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July 2006

The New Zealand BeeKeeper

Varroa has arrived, but where?

New Zealand
Permit No. 154506
Permit

Field Operations Response Centre (FORT) Manager Peter Wilkins describing the area under investigation. Left to right: Reuben Ellis, Jane Lorimer, Peter Wilkins, Arthur Day, with Philip Cropp at the back. *Photo: Jim Edwards.*

IN THIS ISSUE

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President's Report

Time continues to fly by with Conference upon us once again; yet it only seems like yesterday that we were meeting in Christchurch.

We welcome you to the 'mighty Waikato' region and hope that you take the time to explore it while you are here.

Bee product imports

As I write this, the question is on everyone's minds as to when we will hear the decision from MAF/Biosecurity New Zealand as to whether to allow imports or not. I am very proud of the fact that our members and other beekeepers have kept up their work in lobbying Ministers with our concerns in regard to imports.

The Association recently has written another letter to Minister for Biosecurity Jim Anderton and the Director-General of MAF regarding the *Nosema Ceranae* organism, which was not considered in their risk analysis. Our thanks to a member who alerted us to the existence of this organism, which allowed us to conduct some research and compile a report to accompany this letter. Here I must thank Frans Laas for the time he put into the research and the report writing. Following is an extract from this report about *Nosema ceranae*.

"*Nosema ceranae* has obviously been in existence for a long period of time until its formal identification in 1996. The question remains as to what it has been its effect on *A. cerana* and when did it first cross the species barrier and infect *A. mellifera*.

In 1972 honeybees in Taiwan became infected with *Nosema* (An and Ho 1980), however the causative organism was identified as *N. apis*. Recently the SSUrNA gene of the *Nosema* species infecting *A. mellifera* in Taiwan was sequenced and found to be consistent with *N. ceranae* rather than *N. apis* (Huang *et al.* 2005). No *N. apis* was reported in this study. While this was the first report of *N. ceranae* infecting *A. mellifera* it is probably safe to conclude that *A. mellifera* had been infected since at least 1972 in Taiwan.

In 1999 beekeepers in Spain reported unusually heavy overwinter mortality in managed colonies, which was attributed to *N. apis*. However there were some inconsistencies with the normally accepted symptoms and suspicions were raised. Was it a new species of *Nosema* or a mutation of *N. apis*? *Nosema* appeared to have become more virulent! The rate of Nosemosis was also reported to be increasing (Martin *et al.* 2005)

In 2004 a formal investigation was carried out and *N. ceranae* was identified as being present in 11 of 12 samples taken from adult bees from a subsample of severely infected colonies and found by microscopic examination to be positive for *Nosema sp* (Higes *et al.* 2006). In Spain the occurrence of nosemosis has increased from 10% in 2000 to over 88% in 2004 (Ritter 2006). The presence of *N. ceranae* has also been confirmed in Germany. Increased overwinter mortality of managed colonies throughout Western Europe has been unusually high over the last European winter. *N. ceranae* induced Nosemosis is implicated.

Ritter raised the following questions regarding *N. ceranae*:

- Where did *N. ceranae* originate, although it carries the *ceranae* label and is associated with *A. cerana* what is the truth about its status?
- Was the organism recently introduced into Spain and responsible for the high mortality in colonies because it is more virulent as the Spanish presume?
- Has it always been present but only recently identified as *N. ceranae*?
- Is the apparent increase in the virulence of Nosemosis more to do with other stress factors associated with *Varroa* and other pathogens?

Observations in Germany have noted a change in the course of the classic symptoms of Nosemosis over the last 2–3 years (Ritter 2006). The normally accepted course of the disease is chronic in its action with affected bees crawling out in front of the hive, gradual colony dwindle and lost colony productivity. In many instances the disease is not apparent. In Germany the new course of the disease involves rapid death of the colony often with the hive full of dead bees, an acute form of infection. Bees are also making strong cleansing flights in temperatures as low as 4°C. Ritter was not able to conclude that these cleaning flights were associated with this new form of Nosemosis. Ritter's conclusions appear

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10th of each month

NB: No magazine in January

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

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somewhat ambivalent towards *N. ceranae* and he suggests good management of *Varroa* and optimal apiary siting to be an aid in managing this new form of Nosemosis.

It is quite clear that something has changed dramatically in Europe with regard to overwinter mortality over the last few years."

Conclusions

"Little is known about *N ceranae* especially its epidemiology. The current evidence from Europe indicates a far more virulent form of Nosemosis linked to *N. ceranae*. There are many questions about *N. ceranae* but few answers. At present the only definitive thing about this organism is that it can be identified and that it can infect both *A. mellifera* and *A. cerana*.

Nothing is known about its distribution throughout the world, how it arrived in Europe or as Ritter suggests, it may have been present in Europe for a very long time and was mis-identified.

What is its status in Australasia? The parasite is known to occur in Java and Australian researchers are aware of its existence.

What does Louise Malone know of it as she is New Zealand's resident expert on Nosema?

Is it present in Australia and New Zealand? We need to establish this.

How viable are *N. ceranae* spores in honey?

The Biosecurity (Notifiable Organisms Order) 1993. and other relevant legislation needs to be amended to account for this new organism.

The Import Risk Analysis HoneyBee Products is now a defective document and needs to be sent back for review and amendment. Deficiencies in the authors' scholarship also need to be addressed."

Importation and the AFB NPMS

The Management Agency has also sent a letter and supporting document to MAF/Biosecurity New Zealand, Minister for Biosecurity Jim Anderton, and the Director-General of MAF, to express our concerns as to how importation will affect the running of the AFB National Pest Management Strategy. My thanks to Neil Farrer and Roger Bray for putting these documents together. The following is the summary from the document we submitted.

"**SUMMARY:** The Management Agency for the AFB PMS are extremely concerned that proposed imported bee products could compromise the official and legal control (and eventual eradication) of AFB in New Zealand.

The Management Agency do not see bee products being produced under equivalent standards between NZ and the rest of the world.

The Management Agency and the NZ beekeeping industry are committed to a reduction of AFB and the eventual goal of elimination of AFB in NZ. This cannot be achieved if overseas products are not consistent with NZ products with respect to a reduction of infective material and reducing at the same rate as NZ products.

Any introduction of bee diseases (which could not be eradicated as an incursion under the Biosecurity Act 1993) could compromise control and eradication of AFB if drugs were to be required for the treatment of exotic bee diseases.

In essence it is contrary to the rules of the PMS and an offence under the Biosecurity Act to sell or trade AFB infected bee products. This in itself proves quite an issue for an IHS [Import Health Standard] to be developed which provides for the sale or trade of AFB infected bee products."

Live bee exports

Live bee exports continue to be an issue. Although only a couple of companies carry out the exportation, a great number of beekeepers who supply bees for the shipments are affected. Jim Edwards attended a meeting with MAF and the affected exporters. If conditions imposed on exporters become too difficult to meet, one lesser income stream will be available to beekeepers. This may ultimately affect the viability of beekeeping in certain regions in New Zealand. To quote Jim, this is one more thing that the beekeeping industry just does not want.

Bay of Plenty field day 10 June

Neil Farrer and I attended the field day at Paengaroa in the Te Puke region. It was an excellent day with very good speakers, and it was a pity that more people did not attend. The kiwifruit industry gave a very interesting account of their marketing strategy to ensure that ZESPRI remains the biggest exporter of kiwifruit in the world (by a huge percentage).

The organisers also brought in Doug Somerville from Australia to give several presentations. Even if you had attended Conference in Napier where Doug spoke on similar topics on bee nutrition, it is a reminder of how little we really know on this topic, and just how important pollen is to colony development.

Barry Donovan gave a presentation on pseudoscorpions and their possible use in varroa control. Barry's presentation highlighted that although pseudoscorpions have been observed sucking out the 'juices' of the varroa when placed in containers with varroa, very little is known about the co-existence in beehives. Wouter Hyink has observed some pseudoscorpions in their mini-polystyrene mating nucs.

- Jane Lorimer

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Varroa incursion in Nelson

The Varroa Agency was notified on the evening of 15 June that a positive result was found in the examination of two sticky boards returned as part of their surveillance program from the Nelson area.

Biosecurity NZ acknowledged that it was an incursion and proceeded with an incursion response. A team of two qualified people were dispatched to Nelson the next morning. The National Response team run by MAF/Biosecurity NZ was also called to Wellington to set up a headquarters at Wallaceville.

A controlled area was declared and included Buller, Marlborough, Tasman Districts and Nelson City. Movement control means that beekeepers are unable to move hives, beekeeping equipment and some types of unprocessed bee products into, within or out of this area without a movement permit.

NBA President Jane Lorimer and Executive Officer Jim Edwards visited Nelson on Thursday 22 June to meet local beekeepers and participate in two meetings. They joined local Executive Councillor Arthur Day, co-ordinator Reuben Ellis, and Philip Cropp to visit the Emergency Headquarters at AgriQuality. There was an extensive briefing on the current situation and the incursion response process.

At 5.00 pm there was a meeting of NBA members to inform them where they can get advice and how the NBA can help.

The public meeting at 7.30pm saw an excellent turnout of 70–80 beekeepers, members of the horticulture industry and other interested people. Reports were presented from the Varroa Agency, the Field Operations Response Centre (FORT) Manager and Biosecurity New Zealand. Those present took the opportunity to ask questions and learn more about how the outbreak was being managed and how it could affect them.

