into a complaint that involved several people suffering stings when trucks carrying hives passed by.

Every year I am subjected to ear bashings from farmers and road workers who have to suffer at the hands of the silly beekeepers.

It is about time the silly beekeepers became good beekeepers before the councils or other government agencies start introducing by-laws on how we move bees.

Field day: 20 February 2010

The Branch is holding a field day on Saturday 20 February. The new venue is Matangi Hall, Matangi, Hamilton. The day will look at varroa resistance, viruses, and problems facing queen breeders.

- Stephen Black

Hawke's Bay Branch

The weather over the New Year period has been mixed, with some normally dry areas being quite green and some inland areas being quite dry. We had a good rain here last night but I don't know how generalised it was. The honey crops so far have been quite reasonable and if the weather ever settles down we could be in for a late flow.

It's always interesting to meet people from other places. I took an amateur Irish beekeeper called Vanessa Drew out with me the other day. I first met Vanessa a couple of years ago when she was on another visit to New Zealand. She tells me most of the members of her local bee club are over 80, which is why she has picked up some rather fun old-fashioned and quaint ideas on beekeeping. Although she only has five hives, she does her own grafting and is trying to maintain a very quiet strain of black Irish bees.

Some hobbyists can be quite daunted by the scale of commercial beekeeping but Vanessa was straight in giving a hand. Ireland had quite a poor summer last year but did get the bonus of an autumn crop of ivy honey. I'm not the only New Zealander Vanessa knows, as she met Maureen Maxwell in Ireland and was very impressed with her enthusiasm.

I hope you are all having a good honey crop and saving a pot or two of your best varietal honeys for the honey competition in Nelson this year. I know you won't beat the honey from Hawke's Bay—which is, after all, the best in the world—but coming second is also very creditable.

- John Berry, Branch President

Nelson Branch

The honey crop for the upper South Island appears to be good to slightly above average. However, localised weather conditions have resulted in some beekeepers with a very small amount of honey.

Erratic spring weather patterns with cold snowy blasts of wind contributed to substantial swarming, or was it the colonies' response to varroa and treatments?

Conference update

The Nelson Branch is well under way with preparation for the 2010 Conference to be held in Nelson from 27–30 June, and invites you to attend for a great learning and socialising experience.

- Glenn Kelly, Branch President

Dr Jim Edwards receives ONZM

Dr Jim Edwards, chairman of the Bee Products Standards Council and the former chief executive officer of the NBA, was awarded an Officer of the New Zealand Order of Merit (ONZM) in the 2010 New Year Honours List. The NBA congratulates him on his well-deserved honour for services to the veterinary profession and the community.

STOLEN

43 THREE-QUARTER DEPTH HONEY SUPERS WITH MANLY SELF-SPACERS PLUS ONE FULL-DEPTH SUPER WITH 9 FRAMES

WHERE FROM?
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THE SUPERS
All are three-quarter depth. Some are painted in honeycomb yellow; others are paraffin dipped, giving a varnished appearance.
All are branded with D297

THE FRAMES
Manly self-spacers, 8 per box. Mostly wax and wire; however, each box has 1 or 2 new wooden self-spacer frames with plastic inserts and the top bar branded with D297.

THE HONEY
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THE LIDS
Distinctive galvanised lids painted Ferros Red with a Gerra Feeder Cap system.

This amount of honey is likely to go through a commercial or semi-commercial extraction plant. Someone has or will soon extract this honey and we would appreciate it if the thieves are caught. If you have any information, please phone Allan or Barbara Pimm, 07 315 7650.

Tracheal mites—an overview

Byron Taylor
Apicultural Officer
AsureQuality Limited

Introduction

The tracheal mite (*Acarapis woodi*) derives its common name from the fact that it spends almost all of its life feeding and reproducing in the tracheal tubes of adult honey bees. The trachea are the breathing tubes or lungs of the honey bee. It was first identified in honey bees on the Isle of Wight in 1921 but it is suggested that tracheal mites may have been responsible for "Isle of Wight disease", which began devastating honey bee colonies there in 1905. This devastation continued on the Isle of Wight and in other parts of the UK and Europe through until 1919. However, as there is no irrefutable evidence that tracheal mite infestation was the cause of the devastation, there is no consensus in the wider scientific community as to the exact cause.

Over the years the damage caused by tracheal mites in Europe and the UK has become less severe due to an increase in resistant bee stock, and the mites are now considered by many to be of little importance to commercial beekeeping in Europe. In 1974 the mite was identified in Brazil and in Mexico in 1980, where it caught the attention of scientists from the United States of America. It was discovered in the USA in 1984 and resulted in large-scale colony losses in the following years. Initially the government tried to eradicate the mite but soon found that the spread was too extensive to be effectively eradicated.

There are at least two other *Acarapis* species associated with honey bees (*A. externus and A. dorsalis*) but these are distinct from the tracheal mite in that they live on the outside of the bee. The tracheal mite is the only *Acarapis* species that is of economic importance to beekeeping.

Spread

Tracheal mites are able to spread easily between bees within a colony and also between hives within the same apiary. However, while unassisted spread between apiaries is possible over time, beekeepers are the main cause of spread between apiaries.

Komeili and Ambrose studied the natural spread of tracheal mites by setting up an apiary of 12 infested and eight mite-free hives. In addition to these hives, they set up an apiary of two hives one kilometre east and another apiary two kilometres south. They found that almost all mite-free hives within the main apiary became infested between five and 30 months after introduction. However, the first signs of infestation were not seen in the colonies one and two kilometres away until 30 months after setup, highlighting the slow natural spread.

In New Zealand the amount of spread would be highly dependent on the time of year that the tracheal mite(s) infested hives, the location of infestation and the time between introduction and discovery. Significant spread would occur if the infestation began in hives that are highly mobile, such as those supplied for pollination.

The ability of the mite to spread internationally is illustrated by the fact that the mite is present in almost every beekeeping country throughout the world. The risk pathways that exist for its spread to New Zealand can be broken into two broad categories:

- swarms of infested bees hitchhiking from overseas ports
- smuggled queens.

