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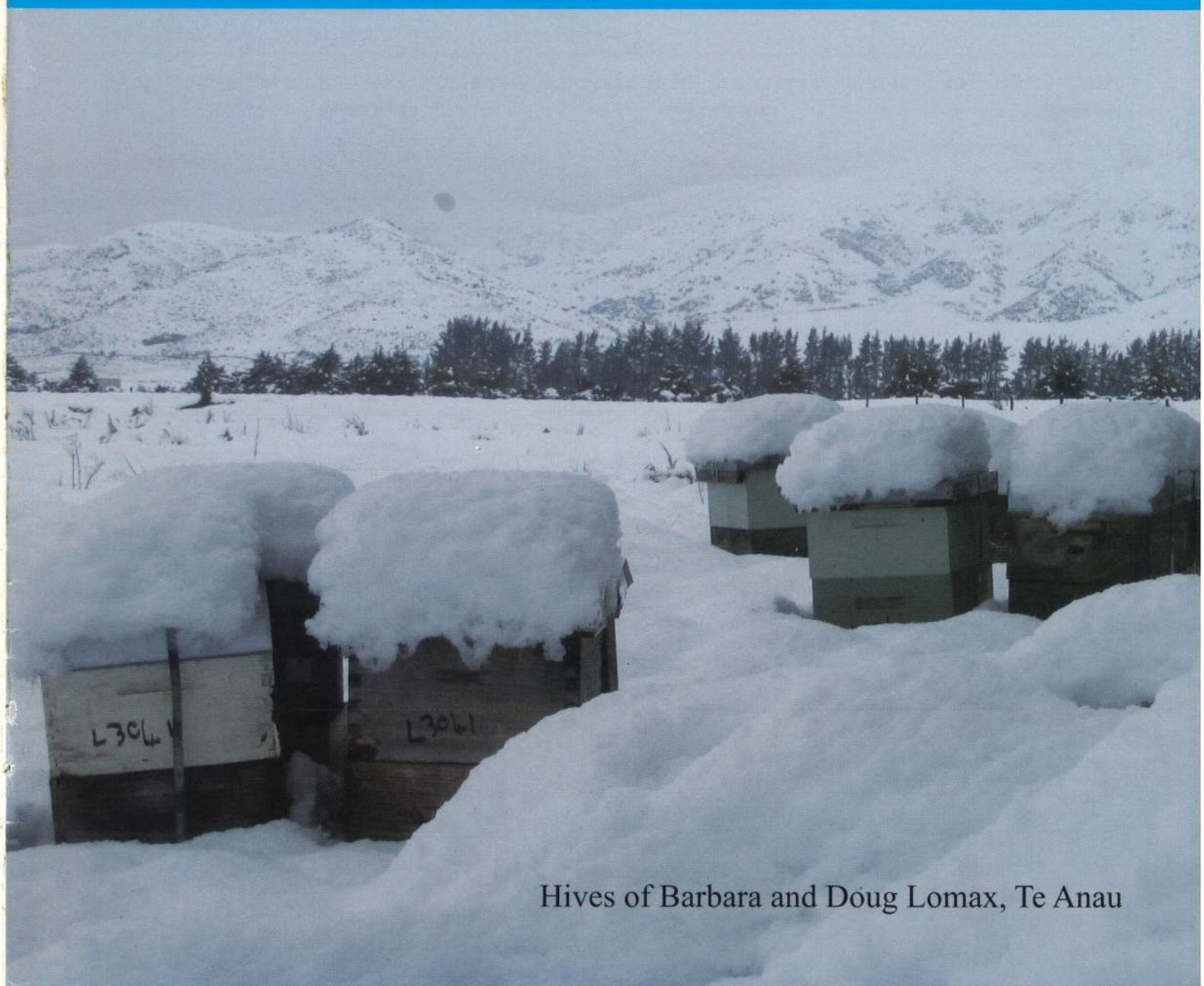
Winter in Fiordland



Hives of Barbara and Doug Lomax, Te Anau

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President's Report

With the winter nearly over and the length of the day rapidly increasing there is a renewed optimism to get back into doing things again, although the persistent rain that seems to be afflicting many parts of the country at this time seems to have dampened many people's enthusiasm somewhat.

As I write this I am suffering from the bug that seems to be affecting just about everyone at the moment and I really have to make an effort to write.

Recently Carne Clissold, President of the Southland Branch, lent me a copy of W J Lennon's booklet Bees in their Bonnets. It was published in 1948 and was a history of beekeeping and beekeepers in the 'Farthest South'. Lennon was at the time the editor of *The New Zealand BeeKeeper*. The booklet makes for fascinating reading. Many of the issues that we have to deal with today were present at the turn of the 20th century.

Take for example the current issues with industry standards and the New Zealand Food Safety Authority having more involvement in processing systems, etc. Here is a quote from the deliberations of the AGM of the Southland Beekeepers' Association, as printed in the *Wyndam Farmer* April 12 1907:

The next legislation we should strive for should be a Pure Food Bill—compelling those who put up bottled and tinned goods to say on the labels just what the contents are. Recently, in Dunedin, one of the largest grocers admitted that he put 5 percent glucose in his honey, to prevent it from granulating.

One hundred years ago beekeepers were more than aware of the issues of integrity and confidence in the food industry and were pushing for legislation to protect the customers and producers. Now we actually have these robust systems in place to protect our industry some segments of the industry are complaining as it means extra effort and cost. What is the cost of opting out?

With the debate on developing robust industry definitions for monofloral honeys still going, I still need to remind you all about the need to get this process right. In the meantime, overseas companies are using our manuka brand reputation to our disadvantage. Recently I received a note from John Moffitt of Nelson, who was in Canada recently. In it was a photograph of the President's Choice Manuka Honey imported from Australia. According to John it tasted like a eucalypt honey. If it was real manuka it would not be able to be packaged in that sort of container, as its thixotropic nature and rapid granulating characteristics would make it very difficult to get out of the squeeze bottle. The description of the flavour doesn't match manuka honey anyway. My recollection of eucalypt honey is that it tastes like caramelised sugar syrup rather than honey, which fits in with the description on the label.

I was trolling through the Internet recently looking at what information was out there with regards to the active honey/UMF issues. I came across a website from a company called Manuka Honey USA. Their website is www.manukahoneyusa.com. They have been using the UMF brand without licence from AMHA. I have informed AMHA about this and they are acting on the information. This is a constant problem overseas, and we all need to be vigilant to ensure our brand integrity is not compromised.

With Jim and Pam Edwards being away overseas, things have been a bit quiet since Conference. This is a blessing, as I still have to catch up with a few things after spending three weeks away from home travelling around the North Island, mainly on NBA and NPMS-related activities. I managed to get in a last-minute visit to the Northland Branch in Whangarei. Thanks must go to Jo Scott for setting up the meeting at such short notice, as I was able to meet a number of members whom I would not otherwise have seen.

- Frans Laas

AFB NPMS Report

Many people in the beekeeping industry fail to understand the relationship between the NBA and the Management Agency (MA) and perceive that the two bodies are one entity. This is not the case, and has caused considerable confusion and problems as a result.

The NBA was directed to be the Management Agency to administer the provisions of the AFB Pest Management Strategy Levy Order 1998. Currently the MA employs independent contractors to provide administration, laboratory and enforcement services. While the NBA Executive acts as the board of directors, they do so independently from their position as NBA members.

A past notice of motion directed the NBA Executive to appoint two individuals from the other levy payers to join the MA. Applications from suitably qualified individuals were invited, and these were passed on to an independent facilitator to review and make recommendations. The members of the MA accepted the recommendations and have now appointed Mr John Hartnell to the MA board. The MA was rather surprised at the extremely low number of individuals who applied, considering all the vocal and written criticism and implications of impropriety levelled at the members of the MA on a regular basis. This is a clear case of put up or shut up.

Traditionally the AFB NPMS report to the industry has been presented at the NBA Annual General Meeting. It was felt that this was no longer appropriate. In the past, when membership of the NBA was compulsory for all commercial beekeepers, it was the logical way to do it. However with membership of industry organisations being voluntary, then some separation of the functions of the NBA and the AFB NPMS was advisable.