An important requirement was the need to provide support for the affected beekeepers. Jane Lorimer, Russell Berry and Paul Badger gave advice on how the North Island beekeepers

dealt with varroa. Continuing support is being planned for the months ahead.

Over the following days, the response increased to 10 teams in the field — each team comprised of beekeepers and a specialist AgriQuality staff member. Survey teams were continuing to widen their search for the mite in the Nelson areas as well as testing hives in the Hokitika area.

Throughout the response, MAF continued to provide regular updates through the MAF website, industry groups and media releases on the status of the investigation and associated controls. Information on the incursion response was available at www.biosecurity.govt.nz on the link to varroa through the Pests and Diseases Watchlist section. The NBA was included in regular conference calls with MAF staff and was informed on a daily basis. These calls also enabled the NBA to have input into the processes being followed.

As this report was written, we were expecting MAF to review the information it had collected and hopefully have enough to make the decision in the last week of July on whether to try and eradicate varroa.

To report a suspected exotic pest or disease or if you need a movement permit please call the Emergency Hotline on 0800 80 99 66.

- Jim Edwards
Executive Officer

Never too late!

No flights into Hamilton?

Fly to Auckland and catch a ride to Hamilton.

Join in with the Waikato Beekeepers to celebrate 100 years.

Conference 2006
Just do it!

Letter to the Editor

Seeking exceptional honey-producing trees

Lime, Linden, Basswood, Tilia are all names for a family of honey-producing trees found in many parts of Europe and America. Many years ago, my guess is about 30, someone (I think the NBA) handed out young trees of different cultivars to beekeepers in many areas (I know Russell Berry had some at Waiotapu because I helped plant them). At the time the idea was to plant the trees and to propagate from the best honey producers when they were mature.

I guess most of them should be mature by now. Does anyone still have them and are any of them exceptional honey producers? If so, can they be propagated from seed or by layering and cuttings? I am looking for honey-producing trees for my own property and would be interested to hear from anybody who participated in this experiment.

Thank you,

John Berry

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VARROA AGENCY INC

Varroa Agency Incorporated News

Update from Varroa Agency Chairman Duncan Butcher

Website

There is now a site on the Internet dedicated to varroa in New Zealand. We have spent the last few months putting together general facts and links to websites on varroa, and have all the regulatory information on movement control and surveillance, and a bit about the Varroa Agency.

Please take a look at www.varroa.org.nz when you have a minute, and let us know what you think. And let others know it exists too — it's all part of the mix to help educate people about keeping the South varroa free.

Special meeting

We will be holding a special meeting with representatives from the two bee groups and the South Island regional councils to amend our constitution. As it stands, it makes us liable for tax, but if we were to change our constitution Inland Revenue would be able to put us in the non-taxable Class and we would therefore become a tax-exempt organisation. This change would have the effect of saving us up to $60,000 a year in tax.

At present, the council contribution to our funding is not taxable but unfortunately, the amount coming from the beekeeper levy is taxable under the constitution as it stands now. The levy we had calculated for payment had no allowance for tax in it, so we're very hopeful we will be able to make the necessary amendment to the constitution, and therefore not have to find the money for paying last year's tax, and for future years.

Promotion

We've just developed a "Keep the South varroa free" poster and have some new stickers to use in conjunction with our pamphlets to educate people on the importance of keeping North Island bees out of the South Island.

If you are running an event or exhibition, or would like to display a poster or hand out pamphlets and stickers, let us know — your help is really important in getting the message across to all New Zealanders. Contact Varroa Agency Communications Co-ordinator Claire Grant at claire@clairewords.co.nz for more information.

Thanks too, to Happy Valley Honey in Drury for their assistance at the Mystery Creek Fieldays in Hamilton. They were happy to hand out the "Keep the South varroa free" pamphlets from their stand, which was great. Biosecurity New Zealand and the Federated Farmers of New Zealand also had our pamphlets on their field days stands, so hopefully quite a few farmers and members of the public picked up our message.

[Editor's note: this article was prepared just prior to the discovery of the varroa infestation in the Nelson area.]

Varroa

Have you heard both sides of the story? .....

Network with North Island Beekeepers.
Come on up to Conference 2006
Hamilton

New South Island Apicultural Officer appointment, AgriQuality

Marco Gonzalez has recently been appointed to the above position left vacant by the resignation of Dave McMillan from Mosgiel. Marco will cover the southern half of the South Island and will be based in Christchurch with Apicultural Officer Tony Roper.

Marco, originally from Paraguay, South America, has had a long-time interest in beekeeping and bee products. He grew up keeping a few beehives of stingless bees in Asuncion, Paraguay's capital, where the native stingless bees thrive in the urban environment. Also, he has practical experience with Africanised honey bees that make up the base of the commercial bee stock in Paraguay. Marco can't get over how gentle New Zealand bees are and enjoys working with them!

Marco has a strong interest in the economic analysis of different farming systems. He has been pleasantly surprised by the high standards of the New Zealand beekeeping industry he has seen so far. Marco holds a Bachelor in Veterinary Sciences with honours from the National University of Asuncion, Paraguay, where beekeeping is included within the curriculum. He also holds a certificate in beekeeping from the Faculty of Agronomy of the National University of Asuncion, Paraguay. Marco has a Graduate Diploma in Applied Science and a Masters in Applied Science (Farm Management), with Honours from Lincoln University, here in New Zealand.

Before coming to New Zealand, Marco spent two years as a compliance officer and farm advisor with a boutique dairy factory in Paraguay. He also spent two years as a vet in the companion animal sector, establishing a partnership to run a small veterinary practice, grooming parlour and pet shop, then worked as a veterinary surgeon until he came to New Zealand to pursue further education.

Marco has been in New Zealand since 2002, based at Lincoln University, where he studied different farm systems and agribusinesses in New Zealand.

Marco is a keen soccer player and plays regularly for the Lincoln University Soccer Club in the first division of the Canterbury Sunday League. He also enjoys spending time with his wife Fatima, who is also from Paraguay. His other areas of interest include cycling, tramping, natural history,

computer modelling, gardening and collecting orchids and bromeliads. Finally, he really enjoys cooking barbeque in the traditional South American way, lots of meat slowly cooked on charcoal or firewood … delicious!

Marco is very much looking forward to working with beekeepers and related industries to improve the future of the NZ beekeeping industry. You can contact him on gonzalezm@agriquality.com

National Beekeepers Association Conference 2006 Hamilton

Registration Forms are available on the web site www.nba.org.nz

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Tony Lorimer
07 856 9625
We can even point you in the direction of accommodation

Bay of Plenty field day report

Bay of Plenty Branch held their annual field day on Saturday 10 June 2006 in the Paengaroa Hall. It was heartening to see many people from outside the district coming all the way to the Bay, although the turnout from BOP itself was somewhat disappointing, particularly given the great line-up of speakers.

Risk Management Programmes

Byron Taylor of AgriQuality spoke on this topic. As the deadline of 1 July looms, 80 operators have submitted their RMPs so far and 26 of these have been processed. The deadline of 1 July is particularly important for packers, who operate year round. Operators extracting honey will have a bit more time to prepare their RMPs before the new season starts again, as long as no honey is stored on the premises after 1 July. NZFSA takes about 20 working days to process a RMP.

The verification, which determines that the operator complies with what the RMP says, will be the biggest expense. From Byron's talk it was evident that the first time audit will take in total between a day to 1.5 days of work by the verifier. It can be assumed that if the operator, including the premises, is fully compliant, the expenses might come down. Although when more visits are needed, it would not be hard to imagine that considerably higher expenses could be incurred. It is important that the premises are compliant, but equally important is that the operator adheres to what the RMP says and can show that in recordkeeping.

Overview of the nutritional side of pollens

Our next speaker was our guest brought from Australia. Doug Somerville PhD, Extension Officer (Apiculture) with NSW Department of Primary Industries, has extensively researched the nutritional side of pollens. Doug had prepared four talks and presented them on the day. The following is an overview: remember that this research was conducted in Australia and will be valuable to us as some of the pollen sources also occur in New Zealand.

The 'macronutrients' for the honeybee colony are honey (energy – sugars) and crude protein. The crude protein content in the different pollens available varies from approximately six to 40 percent. It is understood that pollens with less than 20 percent protein can't satisfy colony requirements, although this will vary with the quantity of pollen available. Low protein content plus deficient amino acids will cause nutritional problems for the colony, and high protein content will help to overcome deficient amino acids.

The 'micronutrients' are essential components of pollens. These are vitamins, minerals, and fatty acids. Vitamins are hard and expensive to test for. Testing for mineral content, on the other hand, is not expensive and 27 trace elements are found.

Fatty acids occur in pollen and bees are attracted to pollen with higher fat content. The function of fat in honeybee nutrition is not understood. Starch in pollen, is toxic to honeybees. In general, windborne pollens are higher in starch.

Details of this research can be found on www.rirdc.gov.au. Another way of obtaining this information is to purchase Doug's publication *Fat Bees—Skinny Bees*, a manual on bee nutrition for beekeepers. This publication deals with nutrition, nutrition management, sugar and pollen supplements, economics, pollen chemical composition and includes many case studies.

Small hive beetle

Doug Somerville also updated us on the small hive beetle (SHB) which is causing trouble in Australia, particularly in the warm coastal areas. The SHB prefers subtropical conditions with temperatures of 30°C and relative humidity of 70 percent.