These are the same risk pathways that exist for a number of other bee diseases although, despite the ability of tracheal mites to survive in dead bees for a few days, the bees would most likely need to be alive to introduce tracheal mites into a colony.

Life cycle and behaviour

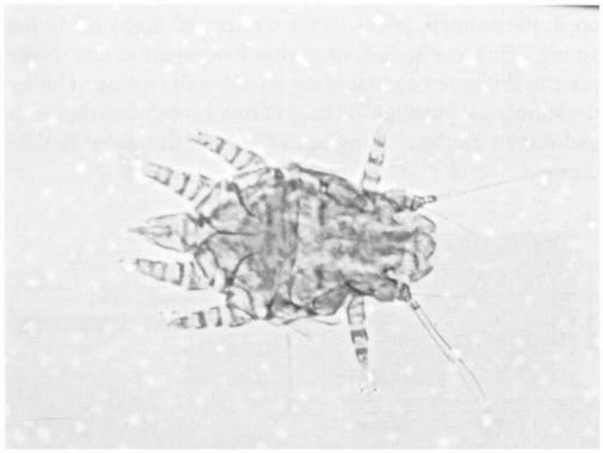

Photo: Murray Reid, AsureQuality Limited

The life cycle of the tracheal mite is not known in the same detail as those of other mite species as they spend almost their entire lives in the trachea of adult honey bees. They are therefore very difficult to study but researchers have determined the basic steps in the cycle. Adult mated female mites enter the tracheae of young adult honey bees via openings called spiracles through which the honey bee breathes. They will generally pass through the first thoracic spiracle as this leads to the large tracheae, which supplies air to the flight muscles. Within 48 hours the female begins to lay eggs and will typically lay five to 10 over a period of three to four days. The eggs will then hatch into larvae and will later progress through a nymphal stage before developing into an adult. This process takes 11–12 days for a female and 14–15 days for a male. The adult female mite mates soon after her final moulting and will then migrate to new hosts. The female will climb out through the spiracle and onto the end of the spiracle hairs, where she will wait for a suitable host. The new host will be an adult bee that is less than four days

old. However, the mechanism by which the tracheal mite determines the age of the honey bee is unclear.

Tracheal mites feed on the blood, or haemolymph, of the host honey bee by puncturing the tracheae and creating a feeding site. This causes dark scarring of the tracheae and is ultimately used as an indicator of the presence or absence of the mite in established mite infestations. Mites in the tracheae affect the bee's respiration system and cause premature death. In addition to restricting the airflow in the tracheae, and weakening the bee through feeding off the blood, the tracheal mites are also vectors for viruses and bacteria that they can spread between bees through their feeding activities. Most researchers now acknowledge that the transfer of viruses throughout a colony is a major contributor to colony mortality.

Generally only one breeding cycle is completed in each bee, although multiple cycles are possible in overwintering bees. It is thought that queens may act as a reservoir for tracheal mites. However, there is a limit to the number of breeding cycles that a bee can withstand due to the damage caused to the tracheae by the mites through feeding.

The population dynamics of the tracheal mite are cyclical like the honey bee. Unlike the latter, the population builds up in the autumn, peaks in the winter and drops off in the spring. This means that colonies will often die in late winter prior to the queen commencing laying in the spring. During the spring and summer the bees normally outbreed the mites and due to the bees being out of cluster, less mite transfer occurs.

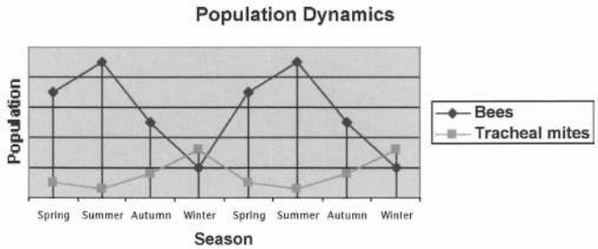

Figure 1: Bees and tracheal mite population dynamics.

In the USA it is reported that the tracheal mites are more destructive in the cooler northern states. This may be due to the longer broodless periods in the hives and the associated lifespan of winter bees. In areas where colony survival is dependent on winter bees surviving 12 weeks in a cluster, then the colony may have a higher mortality rate from tracheal mites than those required to survive only six weeks in a cluster.

Eradication

For a successful eradication to take place, the surveillance system must be sufficiently robust so as to be able to detect a population that can be eradicated. In the current surveillance model this is determined to be the first inter-apiary spread event.

The active surveillance programme currently carried out in New Zealand each year relies on appropriately trained beekeepers to take samples and identify suspect symptoms. The passive side to this surveillance programme involves ensuring that as many beekeepers as possible are trained in the identification of suspect symptoms. Beekeepers who are regularly assessing their own hives independent of the active surveillance programme may well find tracheal mites first.

Because the current method of analysing individual honey bees for tracheal mite infestation is destructive, only a sample of the colony can be taken. This affects the sensitivity of any subsequent analysis as the mites will not have affected every bee in a light infestation. It is necessary to collect a sample from the population of bees in the hive most likely to be infested.

The amount of spread that had occurred prior to discovering the mite would also be an influencing factor that would impact on our ability to carry out an effective eradication. The evidence suggests that tracheal mites are very limited in their ability to spread unassisted but move vast distances with packaged bees and migratory hives. Therefore, high-quality information is required on movement of hives, packages and queens by the beekeeper.

If eradication is attempted, all managed and feral colonies within the delimited area (including the buffer) would also need to be depopulated. The tracheal mites do not infest honey or brood so controlled harvesting of bee products may be possible.

Feral colonies must be depopulated with the use of bait stations and the area must be kept free of bees for a number of months to allow for the degradation of residual insecticides. Additionally, depending on the nature of the response, permission may have to be sought to use a chemical for a depopulation programme.

Control

Chemical treatment (miticides)

The most effective way to control tracheal mites is to ensure that a miticide enters the tracheae of the adult bee. In order to achieve this, the miticide needs to be in the form of a fumigant. There are several miticides that are effective in controlling tracheal mites including menthol, formic acid and Amitraz® smoke.