This year, to further emphasise the separation, the MA has created its own website where all the relevant information relating to the AFB NPMS is held. For those who haven't had a look at the website, it is at www.afb.org.nz

We welcome suggestions for additions and improvements to the website as it is still a work in progress.

Helicopter surveillance exercise

The analysis of the results of the two helicopter surveillance exercises was presented to the AFB NPMS Annual General Meeting. This exercise was mainly an audit to check not only on people's compliance with the strategy rules, but also to see whether there were any problems with the system. In the main, apiary sites are within 200 metres of where the beekeeper reports it on the database, with a few being up to 10 kilometres from the official location, and the worst error was 131 kilometres. This appears to have been a system error rather than a beekeeper error.

As a result of this exercise, the MA will recommend to Biosecurity New Zealand that a number of commercial beekeepers be prosecuted. A number of new hobby beekeepers who hadn't registered were given a quiet talking to and should now be compliant.

Using a helicopter for compliance auditing is a very effective tool as very little escapes detection.

Annual Disease Returns

The MA is pleased to report that there has been a substantial improvement in the return rate of ADRs compared with recent years. Over the last few years beekeeper compliance with the ADR requirements has improved steadily, but too many people are still not handing in their returns, despite a number of prompts from the MA. A list of all ADR defaulters has recently been handed over to Biosecurity New Zealand with a recommendation that they be prosecuted. It is in their hands now.

Database upgrade

The MA announced at the AFB NPMS Annual General Meeting that the upgrade to the Apiary Register will proceed. Levy payers, MAF and NZFSA will fund the upgrade.

On top of the usual structural improvements, it is intended to allow levy payers some direct access to the database (for example, to register new apiary sites), although deregistration may still require some transactional input to AsureQuality Limited. With the addition of a GIS component, each beekeeper will be able to see where their sites are and make grid reference corrections where necessary. The aim is to provide beekeepers with the facility to do their ADR returns online, subject to working through any legal issues. This will be a great help to the larger commercial operators whose ADR form is rather substantial, to put it mildly. Other enhancements being considered include the ability to indicate whether disease has been reported within three kilometres of one of your apiaries. Currently, disease reporting to neighbouring beekeepers is done only where a robbed-out hive has been reported to AsureQuality Limited.

The additional functionality to the database is intended to make it much easier for beekeepers to comply with the AFB NPMS rules. Excuses such as "I'm too busy" or "I can't be bothered" are not acceptable, as we have made it easier for you to fulfil your obligations.

Area freedom

At the NBA Conference in Masterton in July, some Otago and Southland beekeepers approached the MA to discuss the idea of forming a group to assist in eliminating the last of the AFB infections from the region.

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At the moment the number of reported AFB infections in the South is very low, with most beekeepers having no disease at all. Most disease reports are confined to specific localities and involve less than 20 beekeepers. At this stage the goal of eradication in the South appears to be just on the horizon, and with a little extra effort it could be achieved.

AFB NPMS Manager Rex Baynes, Byron Taylor and Marco Gonzalez from AsureQuality and I attended a meeting held in Dunedin last week and listened to their ideas.

As a result of this meeting, an action group was formed consisting of eight beekeepers who would be familiar with specific regions. This group plans to work with the MA to achieve the goal of area freedom for AFB in the Otago/ Southland region.

This is a novel concept and we wish them well.

- Frans Laas
Chairman, Management Agency Board
AFB National Pest Management Strategy

Letters to the editor

Return your Maxi's to NZ Sugar!

Dear Beekeeper,

NZ Sugar has recently been faced with a major shortage of Maxidrums used to deliver Fine Liquid Sugar to beekeepers. The main cause of the shortage is the increase in the number of beekeepers entering the industry and the non/slow return of Maxi's back to NZ Sugar.

Currently the Maxi's are priced with a return rate included. The demand for the Maxi's has increased so substantially that customers are facing a backlog of up to 10 waiting days or longer.

We are currently working on alternative packaging to keep up with demand. In the meantime we are requesting ALL beekeepers to return their Maxi's as soon as they have finished with them.

To return Maxi's, please contact our Customer Services team on 0800 800 617 to arrange the freight in your area. In order for us to maintain a large enough pool of Maxi's, it is vital that they are maintained in good condition to minimise packaging waste. This means storing the Maxi's indoors at all times and free of pest infestation.

Your assistance with the Maxi shortage is most appreciated.

Kind regards,
Merran Walbridge
Account Manager – Food and Beverage
New Zealand Sugar Company Ltd.

A hobbyist's grouse!

I have just arranged for restocking my supply of anti-varroa strips for the next season and it occurred to me that the sale of these strips and the way that they are packaged, discriminates against the hobby beekeeper. Eighty percent of beekeepers in New Zealand are hobbyists who like me, only have a very few hives (I have three). For example, the pesticide strips come in packets of 10, which means that if you have three hives, each having two brood boxes, you end up ordering more strips than you need and then throwing away the surplus strips which have only a two-year shelf life. To make matters even more unfair, a hobby beekeeper pays $3.70 per strip (Apivar), while those commercial beekeepers (who sell their honey in any case), can buy the strips for as little as $2.65 each. Since you cannot stockpile strips because of their aforementioned shelf life, hobby beekeepers are paying nearly 50% more per strip! We are encouraged to "get together with beekeeping friends" and bulk order, but my guess is that many hobby beekeepers do not know of other beekeepers in their area, and in any case, there are always logistical problems of such combining forces, which is why, for example, carpooling never really gets off the ground...

It makes no difference to the manufacturers who buys their strips: hobbyists or commercial beekeepers. If there is a reasonable argument for charging more to those who buy less, then since they are making such a profit from us, why cannot they individually package the strips so there is no wastage? We are urged daily to cut down waste, but this is one of the (many instances) where the poor consumer is at the command of the manufacturers.

Yours sincerely,
Ann Bell

Kanuka? Manuka?

Can anyone who sent in samples of kanuka honey for our two surveys of the antibacterial activity of New Zealand honeys, published in 1991 and 2004 *(Journal of Pharmacy and Pharmacology* 43 (12) 817–822 and *Journal of Apicultural Research* 43 (2) 47–52), remember from which sort of plants the kanuka honey came? I had naively thought that kanuka honey was produced from the nectar of kanuka trees *(Kunzea ericoides)* and had put this species as the source of the kanuka honey in the papers. But now I see on a website (http://www.airborne.co.nz/manuka.htm) that kanuka trees in fact yield manuka honey, not kanuka honey. Which now leaves me wondering what the nectar source was for the 26 samples of kanuka honey that I was sent. Only one of the 26 samples had detectable non-peroxide activity, and that one was barely detectable (UMF 4.2). So they were obviously not from manuka *(Leptospermum scoparium)* because all of the varieties of L. scoparium were found by Dr. Jon Stephens in his PhD thesis study to yield UMF activity.

- Professor Peter Molan

Researchers find sustainable varroa solution

Natural fungus is mite's 'worst enemy'

New Zealand scientists searching for sustainable, chemical free ways to combat the varroa bee mite say a naturally occurring fungus may be the best solution yet to protecting bees from the destructive pest.

Honeybee researchers at HortResearch have successfully used a strain of the common insect fungus *Metarhizium* to treat beehives infected with varroa, opening the opportunity for a truly organic solution to varroa control.

The discovery will help sustain the entire New Zealand bee industry, but represents a real lifeline to organic producers who were running out of commercially viable options for varroa control.

The work was funded by the MAF Sustainable Farming Fund and the National Beekeepers' Association.

Metarhizium is a ubiquitous fungus that occurs naturally in the environment. Harmless to humans, it is known to infect a large number of insects and has previously been used as a biocontrol for plant pests.

The concept of using the fungus to combat varroa is not new, however other attempts to develop a commercially viable *Metarhizium*-based product have failed because the fungus is rapidly removed from the hive by the bees themselves as part of their normal hive cleaning and maintenance behaviour.

HortResearch honeybee expert Dr Mark Goodwin says his team have solved this problem by finding a way to keep the fungus within the hive; ensuring populations remain high enough to achieve mite control.

Dr Goodwin's team started their research by screening for a *Metarhizium* strain that kills varroa. They eventually selected a New Zealand strain that proved lethal to the bee mite, however, the treatment eventually lost effectiveness as the fungus population dwindled and the bees tried to clear it out. Keeping populations at effective mite-killing levels required numerous applications—a process that would be too expensive and time-consuming for beekeepers with hundreds of hives, many in remote locations.