Adult small hive beetles are strong flyers, can live over 12 months, and can survive low temperatures as they will hide in hives. Larvae are very active and will crawl up to 100 metres when leaving the colony or other matter they develop in, such as honey boxes, wax cappings, slum gum, dead hives, etc. They burrow preferably in sandy soil for pupation. SHB will die at 10°C and have low survival rates below 20°C. From Doug's experience it could be concluded that there are not many areas in New Zealand where the SHB would do well.

Future varroa control

Michelle Taylor from HortResearch spoke on this topic. As synthetic treatments are not sustainable in the long run, the following alternatives could be explored: predators, pathogens, pheromones and resistant bees. Michelle explained her work on the Suppressed Mite Reproduction phenomenon, with the aim of achieving 80 percent suppression. To date the results are 36 percent suppression after one year and 65 percent after two years, which is very promising. Michelle cautioned that the lack of sufficient lines will complicate the outcome.

Kiwifruit industry issues

Shane Max, for nearly four years Tech Transfer Manager for Zespri Grower Services and recently with HortResearch, spoke on current issues in the kiwifruit industry. Zespri is by far the largest kiwifruit exporter in the world. The high-cost production system in New Zealand requires premium pricing and therefore superior quality control.

The current most important industry issue is Taste Zespri, which relates to fruit size and in particular dry matter. For Kiwifruit Gold, 30 percent of payment is related to taste. Next year, payments for Green Kiwifruit will relate to taste as well.

The size of the current harvest will be about average for Green and above average for Gold, and there is a likely increase in return for growers this season.

By 2008, productive areas are likely to have grown for Green (approximately 500 ha, or a growth of five percent of the total production area), and Gold (projected to grow by 350 ha, or 20 percent of the total production area). Important

orchard issues for the future are the possible loss of hydrogen cyanamide (if the Environmental Risk Management Agency recommends it be discontinued for general use) and pollination security (possible shortage of hives).

Pseudoscorpions

Barry J Donovan, of Canterbury Agriculture and Science Centre, Lincoln, spoke on 'Pseudoscorpions: predators or enemies of bees'. Some new insights are being gained into the little-known world of these creatures. It is very unfortunate that these creatures go by the name Pseudoscorpion, as they do not resemble scorpions at all. They are fierce predators and even some of the New Zealand native ones have been seen in beehives, and when given the opportunity to eat varroa they readily did so.

Barry Donovan and Wouter Hyink intend to write an article for the August 2006 issue of *The New Zealand Beekeeper* on this topic.

AFB NPMS

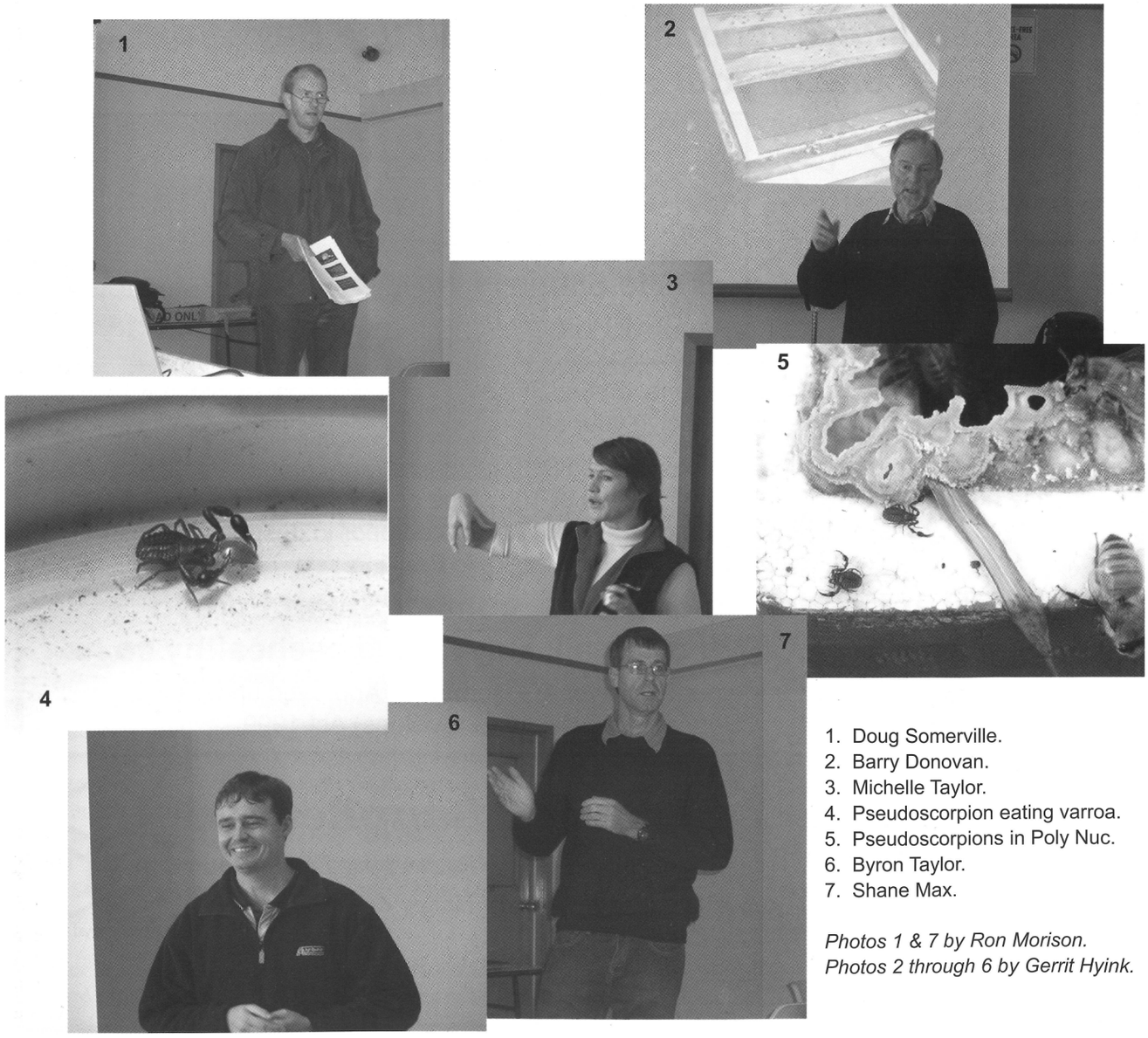
The final speaker for the day was AFB NPMS Manager Rex Baynes. Rex explained that he is working on behalf of the entire beekeeping industry to eliminate AFB. The most important issue to achieve elimination is compliance. Noncompliance has to be addressed, and the ADR, particularly the seven-day reporting requirement when finding AFB, is absolutely crucial to make it work.

It has to be good that people at the field day got to know Rex and had the opportunity to put their questions to him. And I imagine for Rex it was good to get to know people and to learn about our industry.

Conclusion

I think that the field day was very informative and very enjoyable. With the lowish turnout in mind, it is my belief that many people missed out on a very good day. Maybe the Bay of Plenty Branch should consider bringing the field day forward into May in the future, as many of us seem to start our winter break (holiday) a bit earlier.

- Gerrit Hyink



1. Doug Somerville.
2. Barry Donovan.
3. Michelle Taylor.
4. Pseudoscorpion eating varroa.
5. Pseudoscorpions in Poly Nuc.
6. Byron Taylor.
7. Shane Max.

Photos 1 & 7 by Ron Morison.
Photos 2 through 6 by Gerrit Hyink.

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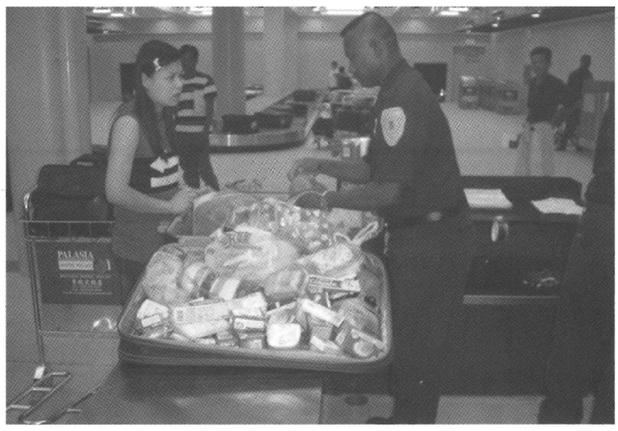
Border protection — keeping the 'exotics' exotic

Byron Taylor
Apicultural Officer
AgriQuality Limited

New Zealand's geographic isolation has enabled us to enjoy an enviable honey bee disease status by world standards, especially in the South Island which is still free of the varroa mite. *[Editor's note—written before the discovery of varroa in the Nelson region.]* Countless articles talk of the devastating effects of exotic bee diseases and pests on beehives. Enough circumstantial evidence exists to suggest that a number of these exotics would have a negative impact on trade, as well as the potential to seriously affect the ability of the bee industry to supply hives for crop pollination. New Zealand has plans in place to deal with the introduction of a number of these pests and diseases, but what systems are in place at the border to minimise the chance of these exotics entering and becoming established in New Zealand?

New Zealand operates very tight border management policies regarding bee products and MAF Quarantine officers are constantly seizing and often destroying illegally imported consignments. Bee product seizures accounted for five percent of the total number of seizures in 2004–2005, and this number increases by two to three percent annually.