Menthol is a safe and effective treatment for tracheal mites and is the most logical choice for registration in the event of eradication measures being impossible or unsuccessful. Formic acid and Amitraz® are both currently registered for the purpose of controlling varroa mites but formic acid is very difficult and unsafe to use and Amitraz® is sold in a formulation that does not have a fumigant action.

Queen replacement

The success of a colony infested with tracheal mites in the spring and on through the summer is dependent on a number of factors. One of the most important is the laying rate of the queen. It is important to replace queens regularly in order to retain the ability to outbreed the mite over the production season.

Replacing the queen also creates a brood break and the resulting lack of new hosts (bees less than four days old) for a short period of time causes a number of mites to die with their old host. This essentially has the same effect as swarming—a natural control measure in feral colonies—and is thought to be a major reason why the mite affects African honey bees to a lesser extent.

Resistant bee stock

Tracheal mite resistance in honey bees is widespread and a relatively easy trait to select for. A lot of development in producing resistant bee stock has taken place in both Europe and North America with excellent results. However, the challenge for breeders is to successfully integrate the resistant trait into a commercial bee stock and ensure that it remains there.

In Europe, the tracheal mite is considered to be of little economic importance and the suggestion has been made that the bees that survived the tracheal mite epidemics of the early twentieth century have developed some natural resistance. Some refute this theory, claiming that the European mite is a more benign strain or that it is the presence (or absence) of viruses that affect the severity of infestations.

One of the most famous breeding programmes for tracheal mite resistance in honey bees was started by Brother Adam at Buckfast Abbey in 1919. The resulting bee was named the Buckfast line and remains in production today. The key to the success of the line is that it is a line rather than just a single trait. Brother Adam bred a line that exhibited several features essential to commercial beekeeping, including: fecundity, production, disinclination to swarm as well as disease resistance. Several other successful programmes for breeding resistance have also produced good commercial stock.

Symptoms

Field symptoms

The successful field diagnosis of a tracheal mite infestation is very difficult for two main reasons:

1. The symptoms associated with tracheal mite infestation only appear in colonies with relatively high mite loadings. Colonies harbouring light infestations do not display any visual signs.

2. There are no specific symptoms uniquely associated with tracheal mite infestation. All symptoms have a variety of alternative explanations.

External hive symptoms

The external hive symptom most often associated with tracheal mite infestation is the presence of large numbers of bees crawling around the hive entrance. Unfortunately this is typical of a number of other conditions discussed later. However, it is often possible to discount a number of other possibilities by hive inspection and local knowledge.

Internal hive symptoms

Internal hive symptoms include:

- bees with 'K-wing' where the two wings on one side of the bee are unattached (this can also be seen on the bees on the ground in the front of the hive)
- dwindling colony population
- slow spring build-up
- reduced brood area
- poor honey crop
- increased colony mortality
- high rates of queen supersedure
- reduced longevity of infested individuals.

Poor clustering ability has also been associated with tracheal mite infestation, ultimately resulting in an increased chance of chilling over winter and higher winter losses.

Differential diagnosis

As previously mentioned, there are a number of situations that would cause a colony to display symptoms typical of a tracheal mite infestation. The most obvious symptom that beekeepers are immediately confronted with is large numbers of dead and dying bees on the ground in front of the hive entrance. This symptom could also be due to:

- poisoning
- viruses
- severe robbing
- starvation
- chilling.

Poisoning

Poisoning is probably the most common situation in which you would see cupfuls of dead bees in front of the hive. Poisoning can be due to toxic nectar such as karaka, treated timber (such as tanalised) or a wide range of agricultural chemicals.

Toxic nectar

Bees working toxic nectar sources such as karaka will obviously only occur if bees are in the risk areas at the time that the tree is flowering (generally October–November depending on location). This can therefore be relatively easily substantiated or discounted as a possible cause of the symptoms.

Treated timber

Tanalised timber contains arsenic salts that can leach out of the wood, particularly if it is wet (e.g., spilt sugar syrup). For this reason, any hive ware that comes into contact with bees cannot be constructed from tanalised timber. Matheson (1997) states that poisoning from tanalised timber is rarely dramatic, but is rather an "insidious brake on colony development". This said, extreme cases can and do occur but the likelihood of tanalised timber contributing to piles of dead bees in front of the hive can be fairly easily determined.

Medium density fibreboard (MDF) should also be avoided as formaldehyde resins are often used to bind the fibres. Urea formaldehyde has been shown to be emitted from MDF for several months after manufacture. As with tanalised timber, the results of this tend to be more subtle than dramatic.

Agricultural compounds

Incorrectly applied insecticide sprays can often result in bee deaths with large numbers of bees out in front of the hive. These are much harder to implicate as it is unlikely that a beekeeper would have a complete knowledge of spraying activities over the foraging area of their hives.

In addition, other compounds have been shown to be toxic to bees that are not subjected to any honey bee safety requirements. Goodwin and McBrydie (2000) determined that a number of surfactants were toxic to bees when applied topically. They also showed that a smaller number of surfactants were also orally toxic.

Researchers at Penn State University have recently shown that chemicals can act synergistically (i.e., the whole is greater that the sum of the parts). They have demonstrated that certain miticides combined with fungicides are many times more toxic to bees than individual chemical toxicity information would suggest.

In many cases, if bees crawling in front of the hive are a result of poisoning, the bees appear sticky as they will often regurgitate stored nectar or honey.

Viruses

Viruses can cause dead and dying bees to accumulate out in front of the hive. In the case of bee paralysis virus they will often be seen shaking and will have dark shiny abdomens, which is not the case in a tracheal mite infestation.

Severe robbing

Hives subjected to severe robbing can result in large numbers of bees in front of the hive. In this case, bees that are still alive are often seen fighting with each other, unlike in a tracheal mite infestation. With robbing there are also likely to be other symptoms inside the hive to confirm this.

It is also interesting to note that chemical sprays can often result in fighting and ultimately dead bees in front of the hive. This may be due to a disturbance with scent recognition or may be due to field bees returning to the wrong hive as a result of disorientation.

Starvation

Starvation can obviously cause significant bee mortality, with dead and dying bees mainly on the floorboard, but also out in front of the hive. However, like many of the previous examples, additional symptoms may also be seen inside the colonies, which are not associated with tracheal mite infestation. The most common symptom is clusters of dead bees with their heads in empty cells, abdomens sticking out and no food reserves in the hive.