"It was enormously frustrating. This strain of *Metarhizium* is varroa's worst enemy. So we had an excellent biocontrol for varroa but were being thwarted by a bunch of very house proud bees," says Dr Goodwin.

"We said to ourselves, 'This is a biological product. We need to stop thinking of it as a pesticide treatment and more as a living organism'. When we did that we found a way to make *Metarhizium* part of the overall hive ecosystem. The bees accept it, and the fungus is able to get on with killing varroa.

"The treatment will be a huge boost for beekeepers in their fight against varroa and certainly could be a real saviour for New Zealand's organic honey industry in particular. As varroa creeps south beekeepers are finding fewer and fewer areas where they can produce honey on a commercially viable scale without using chemical treatments. There are some organic miticides available but their impact is variable. This new treatment should solve that problem."

HortResearch acting Chief Executive Dr Bruce Campbell says the good news for beekeepers worldwide is that the science can be commercialised and made available in a very short timeframe. HortResearch is now working with an international partner to produce a commercial version of the treatment before the end of the year.

"Earlier this year we announced work on another biological solution to varroa—genetically resistant bees. That work is progressing well, but beekeepers need help now, so a new *Metarhizium*-based product will be welcome.

"New Zealand's beekeepers are very focused on the sustainability of their industry, from both an ecological and economic viewpoint. They don't like using existing chemical treatments—they view them as a necessary evil. Chemicals also represent a problem in that varroa breed rapidly and have quickly built up resistance to chemical controls worldwide.

"One of the key reasons that HortResearch investigates biological control agents for pest control is that these natural defence mechanisms are living weapons against pests and constantly able to improve themselves, so it much harder to build resistance to a biological control agent. If varroa were to become resistant to *Metarhizium* then new strains can be selected that continue to kill the mites."

Source: HortResearch press release, Auckland, New Zealand, 1 August 2008. Accessed from http://www.hortresearch.co.nz/index/news/509, 5 August 2008.

Pollen analysis of manuka (Leptospermum scoparium) *honeys*

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Authors' note: the article as submitted for publication would have taken up nearly the entire issue of the magazine, so a shortened version is printed here. The full version may be downloaded from the web by NBA members, from http://www.nba.org.nz

There is not a New Zealand industry standard for pollen analysis of manuka honey. However, a discussion paper was prepared a number of years ago by the beekeeping industry that attempted to define the pollen profiles, along with other characteristics, of New Zealand monofloral honeys. The standards were not adopted as far as the authors are aware; manuka and kanuka honeys were grouped together presumably because of the difficulty in distinguishing the species' pollen extracted from honey, and the expected *L. scoparium/K. ericoides* pollen frequency was listed as 70% with the average type pollen count per 10 grams of honey described as 517,000 grains, with a standard deviation of 280,000. Overseas this seems to have been adopted as an expectation.

It seems that these numbers came from the research of Moar (1985), who examined six manuka honeys that were determined to be monofloral by pollen analysis. These honeys were harvested in the Auckland region, north Waikato, two from the East Coast, south Taranaki, and the Central North Island. The manuka honeys contained 72–95% *Leptospermum* type pollen and 124,000–1,701,000 grains per 10 grams of honey. In this paper Moar refers to *Kunzea ericoides as Leptospermum ericoides* although it had already been reclassified in line with its more closely related Australian *Kunzea* species (Thompson 1983) and should not have been reported as *Leptospermum ericoides*. Moar (1985) stresses that it was considered impossible to distinguish between pollen derived from *L. scoparium* and *K. ericoides*. The locations from which these honeys were harvested are revealing: *K. ericoides* is more common on the Auckland hills and in the central East Coast than *L. scoparium*, whereas the reverse is true for the other three sites, confirming this analysis included both of these species. Moar (1985) concluded that a monofloral manuka honey would contain more than 70% *L. scoparium/K. ericoides* pollen and contain at least 100,000 grains of *L. scoparium/K. ericoides* pollen/10 grams honey. In a more recent report (Mildenhall & Tremain 2005/06) the difficulty of differentiating pollen from these two plant species found in honey was confirmed, and Mildenhall (pers. comm. 2008) again stated the similarities between the pollens make definite identification unreliable.

Therefore this present study was carried out, in which we collected honey samples from locations in the North Island of New Zealand that reliably produce manuka honey that is known to be authentic because it has high levels of UMF®. The collection was done at sites and times that ensured that there was no pollen in the honey from kanuka *(K. ericoides)*. (When the samples were collected *L. scoparium* flowering was nearing completion, and *K. ericoides* had not begun to flower apart from some sporadic blossom at Site 1 and Site 5.) This article describes the results from melissopalynology (pollen analysis) carried out on these samples.

The sites from which honey samples were obtained were analysed botanically for pollen- and nectar-yielding species.

Site 1 was in a Northland gumlands environment. *L. scoparium* contributed a little less than 90% of the scrub cover; about three kilometres distant were a number of farms with *Trifolium* spp. (clover) present.

Site 2 was also in a Northland gumlands environment. *L. scoparium* accounted for about 85% of the cover, with a bit of *K. ericoides*. There was regenerating forest one to two kilometres from the hive site, and farmland beyond.

Site 3 was on a wetland in the north Waikato peat areas. *L. scoparium* was the most common native scrub species, and *Salix* spp. (willow) was common. There was also farmland with *Trifolium* spp. and a gravel embankment with *Echium* spp. (viper's bugloss).

Site 4 was a typical Central North Island site, a mixture of forest, scrub and pasture. *L. scoparium* was the most common woody scrub species. The thin pasture did not contain a large percentage of *Trifolium* spp. The forested area contained *Knightia excelsa* (rewarewa) and *Weinmannia racemosa* (kamahi).

Site 5 represents an East Coast seral scrub environment, reverting pasture where typically *K. ericoides* represented a little less than three-quarters of the scrub cover. However, along the adjacent riverbank *L. scoparium* became relatively more common, but in total would have represented only approximately 20% of the scrub cover.

Site 6 represents the large areas of seral scrub present in the south-eastern Wairarapa. *L. scoparium* was approximately 75% of the scrub cover, *K. ericoides* 20%. *[Editor's note: according to Wikipedia, "A **seral community** (or **sere**) is an intermediate stage found in ecological succession in an ecosystem advancing towards its climax community."]*

Analysis of the honey samples

Three frames of honey were collected from hives at each site, selected by the beekeepers to represent honey derived from the *L. scoparium* nectar flow. Each frame was scraped to extract the honey, and the warmed honey strained through muslin cheesecloth then drained through a metal sieve, of 500 µm pore size to minimise loss of pollen. The honey was then well mixed to ensure homogeneity. To eliminate

Site 1 Northland gumland environment with dense heath Leptospermum scoparium *cover.*

Site 2 Northland gumland environment with mature dominant L. scoparium *cover.*

Site 3 Waikato wetland environment with significant cover of L. scoparium *on drier areas.*

Site 4 Central North Island reverting pasture, L. scoparium *dominant on and near bluffs.*

Site 5 East Coast seral scrub containing mostly K. ericoides *and much less* L. scoparium.

Site 6 Wairarapa mature seral scrub environment with L. scoparium *as a significant member.*

contamination between samples, the equipment employed was meticulously cleaned after each extraction.

Each sample was tested for UMF® activity at the University of Waikato. The thixotropy of each sample was visually assessed when the frame was extracted, the rate of unaided flow through the muslin cheesecloth being a fairly good indicator.

The melissopalynological analysis was carried out by the experienced palynologist Dr Dallas Mildenhall, Institute of Geological and Nuclear Sciences Limited, Wellington. A well-mixed representative sample, from an equal sub-sample from each frame for that site, had a pollen count completed.

Moar (1985) observed a significant difference in the total pollen count in 10 grams of honey where different methods of extraction had been employed for manuka honey. The crushed comb sample had between two and 10 times the amount of pollen in the centrifuge extracted honeys, and this may have occurred as pollen is reported to be concentrated in the honeycomb capping that is cut away for centrifuge extraction. The crush and strain method was used throughout the present study eliminating differences arising from the extraction method, and gave the highest content of pollen likely to be obtained.

The results given below are detailed in Table 1 in the full article.