Quarantine inspection in Palau. *Photo: Murray Reid*

In 2000, the year varroa was discovered in New Zealand, 4880 consignments of bee products were seized, of which 26 percent were undeclared. In 2005 the figure increased by 56 percent to 7616 consignments, of which 19 percent were undeclared. The total amount of bee product seized last year was 3528 kg. These are mostly personally accompanied consignments but interestingly, of the 461 mailed consignments seized in 2005, 67 percent were undeclared. One reason for this is that passengers caught with risk items including bee products are faced with a warning, an instant $200 fine or prosecution, whereas the same deterrents cannot easily be applied to people sending bee products by mail. Such people may also not be aware of New Zealand's requirements.

In order to detect risk goods, X-ray machines and detector dogs are used extensively at airports and mail centres. All mail and all passenger baggage is X-rayed. In 2005 this amounted to approximately 45 million items of mail and 4.6 million passengers arriving on 30,000 aircraft. This approach has both increased the number of consignments containing risk goods seized and, along with instant fines and an education programme, has improved the level of declaration by passengers. Approximately 7,750 fines were issued in 2005, down from 9,280 when the program started in 2002.

Quarantine officers inspect high-risk baggage identified by either the X-ray machines or detector dogs. Additionally some lower risk baggage is also inspected. Any risk products found that are not covered by an import health standard are reshipped, destroyed or in some cases held for visitors who uplift them on leaving the country.

In addition to airports and mail centres, seaports receive and process vast amounts of freight that can be a pathway for both illegally imported bee products and hitchhiking bee swarms. In 2005 more than 560,000 sea containers were cleared along with 3100 international vessels. Since the late 1990s, when we assume varroa entered the country, a major review of sea container biosecurity has taken place. As a result of this review, a 100 percent container inspection policy was implemented in 2003–2004.

Shipping containers are inspected either by MAF Quarantine staff, accredited transitional facility operators, or both. Containers are determined to be either high or low risk depending on the country of origin, nature of the consignment, condition of the container and a host of other categories. Once the risk of the container has been established low-risk containers are released to accredited transitional facilities. High-risk containers are further processed by MAF Quarantine staff and may include an external inspection (six sides), an internal inspection, washing of the container, and fumigation of the contents of the container, or any combination of these, prior to releasing the container to an approved facility.

Once containers are released to an accredited transitional facility, accredited people inspect the containers as a part of the devanning process. Accredited personnel have been trained in the inspection and handling of sea containers and are subject to audit, as are the containers themselves.

Container ship at port. *Photo: Murray Reid*

It is vitally important for New Zealand to have tight border protection. However, this must be offset by the necessity to maintain good relationships with our international trading partners. As signatories to the World Trade Organisation (WTO), New Zealand must also manage its imports and borders according to the principles of the Sanitary Phytosanitary (SPS) agreement. The beekeeping industry within New Zealand relies not only on the protection from unwanted pests and diseases at the border, but also on the maintenance of good trade relations. Around 40 percent of our honey production must be consumed by overseas markets in order to maintain the equilibrium between supply and demand locally.

The author would like to acknowledge the assistance of various staff from the MAF Quarantine Service in providing information and statistics that appear in this article.

For more information on border inspection visit: http://www.maf.govt.nz/quarantine/index.htm or obtain a copy of the Biosecurity Monitoring Group "Pathway Analysis Annual Report 2004-05, BMG 05-06/02"

DIY truck light

The series of photos below is of a light made by Allan Richards of Marton to assist loading his truck at night. It's kept behind the seat on his tool shadow-board and can be extended and in place within a minute.

The light is made from an extendable boat hook that has had the hook cut off and a light pot-riveted to the shaft. Additional wiring has been installed through a relay system to the headboard of the deck. When the park light is on, it livens the circuit. A couple of rings have been welded to the inside of the deck upright to hold the light in place. All that it needs is a lock to stop the light swinging around on uneven ground.

- Frank Lindsay

From the colonies

Auckland Branch

Yours truly spent part of May as one of the foot soldiers in the exotic pests and diseases surveillance programme (see April 2006 issue for details). It gave me an opportunity to observe many of the varroa management tools and products in use.

After five years of education and experience it was a shock to see some beekeepers still employing 'back-to-back' synthetic pyrethroid treatment; that is, replacing old strips with new ones every two months; or leaving strips in hives for six months. Whether through ignorance or negligence, if this is you, STOP IT! You may get a kick out of seeing your hives stronger than normal in early spring, but that smile will be quickly wiped off your dial when mites in your hives develop a resistance to Apistan or Bayvarol. You are a menace to yourself in the first instance, and to the rest of us further down the line. Such behaviour already has our experts advising that synthetic pyrethroid could be made redundant in New Zealand within the next five years. But if used exactly according to the instructions on the pack, we should be able to enjoy their convenience and the extra choice they offer for much longer.

Beekeepers at the other end of the evolutionary scale are already introducing a 'rotation' treatment strategy to help delay resistance. This strategy entails using synthetic pyrethroid in the spring and one of the other registered treatment products in the autumn (or vice versa). The only warning would be to EXPERIMENT FIRST! Choose a couple of hives in several different yards, making sure whatever treatment you use suits your outfit and that you are prepared for variances in effectiveness. Once you know what to expect from your preferred alternative treatment, you can begin to implement it on a wider scale. These beekeepers will also be rewarded abundantly for their trials and tribulations when synthetic pyrethroid resistance does finally arrive.

- Mark Horsnell

Waikato Branch

The Waikato Branch's AFB checks were recently undertaken by half a dozen AP2s who ventured out in all weather conditions. Thirty four apiaries were checked with two infections of AFB being found. Another two apiaries needed further checking for what could be either AFB or PMS. Although most hives had varroa treatments in, a couple looked like they could be about to collapse with high varroa numbers. Although there was no nectar flow, beekeepers noticed the bees were busy moving their honey stores around.

The first two weeks of June have seen some cracker frosts when a 'high' travelled slowly across from Australia. This was followed by an ugly weather pattern bringing torrential rain, wind and snow. A few beekeepers will have lost lids and next year's production. All this arrived in time for the National Agricultural Fieldays at Mystery Creek. This event is the second largest in the world: only a world agricultural show in Paris, France beats it. Again this year the organisers had extended the area to cope with more exhibitors.

On Friday night, 16 June 2006, our stomachs dropped while watching the six o'clock news, when we learned that varroa had been found in the South Island. It was with interest that later, when watching the 10.30pm news, they said varroa had crossed the Cook Strait. What I do wonder though is did it come from the north or from overseas — why does it matter? It matters because it could indicate how far up the 'resistance to chemicals' path your varroa is. No matter what, it is there. For beekeepers in the South Island, how you do your business is about to turn upside down, and what you will observe going on in your hives at odd times of the year will fascinate you. Harvest Declarations will have a new meaning and it will be a constant challenge to remove all strips from your hives. Good luck!

As you read this, there may be just enough time to do a late registration for Conference 2006 in Hamilton. Just do it! Phone Tony Lorimer on 07 856 9625. Can't get a flight into Hamilton? Not a problem: fly into Auckland and catch a shuttle down. It only takes about 90 minutes.

See you at Conference!

- Fiona O'Brien

Hawkes Bay Branch

There is nothing much to report from Hawke's Bay, the weather has been reasonable and most beekeepers are just quietly getting on with their winter work. I am looking forward to seeing many of you at conference; it should be a good one.

- John Berry

Southern North Island Branch

We are meeting on 3 July to discuss the Notices of Motion for Conference and other business. Most of us are looking forward to Conference to catch up with developments and discuss mutual problems with other beekeeping friends.

Around our area there are wide differences at this time of year. Inland and around the hills hives have no brood, so it is the one opportunity to treat varroa again with a total knock down. In other areas it is mainly feeding rounds and of course preparation of equipment and new frames and boxes for the next season.

The best result in honey harvested is this story: while doing PMS inspections the elderly hobbyist with three hives commented that he was disappointed with the hive we were examining, as it only yielded 40 kg of honey. The next hive was not so bad, as he got 85 kg from that one. But the third hive was up to the mark with 114 kg of honey extracted. If only we could get our averages up to that level!

Continued on page 27

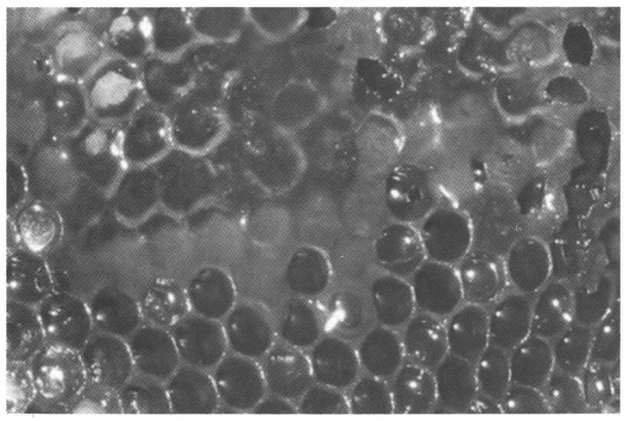
New South Wales Apiarists' Association Inc.

93rd annual conference

Mary-Ann and I took a week off extracting to attend the New South Wales Annual Conference again this year and we were both made very welcome at Forester. You can't help but learn something valuable through the seminars but you pick up a whole lot more in talking to other beekeepers.