Chilling

Chilling typically occurs when foraging bees encounter poor weather whilst out foraging. Many bees do not make it back to the hive and a 'plume' of bees out in front of the hive can sometimes be seen. As the majority of these bees are returning from the field, it is more common to see these dying bees with full pollen baskets than with any other condition previously mentioned.

Laboratory diagnosis

Photo: Byron Taylor.

Adult bee dissection

Laboratory diagnosis of tracheal mites can be done by dissecting a number of adult bees from the apiary or hive. This method requires a section of the thorax to be dissolved in potassium hydroxide and later stained and examined. This process is highly sensitive; however, the processing rate is limited due to the high labour input. Often laboratory staff will simply look for scarring on the trachea as evidence of mite presence.

ELISA detection method

An enzyme-linked immunosorbent assay (ELISA) exists for the detection of tracheal mites above the 5% level. The benefit of this method of analysis is that a larger number of samples can be analysed by fewer technicians. It is estimated that the labour requirement for the ELISA process would be only 10% of the requirements for the dissection method.

The disadvantage currently is that the method will not reliably detect tracheal mites in samples with less than 5% infestation, although the researchers claim that the sensitivity could be improved to detect infestation levels of less than 1% by modifying the procedure. There is also the issue of 'false positives' where the test returns a positive result due to detecting *A. externus* or *A. dorsalis*.

PCR detection method

Polymerase chain reaction (PCR) is fast becoming a standard diagnostic tool due to its potential sensitivity (ability to detect small amounts of genetic material), specificity (ability to differentiate between similar genetic material) and processing speed. Evans et al. (2007) developed a genetic test for tracheal mites based on PCR technology. The test sensitivity and specificity is claimed to be on a par with expert dissections of honey bee trachea and is also able to differentiate between *A. woodi, A. externus* and *A. dorsalis*.

There is also a highly sensitive PCR-based genetic test that is capable of detecting a single mite in a sample. This is done using a technique known as a nested-PCR but this method does have the disadvantage of being more time consuming.

Impact on New Zealand

Prior to tracheal mites arriving in the USA they were thought to be of little economic importance based on the situation in Europe. However, in 1982 USDA researchers signalled that further investigation was required. In 1984 tracheal mites were detected in colonies in Weslaco, Texas and initially authorities attempted to eradicate them. Unfortunately, the beekeeper whose hives were discovered with the mite had shipped queen bees to 15 beekeepers in the 18 months prior to the detection of tracheal mites. It is highly likely that mites travelled on the queens themselves and on the attendants to infest other areas. After four months and depopulating 2884 colonies (with no compensation), the authorities realised that the infestation was too widespread and ceased any further regulatory activity. Over the following years, losses due to the mite were very large. Commercial beekeepers reported winter losses of up to 50% (5–10% was normal prior to that time) and it is estimated that the industry lost millions of dollars in earnings due to the effect the mite had on the hives and the loss of export markets for live bees, especially to Canada.

If tracheal mites were to become established in New Zealand, we could potentially see a similar effect as was experienced in the USA. Researchers in countries that import bees from New Zealand or have done in the past, comment that our bees are significantly more susceptible to tracheal mite infestation than are the local bees. This is to be expected as our local bees have never been challenged with tracheal mite infestations, and therefore any traits that build up passively over an extended exposure time will not be exhibited in the population. We can therefore assume that the impact of tracheal mites on beekeeping in New Zealand would be severe.

However, New Zealand currently has a breeding programme for varroa tolerance specifically targeting the varroa-sensitive hygiene trait (previously known as suppressed mite reproduction delayed). Danka et al. (2008) showed that bees selected for the varroa sensitive hygiene (VSH) trait needed less treatment for tracheal mites than their Italian counterparts. This may mean that VSH breeding programme will yield an additional benefit in the event of tracheal mites becoming established in New Zealand.

Hives will require regular treatment with a control product such as menthol in the short term. Long-term control may make use of tolerant stock and other IPM strategies as well as chemical treatment.

Suggested reading

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About the Apiary

For the first time in 15 years, we actually took time off during Christmas and New Year to have a short holiday break. I went around my hives beforehand and put two three-quarter supers on each hive and hoped that while I was away, the bees would do their thing and fill them with honey. However, since the beginning of the year here in Wellington, we can count the good bee flying days on one hand. When it has not been raining, it's been blowing (70–90 km/h), severely restricting bee foraging.

Despite the weather, hives in sheltered places (east–west valleys) have managed to do very well. It's during this type of summer that you can easily see why hive placement is so important. A couple of hives I manage in town now have eight supers on them but the one in my garden, exposed to nearly everything including days of fog, is only into the fourth super.

Looking around the countryside in the middle of the North Island (mid January), most hives seem to be averaging only three supers high. A reflection perhaps of the wet spring we had, where most beekeepers struggled between October and December to get their bees up to strength. However, the countryside is green and the showers most of the country received during January will put the pasture in good condition for a bountiful honey production (we hope).

The pohutukawa has had a long extended flowering this year and is now just about over. On farms there's a good flowering of clover but in our area the ground is still too damp to stimulate nectar production. A week of good drying weather will turn this flow on, but in the meantime lotus major (which has a liking for cool wet areas) has bees all over it. Fennel in the rough areas has just begun to flower, which will carry the bees through to when the pennyroyal will take over (perhaps in late February).

The condition of my hives is very variable. With the on-again, off-again weather, some colonies have packed out the brood nest instead of storing the honey in the supers provided, and now have autumn population levels. Those that swarmed early have built to viable colonies again and are packing out the honey supers, but swarming persists. Usually when the bees start working a major flow, swarming ends—but not this year. A few days of fine weather followed by a wet spell, then hot again have stimulated some hives into swarming, leaving young larvae in the queen cells. Hives became overcrowded and off they went.

Extracting

Most beekeepers are well into extracting but I'm still making further alterations to the plant setup to remove another bottleneck and eliminate the waste honey lost in the cappings melter by putting in a spinfloat. Hence I'm still going around putting on the last of the supers, instead of getting the early crop off and putting back wets to stimulate more honey collecting.