Site 1 yielded a high quality manuka honey that was highly thixotropic. Its activity was UMF® 17.5. The activity obtained previously in many samples of fresh pure manuka honey collected from *L. scoparium* growing in this region was UMF® 16+. The pollen analysis described *L. scoparium/ Trifolium* spp. honey blend 35% and 58% pollen respectively, the *L. scoparium* pollen being the lesser proportion despite the high non-peroxide antibacterial activity in the manuka honey indicating that it had a very high proportion of manuka nectar in it. The frames contained some cells, no more than three or four per frame, which were packed with the bright yellow/orange pollen that is characteristic of legume pollen. During the honey collection the foraging honey bees were seen transporting large pollen pellets of similar-coloured material into the hives. The total pollen count was high, about 520,000 grains/10 grams of honey (about 183,000 manuka), and this probably reflects the pollen cells in the honeycomb.

Site 2 yielded a moderate quality manuka honey, with an activity of UMF® 12.2, which did not appear to be particularly thixotropic. The activity obtained previously in many samples of fresh pure manuka honey collected from *L. scoparium* in that region, adjusted on the basis of measured thixotropy, was UMF® 14.8±1.0 (Stephens 2006). *L. scoparium* pollen only accounted for 7% of the honey's pollen, the balance of the pollen being split between pasture species and native forest species. Therefore the honey bees were probably foraging from three sources at this site. The total pollen count was high, about 240,000 grains/10 grams honey (about 17,000 manuka), and pollen cells were not noted in the honeycombs. On the basis of melissopalynological analysis the honey would be described as a forest and pasture blend, however, the UMF® activity indicates there is a significant proportion of *L. scoparium* nectar that would appear to be under-represented in the pollen count.

Site 3 yielded a high quality active manuka honey, with an activity of UMF® 15.5, which appeared thixotropic. The activity obtained previously in samples of fresh pure manuka honey collected from *L. scoparium* in that region, adjusted on the basis of measured thixotropy, was UMF® 15.3±0.6 (Stephens, 2006). However, pollen analysis classifies this honey as a *Trifolium* spp. and *Echium* spp. blend. The *L. scoparium* pollen only accounts for 4% of the pollen, yet this honey is a high UMF® manuka honey typical of production in this region. It would appear the honey bees may have been sourcing significant amounts of pollen from plant species that are fairly distant from the hives rather than utilising *L. scoparium* pollen that is nearby the hives; both the clover and viper's bugloss plant populations were more than one kilometre from the hive site, and there is evidence of pollen collection from forest remnants as well. The total pollen grains, of about 16,000/10 grams of honey (about 640 manuka), was low and showed little pollen had been incorporated into the honeycombs.

Site 4 yielded a manuka honey of low activity (UMF® 8.1) that did not appear very thixotropic. The activity obtained previously in many samples of fresh pure manuka honey collected from *L. scoparium* in that region, adjusted on the basis of measured thixotropy, was UMF® 10.6±1.1 (Stephens 2006). *L. scoparium* pollen accounts for half of the pollen in the honey, with *Trifolium* spp. and *Weinmannia* sp. being the other significant contributors. The honey bees may have been utilising three sources, the *L. scoparium* scrub primarily, the forest species, and the clover species in the thin pasture. Again the total pollen count was very low at approximately 5,000 grains/10 grams of honey (about 2,000 manuka).

Site 5 yielded a manuka honey of moderate activity (UMF® 11.4) that appeared thixotropic. The activity obtained previously in many samples of fresh pure manuka honey collected from *L. scoparium* in that region, adjusted on the basis of measured thixotropy, ranged from UMF® 10.9±0.9 to UMF® 12.5±0.7 (Stephens 2006). *L. scoparium* pollen is represented strongly as 94% of the pollen in the honey, with a little pollen from forest and pasture species. It would appear in this environment the honey bees were working the *L. scoparium* scrub for both nectar and pollen, although they could have also been getting pollen from the *K. ericoides* that was just starting to flower. Likewise the total pollen count is reasonable, about 70,000 grains per 10 grams of honey (about 65,000 manuka).

Site 6 yielded a manuka honey of moderate activity (UMF® 11.5) that appeared thixotropic. The activity obtained previously in many samples of fresh pure manuka honey collected from *L. scoparium* in a nearby region, adjusted on the basis of measured thixotropy, was UMF® 9.4±1.4 (Stephens 2006). *L. scoparium* pollen accounted for 70% of the pollen in the honey, indicating this species was the most significant source of pollen and nectar. *Trifolium* spp. were a significant pollen source. However, the total pollen count, about 33,000 grains per 10 grams of honey (about 23,000 manuka pollen), would appear a little low.

Discussion

There is significant evidence of the pollen-foraging honey bees working different plant species from the nectar-collecting honey bees. At Site 1, a high quality manuka honey was contaminated with clover pollen. The pollen cells in the honeycombs were most probably packed with clover pollen, and the pollen foragers were sourcing the pollen from the three-kilometre distant farmland. As the *L. scoparium* pollen is 35% of the total pollen, this high quality manuka honey could not be certified as a monofloral *L. scoparium* honey using pollen analysis alone.

Likewise at Site 3, the high quality manuka honey was being contaminated by clover and viper's bugloss pollen. The *L. scoparium* pollen content was only 4% in a good quality manuka honey, and pollen analysis would certify this honey as a clover/viper's bugloss blend.

It would also appear the *L. scoparium* pollen is under-represented at Site 2. The moderate activity manuka honey harvested from this site most probably contained more *L. scoparium* nectar than the 7% pollen count indicates; however, it is likely this honey contains a significant proportion of forest and pasture nectars as well. Again this active manuka honey could not be certified as a manuka honey using pollen analysis and with 21% *Knightia excelsa* pollen this honey could be certified as rewarewa honey. But by comparison of its UMF® activity with the level of UMF® that is usually obtained from this region it would appear that the honey contains about 80% manuka nectar. It is reasonable to conclude *L. scoparium* pollen was under-represented at Sites 1, 2, and 3 as the honey bees have foraged other plant species for pollen.

The 50% *L. scoparium* pollen frequency for Site 4 was probably fairly representative. The foraging bees were working three sources, and the *L. scoparium* nectar probably represents at least half of the honey. By comparison of its UMF® activity with the level of UMF® that is usually obtained from this region, it would appear that the honey is composed of about three-quarters manuka nectar. This honey could be satisfactorily certified as manuka honey.

Sites 5 and 6 were very similar. In both cases the *L. scoparium* pollen frequency analysis, 94% and 70% respectively, indicated the honey was probably monofloral manuka and could be certified accordingly unless the foraging honey bees were sourcing different nectar sources and utilising *L. scoparium* pollen. In view of the historic UMF® values this seems unlikely, and it is probable the amount of dilution from other nectar sources was relatively inconsequential. However, the total number of pollen grains (70,000 and 33,000) was very much lower than the 517,000 considered by the New Zealand honey industry to be the average for manuka honey.

The total number of pollen grains in 10 grams of honey in these samples provided variable data; with a hundred-fold difference between the highest and lowest figures. This variation may be derived from the collection of three frames, and a larger amount of honey may need to be sampled before conclusions should be drawn. However, it appears Moar's (1985) conclusion that a manuka honey should contain at least 100,000 grains of *L. scoparium* pollen is mistaken; in this study six UMF® active manuka honeys were collected and the *L. scoparium* pollen content/10 grams of honey ranged from about 183,000 grains at Site 1 to 640 grains at Site 3. Yet these honey samples were all extracted from crushed comb, in which the pollen count would be expected to be at its highest. This is unexpected: Site 1 and 3 yielded the most active manuka honeys. The total number of *L. scoparium* pollen grains/10 grams of honey at the other sites fell within these extremes and ranged from about 65,000 grains at Site 5 to 2,300 grains at Site 4.

Neither the *L. scoparium* pollen frequency percentage nor the total number of *L. scoparium* pollen grains in 10 grams of honey correlates with the purity indicated by the UMF® activities reported in these honeys.