Australia (Melbourne) will be hosting Apimondia in September 2007. Full registration is expensive at $A627, but that gets you into all seminars, the bus trip, dinner, etc. (New Zealand beekeepers paid twice the amount in Ireland two years ago). There is a cheaper alternative for partners, but they don't get free entry to the sessions. However, it is possible for the 'other half' to sit in on some seminars when you are off looking at stands in the exhibition hall. Keep an eye out in this journal or register online and get their news bulletins: www.apimondia2007.com

The Hive Beetle has now spread into Victoria, brought in during pollination. Beekeepers were expecting its arrival at some stage, and it's now in all three Eastern States. The beetle is causing losses in high-moisture areas along the coast. Some beekeepers are losing 20 percent of their hives each year. Others won't move hives back to the coast into infested areas. Beetles can attack any hive that loses its queen, swarms or is weak. They seem to congregate in a few hives in high numbers when it's dry but they don't breed. It's only after three days of rain that they spread out and start laying eggs, and it doesn't take very long before hives are covered in slime.



This photo was taken in Sydney, showing slime on comb from small hive beetle.

Ground treatment works for a few weeks in some cases where it's expected to work for three months. (This is with using buried tubes forcing the spray to the surface so they are getting good penetration). Beekeepers with hives on stony ground have found that beetles pupate just under the stones. Beekeepers are building cold rooms and using electric bug traps to try and control beetles when supers are in the honey house.

Scientists were working on a pheromone trap but this has been delayed through lack of funding from the horticultural sector. Their researchers also want to produce a 'store bought' reliable trap but the chemical company that produces an insecticide that works is not interested and the insecticide is not registered for this use. In the meantime, beekeepers are using CD covers (with a small insert cut out) and little plastic compartment boxes with vegetable oil in the bottom to trap them. Coreboard sealed at one end can also be used as a trap as the beetles can't back out once they have gone into the holes.

Hive beetles can also breed on tomatoes and bananas so we had better keep a close eye on our imports from Australia as this insect is likely to be the next nasty to hit our shores. Any beekeeper visiting another beekeeper over there should check their bags and clothing carefully before returning. During the summer when they are active, the beetles seem to get into everything. Don't bring one home in your luggage.

Pollination

Most Australian beekeepers move hives to crops just for the nectar and pollen the bees receive. Almond pollination is growing and while there is an oversupply of hives available, prices will remain low but are gradually being increased each year. Present prices are A$48 while beekeepers this year in the USA are asking as high as US$160 per hive.

Almond pollination is not providing the bees with sufficient nectar to maintain hives at the standard they went in, as it's only a two-week flowering period. Trucks are coming out about a tonne lighter per load. Apparently the temperatures are colder in Victoria than California, so the trees are not secreting as much nectar as they do in California. (The flowers secrete nectar after the flower has been pollinated.)

It is gradually dawning on horticultural growers that they will be paying for pollination in the future. However while beekeepers undercut each other, or put hives in at no cost to the grower (just for the pollen and nectar to aid the spring build-up of the bees), meaningful paid pollination is a little way off.

Some beekeepers are being hit with sprays; i.e., the farmer a short distance off sprays without considering the bees. There is a push to get better messages about killing bees on the insecticide labelling.

Macadamia nuts

Macadamia cultivation is a thriving industry. They calculate production from the amount of waste shells; its 49 growers contribute over $1,000,000 to research and promotions from a levy. However, it's not all good news. One beekeeper told me that Roundup, which is sprayed around the tree to control weeds, is now getting into the groundwater and is also knocking back trees that have exposed roots. The soil is poor and all the nutrients have to be delivered to the trees via irrigation, which is also washing away the soil and exposing the roots to the spray.

The price of fuel is making beekeepers reconsider how many moves they make and where they will be putting hives. It has been suggested that smaller commercial beekeepers could be at risk if the current low international honey prices continue. There has been a swing back to locally produced honeys following the residue problems in imported honeys, and a few beekeepers are doing well at farmers' markets. Australian local councils support farmers' markets as each farming business generates up to six additional labour units, whereas tourism only generates one labour unit. By encouraging farmers' markets, the councils are ensuring they continue to have a thriving community.

I took this photo at the conference. The sugar shake jars were given to beekeepers so they could do more surveillance testing for varroa mites (varroa is not in Australia yet).

Another thing that will help to change beekeepers' attitudes to providing free pollination is a new CD, 'Honey Cost of Production Calculator'. NSW Primary Industry has produced a spreadsheet programme for beekeepers. (Part of the conference subscription went towards paying for the CD for all those attending.) Version 1 is on their website for downloading on http://www.dpi.nsw.gov.au/reader/honeybees. Download it and give them some feedback as to how it could be improved. One thing I noticed immediately was that they should bring the production kg down to 35 kg so it could work in New Zealand. There is also a need to increase the "other" category in the calculator as we in New Zealand produce additional income from pollination, propolis, etc.

EZYLoader

Several beekeepers here in New Zealand have purchased these units and have had some trouble with them; i.e., the electrics and hydraulics wear through, causing breakdown at inconvenient times. When purchased, the loaders were missing hydraulic swivels, which caused the wear. Australian beekeepers weren't told that without the hydraulic swivels, the lifters should only be worked from one side of the truck, otherwise the cables get tied up with use.

Most beekeepers have trouble with them initially and it can take up to nine loads (and unloads) to iron out the problems. One beekeeper purchased two lifters and a Bobcat as he just couldn't afford to have a breakdown if help is hours away. He said it will take a while to get them up to speed then they'll be OK. Some of the older models break down due to a lack of maintenance. There would be a good business for someone to travel around maintaining these units.

So if you are buying *any* machinery, check the warranty. Will it expire before the machine gets heavy use?

EZYLoader owners should get together at Conference!

Nosema

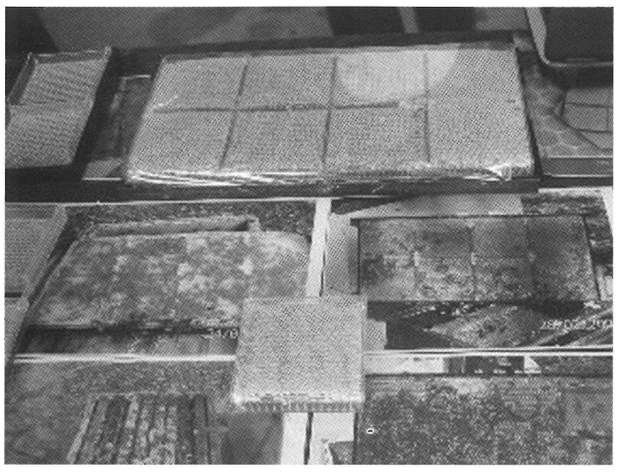
Nosema is still a major problem, especially when hives are worked on winter flows. The bees store good crops of honey but the pollen is poor so the bees become stressed and nosema appears to such an extent that it can kill some hives. Mostly they are severely weakened and can take up to eight weeks to recover on good pollen. One beekeeper's hives were so weak they failed to built up sufficiently in the spring and consequently produced hardly anything during the main summer honey flow last year.

What Australian beekeepers need is a really good artificial pollen substitute. John Black talked about this at the Orange field day and has now published his findings in the publication "Honeybee Nutrition". I never realised just how important pollen is to bees. I also suggest you read *Fat Bees–Skinny Bees* by Dr Doug Somerville, which we hold in the NBA library. You can download it from the RIRDC website www.rirdc.gov.au, or purchase your own hard copy online.

AFB

Official statistics in NSW place the AFB hive rate at about 0.2 percent, but beekeepers I spoke with believe it's much higher. Some of their practices, such as being able to extract honey from diseased hives before they are irradiated, take some time to get used to. (All honey has to be removed from

frames before they can be irradiated.) Radiation works well and is economical. You end up with a clean hive but I feel the extraction process is another possible source of spreading the disease. I believe burning the whole hive, honey and all, is a better option but then again, Australia has had enough fires this year. (For example, burning of any sort is not allowed in Sydney.) Like us, our trans-Tasman neighbours have AFB hot spots, but how are they to check all the hives in a given area when beekeepers' hives are generally only on a site for a month before being moved to the next flow?



I feel that the hive beetle could also be contributing to the spread of AFB in some areas. Beetles are killing feral hives and managed hives so there's got to be a great deal more AFB spread from robbing dead-out hives. A similar situation happens in New Zealand after varroa mites arrive in an area. Education is the key to controlling AFB.

Next year's conference is in Glen Innes (inland) so if you are considering going, take some warm clothing. They get snow and severe frosts there during winter. Then spend a restful week somewhere warmer.

(A DVD copy of the conference seminars should be in the NBA library within a month for those interested.)

- Frank Lindsay

These photos were taken at the field day at Taree, and show a plastic section and a bug trap that beekeepers are using in extracting plants to attract hive beetles. The bug eater uses a water bath in the bottom, so there's no splatter of insects like the electric grill variety. *Photos: Frank Lindsay.*

Treating hives for varroa using formic acid

Here's an alternative way of treating hives using formic acid that has been developed by hobbyist beekeeper Howard Norton of Wanganui after extensive experimental observations. The following pages have been excerpted from the fuller report. If you want further information, Howard has produced a detailed guideline of his treatment method, which is available as a PDF. He can be contacted at hnorton@clear.net.nz

WARNING: before handling formic acid, make sure you wear all the recommended protection.

This is a method of applying formic acid as a treatment lasting 3–4 weeks.

1. **FIRST**, set up: 2 x 'zip-lock' plastic pouches[1] (30x22 cm for each hive (from 'Plastic Box') and blocks of 'Oasis' (available from most garden centres). The 'Oasis' must be the wet sort (green) and is used to soak up the formic acid in the plastic locktite pouches.

2. The optimum mite kill rate relies on an evaporation rate is between 8–12 grams/mls per day over 3-4 weeks. This is only possible while the daily temperatures are above or about 18°C.

