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The New Zealand BeeKeeper

Shades of grey - Carnica is here to stay

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Photo: David Yanke

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President's Report

My report for this month will be somewhat shorter than usual due to time commitments to our business — we are still trying to finish taking honey off our hives.

Executive

Many of you will be unaware that Don Stedman left for Australia on 20 April to work in Darwin for six months. Don has not resigned from the Executive, but will remain active on the committee via email until Conference and the setting up of the new NBA structure.

Package bees

Many beekeepers currently are involved in the collection of bees for export to Canada. The number of bees to be exported is considerably down on last year and some previous years, which is likely to impact on several businesses.

A few months ago a Government media release stated that they had finally opened the market for package bees into the United States. Unfortunately, the export protocols are virtually impossible to meet. The industry has thus been unable to capitalise on a golden opportunity this year, given the high hive losses experienced by US beekeepers.

It is disappointing that the Government does not utilise fully the skills and knowledge of those involved in the export of bees in drafting and negotiating export protocols. Advice from those who are currently involved in the export of bees could ensure that the decisions made are practical and cost effective and would allow the uptake of opportunities.

Varroa Agency Incorporated

Prior to writing this, I have read the minutes from the Varroa Agency Incorporated (VAI). I received hard copies of these minutes from meetings held on 14 February and 4 March 2005, as well as a Varroa PMS Manager's report to the Board meeting on 17 March 2005. We have yet to be informed as to who the Varroa PMS Manager is. Although in the past the Executive of the NBA may have been seen to be opposed to the strategy, now that it has been put in place we would like to see that the strategy works to the benefit of beekeepers, and in fact for the benefit of both bee-related pest management strategies.

The Executive has asked the VAI to keep us fully informed and to provide us with the minutes of their meetings. Receiving them so late, however, does not allow the Executive to discuss what has been happening, or to be able to ask for items to be added to the agenda for the next VAI meeting.

We know from our experience of administering the NBA that it is difficult to do everything and keep everyone informed as to what is happening. We hope that the VAI is able to improve on its communication efforts to the member groups.

Progress on the approval of Food Grade Mineral Oil (FGMO) as a varroa treatment

The Executive has finally had a response from the New Zealand Food Safety Authority (NZFSA) regarding the approval of the Code of Practice to administer FGMO for the treatment of varroa. We have had to amend the Code of Practice so that it does not include the addition of thymol. Because the inclusion of thymol will require a new application, we considered it was preferable to get the Code of Practice approved for FGMO first.

Submissions to the Bee Products Risk Analysis

The Executive has not received a reply from MAF regarding our submission and has yet to receive a summary of submissions received. Nor have we received a response to our letter asking for details of the process from here, and our request that someone independent of MAF should review the submissions. The Executive is concerned that the review process may not be truly objective if the same people who wrote the analysis also review submissions. It is important, not only for the beekeeping industry but also the New Zealand economy, that mistakes are not made that would allow yet another unwanted organism into the country.

Country of Origin labelling

By the time you receive this magazine, the NBA will have made a submission to Food Standards Australia New Zealand (FSANZ) on the Country of Origin labelling.

This is one area where I believe that we as an industry should be making a positive statement and supporting an industry-agreed standard. We should be proud of our New Zealand products and market them as such. It is concerning to hear of product entering New Zealand that has originated from another country but is not labelled clearly as such.

A person involved in research told me of an incident of a sample of honey coming in via the mail system from Australia (in a damaged state), but the letter enclosed indicated that the honey originally came from Greece.

Another incident bought to my attention was of processed wax and royal jelly coming into New Zealand that were then repackaged and sold as product packed in New Zealand, but not clearly stating their origins on the label.

These incidents illustrate the need for an industry-agreed standard such as Country of Origin labelling. Regardless of the protocols put in place, there is always the possibility that human errors may occur that could affect our industry and New Zealand as a whole.

- Jane Lorimer

Deadline for Publications

June 2005 edition:	***23 May 2005***
July 2005 edition:	***22 June 2005***
August 2005 edition:	***22 July 2005***

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

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NBA Library news

Life from a library perspective is usually quieter over the summer months, and that 'spare' time has been used to find a bookbinding company to create biennial volumes of recent back issues of *The New Zealand Beekeeper*. The journals for 2000–2001 and 2002–2003 have now been professionally bound, and 2004–2005 will be done at the end of the year. The earliest copies in the volumes held in the library date from 1914. For obvious reasons, these are not available for loan but can be read at the NBA library.

One book has been purchased recently: *Honey and healing*, an IBRA publication edited by Pamela Munn and Richard Jones. It is available from the library for a loan fee of fifty cents.

There will be a display of library books and videos at the conference in July. Depending on my other work commitments it will be (wo)manned for two or three days.

- Chris Taiaroa
Hon. Librarian

NOTICE OF MEETING

Notice is hereby given that the 2005 Annual General Meeting of the National Beekeepers' Association of New Zealand (Inc) will be held at 'The Chateau on the Park', Christchurch on Thursday 7 July 2005 commencing at 8.30am.

The AGM will be followed by the Conference of Branch Delegates. Please note that Notices of Motion must be received by the Executive Secretary no later than 23 May 2005.

News from the New Zealand Food Safety Authority

Risk Management Programmes

Some interesting questions have arisen in the course of our visits to beekeepers and processors as we develop the Code of Practice for bee products, so I thought I'd clear up a few things in print.

Q: What is a Risk Management Programme (RMP)?

A: RMPs are written programmes designed to identify and manage hazards and other risks so that the resulting animal product is fit for its intended purpose. RMPs need to be submitted to the NZFSA by 1 April 2006 to ensure that they are registered by 1 July 2006. Bee products processed, handled or stored in premises without an RMP after 1 July 2006 will not be eligible for official assurances (certification) but may be sold on the domestic market. Once registered, an RMP becomes a legal document binding on the business it applies to.

Q: Do I need an RMP to be a registered exporter of bee products?

A: No. Exporter registration is a separate matter because some exporters do not process products.

Q: Do I need an RMP to process bee products for export?

A: If you are a primary producer only (i.e., if you just keep hives and harvest honey and someone else does the extracting, and you don't store the end product yourself), then you do not need an RMP. If you are a secondary processor (i.e., if you extract honey or handle other bee products; e.g., pollen), then the answer is 'Not yet', provided you have current registration by your local authority under the Food Hygiene Regulations or an approved food safety programme under the Food Act. You will, however, need to have a registered RMP from 1 July 2006.

Q: Can't I wait until I want to start extracting in December 2006 (i.e., the start of the next honey flow after the 1 July 2006 deadline for RMPs) to get my RMP registered?

A: Thought you had spotted a loophole there? Sorry, but RMPs do not cover product retrospectively. If export certification is wanted for any product extracted, packed or stored after 1 July 2006, then the premises in which this happens must have a registered RMP.

However, if you will not undertake any of these activities until the beginning of the next honey flow after 1 July 2006, then you could take a little longer to get your RMP registered, provided you have it registered before commencement of any of the activities that the RMP covers. I'll also point out that if we receive a large pile of RMPs in December 2006 with people wanting them all registered at once, delays will be inevitable, so we suggest that they are submitted well before then.

Jim Sim and Buzzy

We suggest that RMPs are submitted to the NZFSA by 1 April 2006 so they can be processed in time for the 1 July 2006 deadline.

Q: What if I want an RMP now?

A: You are keen! There's nothing stopping you submitting an RMP for approval, but because we have not yet finalised the code of practice (COP) and RMP template, you will require full evaluation by an approved evaluator. The approval process may require additional staff time (i.e., monetary cost to you). We are looking at the feasibility of waiving the evaluation step for RMPs that are based completely on the COP.

Continued on page 6

Continued from page 5

Q: So when will the COP and RMP Template be finished?

A: Both should be finished in June and will be published on the NZFSA website. We will hold a series of workshops at venues around the country and in conjunction with industry association conferences later in the year to help you develop your RMPs.

Q: How much will my RMP cost to register?

A: The cost depends on whether what you are doing is covered by the COP and whether you choose to use the template provided.