The difficulties associated with a manuka honey that has been contaminated with nectar and pollen from *K. ericoides* is not considered here. The collection was completed at each site before *K. ericoides* flowered. Once the *K. ericoides* populations had flowered, particularly at Sites 5 and 6 on the East Coast and the Wairarapa respectively, significant contamination would have been expected in the honey if the hives were extracted without the upper honey boxes being processed separately. The upper honey boxes would represent the later nectar flow. This contamination would have been less significant at Sites 1 and 2 in Northland where the *K. ericoides* populations were smaller, but as the season progressed the honey bees would have foraged other nectar sources, probably pasture species; and the same pasture foraging would have occurred at Sites 3 and 4, in the Waikato and Central North Island respectively, which did not carry *K. ericoides* as significant proportion of the flora.

It is of note that the count of manuka pollen grains in samples from Sites 1 and 5 was higher than in those from the other four sites. Some of these grains could have been indistinguishable kanuka pollen, as kanuka was just starting to flower at these two sites. There had been no kanuka pollen available to the bees at the other four sites when the honey samples were collected from these.

K. ericoides may be a preferred pollen source for honey bees, and once this species flowers a large amount of *K. ericoides* pollen may be incorporated into the honeycombs, leading to the levels of *L. scoparium*/*K. ericoides* pollen reported by Moar (1985) when a hive's population has had access to both species as a floral source throughout the season and the hive's honey is extracted as a whole. It is also probable that the smaller more compact flower morphology of *K. ericoides* affords the potential for increased pollen collection when nectar-gathering honey bees utilise this species.

Conclusions

The tendency of the foraging honey bees to collect pollen from other plant sources means the amount of *L. scoparium* nectar being incorporated into manuka honey is not proportionally represented by *L. scoparium* pollen in the honey, particularly where *Trifolium* spp. or other flowering forest species are present. Thus pollen analysis is not an acceptable method

for determining the purity of a manuka honey in New Zealand mixed floral source environments. If the minimum 70% pollen standard for manuka honey was observed, four of the six samples in this study could not be certified as manuka honey despite the samples' UMF® activities, and this includes the two most active manuka honeys. There are compounding difficulties when *K. ericoides* is harvested in association with *L. scoparium* as is often seen in the New Zealand scrub environment—the pollen grains from these species are practically indistinguishable using standard pollen analysis techniques.

The authors are of the opinion that the standard for manuka honey should be based on UMF® activity rather than pollen content as an interim measure, until such time as a method of measuring thixotropy, aromatic volatiles or phenolic acids to determine the percentage of *L. scoparium* nectar in a manuka honey has been validated. It appears that the establishment of UMF® activity is appropriate as an initial step, and currently those honeys that do not exhibit non-peroxide antibacterial activity when tested with the 50% dilution agar diffusion assay should be considered general blends and unfit for marketing as a manuka blend.

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[Authors' note: Another article that helps to explain the findings described above is Stephens J.W.C. and Molan, P. C. (2008.) The explanation of why the level of UMF varies in manuka honey. The New Zealand Beekeeper *16 (3) 17–21. This article shows that the reason for some "manuka" honey not being active is that it is a blend with other nectar sources.]*

Telford Rural Polytechnic Annual Report (July 2007 to June 2008)

The 2007–08 year has seen strong growth in student numbers in apiculture and other courses at Telford. Telford now has eleven courses in apiculture as outlined below:

Telford Cert in Apiculture Level 3 (one year full-time)
National Cert in Apiculture Level 2 (5 months full-time)
National Cert in Apiculture Level 3 (7–8 months full-time)
Telford Certificate in Queen Bee Rearing Level 4 (4-week block course)
Telford Cert in Honey Production Level 3 (new 2008) (6-week block course)
Telford Cert in Bee Diseases Level 3 (available 2009) (6-week block course)
Telford Cert in Apiculture Knowledge Level 3 (one-year correspondence course)
Telford Queen Bee Rearing Knowledge Level 4 (6-month correspondence course)
Telford Beekeeping e-learning course Level 2 (10-month video conferencing course)
Telford Certificate in Advanced Rural Production (specialising in Apiculture) Level 4 (5 months full-time)
Telford Diploma in Rural Business (specialising in Apiculture) Level 5 (one year full-time)

Telford Certificate in Apiculture Level 3

2007

Three students completed the Telford Certificate in Apiculture Level 3 in 2007. Terry Beddek was awarded a pass with Distinction, Blair Simpson passed with merit and Brian Blair was awarded a pass.

2008

Six students enrolled in the one-year Telford Certificate in Apiculture course for 2008 and a further two international students enrolled for the six month National Certificate in Apiculture Level 2.

National Certificate in Apiculture Level 2 and 3

2007

All three full-time students completed their National Certificate in Apiculture Level 2 and National Certificate in Apiculture Level 3 in 2007.

2008

So far this year one international student, Enere Vuibureta, has completed the National Certificate in Apiculture Level 2 and the remaining five students have almost completed this qualification.

Telford Certificate in Queen Bee Rearing Level 4

2007

Five students passed the Telford Certificate in Queen Bee Rearing. Terry Beddek was awarded a distinction; Blair Simpson, Brian Blair, David McRae and Loren Andrews received merit passes.

2008

Ten students enrolled for the Telford Certificate in Queen Bee Rearing this year. Eight students have completed the course.

Telford Certificate in Honey Production Level 3

This is a new six-week block course that started on 7 April and finished on 16 May. This course is integrated with the full-time course. Two additional students from Auckland joined the class for this course. This is a 40-credit course which includes a Food Safety course within it.

Telford Certificate in Bee Diseases Level 3

This is a new course that will start in 2009. The course runs for six weeks from mid July until the end of August and finishes with students completing a DECA course.

Telford Certificate in Apiculture Knowledge Level 3

There were 44 students enrolled on the one-year apiculture correspondence course for 2007 with eleven completing the course during the year compared with 42 students enrolled so far for 2008.

Telford Queen Bee Rearing Knowledge Level 4

There were approximately eight students enrolled on this six-month correspondence course for 2007, and there are nine students enrolled for 2008.

e-learning course

One student, from Darfield High School, completed this course during 2007. Two students are currently enrolled in this one-year, 20-credit course that is run for one hour per week throughout the school year. One Level 2 student is enrolled from Murchison Area School and an adult student is enrolled from Mercury Bay (Bay of Plenty) school.

Bursaries and Awards for 2007

Blair Simpson was awarded the NZ Honey Industry Trust bursary of $3,200. Terry Beddek was awarded the Beeline Supplies bursary of $300. Brian Blair was awarded the Airborne Honey bursary of $500.

Brian Blair won the S.A. and R.H. Findlay cup for Telford's ideal trainee student. Terry Beddek won the Graeme Clarke cup for the most successful queen bee breeder. Brian Blair won the Ecroyd Beekeeping Supplies smoker for effort and diligence in beekeeping.

Judith Swan won the Ecroyd Beekeeping Supplies bursary of $200 worth of beekeeping equipment for the highest overall marks on the apiculture correspondence course.

Miriam Graham won the Ecroyd Beekeeping Supplies bursary of $100 worth of beekeeping equipment for the second highest overall marks on the apiculture correspondence course.

Field trip and conferences

Last year students attended a three-day field trip to Timaru and Christchurch visiting honey packers, New Zealand Beeswax, Ecroyd Beekeeping Supplies and research scientists at Lincoln and attended the New Zealand Bee Industry Group conference in Ashburton on the return journey. Students also attended the National Beekeepers' Association Conference in Dunedin. This year I attended the NBA conference in Masterton.

Work experience

Work experience has been extended from two weeks to four weeks in part due to the much higher number of students but also to give students a broader range of experiences in the commercial sector. Students in 2008 have spent time working in honey extraction facilities and then will be undertaking field work for three weeks in September.

Honey house audit

The honey house was audited by Marco Gonzalez, AsureQuality on 20 March. There were eight non-compliances identified: these have subsequently been addressed and Telford has now passed their audit. The honey house has been painted throughout. The audit was a useful opportunity for students to also be involved in the inspection process.

Queen Bee Rearing course

Students were each issued with a copy of the *Queen Bee: Biology Rearing and Breeding* book at the beginning of the course, so this allowed work on assignments to begin at the very beginning of the course and was useful to refer to for practical work. The book will be used for other parts of the course throughout the year.

Frans Laas assisted with the artificial insemination part of the course and we used Betta Bees insemination gear for this. It is anticipated that new instrumental insemination equipment will be purchased this year as our gear is now outdated.