3. To achieve this, the recommended window in each pouch is 1x24 cm (an area of 24 centimetres) per hive box. However, I would suggest that this is just the starting point, as you need to trial your own particular hive situations.

4. Either cut the windows out of the plastic with scissors, or use a paper punch.

5. Using a paper punch, punch 85 such holes at 0.6 cm diameter equal to an area of 24 cm or one of the recommended windows.[i] Adjustments can be made to the area exposed to achieve the optimum evaporation rate. [See end notes[ii]]

THEN

6. Slice the Oasis block lengthwise into 1x11x23 cm slabs and divide these slabs equally into three of the plastic pouches so each will hold 250 mls liquid without dripping. In short, a whole block of Oasis will easily hold 750 mls liquid without even looking like dripping. This is important, as direct contact will kill bees. Test with 250+ mls of water first, to be certain.

7. While cutting the Oasis into equal portions, keep in mind that it's best to have slices of equal thickness, as few as possible, not lumps, to enable the Oasis to be spread across the width and breadth of the pouches and so across the top of the frames as consistently as possible. A 'spacer' deeper than the plastic bag of 'Oasis' is needed to go between the boxes to allow room for the vapours to circulate to all frames, not just the ones they rest on, and to ensure the Oasis is not squeezed.

[1] Using the MAF guidelines, plastic pouches [p95] give the longer release period of 3 to 4 weeks.

CAREFULLY

8. Measure the 250 mls of 65% concentrate formic acid and take this measured quantity from the bulk container to the plastic pouches, and then hold these charged pouches while being transported to the hives.

HOW

9. A 'pipette' can be made with calibrations marked on the outside to show the 250-ml level, OR a glass/acrylic tube kitchen 'baster' with a one-ounce capacity can be used to measure the required amount from the 20-litre storage container to the plastic pouches of Oasis, directly. This equals eight[2] trips at one ounce at a time from the storage container to the plastic pouches in their container . The 'baster' gives complete control over this exercise, as well as limiting the possibility of spills and drips.

HANDLING

The mixing of the solution with water to bring the formic acid down from 85% to 65% is the most potentially hazardous of all the handling procedures required. The 26.6 litres you now have is enough to last, for example, a hobby beekeeper with four hives about 10 years with two treatments per year. It is not something you should need to outlay for where it is possible that this initial mixing could be done for you. [See endnotes[iv], [v].] If sharing costs, only one partner needs to have the stricter safety gear for mixing, as above.

10. Exercise some caution when moving the tube [baster/pipette] between the containers: get rid of any immediate drips before lifting the tip clear of the container's mouth. This is really the only movement that presents a hazard from the solution as a liquid. Preventing droplets spraying around is limited only by your control of the baster as you move it between the drum's openings and the Oasis package you're charging, and you want to keep them only inches apart. Using the baster (which you operate like a big 'eyedropper' or pipette tube) to lift the solution from the container to the plastic pouches is far safer than pouring it. This way there is no pouring, and there are few other ways of getting a measured quantity of liquid from a 25 litre drum without using an intermediate, measured container and the increased possibility of spills and splashes.

11. Keeping the solution-charged Oasis plastic pouches packaged in a sealed container until taken to the apiary reduces loss and your exposure to it, to a minimum. The solution evaporates (gives off fumes) proportional to the temperature it is exposed to, and chilling it overnight minimises the vapour it gives off to -0 or less[vi].

12. I place the acid-charged packages, vent side down, within a folded newspaper for carrying them the few yards to

[2] 8 ounces = 256 mls.

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the hives. Any liquid is absorbed from the outside of the package. **There should be no liquid freely running around inside or dripping from the plastic bag.** If there is, you have overloaded the Oasis, or the Oasis volume is too small (see number 2 above). I can safely handle the placement of the charged packages on to the brood frames with my ordinary gloves[vii].

13. I ensure that the entire package will lie freely within the (20 mm) spacer. The spacer is between the top and bottom brood boxes.

14. **Things to note:** clean any spur comb from the bottom of the frames in the box being set down on top of the spacers; i.e., ensure nothing can 'squeeze' down on the formic acid-charged package. Beware that some hives will wax up the frame gaps under the plastic packages over weeks.

15. Always thoroughly dry out the Oasis packages between reuses, especially during the cooler, damper seasons.

IS IT WORKING?

16. Only by alternating formic acid treatments with Apistan or Bayvarol will really tell you that[3].

17. For each 24 hours the pouch is in the hive it should lose weight[viii] of between 7 and 12 grams[ix] to be evaporating and giving off sufficient fumes to kill mites.

18. Over the colder, wetter months treatments such as this, which depend on evaporation of the active ingredient, do not work consistently, and cannot be relied upon. In 2004 this period extended from May to September locally.

THINGS TO REMEMBER

- ALWAYS ADD ACID TO WATER: Mix it in the other way around and the solution may boil and spit or worse.

- Keep smokers and other ignition sources away from formic acid or its vapours. For example, avoid blowing sparks from your smoker over the charged packages or near any container of solution. Formic acid fumes and air can form an inflammable mix, like petrol.

- Area is calculated with the formula: *area =3.14 x r2*, where 3.14 is the factor of πι (Pi) and 'r2' is the radius of a circular hole, squared.

- 8 fluid ounces equals 256 mls. 250 mls of solution equals 250 grams.

- The one-ounce 'baster' takes 8 fills to transfer 250mls to the plastic pouches of 'Oasis'.

- 250 grams/mls of 65% formic acid solution should last 3–4 weeks, depending on temperature and surface area of the solution-holding medium (Oasis) exposed to evaporate in a low-humidity environment in the hive.

- Optimum effectiveness is reached when the rate of evaporation is between 8 and 12 grams per day. For this reason, over late autumn to early spring, I have found that this treatment cannot be recommended. I keep a large thermometer fixed at the hive site for noting ambient temperature.

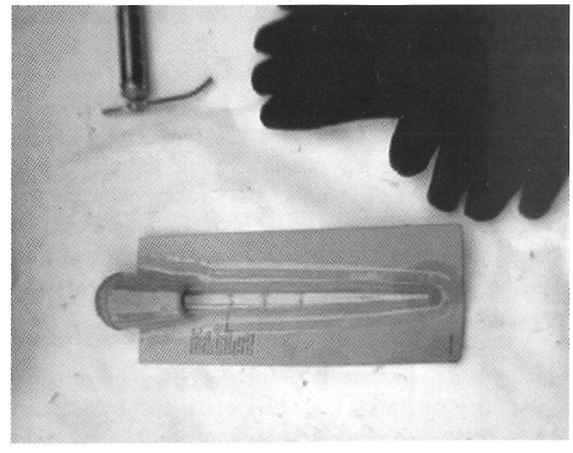
- Lesser rates of evaporation lowers the mite kill rate, while higher evaporation rates means the treatment will not last as long.

- It is the total (cumulative) area of the formic acid-soaked Oasis exposed to air that is important to control evaporation rate, along with the hive boxes' ambient temperature (air space rather than any one spot in the hive) and humidity during the application (over the time the pouch is in the hive).

- Using formic acid may reduce the production of drones.

- Use the spacer on top of your bottom brood box; place the charged plastic packages inside the spacer, on a piece of newspaper, on the top of the bottom brood frames. Put the vented side up during the height of a warm summer; place the vented side down without the paper underlay when it's cooler. This acid's vapour is heavier than air: the metal in my storage areas construction shows greater corrosion around the bottom areas than above.

- Always thoroughly dry out the Oasis packages before reusing, especially over the cooler, damper autumn months. *If diluted much below 65% the volatility of the solution is decreased below effective levels.* The weight of a package may be mostly water after a while in a humid hive, so it pays to rotate packages, completely drying out each before using, and replacing crumbling or fractured blocks as it is relatively cheap. At $2.00 per block of Oasis (which can be purchased at the $2.00 Shop), which makes a three-treatment package, it is not expensive to make and keep enough treatment packages to enable this.



Spring Scales, Gloves, and kitchen baster.

[3] Over a screened sticky board.

Hobby apiary on platform over bank behind wind netting. The latter 'lifts' any flight path over the garden. Green and white 20mm spacers on top brood boxes are visible.

Acid containers x 2; chain drum for transport/storage of 'charged' treatment packages; bucket of water; baster; spring scales; gloves; plastic tweezers; 2x treatment packages; 20mm spacer on white plastic apron.

Oasis slices in plastic bags: left, with punched holes; right, inside 20mm spacer, with 1x24cm cut out.