If you are just doing standard processing that is covered by the COP and template, then most of the hard work has been done for you. The RMP template will take you some time to complete and then you will need to check that your facilities and processes comply with the COP. After that has been done, we are endeavouring to make the registration a simple administrative process not requiring an independent evaluator. The charge for this process is based on an application fee of $100.00, plus an hourly rate for the assessor charged at $80.00 per hour (both costs include GST). We would expect that any RMP fully based on the template will take an hour or two to check.

If you are doing things not covered by the COP, then the RMP will need additional development and independent evaluation by an approved evaluator. This may require a site visit to see what you are up to. The evaluator's cost is negotiated with the evaluator. NZFSA's charge is calculated as above, recognising our assessor may need to spend significantly more time checking these RMPs.

Q: How often will my RMP need to be Verified (Audited)?

A: Verification of your RMP is required to be done at least annually by an accredited verifier from an agency recognised under the Animal Products Act; i.e., a 'Recognised Agency'. The NZFSA Verification Agency is the only agency recognised at present. Verification is performance-based, so if you are complying with your RMP and your premises is in a reasonable state of repair, then the RMP will next be verified in a year's time. However, if you are not complying with your RMP, then verification visits may occur as often as weekly, and each visit is chargeable. Overseas market access requirements may also dictate that more frequent verification visits are required. For more details on this aspect, see our statement of policy on verification found at: http://www.nzfsa.govt.nz/animalproducts/publications/policystatements/verification/verification2005.htm and specific market access requirements.

Q: What will verification cost?

A: The NZFSA Verification Agency charges can be found at: http://www.nzfsa.govt.nz/animalproducts/legislation/regulations/ap-fees.pdf. If other agencies are recognised, they will be able to set their own charges.

If you have other questions on RMPs you would like answered, please email me at jim.sim@nzfsa.govt.nz.

- Jim Sim
Principal Advisor (Animal Product Standards)
NZFSA

Varroa South Island levy information from MAF

13 April 2005

Dear Beekeeper

South Island Beekeeper Levy for Varroa
In November 2004 all South Island beekeepers were consulted about a proposed levy under the Biosecurity Act 1993 to partially fund the national pest management strategy for varroa.

The objective of the strategy is to maintain the South Island's current freedom from varroa. This will be carried out by maintaining controls on the movement of bee products and materials from the North Island, including publicity and awareness-raising measures, and a surveillance programme of South Island apiaries. A new body, the Varroa Agency Incorporated, has been formed to take on the role of management agency for the strategy.

The strategy is to be funded by South Island regional councils (to the extent of $530,000 per year), and by South Island beekeepers (to the extent of $200,000 per year). The Biosecurity (Varroa (South Island) Beekeeper Levy) Order 2005 has now been passed, and came into effect on 7 April 2005.

Key elements of the levy:

- require all South Island beekeepers to pay the levy
- set the maximum rate of the levy at $2.00 per hive
- base the levy on the number of hives owned by each beekeeper, treating every levy payer as owning a minimum of five hives (i.e. a minimum payment of $10.00 will be charged to all beekeepers owning five hives or fewer)
- require that beekeepers are sent accounts at least 28 days before 1 June
- provide for arbitration in the case of any dispute about whether or not a person is required to pay the levy, or the amount of levy payable.

An account will be sent out shortly on behalf of the Varroa Agency Incorporated. **The accounts are due to be paid in full by 1 June.**

Note that penalties will apply in the case of late payments or payments not made in full. If any amount of the levy has not been paid by 1 June, additional amounts must be paid to the management agency as well as the original levy charged, amounting to:

- 10% of the amount of the unpaid levy
- 10% of the amount of the unpaid levy (excluding any additional penalty payment) for each month that the levy amount is outstanding.

- Ian Govey
Senior Policy Analyst
Ministry of Agriculture and Forestry

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Sick and tired of not being able to to purchase a bee suit to suit you?

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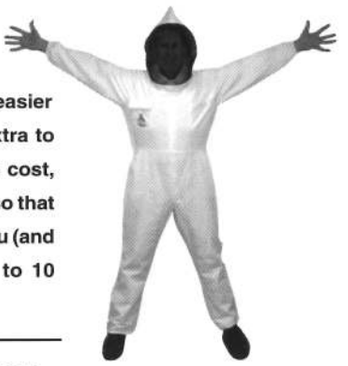

How?

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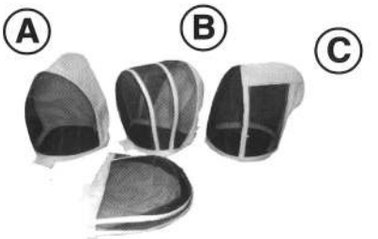
Sizes: 4 to 12 are standard. 13-15 are ex stock in Bruiji at an extra $4.89 + GST Some children's sizes and larger Adult sizes are available upon request.



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Varroa Agency Incorporated: South Island Beekeeper Levy

David McMillan, on behalf of the Varroa Agency Incorporated

The Biosecurity National (South Island) Varroa Pest Management Strategy came into effect on 18 February 2005. Its objective is to "prevent varroa establishing in the South Island". To achieve this the strategy implements the following principal measures:

- movement controls on bees, beehives, bee products, and equipment
- information programmes throughout New Zealand on varroa to encourage compliance with this strategy
- a varroa surveillance programme in the South Island.

Management Agency

The management agency responsible for implementing the strategy is the Varroa Agency Incorporated (VAI). The VAI is made up of South Island Regional Councils and Unitary Authorities, the two national beekeeping industry groups (National Beekeepers' Association and Federated Farmers, as the parent body of the Bee Industry Group) and the Crown. A board of five is appointed from these groups, consisting of three members appointed by the South Island Regional Councils and Unitary Authorities, one member appointed by the beekeeping industry, and one member appointed by the Minister of Agriculture.

Funding

The strategy is funded by:

- South Island Regional Councils and Unitary Authorities, to approximately 75% of the total funding; and
- a biosecurity levy on all South Island beehives, equating to approximately 25% of the total funding.

Beekeeper levy

The beekeeper levy is set and collected by the strategy's management agency, in accordance with the Biosecurity (Varroa (South Island) Beekeeper Levy) Order 2005, which came into effect on 7 April 2005.

Key elements of the levy:

- all beekeepers with hives in the South Island are required to pay the levy; and
- the levy is based on the number of beehives owned by each beekeeper, treating every beekeeper as owning a minimum of five hives.

The levy for the 2005–2006 year, which is the 12 months from 1 June 2005, has been set at $2.00 per hive, excluding GST ($2.25 including GST). The levy for each beekeeper is calculated on the number of beehives registered on the Apiary Register as at 31 March 2005, with a minimum payment of $10.00 excluding GST ($11.25 including GST) being levied on all beekeepers owning five hives or fewer.

Due date and penalties

The levy is due to be paid in full by 1 June 2005. If the amount due is not paid in full by this date then the following penalties will be applied:

- 10% of the amount of the unpaid levy; plus
- for each month that the amount is outstanding, 2% of the amount of the unpaid levy.

Publishing of the levy

Each year the levy must be published in the *New Zealand Gazette* and *The New Zealand Beekeeper*. This year the levy was published in the copy of the gazette dated 21 April 2005, No 70 (Principal Edition), in *The New Zealand Beekeeper* and in the Bee Industry Group's 'BIG Picture' publication.

Spending

The money collected by this levy must be spent on the administration and management of the strategy. This includes:

- South Island varroa surveillance
- inter-island movement controls
- publicity and awareness raising
- strategy administration.

If you are a South Island beekeeper and have not received your levy invoice by the beginning of May, please contact the Varroa Agency Incorporated, PO Box 304, Mosgiel, ph 03 489 0066 fax 03 489 0071.

Editor's note: Please refer to the April 2005 issue of The New Zealand Beekeeper *(pages 10 and 12) for additional background on the VAI.*

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From the colonies

Hawkes Bay Branch

After several years when they have been almost absent, wasps appear to be making a major comeback this year, with many more yards than normal being affected. Unlike many areas in New Zealand, German wasps do not appear to have been replaced by common wasps in Hawkes Bay, with only the occasional common wasps being seen. This is a pity, as I hear on the grapevine that common wasps do not tend to attack beehives. We killed five nests beside one yard the other day and some of the hives were already starting to look very stressed. Is this increase happening generally throughout the country or is it just a local aberration?