Honey Production course

We used the newly purchased Pfund reader and refractometer for reading colour and moisture content respectively. The two students who were only here for six weeks completed their Food Safety Certificate at Otago Polytechnic Cromwell campus. Students competed in a honey house managers competition where each student became the manager of the honey house for a day and had to organise students, comply with quality management checks and produce as much wax and honey as possible. This was a good exercise to challenge students and also part of the level 3 assessment. Sarah Coppard was first in this competition.

This course would be complemented by the addition of a creaming tank and packing plant so that students could engage in the value adding part of honey production.

Honey samples from drums were taken to test for AFB and sent to Ruakura.

Classroom facilities

Use of classroom 5 has been an asset to the course this year. With the larger numbers of students, it has been a real advantage to have a larger classroom and one with computer facilities and a Powerpoint projector.

CPIT joint venture

Considerable advertising and bursary assistance from a Canterbury seed company were to no avail, and the National Certificate in Apiculture Level 2 course that was planned as a joint programme between Telford and CPIT to start in Christchurch in September 2007 was shelved, due to an insufficient number of enrolments for the course.

Varroa workshop

The National Beekeepers' Association ran a very successful one-day workshop on varroa at Telford on 5 June. This workshop was attended by about 40 beekeepers and seven students.

Annual Disease Return (ADR)

Telford currently owns 311 hives on 16 apiary sites of which 280 are managed by a local commercial beekeeper. No AFB was detected in these hives, with the ADR forwarded to AsureQuality on 1 June.

DECA

A Disease Elimination Conformity Agreement course was run on 31 August 2007 with 21 beekeepers and students in attendance. A further course is scheduled for 29 August 2008.

Agriculture Students

All 50 Certificate in Agriculture students were given one day of apiculture training both theory and practical, covering bee biology, hive equipment, agrichemicals and pollination, and sat an assessment on these topics as part of their course requirement.

- Dr David Woodward
Head of Department, Apiculture

Eastern honey bees: are they the answer to varroa?

Tony Roper
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Introduction

A few New Zealand beekeepers have suggested introducing the Asian or Eastern honey bee *(Apis cerana)* into New Zealand as a possible solution to varroa. Beekeepers know that chemical treatment of varroa is not a viable long-term solution as resistance will eventually develop. The better long-term solution is to develop bees that are resistant to varroa. This is exactly what Dr Mark Goodwin with his team at HortResearch is doing now. Mark is developing promising lines of varroa-resistant bees using the suppressed mite reproduction delayed (SMRD) trait identified by Harbo and Harris of the USDA laboratory in Baton Rouge [SMRD is now referred to as Varroa Sensitive Hygiene (VSH)]. Research on Russian bees, which are resistant to varroa, is also being conducted by the USDA labs in Baton Rouge. Developing resistant bees is certainly the better ecological solution without the need to rely on more and more dangerous chemicals. As varroa-resistant bees make such good sense, why not simply use Eastern honey bees which have natural resistance already? There would be no need for all this expensive research. This article will explore this important question and hopefully provide some answers.

Last year I had first-hand experience working with Eastern honey bees in South Korea and gained an invaluable insight into this important bee. The Eastern honey bee is the indigenous honey bee found in Asia and used in traditional beekeeping going back thousands of years. It is useful to look at some of the special characteristics of this bee so as to get a better appreciation for its suitability as part of the New Zealand beekeeping industry.

Characteristics of the Eastern honey bee

It is believed that the Western honey bee *(Apis mellifera)* evolved from the Eastern honey bee *(Apis cerana)* when it moved from western Asia to the Middle East. *A. cerana* is a smaller bee than the European sub species we are used to in New Zealand, but it appears somewhat comparable in size to the African honey bee sub species, such as the so-called killer bee *(Apis mellifera scutellata)*.

Eastern honey bees are very quick moving, work longer and are considered a much more active bee (Lee, 2007 pers comm.). They can swarm several times in a season. They work marginal flows better than European bees and in poor weather. *A. cerana* can be hived in standard Langstroth hives but, if presented with standard foundation, will modify the cell size and make them smaller. The colony size is much smaller than Western bees and the crop is only five to 15 kilograms per colony. It is most noticeable that Eastern honey bees gather large amounts of pollen. They do not collect propolis and because of the lack of propolis mixed with their wax, their wax is very brittle and is easily broken.

It is interesting that the Eastern honey bees suffer from few of the beekeeping pests or pathogens that affect our bees. They appear to have quite hygienic behaviour and the drone cappings are removed and dropped in front of the hive. In fact, the only real pest I saw in *A. cerana* hives was the wax moth. They don't seem to be able to cope very well with this particular pest. In some cases the wax moth will completely take over the hive and the bees will abscond. But as regards the worst pest of all, *Varroa destructor*, the Eastern honey bee is vastly superior at managing this pest than the Western honey bee. The Eastern honey bee is the natural host of the varroa mite and over thousands of years they have evolved a number of cunning defences.

The colour of Eastern honey bee workers varies considerably but the drones I saw in South Korea were all very black. The workers look similar to European bees but the rings on the abdomen appear in prominent stripes.

Eastern honey bees are considered a tropical bee but they can winter very well in South Korea where the winters are very cold (-20°C frosts). When snow falls are fairly deep with hives half buried, the bees will make a tunnel up the side of the hives beneath the snow to get out [Lee].

Eastern honey bees seem to be far more intelligent in the way they act than the European honey bee [Lee]. It is interesting that Eastern honey bees do not guard the outside of the hive entrances like European honey bees where they become easy

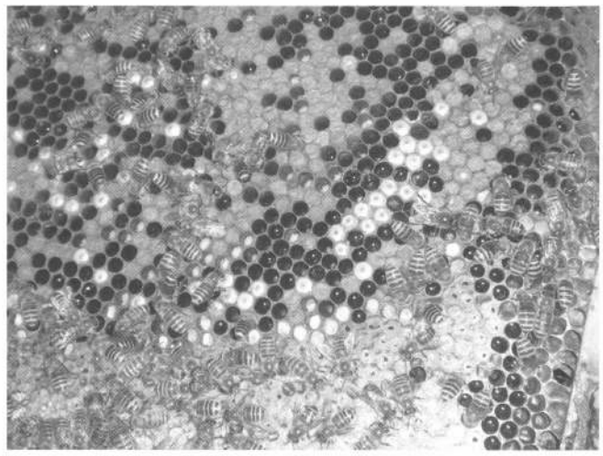
targets for hornets. Also, if they are on the outside of the hive fanning near the entrance they tend to have their heads forward and tails pointing into the hive. This ensures the Eastern bee will have a better chance of seeing any hornets before they can attack. If hornets enter their hive, the Eastern honey bees attack the hornets en masse and ball them so that the thermal shock kills the hornet but not the bees. European bees have not evolved any defensive mechanisms such as these for protecting themselves from hornets.

Defences against the varroa mite

Over the last few millennia, Eastern honey bees have co-existed with varroa mites as their natural host. Like all good host/parasitic relationships, varroa does not completely destroy its host, which it needs for its long-term survival. Over time the Eastern honey bee has evolved a number of defence mechanisms to ensure its ongoing survival.

The most important defence mechanism is that the varroa mite will not invade worker cells. Varroa will only parasitise the drone brood of the Eastern honey bee, which has a distinctive hole in the sealed cap. The hole may enable nurse bees to check if varroa is present in the drone cell and remove some varroa before they can reproduce.

The brood cycle of the Eastern honey bee is much shorter than in European *A. mellifera* colonies, being only 18–19 days for workers and 22–23 days for drones [Connor et al]. This shorter brood cycle limits the number of viable offspring that varroa can produce prior to the adult bee emerging from the cell.



As an additional defence against varroa, Eastern honey bees have evolved excellent grooming behaviour for mite removal when the mites are feeding on adult bees.

Problems caused by mixing Eastern honey bees with European bees

This problem arises from the fact that both bee species are very similar and have a lot of things in common. One particular commonality is in the chemical composition of their pheromones, it is so similar between species that they cannot tell one another apart. In fact, *A. cerana* drones will mate with *A. mellifera* queens and vice versa. However, the offspring are not viable. This would be a major problem in queen-producing areas because it would be almost impossible to get queens properly mated.