Photos: Howard Norton

ENDNOTES

i Taking it that the average paper punch makes a hole 0.6cm across with a radius (r) of. 3 cm. The area (A) of this hole [a circle] is .2826cm (A=3.14 x r2) and 24/.2826=85. Using this calculation it is possible to fold the plastic pouch sufficiently to make the number of 'strokes' with the paper puncher proportionally less, and if in the folding of the pouch you take into account the spacing of the frames in a hive box, the holes can be lined up neatly with the spaces between frames.

ii Adjustments can be made to the area exposed to achieve the optimum evaporation rate. [See end notes] by decreasing it (fewer holes) when the temperature is highest/humidity lowest and vice versa. This requires plastic pouches with one window (equivalent to 24 cm in area); one and a half windows; two windows; two and a half windows and three windows. If the optimum evaporation rate is not reached with 3 windows I would look at the temperature (too low?) and the humidity/ condensation in the hive (too high?). If the weight loss per day is over 12 grams and you have only the one window, look at what is happening to hive bees and how this is affecting them (amount of dead bees, amount of brood). [B] A floor vent can reduce humidity by increasing ventilation through the hive. [C] Reducing draughts by taping the join between boxes can control temperature. Getting a balance between 'b' and 'c' is a matter of trial and error, other than a vented floor, cutting 2-inch sections from the beeway of the ceiling and meshing the resulting gaps reduces condensation (and therefore humidity). To reduce cross draughts, you can tape the outside the gap between boxes; have the hive roofs sides overlap half a three-quarter super, and consider relocation to a more sheltered spot.

iii A container that is most suitable for this purpose is the heavy plastic drum that hardware shops sell their light chain from. It has a 19 cm diameter top opening and screw lid. This makes it the ideal container for short time storage and transport to the hives site.

iv Much of this may be to hand, or you may be able to borrow or share. You may be able to plan ahead and only handle the solution in optimal conditions; e.g., you may have means to store the solution in a chiller. A chilled solution gives off very little fumes, but remember, no matter how cold it is, when it is spilled it quickly becomes smelly. The mixing done, when ready to charge the Oasis packages with acid and place in the hives, the minimum gear I suggest, is:

- Goggles, protective clothing; e.g., illustrated apron
- The acid-resistant gloves
- Something to weigh the charged packets at the hive
- The one-ounce baster, as well as the Oasis and Ziploc plastic pouches, a paper punch
- Newspapers to fold around charged pouches or 'chain drum' for longer-term storage
- Gloves, apron, baster, treatment packages ready to use, as illustrated on pages 5 & 6 (of the full report; photographs are included in this issue of *The New Zealand Beekeeper).*

v Suggested procedure: Position the bulk storage container that keeps the airflow across your workspace and the fumes are carried away to the side. 2) Place the large open top container with the Oasis packages to be charged with its lid to hand, on the other side of the solution and as close to it as you can get it. 3) Have the baster to hand and a bucket of clean water by your side. 4) Have suitable gloves on. 5) Open the storage container, and place its screw cap safely to the front (e.g., in the depression around the container's top

handle). 6) Compress the baster's bulb, put its open tip into the solution, and release the bulb slowly, keeping your face above and back from it the whole time. Lift the tip from the solution when the tube is full to the one-ounce mark. You should see that this is clearly marked by going over it with a marker pen if need be. Do not draw solution into the bulb. 7) Hold the tip in the container for the few seconds it takes to free it of the largest drips. 8) Hold the tube firmly and move it the shortest distance away from you into the container with the Oasis. 9) Squeeze the bulb and shake free any drips into the Oasis container. 10) Repeat above steps 6 – 9 until you have given a charge of 8 fluid ounces (at one ounce a time) for each of the treatments you have Oasis for in that container. 11) Place baster in the bucket of water for a good rinse while you seal container, rinse off the top, store behind a HAZCHEM notice then clean up any drips or dilute and wash away. 12) If using within the hour, I keep the charged pouches folded in a newspaper, if longer or overnight I store the Oasis in a chiller or fridge overnight in a 'chain' drum. A smear of Vaseline around the thread of a screw cap will improve its sealing qualities.

vi Being an acid solution its freezing (solidus) point is much lower than H_2O. It will be safer to handle, as it will take that much longer to start evaporating at top speed.

vii The warmer the day, the higher the evaporation rate, the more fumes in the air. Fumes are heavier than air, and saving a breeze in your face, or you forgetfully lift the charged Oasis up to or above your face, you do not get much of an idea how harsh the formic acid fumes really are. Colder weather (e.g., June to September) decreases the volatility of formic acid and makes it unreliable.

viii Remember, 250 mls of solution weighs 250 grams, the dry plastic locktite pouch, and the Oasis 15 grams, so the plastic pouch and Oasis when charged with the solution should weigh about 265 grams.

ix During the treatment period, the plastic pouch can be lifted from the frames with the spring scale (illustrated) and the weight deducted from the previous day's weight. If the evaporation rate is less than 7 grams in 24 hours the treatment (formic acid fumes) may not be effective in killing varroa mites. Over 12 grams in 24 hours and it may be killing mites okay, but the treatment will run out and have to be reapplied sooner. Package loss should be 7 grams per day: 7 x 21 (24 hours) = 147 grams used in 3 weeks – and 12 grams per day: 12 x 21 (24 hours) = 252 grams used in 3 weeks.

- Howard Norton
Wanganui

About the apiary

It's winter. Half the South Island has been covered in snow for five days, with many inland homes isolated and people helping to rescue and feed stranded stock. Another cold front went through last night, dropping a little more snow. At 4 am our streets were covered in five millimetres of slush but by morning it was a pleasant 10°C, no wind, and hardly any evidence of the storm. The odd jogger was taking their Saturday morning constitutional and the birds were about, but the clouds building in the south indicated the impending arrival of another cold front.

Inside the hives the bees are still humming along. Varroa mites are under control in most hives, although there's the odd hive where the bees have moved away from the strips and varroa is still present. These apiaries have had to be treated again.

Outside in the warmer, coastal frost-free areas, Spanish Heather (*Erica lusitanica*), red, white and pink flowering Eucalyptus, Tree Lucerne *(Cytisus proliferus)*, Black Wattle *(Acacia decurrens)*, Gorse *(Ulex europaeus*) and Broom *(Sarothamnus scoparius)* as well as Coastal Banksia *(integrifolia)* are flowering. During the middle of the day the bees are flying quite strongly, bringing in a little nectar and pollen. If you open the hives, you can see a band of fresh nectar about three centimetres wide around the outside of the brood nest frames. (I've been doing exotic disease surveillance on selected apiaries during June but wouldn't normally open hives just for a look at this time of the year.) When I first saw the nectar I immediately thought of robbing and AFB, but then I realised that all the ferals are dead and my hives are OK, so something must be flowering. The nectar has stimulated the queens into egg laying. In the warmer districts, the bees in most hives haven't stopped brood rearing. The best I saw had the equivalent of a whole full-depth super of brood spread over three supers and they were producing drones, an indication the bees are well fed and have ample pollen. I even saw bees fanning: don't they know it's winter?

Luckily this hive still has a full super of honey in reserve but if the queen continues to lay like this throughout the winter, the bees will quickly chew through the honey reserves and will die if I don't intervene by popping on another super of honey or raw sugar on top to slow them down.

In the inland areas, brood rearing has eased off to about the size of your fist over the two centre frames and the bees are clustered. Pick a fine warm day to remove the roof and look under the inner cover or split board (whatever you have under the roof), checking for any condensation. It's permissible to have a little condensation around the edges but the middle of the board should be dry and the inside of the super walls should be fairly dry also. If not, increase the top ventilation a little by putting a matchstick on each corner of the top super to allow more moisture-laden air to get away. Don't increase the ventilation too much as the additional airflow around the bees means they will have to eat more to maintain the cluster temperature. It's a fine balance. If any hives are very wet, leave the top super exposed for an hour or so in the sun to dry out. Then add the matchsticks and check again in a few weeks' time. It should be a lot drier.

A new season

July is the start of a new beekeeping season. Inside the cluster the queen begins to lay eggs and from here on in, more food is consumed to maintain a higher cluster temperature and the bees use pollen and honey to feed the new larvae.

For the new beekeeper it's often confusing to judge just how their hive is developing unless they have another hive nearby to use as a comparison. Table 1 on the next page is a guide that was printed in the Wellington Beekeepers' Association newsletter in 1981. It was developed perhaps twenty years earlier than that by the then president, Joe Bodmin. The guide might not be accurate for your area but if you record the hive conditions in a notebook with what's flowering and the bee activity, you should be able to adapt parts of the guide to assist you. Conditions change from year to year and it's only by recording what's happening that you develop a picture of your area.

For example, in some of my apiaries I have to split the hives by 1 October, otherwise they will swarm. There may have been a dribble of nectar coming in up to this time but as soon as the Kamahi flowers, a lot of nectar comes in and this stimulates swarming. I have to split and super hives before this date.

In another area there's a winter flow from Kohekohe (*Dysoxylum specabile*). With good pollen about and a constant dribble of nectar, the hives build right through the winter. By mid September, the bees are starting to build queen cells and are ready for splitting. Because of the winter stimulation, I leave more honey on these hives to prevent them from starving. However, the splits I make are two supers high and full of bees so are instant production hives — well, almost.

Each area is different and each apiary site can be different also as each can have its own unique microclimate. It's only by recording what goes on that you develop the knowledge of an area and learn to react before the bees force you to do it.

Table 1:

A General Guide to Beekeepers in Producing Populous Colonies

Suitable for Wellington District

Date	No. of frames of bees	No. of frames of brood	Amount of honey in hive		Size of opening	No. of supers occupied
			kgs	lbs		
July 20	4–5	2–3 patches	11.3–13.6	25–30	10 mm	1
Aug. 20	6–7	2 frames	4.5–6.8	10–15	10 mm	1
Sept. 15	6–7	4–5	4.5	10	10 mm	1
Oct. 6	7–8	5–6	2.3	5	10 mm	1
Oct. 20	8–10	7–8	2.3	5	10 mm	1
Nov. 1	10	9	nil	nil	10 mm	2
Nov. 15	12–16	10–14	Stimulate		10 mm	2
Nov. 24	20	14–16	Stimulate		10 mm	3
Dec. 8	25–30	16–18	Flow starting		10 mm	3–4
Dec. 12	30 crowded	16–20	Flow on		20 mm	4–5
Dec. 22	60,000–80,000	Queen under excluder		40–60	20 mm	4–5 Damaree as required

Extract or add supers up to Jan. 8, then allow bees to complete and seal combs.