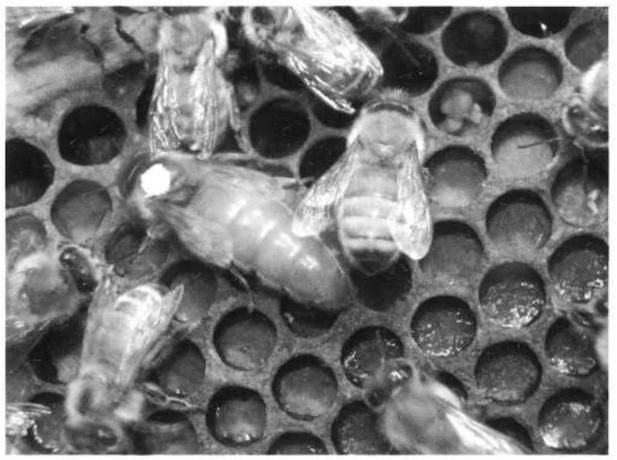
- John Berry

Southern North Island Branch

Most beekeepers have completed harvesting honey now. It seems that in our area it has been an average harvest, although the Manuka yield is down from expectations.

Varroa levels are still high and commercial beekeepers have been putting strips in as soon as the honey has come off, or in some cases strips have gone in so that there is time to get honey off as the weather allows. Smaller-scale beekeepers have reported quite severe hive losses and wasp problems. Wasps have been cleaning out the weaker hives, resulting in no bees, brood or honey. There have been discussions on the Internet site on wasp eradication, and at the Wanganui Beekeepers' Club meeting several members reported on the problem, followed by a roundtable discussion on the best way of killing wasps but not the bees. The consensus was to move hives away and then use poison, which also helps to get rid of any feral hives as well, thus reducing the varroa problem at the same time. Baits under or near hives, using borax or other chemicals, also tend to kill bees.

- Neil Farrer



A beautiful blonde queen.
Photo supplied by Simon and Sarah Peacey, Whangarei

Canterbury Branch

Canterbury has been enjoying a long, drawn-out autumn, with plenty of good autumn matings and little need to rush into wintering. Most beekeepers I have talked to are a little disappointed with the crop compared to expectations in February.

Please note that AFB inspections are continuing this autumn. If you are available to help, please contact the Canterbury branch. I would also like to hear from anyone with any comments on the varroa response and the compensation claims process. These issues should be discussed. Please bring along your comments to the next branch meeting.

Good wintering,

- Brian Lancaster

Conference update

Just a reminder that conference is only a couple of months away, and the discount registration is only available until 10 June. Also, book at the hotel no later than 3 June 2005 to qualify for the special room rate of $118.00 exclusive of GST per room per night and to guarantee availability. This rate is for single or double occupancy.

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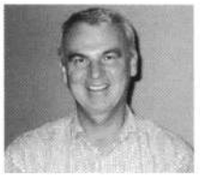
An endorsement from two satisfied customers:

> "Tony & I went into the Chateau on the Park during the week and can confirm that it will be well worth booking in. It has very nice rooms (good bathrooms/writing desks/ tea & coffee-making facilities), and it is spacious with nice garden areas. There are lots of small 'corners' with comfy seating for informal chats and a nice restaurant, and bar areas. Plenty of free car parking is available.
>
> There is a free shuttle to and from the airport, and also into the Square at approximately hourly intervals. Across the road are Hagley Park and the Botanic Gardens — a lovely walk through to the Arts Centre and the central business area.
>
> The hotel is on the edge of Riccarton suburb, which has a large mall and lots of cafes/restaurants: many within easy walking distance. There is a golf course in Hagley Park (men's RH clubs available for hire at the hotel) and Roger Hall's new play 'Taking Off' will be on at the Court Theatre at the time of the conference.
>
> If you have questions about any particular matter, or about what's on in the city that week, please email and we will do our best to find out the answer."

Regards,
Chris Taiaroa
Email: chris.tony.taiaroa@clear.net.nz

Other *Apis* species – should we be concerned?

Tony Roper
Apicultural Advisory Officer
AgriQuality Limited, Christchurch
ropert@agriquality.com



Introduction

As beekeepers we are very familiar with our own European honey bee species, but do we know much about the other *Apis* species? And what dangers, if any, do these other species of honey bees pose to our beloved Italian, and dare I say it, Carniolan bees?

The other *Apis* species are extremely important because a number of pests and diseases that affect our bees originate from them. The most well known example is the pest *Varroa destructor*, whose natural host is the eastern honey bee, *Apis cerana*. Over generations, *A. cerana* evolved various mechanisms that kept varroa in check. Unfortunately when *A. cerana* was brought into contact with the western bee in southeastern Russia, varroa 'jumped species'. Initially the western bee had no natural defences against varroa, which destroyed thousands of colonies.

The three main species of honey bees that are important, besides the western honey bee, will be covered in this article. These other species all exist in Asia and are known by their common names: the giant honey bee, the dwarf honey bee, and the eastern honey bee.

The giant honey bee

As the name implies, this is a much larger bee than the western honey bee. Worker bees are the size of an Italian queen, about 17–19mm long. The most common species of the giant honey bee is *Apis dorsata*, which lives in tropical climates. It is found in parts of China, India, Malaysia, and Thailand. A second less common giant honey bee species is *Apis laboriosa* or the Mountain bee. *A. laboriosa* is generally a darker bee and is found in the Himalayas of west-central Nepal at higher altitudes than *A. dorsata*.

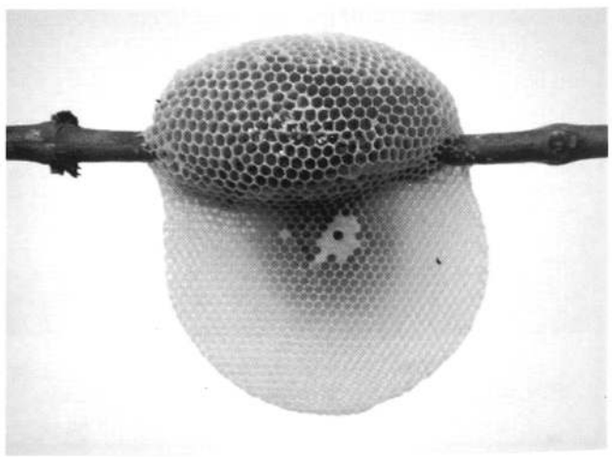
Both species of the giant honey bee can be very aggressive when the colony is disturbed, with thousands of bees taking flight and attacking the unlucky intruder.

The giant honey bee is a migratory bee, the whole colony moving to take advantage of nectar flows. They nest in the open on one large comb typically two metres across, usually quite high up off the ground and well away from predators. They completely cover this single comb 2–3 cm thick with bees, which also serves to insulate the brood nest. The brood is located at the bottom of the comb, surrounded by stored pollen. Honey is stored near the top where the comb is attached to the limb and large combs can contain significant amounts of honey. Often many colonies nest quite close to one another on the same tree limb, as in the photo.

In spite of their aggression, giant honey bees are robbed by the local people for their honey and brood, often at great personal risk. Occasionally the wax is also collected for making candles but wax is not as highly regarded as the honey and brood, both of which are popular foods in Asia. The giant honey bee is not domesticated like the western honey bee, which of course can be kept in man-made hives with movable frames. However, in Cambodia the locals try to attract *A. dorsata* colonies to nest on man-made poles or rafters. These are placed so *A. dorsata* will build its comb at head height, which makes for easier harvesting.

The dwarf honey bee

Apis florea is the most common species of the dwarf honey bee and it is found throughout Asia. Less common is *A. andreniformis*, the small dwarf honey bee of southeast Asia, which is generally darker than *A. florea*. The dwarf honey bee is much smaller than the western honey bee, being only about half its size. The dwarf honey bee constructs a single comb on a tree branch and is open nesting like the giant honey



bee, but the comb is a lot smaller, usually less than 30 cm across.