Having similar pheromones allows the two subspecies to be mixed together in a colony. For instance, young bees from *A. cerana* frames can be shaken into *A. mellifera* colonies and they will be readily accepted. Unfortunately the Eastern honey bee is a very aggressive robber and the similar pheromone allows it to sneak easily into *A. mellifera* hives to take their stores.

In South Korea, there are certain areas where only *A. cerana* can be kept because the two subspecies will not coexist. *A. cerana* has recently invaded the Solomon Islands and is rapidly displacing Western honey bee colonies. This new undesirable bee species in the Solomon Islands is far more defensive and does not produce as much honey. It is frightening that *A. cerana*, although much smaller in size, will replace its larger cousin, *A. mellifera*. This can probably be explained by the fact that it is a much more aggressive species; it swarms prolifically and is better able to survive in any environment, no matter how hostile.

Does the Asian honey bee pose a biosecurity threat to New Zealand?

Most certainly, yes! The negative effects of *A. cerana* certainly outweigh the positives. The only real positive is its resistance to varroa. Among the negatives include its aggressive behaviour and its ability to be able to completely replace *A. mellifera* in New Zealand. The national honey yield would be drastically reduced; we would cease to be a net exporter of bee products and may even have to import most of our honey.

The other big negative is that *A. cerana* is likely to introduce new beekeeping pests and diseases into this country. We need to be concerned for our beekeeping industry because the Eastern honey bee harbours another parasitic Asian mite, *Tropilaelaps clareae*. 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. Hives would require more regular miticide treatments than the typical 'once in spring and again in autumn' varroa treatment regime.

The other disease which is getting a lot of recent press because of its association with Colony Collapse Disorder is *Nosema ceranae*. This protozoan is similar to the protozoan *Nosema apis* which affects *Apis mellifera*, but is much more serious in the Western honey bee as whole colonies can die out. If Eastern honey bees were introduced into New Zealand, it is most likely they would introduce *Nosema ceranae* into our bee population with serious consequences to the whole beekeeping industry.

Therefore, the most important message for beekeepers is to be on the lookout for any signs of small aggressive bees around their hives. If anything looks suspicious, please contact Biosecurity New Zealand (0800 809 966) or your local Apicultural Officer at AsureQuality (0508 00 11 22).

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NZFSA updates to website—August 2008

Animal Products (Fees, Charges, and Levies) Regulations 2007 at 01/07/08

The annual levy for bee products has been set as follows:

Operators that process only for consumption within New Zealand: $258 per annum.
Operators that process wholly or partly for export: $577.50 per annum.

AFB Recognition and Competency test

The Waikato Branch will be holding a training and test day on AFB
At Arataki Honey – Wai-o-tapu
Saturday 11 October 2008. Cost $50.00
Registration essential!
Contact: office at Arataki 07 366 6111

From the colonies

Waikato Branch

Incessant rain, incessant wind, and yet still there are promising signs of spring. Bees are bringing in pollen—in our area from gorse, and close to home the camellias. I also note today (in the rain!) that we have hazels and cricket bat willows in catkin, and bell cherry in flower. I am told that the rewarewa is budding up particularly well.

By the time you read this, the branch will have held their spring field day at the Matangi Hall. The focus of the day will be queen raising and we are hoping for a good attendance.

A number of us have participated in the FarmSafe four-wheel-drive course. The first part was held on 24 July, with part two on 7 August. I am told that it has been well worthwhile, the tutor covers everything thoroughly and participants can learn how to drive out of a sticky situation—very useful knowledge if spring continues like this. Another FarmSafe four-wheel-drive course is being organised by Grant Redshaw for September. I encourage beekeepers and their staff to participate. There is no charge for taking part and your driving skills will improve. *[Editor's note: see the FarmSafe ad on the back cover of the July 2008 issue.]*

As a follow-up from conference, Jeremy and Fiona O'Brien recently hosted an informal meeting with John Bowland at their honey house. John manufactures horizontal radial extracting plants (JBee Manufacturing Pty Ltd) and was a conference sponsor.

And finally: if you are thinking about staff for the forthcoming season it may be worth noting that Immigration New Zealand has made changes to policy effective from 28 July 2008. "Apiarist" is now on the Immediate Skills shortage list for ALL areas of New Zealand.

- Pauline Bassett

Bay of Plenty Branch

As with most of the country, July was wet. A number of BOP members headed south to conference and thoroughly enjoyed ourselves. Well done to the conference organising team, and thank you for your efforts. The dinner was a great success, and certainly in a different venue. Next year it is BOP's turn to host conference: it will be in Rotorua from Sunday 7 June to Thursday 11 June. Note the earlier dates, and you may want to consider extending your visit to the area by strolling around the National Fieldays at Mystery Creek afterwards. The organising committee is under way and open to suggestions, so let us know of any special requests or burning passions.

Hopefully the weather will start to fine up a bit more regularly in August so we can all get to sites a little more easily and begin our spring work. The gold kiwifruit leaf is starting to move and so the cycle begins again.

At the July meeting our branch put together a submission on Tutu toxicity and have forwarded it to the Bee Products Standards Council for consideration. This serious issue

requires extensive discussion, which we welcome the opportunity to comment on. Some beekeepers may need to adjust their beekeeping practice, which is always inconvenient, but safe food is essential.

The branch will have two more meetings before adjourning until March. The August meeting is on Tuesday 26th and the September meeting on Tuesday 23rd. Both will be held at Buretta Park, Vale Street, Tauranga in the Rimu Room at 7.30pm. Look forward to seeing both new and old members there.

- Barbara Pimm, Branch Secretary

Hawke's Bay Branch

Several fairly large topics came out of this year's conference, with Tutin being the main one. I know several beekeepers in Hawke's Bay have written submissions on this subject and that is likely to be an ongoing headache.

Mark Goodwin's research into using a fungus to control varroa sounds very promising. I hope so, because from some of the comments I heard some people are not using varroa control products as recommended, so resistance will soon be with us.

Pollination of early stonefruit has already started so another beekeeping year has begun.

- John Berry, Branch President

PS: well done, Southern North Island: a great conference and the venue and dinner were fantastic.

Nelson Branch

Winter, winter, winter. Hopefully it's spring by the time you read this. Beekeepers are all geared up and ready to go. Pollination prices have moved up to cover the increased cost of vehicles and labour, though the profitability of pollination is being seriously challenged by the returns from honey and queen production.

One keen beekeeper has done an initial graft and cells are out: fingers crossed. The drones must be tough down here, or is it the beekeeper?

- Glenn Kelly, Branch President

Manuka honey testing

Although the Southern North Island's Notice of Motion was lost at conference, the debate on what is actually causing the manuka honey inhibition problem has continued.

Recently I have heard on the grapevine that the other laboratory that tests manuka honey experienced the same inhibition problems a couple of years ago. This laboratory worked with an overseas laboratory to find the cause and corrected the problem. Unfortunately this laboratory is not recognised by the Active Manuka Honey Association even though they follow Dr Molan's testing methods.

I sincerely hope that the Hamilton laboratory quickly overcomes this problem, as a large amount of honey is being held by beekeepers not willing to part with it at reduced prices.

- Frank Lindsay

Hive starvation is
beekeeper neglect,
not a bee problem.

NZFSA updates to website—July 2008

The Application Form AP32: Honey and Apiculture Products Processing Premises Country Listing Form has been redesigned.

This form has been amended to now include a clear pathway for approval within NZFSA. This will also assist applicants by clearly showing the path that an application takes. This form was last updated in October 2007.

So what has been updated?

The applications are now sent to Wellington as opposed to Invercargill.

When the application is received it moves through the following stages:

1. **NZFSA VA Technical Coordinator (Country Listings):** This listing is Recommended/Not Recommended

2. **AsureQuality General Manager – Diagnostics: (If your verification agency is AsureQuality)**
   Any actions required (e.g., on-site assessment) are carried out prior to approval.
   (Once completed, the approved application is sent to the Senior Advisor, NZFSA, Market Access.)