For the hobbyist, try and remove and extract honey supers as they are filled and capped. Once frames are 80% capped and the exposed honey doesn't shake out, it is safe to extract. With the inclement weather this year the bees have been reluctant to finally cap the honey. Sometimes they know better than we do. It doesn't take long (say, four days in the fog) for the honey to increase in moisture content. Until the bees reduce the moisture content they won't cap it, so be very wary of taking off uncapped frames of honey. Commercial beekeepers know through experience and their use of refractometers when it's safe to remove honey. It takes a few years for a new beekeeper to build up this knowledge, so in the meantime play it safe and leave it on the hives until it's capped.

Before you remove any honey at all, do a complete brood check to make sure the hive is free from AFB. The quickest way to spread disease to your hives is to just take honey off, extract it and put the supers on other hives that need them. If you don't know what you are looking for, have a competent beekeeper inspect your hive(s).

I recommend that you use escape boards to remove the bees from the honey supers, but there are other products available that will drive the bees down from the honey super without adversely disturbing the hives. Quite often at this time of the year hives are crowded with bees and they won't move down completely from the honey super(s). Give the bees somewhere to go by putting on an extra super under the escape board, even if you do not have any frames. Remove the honey supers early in the morning. Any bees that remain can be brushed out in front of the hive. It's easier to extract the honey while it's still warm and straight off the hive. But before you start extracting make sure the premises are bee-tight. Bees can smell honey two kilometres away and you don't want them around trying to rob the honey while you are extracting. Extract the honey and put the supers back on the hives again at dusk. Wet honey frames, like exposed honey, excite the bees. If you put wet frames on during the day, the bees will fly in large numbers close to the hive looking for this source of new nectar, which could disturb the neighbours.

Remember that honey is a food so treat it carefully. Be scrupulous when cleaning your extractor and storage vessels. Honey is silent when it runs through an open gate, so check everything before you start. It also can be a messy operation and it can get everywhere: light switches, door handles, etc., so keep your hands clean by washing them frequently. Cappings can be cut off with a serrated bread knife by using a sawing motion. Any low bits missed by the knife can be scratched to break the capping with a fork or with a cappings scratcher, which is designed for this purpose.

If you are extracting honey with new wax frames for the first time, don't speed up the extractor too quickly. The idea is to remove 50% from one side, turn the frame and then completely remove the honey from the second side, turn the frames again and then finish off the first side. Take the extractor speed just up to the point when the honey starts to come out of the frames and then hold it at that speed. The same goes for the second side but after a couple of minutes when most of the honey has been spun out, increase the speed slightly to remove the last remaining drops, then repeat for the first side again. Too much speed and the wax foundation will fly apart. And don't forget that the cells have a nine-degree angle upwards, so put the frames in with the bottom bar facing the direction of rotation. Plastic frames are more robust and don't need to be turned to complete the first side.

Not all honeys come out of the cells easily. Manuka honey is thixotropic (jellylike) and needs to be agitated to come out of the cells. You make have to scrape the frames to the midrib to remove this honey and use a hair dryer to warm up the honey to get it through a filter to remove the fine wax particles. Pohutukawa runs like water when it's extracted but will granulate within four days of being extracted. To stop it developing a coarse natural crystal structure (granulation), stir in some finely grained honey as a starter. Stir it occasionally for a few days as it creams and it should turn out OK. Other honeys take longer to granulate.

Requeening

Autumn-reared queens are often better mated than spring-reared queens, so order your new and replacement queens now and time their arrival for just after the honey crop has been removed. While a small honey flow continues, it's easier to requeen hives and to establish nucleus colonies. Commercial beekeepers use protected 10-day-old queen cells popped into the middle of the hive. When these queens emerge, they replace the old queens 80% of the time but there will be failures (both queens are killed, the old queen survives, the new queens fail to return to their original hive, etc.). Therefore commercial beekeepers also establish a number of nucleus colonies to requeen the failures. Looking ahead to next spring, it looks to be a repeat of this season's wet spring, so I'm going to overwinter more nuc hives as there may not be queens available when I want them.

When the honey is off, check the mite levels in your hives. Most will need treating shortly, especially if the strips came out in November. Remember to rotate your treatments to prevent the mite developing resistance to the existing chemicals.

Things to do this month

Extract honey, remove honeycomb, rear new queens. Introduce purchased queens, check for AFB, check mite levels and keep an eye on wasp levels. These insects can do considerable damage to hives in plague years.

-Frank Lindsay, NBA Life Member

Bee Products Standards Council meeting report

The Bee Products Standards Council met on Wednesday, 25 November 2009. All members were present and visitors included Stephen Franks and Pam McMillan of the Manuka Honey Industry Steering Group, NBA joint CEOs Gemma Collier and Daniel Paul, and Jim Sim, Mike Clear and Greg Zemke-Smith from NZFSA.

Refinement and progress towards the implementation of the monofloral standards

The Council had received correspondence; the points raised were noted.

The Council discussed the use of a decision tree when applying the standard. It will need to be tailored to meet the "wholly and mainly" Codex requirements (minimum of claimed honey type is 51%). The decisions would be based on the premise that the floral type is the first step; then specific properties required by market become relevant. It was agreed that strong rules are required to underpin the credibility of the standards.

There was discussion about the use of accredited laboratories because they have more credibility. The accuracy of test results becomes less relevant if there is a large margin above or below the standard. The credibility of the accredited laboratory becomes more important when the results are close to the standard or when a dispute arises.

A ring sampling programme that would include New Zealand and at least two overseas laboratories was discussed. Certification accompanied by claims will need to be supported by documentation of laboratory results, which need to be robust and calibrated. Samples from industry will be selected to cover manuka and clover.

The Council agreed to proceed with an independent statistical analysis of the available industry laboratory data. Industry members who measured the standard parameters would be asked to submit any results they had for different floral types.