This species of honey bee is not kept in hives but wild nests are harvested by the local people for honey, wax and brood. Despite its small size, the dwarf honey bee can be very aggressive towards larger bees, especially when competing for foraging sources. *A. florea* will readily rob colonies of the western honey bee, which seem powerless to stop it.

The eastern honey bee

The eastern honey bee, *Apis cerana*, is more closely related to the western honey bee than either the giant or dwarf honey bee. It is now thought that the western honey bee originally evolved from this eastern honey bee. *A. cerana* builds multiple-comb nests like the western honey bee, making it a useful bee for beekeeping. However, it is very similar to the giant and dwarf honey bee in the way it absconds and swarms readily.

In Asian countries like India, China, Vietnam and Japan, *A. cerana* is kept in hives and managed under similar regimes to the western honey bee. However, because this bee is about a third smaller in size, the beekeeping equipment used is also much smaller, together with a reduced yield (10–20 kg/hive).

Apis cerana has evolved to survive better in hot climates and to avoid predation by such pests as the oriental hornet, which can completely destroy colonies of the western honey bee. *A. cerana* defend themselves against the oriental hornet by forming a cluster over the invading hornet and basically cooking it to death.

A. cerana is the most common species of the eastern honey bee but three other less common species exist and have now been recognised in Malaysia and the Philippines. These species are *A. nigrocincta*, *A. koschevnikovi* and *A. nuluensis*.

The eastern honey bee is the natural host for the parasitic mite, *Varroa destructor,* but the mite does not devastate the whole colony. Eastern honey bees groom each other more often and have a much shorter brood cycle, which could help explain why varroa is not so destructive to this species.

An unusual and unique characteristic *of A. cerana* is that its sealed drone brood has a small central hole in it. Another characteristic of *A. cerana* is that unlike *A. mellifera*, it does not collect or use propolis. This bee also has a strong robbing tendency similar to *A. florea*.

Biosecurity threats to New Zealand

Why should we be concerned about the biosecurity threats of these other *Apis* species? We need to be concerned for our beekeeping industry because the giant honey bee harbours another parasitic Asian mite known as *Tropilaelaps clarae*. This is an external mite similar to varroa, which has successfully parasitised *A. mellifera*. It kills western honey bees faster than varroa, and would cause major damage to the New Zealand beekeeping industry.

European foulbrood (*Melissococcus plutonius*), and also a new species of the bee louse (Braulidae) have been found on *A. dorsata*. Therefore, this species could be a vector for the spread of these pathogens, which are highly undesirable to New Zealand beekeepers.

The dwarf honey bee harbours the parasitic mites *Euvarroa sinhai* and *E. wongsirii*, which attack drone brood and adult workers. It is not known what impact *Euvarroa* would have on our western bees, but we know they will affect this species because adults of *E. sinhai* have been found in hive debris of *A. mellifera* colonies in India. Because *A. florea* readily rob *A. mellifera* colonies, *Euvarroa* would be easily spread throughout our colonies.

The eastern honey bee is the natural host to several species of varroa mites and viruses, and also is infested by *Tropilaelaps*

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in Papua New Guinea. Therefore, it is most important to keep this bee out of New Zealand. The other varroa species, besides *V. destructor,* which is already in the North Island of New Zealand, could bring new viruses with them or assist in the spread of endemic bee viruses.

Even if these other *Apis* species did not introduce any new beekeeping pests and diseases into New Zealand, they are still highly undesirable. Species like the giant honey bee would compete directly with our bees, and would also cause major problems with their aggressive behaviour, especially when protecting their nests on the sides of city buildings. Local bodies would probably move quickly to pass bylaws to ban beekeeping in urban areas. Paid pollination services could be more difficult in some of the major fruit growing areas, because of the threat to people in these areas and the public perception of bees in general.

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Photos used in this article are from the Michigan State University web (photo.bees.net) with the kind permission of Zachary Huang, Associate Professor.

Other useful web sites:
www.cyberbee.net
gears.tucson.ars.ag.gov

Carnica: the grey alternative

David Yanke
Daykel Apiaries

Like it or not, Carniolans (carnica) are back, and this time they are here to stay. So you may as well make the most of it, but to do that, you first have to know a little bit about them.

There are still more questions than answers when it comes to Carniolans and how they will fit into New Zealand beekeeping. I will try to address the most frequently asked questions, but because some of these questions are far more easily asked than answered, you may feel dissatisfied at the end of this process. I'll start with the easy questions first.

What are they?

Carnica (*Apis mellifera carnica*) is a race of European honey bee, very closely related to the Italians (*A.m. ligustica*), and said by some to be a grey version of the Italian. Also like the Italians, carnica is one of the two best and most widely used honey bees in the modern beekeeping world. It is the bee of the Balkan Peninsula, extending into the Alps, and over the Black Sea up into the Ukraine. Having evolved in the continental climate of south eastern Europe, it is a very hardy bee, showing quick population increase in the spring (to put it mildly), and good production potential. It is a very gentle, quiet bee. The carnica is about the same size and shape as the Italian, but dark, with broad, dense hair bands (tomenta) on their abdomens: it is this pubescence that give carnica its characteristic grey appearance. Exactly how explosive their build-up will be under our spring conditions, and how much swarming this will lead to if not managed properly, are difficult questions with no sure answers at the moment.

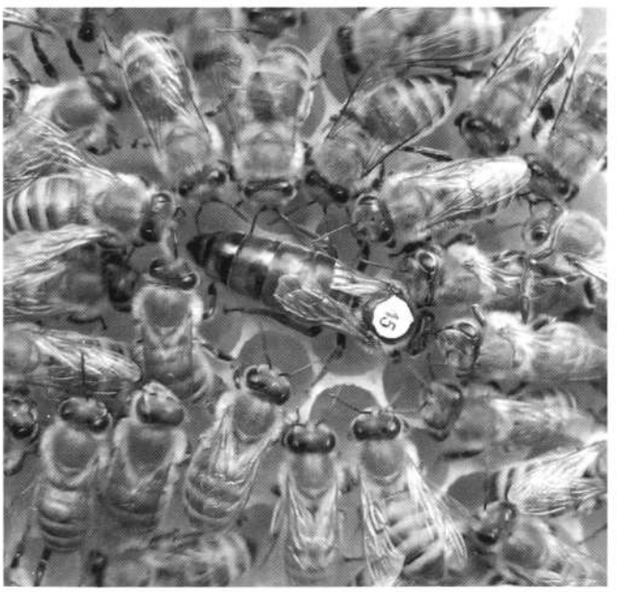


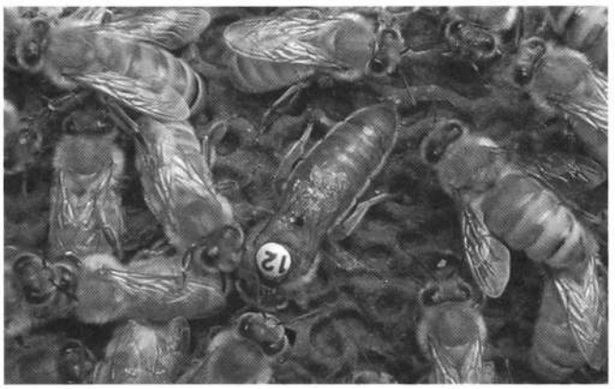
Photo: David Yanke

Carnica queen: photo taken in Germany

How did they get here, again?

Cases have been documented of carnica queens having been brought into New Zealand in the past, and it is almost certain that there were illegal importations of carnica as well. The number of queens involved was small, and no serious effort was made to create a viable breeding population of carnica, so inevitably they were swallowed up into the New Zealand gene pool, overwhelmed by the mating advantage of the feral population of *A.m. mellifera*, and by the commercial preference of the time for yellow bees.