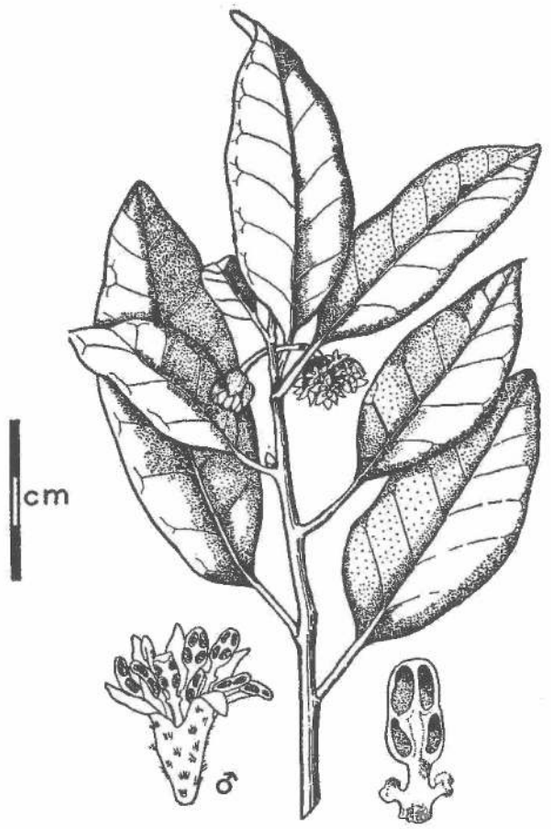
   or

   NZFSA Verification Agency Technical Manager: (If your verification agency is NZFSA)
   Any actions required (e.g., on-site assessment) are carried out prior to approval.
   (Once completed, the approved application is sent to the Senior Advisor, NZFSA, Market Access.)

I am pleased to see the update of the form. There is a clearer expectation of the process that the application goes through.

- Fiona O'Brien
Publications Committee

Trees and Shrubs of New Zealand



Litsea calicaris

Litsea calicaris

Maori Name: Mangeao

The Mangeao is a small tree belonging to the laurel family. It grows 10 to 15 metres high. Leaves are alternate 10–15 centimetres long and shiny, and are pale brown when young.

The flowers are creamy with a delicate fragrance in clumps of four to five. This is a good honey plant, flowering from August to November, giving a light amber honey.

After childbirth, Maori women used to bathe themselves with water in which Mangeao had been boiled, or used the leaves to make a vapour bath.

- Tony Lorimer

About the Apiary

The new bee season started in July. In the colder regions, hives headed with a yellow Italianised queen will have started laying again after a short break. In the warmer coastal regions, brood rearing will have continued through, although at a greatly reduced rate. Hives headed with Carniolan queens won't start brood rearing again until stimulated with the arrival of the first spring nectar and pollen, but then take off at an enormous pace, often laying to the edges of the frames.

By mid-August, brood rearing will be well under way in my hives despite the conditions outside the hive. When it's warm enough for the bees to move around in the hive they use the honey reserves (as food for the young and themselves) from outside frames, as this honey contains a higher water content. They will also bring in water to assist with reconstituting the honey and pollen reserves around the brood nest to make room for more brood.

Here in the lower North Island, the weather is still cold with snow on the ranges—temperatures averaging 9–12°C in the city. We have had weeks of rainy, cold weather: the rain gauge has even overflowed a couple of times. During this period we have had two good storms that have flattened trees and hives. I don't mind the odd hive toppled over in a storm, but to find an apiary of 16 hives completely flattened, supers and frames scattered everywhere (along with the majority of pine trees in a 50-metre-wide stretch of forest) is a little disappointing. During the last weather bomb, I was taking time off doing a little hunting and although we were warm and comfortable in a hut, we couldn't get out until the rivers went down. By the time I had been around a few apiaries checking hives, bees from adjacent apiaries had time to rob out a few supers of stores from this particular apiary. A few hives were lost but the rest came through OK, although it does take a long time to shake water out of wet frames and reassemble the hives.

It hasn't been all bad weather though; on the three or four warm sunny days this month the bees have managed to get out and gather pollen and a little nectar.

In my garden five finger is flowering, the plum trees, pussy willow, and wattle are just opening. On the bush fringes the bees are gathering a lot of pollen from gorse and tree lucerne. This has been enough to keep the queen laying well.

Checking hives

While visiting each apiary, I also check the weight of hives, and give any that are light a super of honey and pollen from hives I'd lost to mites (I was too late in treating them). This should see the hives through until the first bush flow in October. Those beekeepers without stored honey in reserve will have to feed sugar syrup. A strong hive has enough bees to come up and take the syrup from a top feeder. Nucs and weak hives should be fed with either a frame feeder or inverted jar feeder close to frames covered with bees. Once you start feeding hives, it's essential to carry on feeding the hives until the first flow. If you stop feeding them or are late servicing the hives, brood rearing will stop, creating a 'brood break' which will result in fewer bees later on when you want them to secure a honey crop. Most commercial beekeepers are feeding 5–8 litres at a time on a three-weekly cycle, but these beekeepers strip most of the honey out of the hives or winter in singles so have the bees to build populations up again. Some are feeding the bees more syrup less often in an endeavour to reduce costs.

When visiting an apiary or just before inspecting a hive, take a few minutes to observe what's happening at the hive entrance. Many bees coming and going indicates a strong hive. Lots of pollen on the bee's hind legs indicates a laying queen. Just a few bees flying indicates a small hive.

Normally you shouldn't have a hive open too long during the spring unless you can comfortably work with your sleeves up. Too cold for you means it's also too cold for the bees; however, there are times when a quick check doesn't do much harm.

If you encounter a hive that seems to be weak or behind the eight ball, apply a little smoke and take a quick look at one or two brood frames. Spotty laying indicates a failing queen but not necessarily so. It could be that the hive is short of pollen and therefore the bees are using their own body reserves to produce the next generation of bees. To give these bees a fighting chance to become a strong colony, swap an empty frame with a frame from a strong hive that contains both honey and pollen and a small patch of capped brood covered with bees. Don't add too much brood, though, as a small colony can only keep so much brood warm. To aid the introduction of this frame, sprinkle a little sugar syrup over the top of the frames. The bees will fill up on the syrup and accept the bees

Fresh honey scavengers from overturned hives.

Upper frame: brood pattern spreading upwards.

Good brood pattern.

A family of seven were in this dead-out hive and another two mice were in the bottom super of another hive. Four mice got away. When I went into the apiary I saw a mouse climb up a rope hive tie and into the hive through a rotten corner. They had also chewed openings in the top feeder—quite destructive.

from the other hive more readily. (Use the same technique when introducing a caged queen.) Also check that there is a minimum of three frames of honey stores: if below this level you will have to start feeding the hive.

I checked a strong hive while replacing a bottom super to stop mice getting into the hives (some apiaries have been plagued with mice this winter) and photographed the brood area. The bees covered two supers, and the queen was laying in three frames in the middle of the second super and was just into the super above it.

Swarm control

Before the advent of varroa, swarming would normally start in my area about mid-October when we have a spell of fine settled weather just before the equinox. However since varroa and the elimination of most of the feral hives, swarming now starts at the end of September as there is more food around (less competition), and I believe these hives will swarm if I do not intervene.

I intend to reduce the bee population of my strong hives by removing those frames with brood in them that are directly above the main brood super. I will either give these frames to a weak hive or put then in a nuc with a new queen, and by moving them to another apiary, the field bees on the frames will not abscond. I'll then replace the missing frames with foundation frames interspaced between the honey reserves so that the bees will have to draw the foundation before they can move up again.

On hives with more than a super of honey reserves (I winter my hives three high), I'll simply remove the top super, brood bees and all, and create another hive. These can be re-combined when the flow starts to create super-strength hives.

Caution: Before removing or exchanging frames it's very important to check that all hives are free from disease. Exchanging frames is one of the quickest ways to spread AFB through an apiary, so be vigilant.

More on inspections next month.

Things to do this month

Continue to make up new gear. Check hives after storms and heft them to determine honey stores. Feed pollen supplement and syrup to hives that are short of stores. Clear away grass from in front of the hives so bees landing short have a chance of crawling back into the hive. Check under the roofs of hives for excessive moisture: more is given off once brood rearing begins. Check mite fall. (You might see the odd mis-shapen larvae or bee on the landing board—a sign that varroa numbers are increasing.) Put out rodent baits in plastic bottles under a few hives in each apiary.

Have everything ready to go when the pressure comes on next month.

- Frank Lindsay

PS: For the sake of food safety I burned all of the frames shown in the bottom photo.