Stephen Franks advised that the Manuka Honey Industry Steering Group has not been addressing the same issues as the BPSC. The Group had been working on addressing the international scene and like the BPSC would expect the domestic requirements to follow. The working group expects to get honey included under the Horticulture Exports Act (HEA). Honey will stay within the Animal Products Act (APA), but HEA could provide for an export licensing regime for manuka honey (or other honeys if the industry so desired). Industry consultation about HEA proposals was discussed. The amendment is based on a general definition of "honey" rather than making subsequent amendments for floral types other than manuka as they are added to the regime.

The timeline towards implementation in the report published in October 2009 issue of *The New Zealand BeeKeeper* was discussed. The statistical analysis and laboratory work would be under way for the next BPSC meeting. It was agreed that other activities such as industry training would be timed for mid 2010. It was still envisaged that the standard would be mandatory and operational by 1 October 2010.

BPSC constitution and membership

The meeting discussed correspondence from the NBA requesting information about the constitution and structure of the BPSC. The Honey Packers and Exporters Association circulates the synopsis of each meeting, which has also been published in *The New Zealand BeeKeeper.* Communication to and from nominating organisations via members on the BPSC was accepted practice.

Tutin review update

The NZFSA reported that findings from the toxicological studies to date did not appear to require any significant changes. Consultation on the tutin standard would be targeted mid-year, on either side of the industry conferences. Some further survey data would be sought, especially in the north of the North Island. The collection of other information was expected to be ongoing.

Residue testing

Mike Clear presented the 2008–09 report and draft 2009–10 Notice. The 2008–09 programme had given excellent results.

Transport Regulated Control Scheme (RCS)

There was discussion about the registration of carriers. It is possible that the carrier could become covered by a producer's risk management programme (RMP). An amendment to the RMP will need to be notified and records of subcontractors kept. If a beekeeper without an RMP carts their own product after extraction, they will need to be appropriately registered under the RCS or operate under a RMP (whether their own transport RMP, or the RMP of the extractor or receiving premises). Compliance is required by 31 March 2010.

The Council considered a draft Transfer Statement and gave feedback on the proposed changes.

The Council agreed that communication was very important to ensure that the industry was well informed.

Drums and Intermediate Bulk Containers (IBCs) to the EU

The product contact surface needs to meet the standard (EU Directive). The history of use needs to be documented for

the EU and in fact for all market use. Drums should not be used if their history was unknown and that are not proven to be fit for purpose. It was noted that there were reused drums being recycled and that those that do not meet the standards should be removed from circulation. Every purchaser should receive a letter from the supplying company that confirms the compliance of the drums.

EU Overseas Market Access Requirements (OMAR)

The BPSC is concerned that product handling and storage does not meet the EU requirements. Those who do not meet the standards should receive non-compliances and be required to remedy the situation. It was noted that EU-listed premises require an RMP. The RMP documents where drums should be kept and how they are managed.

EU honey mobile extraction

The Council confirmed that mobile extraction will be permitted only where they are fully enclosed. The BPSC agreed that it is very feasible to fully enclose a mobile unit.

Liaison with Bee Product RMP holders

The Council agreed that it should communicate more closely with the RMP holders and that it would be advantageous both ways. It noted that a number of RMP holders were not members of any industry organisation. Meeting summaries and other specific advice would be sent out to these industry members. An e-mail list and, where necessary, a mailing list would be established.

Organic beekeepers

The Council discussed concerns about the need to feed sugar and clarified that it is permissible to feed sugar under difficult environmental conditions. It noted that organic beekeeping is about sustainable maintenance and feeding of reserves. The Council advised the NZFSA that raising queens requires that sugar needs to be fed to stimulate queen production.

- Dr Jim Edwards, Chairman

Attention RMP Operators!

The New Zealand Food Safety Authority has updated its information on the Transport RMP on 26 January 2010. Refer to http://www.nzfsa.govt.nz/animalproducts/subject/transport/index.htm

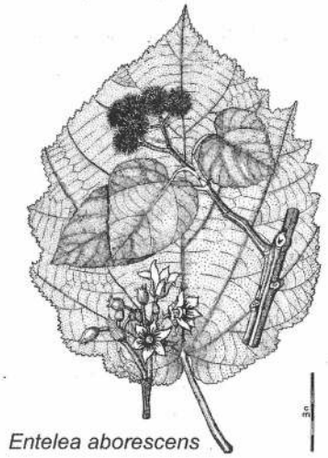
A list of transport operators who are currently registered under the Transport RCS can be found on the 'Regulated Control Scheme - Transport Operators' page at http://www.nzfsa.govt.nz/animalproducts/registers-lists/transport-operators/index.htm

Trees and Shrubs of New Zealand

Entelea arborescens

Maori name: Whau

Common name: Cork tree



Entelea aborescens

The genus is confined to New Zealand and the whau is the only species associated with this genus.

It is a handsome small tree, with large leaves and white flowers growing to six metres.

The whau used to be plentiful along the coast of the northern part of the North Island, and also occurs near Wellington and the Marlborough Sounds. The flowers are pure white and about 25 mm in diameter. The fruit is dark brown with long bristles. The bees work the flowers during September to November for a light amber nectar and white pollen.

The wood of the whau is extremely light—roughly half the weight of cork—and Maori used the wood for floats on their fishing nets. The tree trunks were used to make rafts.

Maori used the leaves (as they did with rangiora) for writing messages after the missionaries taught them the skill of handwriting. These leaves were obviously only used when paper was in short supply, as the whau leaves withered quickly once picked.

It is said that Maori used the sap of the whau to preserve dead bodies, and the 'jelly' beneath the bark was eaten to ease a difficult childbirth.

- Tony Lorimer, NBA Life Member

Getting it right when times are tight

If you are facing the possibility of making staff redundant remember the "four R's"

Reason: Redundancy is a situation where employment ends because the position filled by the employee is no longer required: It's the position itself that is redundant and the decision to make a position redundant should have nothing to do with the particular employee who is filling that position. Be prepared to communicate why you are proposing a redundancy and be open to other commercially viable alternatives.

Refer: Refer to the employment agreement and any relevant organisational policies: All employment agreements must contain a clause outlining employer obligations in a restructuring situation.

Employees who do certain catering, cleaning, caretaking, laundry or orderly work have special rules that apply to them.