For decades then, except for the myths and legends of illegal imports, fortress New Zealand stood firm. No legal importations of live bees or genetic material occurred until a small breach of the defences in 1988, and again in 1989, when I brought in a small amount of Italian-type semen from the Western Australian Bee Breeding Program. Besides injecting some new material into the New Zealand gene pool, the purpose of these importations was to soften up the defences for carnica. A group of us thought that it would be a positive thing to introduce carnica into New Zealand. It would give beekeepers here a choice in what bees they ran, and it would let our live bee exporters obey the first law of business: letting us supply our customers with what they really want. I couldn't possibly count the number of times I was asked if I could supply carnica queens, and could only reply, "You can have any type of queen you like, as long as it is yellow".



Daykel Italian queen Photo: David Yanke

Anyway, the defence softening did not work. We tried and failed several times during the 1990s to get carnica semen in. Once we came as close as having the semen on its way to the airport in Germany when MAF had to pull the plug because of a successful last-minute attack by those in the industry opposed to the importation. They were worthy opponents: as determined as I was to get carnica in, they were equally determined to keep carnica out. Each failure, though, was a small step towards eventual success, but it was hard to see this at the time. Things were gradually getting done: an initial risk analysis was performed; ERMA declared carnica not to be a new organism; and an initial Import Health Standard was developed. These initiatives were still not enough, as the Import Health Standard (IHS) was just too tough and proved unworkable. It took the arrival of varroa to create the will that finally found the way to make it happen.

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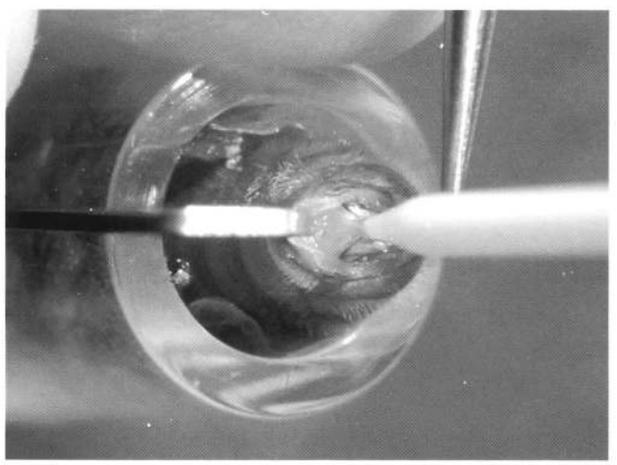
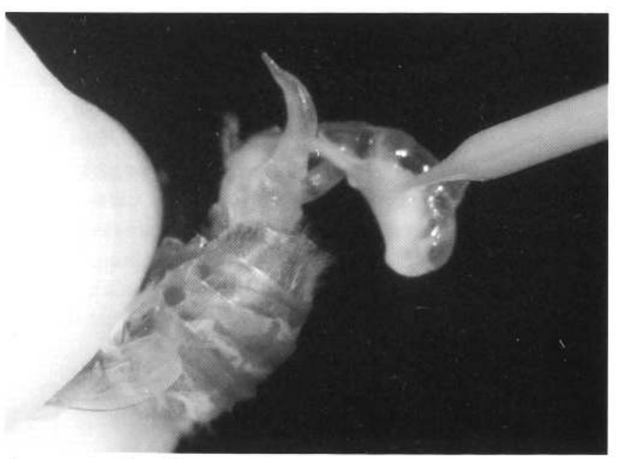
Although we were very unlucky to be invaded by varroa, we were fortunate that so many had gone before us. We knew from overseas experience that managing varroa only gets more difficult with the passage of time, as resistant varroa remove the easy-to-use weapons from our arsenal. Look at the situation in North America now, where, 20 years down the track, varroa is more deadly then ever. We knew that increasing the varroa tolerance of our bee stocks was the only viable answer. MAF realised this as well, and they knew that tapping into the varroa tolerance work being done overseas was the surest and quickest path to significantly varroa-tolerant bees.

A new risk analysis was carried out, which can be viewed at www.biosecurity.govt.nz/pests-diseases/animals/risk/index.htm#genetic. It concluded that only importations of semen could be managed so as to pose a negligible risk of introducing an exotic pest, disease or unwanted Genetic Material. The 'unwanted Genetic Material' referred to the Africanised honey bee and the Cape honey bee. The Import Health Standard for the Importation of Carniolan Honey Bee (*Apis mellifera carnica*) Semen into New Zealand from Germany and Austria was drafted, and became operational in 2004. Slovenia may be added to the IHS in 2005. The IHS may be viewed at www.biosecurity.govt.nz/imports/animals/standards/honeybeesemic.spe.htm



Queen being inseminated. **Photo: Joseph Latshaw**



Semen collection. **Photo: Joseph Latshaw**

Importations to New Zealand

Using this IHS, a total of 100 doses of semen were imported from one institute in Germany and another in Austria in early June 2004. A second importation, totalling 140 doses, arrived in early August 2004 from the same two institutes, as well as from another German institute. Both importations were more successful then I dared hope.

I went to Europe and picked the semen up myself for the first importation, and carried it back on my person. While I was at the German institute at Kirchhain I had a good look at the stock from which the semen was sourced and was very impressed. The bees were beautiful, very gentle and very quiet. I saw carnica in a side-by-side trial with Primorsky queens straight from the USDA facility in Baton Rouge, Louisiana, headed by Dr Thomas Rinderer.

The Primorsky, or Russian bees, have become the standard by which varroa tolerance is measured. Primorsky is the region in the far east of Russia from where the USDA researchers sourced their varroa-tolerant stock. From the mid-1990s they continued to import selected queens from this region. They have stopped now, and are working with what they have. The reason these Primorsky bees are so tolerant is because they have had it for decades longer than any other place, and they are thought to be ground zero for the global explosion of *Varroa destructor*. Russian settlers took European Honey Bees, *Apis mellifera*, to this region, which was a frontier with the Asian Honey Bee, *Apis cerana*. *Varroa jacobsoni* was a pest of cerana, but would not reproduce in mellifera worker brood so posed no threat until the classic species jump occurred, and a mutant mite that could rampantly reproduce on mellifera, now known as *Varroa destructor*, made the leap and started the global invasion of European honey bees.

Back to the trial. All of the colonies were more than 12 months into the trial without treatment when we inspected them. While you could find mites in the drone brood in most of the colonies, all were still healthy, and all still produced a crop in that second year. To my eye the Primorsky stock had fewer mites; in fact, in one colony we had to search very hard to find even one mite in the drone brood. The data showed that the best carnica were as varroa tolerant as the average Russian, but the Russians had some serious problems. They were far more nervous and nasty than carnica, much like our mellifera crosses here, and they produced little honey, but their worst trait was their

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swarming. Without exception the Primorsky bees started trying to swarm early, and they kept trying through until late summer.

For the second importation, in August 2004, the semen from the three institutes was brought together into one consignment and airfreighted to me. I know that moving people and things around the globe is no big deal anymore, but sitting down and inseminating queens with semen that had been collected on the other side of the world only a couple days before was a real buzz. That thrill has continued right through this past season as I got to work with the results of those importations.

Both of the importations last year, and the ones to come this year, are the cornerstones of the Varroa Tolerance Improvement Project (VTIP) being run by Daykel Apiaries. The goal of VTIP is to provide usefully tolerant breeders for sale — both carnica and Italian. We are doing this by maintaining and improving the Italian closed population we already have developed, and by establishing a viable breeding population of carnica, then maintaining and improving both populations, with varroa tolerance being the most heavily weighted selection criteria.

The foundation stock for the carnica population were very carefully selected Italian queens that had been inseminated with pooled semen from the closed Italian population. For the first importation, 10 breeders were used, and 10 daughters from each of the breeders were inseminated with the semen I brought back in early June. The semen was sourced from two institutes. The Austrian institute was in Lunz, established by Dr F Ruttner, and has been breeding carnica for decades. The German institute in Kirchhain is well known for their carnica breeding work. (Dr Ralph Bûchler is the head of this institute. I would like to take this opportunity to acknowledge his support over the years, without which I might well have given up, and surrendered to fortress New Zealand.) The semen from each institute was from several drone sources so I pooled each separately, and inseminated half of the virgin queens with Austrian semen, and half with German. All went well, and the queens were laying as quickly as they would have in the middle of summer. I had emerging workers before the end of June.

I tried to do my best to select breeders for the second importation in August, but was obviously limited in what I could do because of the short time between the importations and the fact that it was the middle of winter. I did morphometric testing by measuring the cubital index of the workers of each of the queens. Cubital index is the ratio of the lengths of two veins around the cubital cell in the wings of bees. It is a very distinctive racial characteristic. Mellifera has the lowest, and carnica has the highest of the European races, so the higher their cubital index, the higher their score. I waited as long as I could, and tested their hygienic behaviour as well. So using the morphometric and hygienic scores, and a good dose of gut feeling, I selected 15 breeders. These breeders were pure Italian, but they carried pure carnica semen in their spermathecas. Again, I reared 10 daughters from each of these breeders. These daughters were F1 hybrids: 50% Italian and 50% carnica in their genetic makeup.

(An interesting aside: when you rear drones from these F1 queens, 50% of the drones are pure Italian and 50% are pure carnica. This is because the drones are haploid; that is, they have only one set of chromosomes representing one half of the queen's genetic makeup. So when the queen produces her eggs, the process sees her double strands of DNA unzip, with the carnica strand going to one gamete, and the Italian strand going to another.)

Back to the second importation. Semen was again sourced from Lunz and Kirchhain, with different drone sources being used at both institutes than were used in June, and semen was also sourced from another German institute in Mayen. The semen from each institute was again pooled separately, and 144 virgins were inseminated at the end of the first week in August. All went well, and once again, the queens started laying surprisingly fast for that time of the year.

It was such a relief for things to go as well as they did. To source semen from the Northern Hemisphere means that you have to rear virgins outside the normal time for doing such things, to say the least. I always thought I could do it, but there was always that niggling doubt, and I knew there was the potential for disaster.

The queens from the second importation were introduced into the test units in mid-September, equalised, and treated for two weeks. Treatment was removed, marking the beginning of the evaluation period that ended in mid-February 2005, when mites started taking their toll on some of the test units, especially the Italian control colonies. They were treated again, and boards put under the test units to monitor mite fall over a seven-day period. Frames of brood were also taken, and frozen for later mite counts to measure the level of brood infestation. Evaluations are ongoing for measurement of the usual variables such as temperament, hygienic behaviour and honey production, as well as the morphometric measurements. Breeder selection will have to be completed by early May 2005, so that I can undertake the breeding work for another importation in early June.

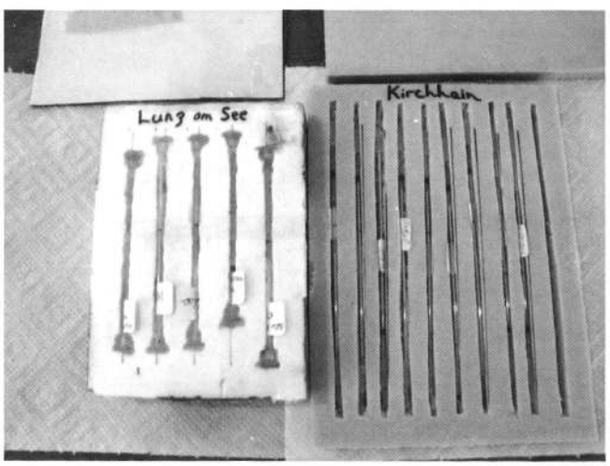

Photo: David Yanke

Semen shipment as packed on arrival to NZ

What have I learned so far?

I've learned very little about how carnica will perform under New Zealand conditions. This year has been an experience in hybrid beekeeping and the hybrids have been very impressive. Hybrids are an intermediate bee, however, so

they do not cast much light on true carnica behaviour. The hybrids produced more honey and they had fewer mites. In the test units, only three of the 20 Italian control colonies were still healthy; the rest had dying bees and brood to some degree when treated at the end of the evaluation period. While 25 of the remaining 80 hybrid test colonies were still perfectly healthy, and most of those had very few mites, a couple had less than 20 mites after the seven-day mite drop. I was very impressed and concluded that our Italian bees are mite magnets, because the sudden increase in mite numbers in February wasn't simply reproduction, it was invasion, and the Italians took on many more mites than their share. Although the performance of the hybrids exceeded my expectations, nevertheless they were hybrids, and their performance could be largely be put down to the effect of heterosis (hybrid vigour).

Besides the evaluation of the hybrids in the test population, I have had feedback on the commercial hybrids I produced this season. I sent out thousands of naturally mated hybrid queens, about 70% were F1 hybrids, and about 30% were F2 hybrids. The queens I produced in the spring mated with mostly Italian drones under the conditions of our most difficult spring ever, and the appearance and performance of their colonies reflected that. By mid-January the weather had come right, and most of my drone sources were much more carnica-like, and I was very happy with the hybrid queens I was sending out. The feedback was encouraging and mostly positive, and supported what I was seeing. In summary, the hybrids, especially the F1s, proved to be a very good commercial bee: very prolific in their brood rearing, very good honey producers, and of acceptable temperament. Nothing that was unexpected. A large-scale beekeeper in the Bay of Plenty (who has hundreds of the hybrids in his outfit) recently told me that while carrying out his autumn treatment, he has noticed that the hybrids have significantly fewer mites than his Italian colonies.

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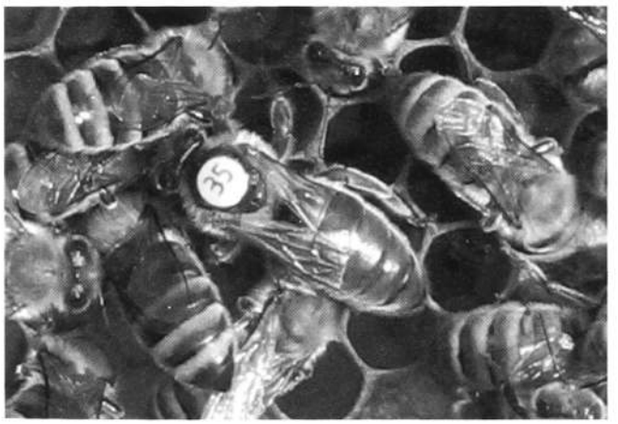

Daykel carnica queen **Photo: David Yanke.**

NEW METHYL BROMIDE REGULATIONS

Keep an eye out in the June issue for information on the new methyl bromide regulations. For a list of fumigants requiring a Licence refer to the Compliance Guide – Fumigators, available at www.ermanz.govt.nz/resources/publications/word/ER-CG-17-01.doc or by calling toll free on 0800 376 234 (Hazardous Substances (HS) Compliance Line) for a copy to be sent to you.

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About the Apiary

Temperatures have cooled substantially as we head into winter. During late April, the bees brought in nectar from late-flowering exotic sources such as eucalyptus, or have taken down honey and packed it into the brood nest in preparation for clustering. Some hives have completely closed down brood rearing, while hives headed by new queens still have brood in two to three frames. Flying activity has declined except in the warmer urban areas, where ornamentals are still providing valuable pollen and a little nectar.

In the New Zealand bush, the red deer have finished roaring and the old leaves are falling off the evergreen trees, after having done their work for the past three years or so. Very little is flowering in the bush; however, around the creek margins there's a heavy scent from the odd bush of Tanguru (*Olearia albida*): unfortunately, the bees don't find this tree attractive. In another part of the bush there was a real hum of activity around the beech trees yet there wasn't a flower to be seen — it was wasps! Wasp numbers are peaking, with hundreds searching for insects hiding in the tree canopies and taking them back to feed their hungry brood. If they haven't already done so, nests are producing queens that will soon mate and go off to hibernate in some dry spot, ready to start anew in the spring.