Respond: Give staff an opportunity to comment on the proposal and respond to their comments. It's a good idea to meet with the staff, provide information about the proposed arrangement and give them an opportunity to comment on the proposal. Keeping staff informed and responding to their concerns and comments in a timely manner is key to getting the process right.

Resolve: Try to resolve disputes quickly and effectively: Sometimes you may need an independent third party to help resolve disputes arising from a restructuring situation. If you and your staff are unable to resolve matters, the Department of Labour provides free mediation services.

Read more about redundancies on:
http://www.ers.govt.nz/toughtimes/

Source: Courtesy of the Department of Labour.

Keeping NZ honey's reputation sweet

Central Otago beekeepers are signing up to a new company designed to protect New Zealand honey's international reputation as a premium product.

New Zealand Honey Company director Peter Ward, of Lake Hawea, and Lindis Honey Company general manager Colin Wood, of Bannockburn, are two local apiarists who are backing the new development of Oritain Global.

Oritain Global was launched in Dunedin in November 2008.

It is commercialising a global country-of-origin food verification system.

Mr Ward said he was behind the development and scientific processes used by Oritain to authenticate a product's "point of origin".

Mr Wood said many consumers had lost faith in producer claims and were demanding independent assurances about a product's origin.

"Without question, it is one of the biggest issues facing New Zealand products," Mr Ward said.

New Zealand honey has a top position on the international market as a quality product and Oritain provided an independent means of verifying origin, he said.

"They can very accurately . . . confirm whether contamination [of a New Zealand honey product] has been taking place," Mr Ward said.

The authenticity of New Zealand's honey was at stake, Mr Wood said.

Several instances have emerged overseas where honey producers were diluting their products and mixing them with honey from other countries, relabelling the product, and then selling it as a premium brand based on the reputation of that particular country's honey.

Lindis Honey Company had opted to have Oritain independently certify their honey to provide assurances about its origin, he said.

Oritain's tick of authentication and origin helped protect the name and image of New Zealand products overseas, Mr Ward said.

Editor's note: We apologise the delay in publicising this information. The original article was written by Matthew Haggart and published by the Otago Daily Times *on 7 September 2009. It can be found on their website at http://www.odt.co.nz/your-town/hawea/72840/keeping-nz-honey039s-reputation-sweet*

The newspaper also ran an article on Oritain written by Neal Wallace on 2 June 2009, reporting that Oritain is "developing a honey map of New Zealand in an effort to stop overseas companies branding inferior-quality honey as coming from New Zealand". This article can be found at http://www.odt.co.nz/news/business/59054/dunedin-company-protecting-nz-honey

Australian honeybee R&D five-year plan

I've been catching up with what's going on across the Tasman. The August issue of *The Australasian Beekeeper* (page 60) has a report on the Honeybee R&D Program Five Year Plan, 2007–2012. The stated R&D objectives for the five years to 2012 are

1. Pest and disease protection
2. Productivity and profitability enhancement to lift beekeeper income
3. Resource access, security and knowledge
4. Pollination research
5. Income diversification including new product development
6. Extension, communication and capacity building.

They have either completed or are working on a range of pest and disease protection projects, and are planning the following new projects for 2009–10:

- In hive fungal bio-control of small hive beetle
- Rapid method for measuring the antimicrobial activity of honey
- The prebiotic components of Australian honeys: stage 2
- Use of sniffer dog in detection of American foul brood in beehives
- Assessment of a Hive-based Levy for the Australian Honeybee Industry
- Australian Honey: Expanding the Market for a Multifunctional Natural Food
- Commercialisation of the Small Hive Beetle Harbourage Device
- Rapid Method of Identifying GI in Honey

The Australian levy on honey sales above 600 kg is 2.3 cents/kg. Of this amount, 1.5 cents goes to R&D, matched dollar for dollar by the Australian Government. The remainder goes to the National Residue Survey to fund residue testing (e.g., for export to the European Union) and to the National Contingency Fund (only for beekeeping, held in a Trust account by Animal Health Australia, for things like exotic incursions).

This levy is paid mostly by packers on behalf of their suppliers, as this cuts down on collection costs, which are passed back to the industry. The expected return is near A$300,000, which is matched by the Australian government, taking the total research funds available to A$600,000.

We here in New Zealand should do something toward firming up on research money instead of relying on donations and the Government fund for everything. It's all very well putting in that the beekeeper's contributions is given in kind or labour, but what really counts in Government's eyes is a commitment to supplying money for research and then maybe the Government will see its way clear to providing dollar for dollar for research. We don't produce anywhere near the amount of honey Australia produced but we equal them in dollar value for our bee products. Without ongoing research our industry will be left behind.

Thanks to Des Cannon for providing further information on the levy.

- Frank Lindsay, NBA Life Member

This puzzle was created by Melanie Ecroyd. Why not copy it for the kids to take to school?

Name:_____ **Date:**_____

Sticky Business

K	O	N	E	C	T	A	R	N	C	B	S	V	U	S
I	W	D	E	Q	S	H	G	T	S	V	M	S	K	U
E	Q	Z	F	D	F	G	O	A	O	W	O	X	P	C
A	X	Z	N	V	Q	X	T	N	B	I	K	U	P	T
P	I	Z	Z	R	A	G	S	U	E	L	E	Z	G	K
A	R	E	J	W	I	H	W	G	O	Y	R	A	H	Q
Z	M	O	S	Z	Z	R	V	U	V	N	B	O	V	M
G	M	E	P	S	T	T	T	E	D	S	M	E	R	D
D	E	G	L	O	T	I	V	E	I	L	F	V	E	N
B	I	H	V	L	L	I	B	F	P	W	L	L	S	S
S	X	J	W	R	H	I	N	C	O	C	O	V	T	H
T	N	K	B	E	W	H	S	G	L	H	W	S	O	W
R	B	L	E	Z	G	T	J	M	L	U	E	X	R	C
T	Y	B	S	N	W	Y	T	P	E	S	R	V	E	A
N	N	F	R	A	M	E	S	F	N	Q	S	V	Y	G

BEEHIVE
BEESWAX
FLOWERS
FRAME
HONEYBEES
NECTAR
POLLEN
PROPOLIS
SMOKER
STING
STOREY
VEIL

Australian SHB study trip report—Part 5

As the sponsored member of the Waikato Ward, I would first like to thank the organisers of the Small Hive Beetle (SHB) trip and the Honey Industry Trust for sponsoring my participation on the trip from 4–14 May 2009.