Wasps

Wasps need carbohydrates to produce queens and attack ripe fruit. If permitted, they will attack beehives to steal their precious honey, and they can be very persistent. Wasps fly at much lower temperatures then bees (i.e., earlier and later in the day) and quickly sneak into an undefended hive entrance. After a few raiding trips wasps get bold. Rather than hover nervously around a hive entrance (which would attract the attention of the guard bees), they fly straight in without being challenged and help themselves to the hive's stores. Hives sometimes succumb to a strong wasp attack. Generally they will target the weakest hive and having robbed it, they will attack others as they get bolder. Wasps forage only within 500 metres of their nests, which are located in banks of creeks, drainage ditches, rotting tree stumps and the like, and can take a long time to find. It's easier to put a jam bait in an empty super (a dummy hive) and add poison to it after the wasps are feeding on the jam. Don't put in too much poison, as the smell can repel the wasps or may kill just the foraging wasps. It's important that the poison is taken back to the nest to kill it.

If you find the nest, there are several ways to destroy it. A 1.5 litre bottle of diesel petrol into the entrance (leaving the bottle in place) will suffocate the nest. A tablespoon of any insecticide powder down the entrance (provided the ground around the entrance is dry) will be taken into the nest and kill it. The point of killing a nest is to do it without disturbing the wasps: tread very lightly and work from the side. You can sometimes get away without having to use protective clothing; however, don't take chances like this with large nests. Wear a second boiler suit under your bee suit and tape up all openings of the suit if it's a very large nest. I've come away after killing a large nest to find wasps in my pockets still trying to find a way in.

Mice

At night mice search for a snug dry home to spend the winter. A beehive provides just such an environment, with the added bonus of nearby food. Mice will chew out a nest between the outer frames and carry in dry grass to line it. Bees tend not to like the smell of mice and move away, so you can end up with the bees on one side of the honey super and chewed out frames on the other. The result is a very weak hive, or a dead colony and a thriving family of mice in spring.

If you haven't already done so, close down your hive entrances so mice can't get in by putting on an entrance restrictor to reduce the height of the entrance to 10 mm. Some beekeepers use pieces of tin with a line of 8-mm holes along the bottom edge. Others make an entrance block of wood with a 200 x 10 mm slot in the middle. These sorts of devices help bees to defend their hives against unwanted intruders. Beekeepers can also protect their hives from wasp attack by creating a tunnel at the entrance; i.e., a piece of tin 200-mm wide horizontally across the entrance between the bottom super and the bottom board risers. The wasp therefore has to travel further into the hive before it can slip past the guard bees, and it also makes it more difficult for them to find the entrance again to get out. With a tunnel and a reduced entrance, the bees find it easier to defend their hives.

Leaving rat and mice bait in a container or plastic bottle under the hive stand generally keeps mice and rats at bay. It's better to kill them before they have a chance to damage your hives.

Robbing

Not all bees gather nectar from flowers. Bees are also scavengers on the lookout for an easy target, particularly after the main honey flow ceases, and can smell exposed honey a few kilometres away. All of us have at times left honey frames exposed that are found by robber bees. Even after the honey frames have been removed or covered up, the bees will hang round looking for it and will return for two to three days before giving up. If this happens, put out a few dry combs and the bees settle down a lot quicker.

Bees will also attack weak or queenless hives. This doesn't just happen spontaneously, as some of us leave hives open for quite a while when doing a full inspection. Even during the honey flow bees will look for an easy way to secure nectar. If frames are left exposed for long periods, bees quickly become robbers and will persist in trying to steal honey even after the hive has been reassembled. Beekeepers must be mindful that robbing can happen at any time and should take precautions when working on their hives. Cover exposed supers with a division board or a damp cloth. Another method is to remove the roofs and expose the top supers of all hives in a yard if robbing starts. The bees quickly revert to defensive behaviour and robbing ceases. Prevention is better than trying to stop robbing once it starts; however, if your hives are being subjected to full-blown robbing (bees everywhere: disturbing everybody and everything) from other hives in the area, there's very little you can do about it. Close the entrances down, push a bit of grass into the entrance, seal cracks between supers, etc. If robbing persists, consider moving the hives away for a week or two.

Keep an eye on the landing board for anything unusual. A guard bee holding on to another bee, which will have its tail

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down in a defensive position, could be an indication of robbing. Often it's just a bee that has mistaken its own hive entrance, but sometimes it can be a robber bee. By having hives in groups two metres apart, facing in different directions, you can eliminate bees drifting.

I once made a mistake of leaving hives with top entrances (the top super slipped back a little) late into the season. When I came to remove the honey supers, the top supers of all hives had been robbed out and there was a 25-mm barrier of dead bees between the second and third super protecting the bees below. Incidentally, these dead bees were all black bees from, I presume, the feral hives nearby. Generally the Italian (yellow) bees provoke robbing.

Placement of hives

Now that the sun's getting lower in the sky, it's time to review your apiaries. Are the hives getting any sun during the day? Trees grow and quickly block out the warming sun. Morning sun is OK but all-day sun, with hives out of the wind, is far better. If hives are partly shaded, place a sloping board against the landing board so chilled bees landing short of the hive entrance can walk up into the hive. This helps particularly in the spring, when the bees get chilled bringing back loads of valuable early pollen.

Are the hives off the ground so there's an airflow underneath? Are they sloping forward so the rain runs straight off the landing boards? Are the roofs watertight? Aluminum roofs deteriorate over time and can start to leak. Another problem to watch is when the roof fits too tightly. If the construction is too tight (i.e., a tight fit over the top super), it won't allow any top ventilation, resulting in a very wet hive in the spring, causing the top bars to rot within a few years. Slight dampness under the roof/crown board is permissible but the inner walls of the super and frames should be dry. If they are wet, place a small twig under the highest end of the top super so that some more air can flow out from the hive.

Out-apiaries

A lot of beekeepers are being forced to have hives situated away from their home. It's best to only have two hives at home — having more tends to cause problems in the spring (e.g., bees defecating over washing and cars). So if you have more than two hives, you are going to be forced to maintain an out-apiary.

Selecting an apiary site is very important. The site needs to have sunshine and be out of the prevailing wind, close to spring pollen sources and *well away from stream and creek beds*. We are getting '100-year floods' every few months: if an area gets 446 mm in 36 hours, the water has to go somewhere. Floods bring down slips, fill streambeds with gravel and mud and then start spreading out. I've been in some confined creek beds lately where the water has come up 2.5 metres! Track markers that were at head height are now at knee height. Hives that were a few metres about the creek bed were flooded or washed away. I spent an afternoon helping to wash mud out of frames and trying to put hives back together (not mine). With luck and feeding, half may recover.

One thing I learned is that it's easier to clean mud from plastic frames than from wax frames. The procedure we used was to drop the supers into the water for a while. Then, taking each frame individually and holding it horizontally, we filled the frames with water and shook them up and down. By repeating this process a number of times for each side, it was easy to dislodge the mud from cells in the plastic frames, whereas the wooden waxed frames would collapse. If you need to do this at home, simply spray a jet of water over the frames. If you don't clean out the mud, it goes hard in the cells and the bees won't use them again. Hives left standing that were submerged only for a short time will recover, and the bees quickly start to dry things out by themselves, but you have to get the mud out of the lower frames and off the floorboard.

The lesson is to select a better site, such as the farmer's best lambing paddock. You also can look where the cows congregate at night, which usually is in a warm spot and up high from water. Fence the hives in, or tie or weight them down so they won't be blown over or knocked over by stock. Sometimes all that is required is a small amount of electric fencing. Stock are smart enough to only eat up to the wire but won't push through the fence once they learnt it's 'alive'.

You have to be just as considerate with out-apiaries as with town hives. Keep the bees under control and leave when they have settled down. You don't want the farmer going into the paddock to check his stock and being stung by angry bees.

It's also important to have drive-on access to the hives. You don't need to buy a four-wheel drive vehicle: snow chains fitted to a normal road tyre will give you heaps more traction when the ground is damp.

Queenless hives

As I take the last of the honey off and do my final inspections as I winter down the hives, I'm finding a few hives have gone queenless. These hives have produced well but now have hardly any bees in them. The brood nest was full of frames of pollen, indicating that they had been queenless for quite some time. You can't take a queenless or a weak colony with an old queen through the winter, as more often than not the colony will die. It's best to unite a strong colony on top of the weak one (using two sheets of newsprint) or unite two weak ones together with the one with the better queen on top. It's easier to make up numbers again in the spring by making splits when new queens become available.