The aims of the trip were to gather as much information as we could from the Australian beekeeping industry and associated industries on SHB and European foulbrood (EFB), and how the information could be used to prepare the New Zealand beekeeping industry if one or both of these exotic pests were to establish themselves in New Zealand.

I feel the trip more than met those aims.

Small Hive Beetle

I have come to the conclusion that SHB would be very damaging to our industry. Even though we do not have the sustained humidity and temperature levels that the eastern part of Australia does, most of New Zealand has the required temperature (above 20°C) and/or humidity (80% or more) during at least six months of the year, and SHB thrives in these conditions. During our winter months the SHB would still be a threat but would probably not be as damaging as during the summer months. The SHB loves weakened hives and with New Zealand already having varroa, the combination of varroa-weakened hives and SHB would be very damaging.

SHB has had a severe impact on the queen breeders we visited: they are losing lots of small mating nuclei every week to SHB. In order to have a viable business, queen breeders have had to re-think their entire operation and find ways to sustain the successful mating of thousands of queens they have to supply to their customers. Their viability, of course, has an enormous impact on the rest of the industry.

The investment most beekeepers have made in installing chillers to hold boxes of honey waiting for extraction has been immense. This would be a huge cost for a lot of New Zealand beekeepers and the logistics for contract extractors could be problematic, in that they would have to stagger extraction or find large amounts of chilled storage.

It was very interesting to see the research on SHB traps being carried out by the Department of Primary Industries. They have done a lot of trial work to eliminate traps that are not effective and are progressing with other trapping ideas that they think hold a lot of promise. I feel trapping of adult SHB outside the hive will be the only successful way of controlling it, as this would minimise any impact within the hive.

The funding of the research has come from a combination of levies from the beekeeping industry and the Australian government.

European foulbrood (EFB)

While talking to the many beekeepers we met on the trip, I found that opinions varied about how damaging EFB was to their hives and how they overcame it.

Some thought it was a nutritional problem and shifted their hives to a better pollen flow, which they were convinced solved the problem. Others thought blanket treating their hives with oxytetracycline once they found 10% of their hives infected was the only way of combating it.

One person was convinced that if you had healthy strong hives all year round, EFB would not be a problem. A queen breeder we talked with had bred EFB-resistant bees.

We managed to have a look inside some EFB-infected hives. I found it was like looking at PMS hives, but without deformed bees walking around.

Many of us felt one more day looking at EFB-infected beehives would have rounded the knowledge off nicely.

General aspects of the trip

The group dynamics were perfect: a good mix of older wise heads with younger ones. I thought that mix was good when arriving at our hosts as it provided a good variation in conversational topics that helped keep information flowing. Everyone conducted themselves well and were good representatives of the New Zealand beekeeping industry.

The selections of our hosts were excellent. The width and breadth of their knowledge had to be admired and the willingness with which they imparted their knowledge was a bonus. The mixture of the beekeepers, scientists, and apicultural officers that we visited was also excellent, as we received a different perspective from each one. Visiting honey packers Capilano and Honey Downunder, the Queensland Brain Institute and the irradiation plant added variety to the schedule.

Our hosts also appreciated the fact that we were able to inform them about our experiences of varroa and our AFB NPMS. The two-way information sharing will prove to be valuable to both countries.

In terms of the schedule of visits, most participants felt the first five days were particularly rushed. We had little time to attend to personal needs and to hold group meetings to share the information gathered; however, this was obtained in the last half of the trip.

We finished the trip with most of us feeling that we had learnt everything we could have about SHB and the impact it might have on the NZ beekeeping industry.

On the whole, the trip was a good mixture of serious purposeful research and fun. Many laughs were shared that were good for group dynamics and getting to know one another.

In conclusion, it was a very worthwhile trip and should prove to be an excellent investment from the Honey Industry Trust for the benefit of the New Zealand beekeeping industry.

- Cameron Martin,
Waikato Ward study group representative

Ladies and gentlemen, start your extractors!

As we enter the second month of 2010, the NBA Conference in Nelson is only four months away. One of the highlights is bound to be the second annual Quintessential Honey Competition. The Auckland Branch is working on guidelines and schedules, which will be made available in due course.

Naturally, you can't have a honey competition without judges, and the Auckland Branch (which is overseeing the competition) needs your help with planning and stewarding, as well as judging. This is a fantastic opportunity to share your knowledge, upskill, taste and learn how to produce exceptional honey. See the notice below.

To whet your appetite for the NBA honey competition—and to showcase the value and popularity of honey culture—over the next few months we'll be publishing photos and commentary from Maureen Maxwell on her travels to Sydney, Great Britain, France and Chile in search of the perfect pot of honey. We start with her account of the Sydney Royal Easter Show honey competition.

Sydney Royal Easter Show

The Royal Easter Show runs for about 10 days and sees thousands of visitors. The honey show is a big drawcard, with the NSW Branch running a tasting and sales stand that goes through pallets of honey sales, including buckets of honey.

I saw one child thrown out of a pushchair and replaced with a bucket of honey bought from the beekeepers! The stand is manned by roster and the proceeds make a big contribution towards funding branch activities.

- Maureen Maxwell,
NBA Executive Council member, Northern Ward

Maureen Maxwell (at left, wearing her NBA hat), assisting Doug Somerville, the chief Technical Specialist Apiculture, NSW Department of Primary Industries (DPI), to judge the honey entries at the Sydney Royal Easter Show, March 2009.

Maureen with the Chief Judge, Bruce White.

Maureen assisting another Aussie judge.

NATIONAL HONEY COMPETITION

At the NBA Conference 2009 in Rotorua, NBA members voted to establish a National Honey Competition, which would be held annually in conjunction with the NBA Conference.

The Auckland Branch, which will be overseeing this project, seeks expressions of interest from members who would like to assist in writing of appropriate schedules, regulations, preparation, act as stewards or judges or in general to be part of this working committee.

Please contact
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