Things to do this month

Winter down hives. Dispose of honey crop. Grade and sort combs into those for brood, those to be extracted, and the damaged ones to be repaired or replaced. Wax moth control: check a few supers to ensure they are free of wax moth. Only a minimum of chemicals should be used.'

Check and control wasps if they are a problem. Control growth around hives. Check varroa levels following treatment. Clean and sanitise extracting plant.

- Frank Lindsay

Letter to the Editor

Editor's note: The following letter has been abridged and excludes the curriculum vitae sent with the email. Melanie Kirby's contact details are given below for those wishing to obtain her curriculum vitae. Melanie is seeking a position with a New Zealand beekeeping operation in the coming season. She cites "varied experience, dedicated motivation and the desire to continue learning about bees, beekeeping and bee-ing! Any information you could send my way is surely appreciated — I hope to hear from you."

My name is Melanie M. Kirby and I have been beekeeping for over 8 years. I was introduced to beekeeping through the United States Peace Corps. I served as a Beekeeping Extensionist Volunteer in the Agricultural Sector in Paraguay, South America from 1997–1999. Shortly after completing my service, I worked for two different queenbee rearing operations on the Big Island of Hawaii; namely, Hawaiian Queen (1 season) and Kona Queen (4 seasons). In August 2003 I returned to Paraguay to work for CHP International as the Beekeeping Extensionist Technical Trainer. This opportunity reintroduced me to Paraguay, the Peace Corps service and it also allowed me to take my skills to the next level; that is, to teach what I had come to experience — to know — about beekeeping to others. This opportunity was extremely enlightening. I became reacquainted with teaching, and teaching adults non-formal education and through experiential learning techniques.

I am currently beekeeping for Honey Land Farms in Florida. From my resume, it is apparent that I have held a variety of jobs and positions yet have chosen beekeeping to be my trade, my career. I believe that my technical beekeeping skills can accommodate professional beekeeping to unfamiliar as well as familiar team workers; whether they be learning the trade from scratch or are seasoned veterans.

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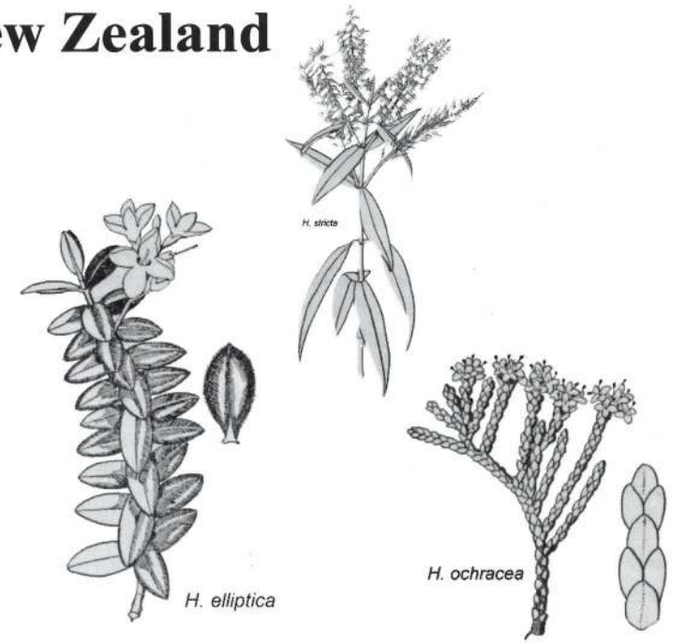
Sincerely,
Melanie M. Kirby

Trees and Shrubs of New Zealand

Hebe (over 100 species in New Zealand)

Maori Name: Koromiko



Pictured are *Hebe stricta, Hebe elliptica* and *Hebe ochracea* to show a few of the many different forms of the Hebe genus.

The Hebe, or Veronica, is represented in New Zealand with a large number of species (more than any other country in the world), many of which are either natural hybrids, or produced by nurserymen.

The Hebe can be found in coastal areas where they are salt drenched, to the snow line in the mountains. They range from large shrubs to small plants no more than 150 mm high. Leaves can be long and thin, round, serrated (six species) and scale-like as in the Whipcord Hebes. Some species of Hebe have both juvenile and adult leaf forms like other New Zealand trees.

The flowers of the Hebe range in colour from purple through pale blue to white, and from pink to red. Most flowers are readily visited by bees for nectar and pollen. Flowering times vary from spring to autumn, depending on species and location. The honey is light amber and delicate in flavour. Some seasons enough honey can be produced to extract a straight line, but usually the honey collected only helps provide winter stores. Bees collect pollen in the autumn from the Hebe, the colour of the pollen ranging from white to dull yellow.

The Koromiko was used extensively by the Maori, a practice which continues to this day. They chew, but do not swallow, the young folded leaves to treat diarrhoea and dysentery, swallowing only the juice obtained. Alternatively, they steep the young leaves in warm water and drink the liquid. Some early chemists made up this preparation for the colonialists, keeping it fresh with spirits or wine. The Koromiko leaves have also been fed to cattle and sheep to prevent scouring.

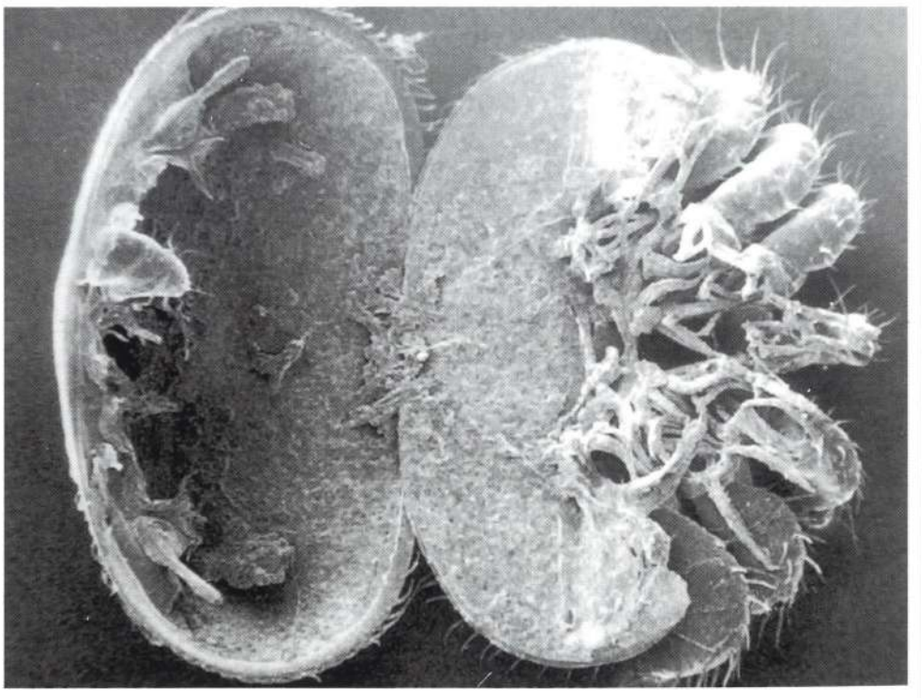
During the Second World War large quantities of Koromiko leaves were sent to the troops in the Middle East, and were accepted equally by both Maori and Pakeha soldiers.

Koromiko had many other uses, including being made into a weak infusion that was taken as a tonic. The leaves were bruised and applied as a poultice for an ulcer or boil and for venereal disease. The fresh young leaves were steeped in hot water for a period to make an infusion which was given to expectant mothers to bring on an early and rapid childbirth (many pioneer women used this as well as Maori women).

In the 1940s the Christchurch Botanical Gardens supplied Koromiko seeds to Russia for propagation for medicinal purposes.

An interesting note is that a Veronica species was used as an ingredient in lotions made by witches in the Middle Ages.

- Tony Lorimer



In the June issue, we will feature the first of a series of articles by Bob Russell on his quest to breed varroa-resistant NZ stock. Above is a varroa mite with its armour removed, showing the powerful structure of its leg muscles. Photo supplied by Bob Russell, taken for Alois Wallner, author and commercial beekeeper from Austria.