The above data is a general average and would be exceeded in Districts with a good flow (Karori and parts of Hutt in particular).

[Original by MR. J.M BODMIN (now deceased), ex-president, Wellington Bee-keepers' Association]

Nucleus hives

I am overwintering a number of small nucleus hives. These were initially queen-mating nucs consisting of three half-width frames in a tiny box, but as they are now running short of honey I've transferred them into five full-frame nuc boxes. The two half-width frames are placed side by side near the entrance to maintain the cluster, with frames of pollen and honey placed around the outside.

In talking to other beekeepers I have been offered the following advice:

- small nucs like this do not have enough bees to cover whole frames. The bees won't be able to get at the other side of the frame when it's cold, so they'll starve unless a small hole is bored through the middle of the frame to allow the bees to pass through

- the bees have to work hard to maintain their brood cluster, so assist them by putting aluminium insulation sheeting across the tops of the frames. Be sure to allow a bee space over the top by placing either a piece of queen excluder or a few twigs across the frames. If the insulation is put further away it's ineffective

- nucleus hives with less than three frames covered with bees will abscond when used for queen mating, so keep them strong (something to note in the spring).

I know of one Masterton beekeeper who used to put about 30-odd four-frame nucs (11 wide, three high) in a partially enclosed sun trap. In those days (30 years ago), we had a car assembly business in New Zealand where imported components were put together with local labour. The 'car cases' that came in were made of the best timbers. Beautiful Redwood and other hardwoods were turned into plywood that simply didn't rot. Most homes had a shed made from car cases in those days. Car case timber is still available today close to the bigger cities, but now there are better products to use such as Plexiglas®. This material provides shelter but also lets the sunlight through to warm the nucs. Use whatever you can acquire cheaply as a surround. A shelter can be constructed against a shed wall. Select a north-facing or east-facing wall (depending upon the direction of your cold prevailing winds) and paint it with a dark colour so that it retains the heat.

If you have a lot of nucleus hives, stack them up to three high but stagger them at one end so that the bottom nuc doesn't have another nuc on top of it. The next one in is two high and the rest are all three high. Push the nuc boxes up tightly together, so that the mutual heat from each nuc assists the one next to it to keep warm.

All nucs will need some attention during the winter. Being small hives the bees will consume more food than in larger hives, so inspect them monthly to start with to get an idea of how much food they are consuming.

Inspecting the nucs is easy. Start with the single nuc on its own. Check that the bees are clustered and still have at least a frame and a half of honey. Replace any of the outside frames that are empty or three-quarters empty of honey stores. (Honey is better for small colonies than feeding sugar.) Then move to the nuc on top of the second stack in. When you have finished inspecting the second nuc hive, move it sideways and place it on top of the first one you inspected. This has exposed the bottom hive of the second stack. Inspect this one, then the top one on the next (third in) stack. When you have finished, put this nuc hive on top of the first stack you inspected, making this stack now three high. Inspect the next exposed hive and after each inspection move it sideways until you have inspected them all. The single hive is now at the other end of the stack of hives. Next month, start at the other end and repeat the procedure. Don't worry if bees fly about as they will equalise

the hive populations. If you find a really strong nuc, swap its position for a weaker nuc.

It's important that nucs have access to good pollen sources. I don't extract any frames with a lot of pollen in them — I put them away as food reserves. Caring for these frames is important. You cannot use chemicals to protect them from wax moth, and if you just stack frames in a pile of supers they will quickly be colonised by wax moth. Put your feed supers on top of a couple of strong hives in your home apiary and remove the frames as they are required. (Check for AFB beforehand.) If you have only a few nucs, freeze the frames for two to three days to make sure all wax moth eggs are killed, and then store the frames in a dry place in your shed. Put newspaper between each super to seal any cracks.

In the long run, it's best to plant trees and shrubs that provide early pollen. Gorse and broom plantings are best, but it's no longer PC to plant noxious weeds. Ceanothus is one of the best for this: it's frost tolerant and can grow almost anywhere. Also consider Ericas, Rosemary and Granvilles, anything that flowers into the spring. Also check out what's flowering in your plant shop. Those who live in frost-free areas have more choices available to them.

Mites found in the top of the South Island

New Zealand now has mites in the South Island and it's quite likely they will have spread some distance. It was going to happen sometime but when reality hits it can be hard. It's not the end of the world — the good news is that with all the testing that's been going on in the South Island, they have had only a year to establish.

What should beekeepers be doing? Dust off the green MAF varroa manual you were all given four years ago (*Control of Varroa – a guide for New Zealand Beekeepers*, by Mark Goodwin and Cliff Van Eaton). The information in it is still up to date, which shows how well Dr Mark Goodwin and the team did in compiling it. Secondly, don't rely on others now to find mites in your hives: start testing for varroa yourself. During the summer, use a jar with half an Apistan® strip attached to cardboard in it. Select a hive and shake a frame of bees into the lid of a hive and then into the jar; cover and leave in the shade for half an hour. Any mites on the bees will fall off during this time, and the bees that were in the jar when returned to the hive will have enough chemical on them to kill most of the other mites on the bees within the hive, if any mites are there. However, this is not really an effective measure for finding your first mites as you are only sampling one percent of the bees. Strips and sticky boards are more effective, but the jar method gives an indication of mite numbers.

Beekeepers are the main spreaders of the mite. I moved a swarm from the outskirts of the infested area to a clean location and managed to wipe the mites out of this isolated apiary over a three-month period by using strips and fumigating with oxalic acid every month.

Things to do this month

Make up and prepare equipment for replacements or hive increases. Consider making mesh bottom boards when you are making replacements. There are advantages: moving hives, hives are drier in winter, easy to check mite fall, and they form part of your IPM strategy (for when strips no longer work).

Check hives after storms. Put your feet up in front of the fire and read a good bee book. The NBA library has a very good selection.

- Frank Lindsay

Continued from page 15

The lower honey prices, or the lack of pasture honey bulk sales, is affecting many in our area, with expenditure/purchases being examined very carefully before the chequebook comes out. Innovative new ideas from Conference will help stimulate activity for those feeling the economic pinch.

- Neil Farrer

Canterbury Branch

Well, winter has finally arrived with a vengeance. After an exceptionally mild autumn and a late, if wet, start to winter, we awoke to two feet of snow on Monday 13 June. Great weather for the kids: our boys didn't get to school until Friday. It transpires we were one of the lucky ones in our area, as we only lost power for three days and the phone for two.

Couldn't believe the news about the Nelson varroa outbreak. I wish you all the best of luck in your dealings with the bureaucrats. Whatever happens, start keeping precise records of what you could and couldn't do. Better still, I would talk to someone involved in the Oxford false alarm — this could save you a lot of heartache later on.

Anyway, we now appear to be in the second innings of the South Island Varroa Campaign. VAI, batter up!! (Psst, who's got the bat?)

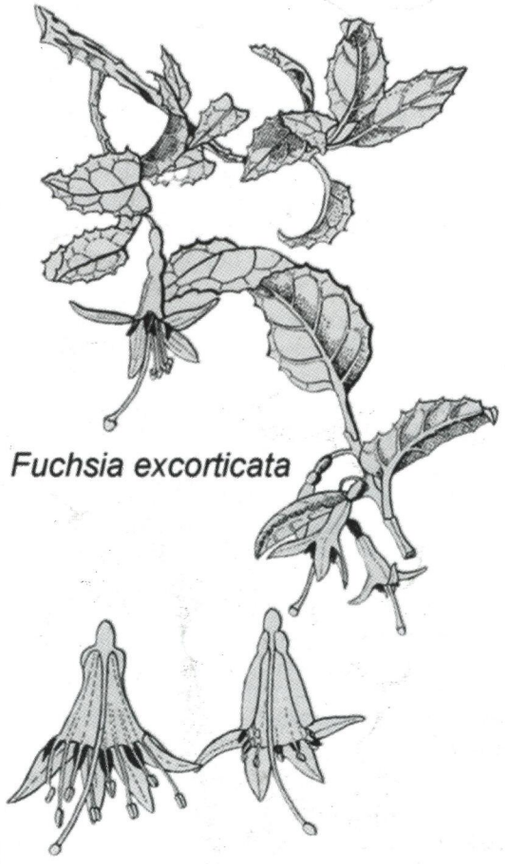
- Brian Lancaster

Trees and Shrubs of New Zealand

Fuchsia excorticata

Maori Name: Kotukutuku

Common Name: Tree Fuchsia



Fuchsia excorticata is a small tree up to 15m high, and is the largest Fuchsia in the world. It is the only true native deciduous tree in New Zealand, although in the north of the North Island the tree sometimes doesn't lose all its leaves. New Zealand has probably four species of Fuchsia, although one may be a hybrid and another a creeper with flowers that stand upright, rather than drooping downwards like the Tree Fuchsia (and other garden varieties that originate from South America, Mexico and Tahiti).

The flowers are remarkable in that they have copious quantities of bright blue pollen. The light pollen often falls off the bees' legs as they arrive back at the hive, a sure sign that the bees are collecting nectar and pollen from the Kotukutuku, which flowers from August to December depending on where in New Zealand it grows.

The honey is light in colour and delicately flavoured, although some say it tastes of overheated clover and is prone to fermentation; it also granulates rapidly with a smooth grain.

The berry of the Fuchsia is purple and is called Konini (a name some incorrectly give to the tree). When ripe, this berry is delicious and can be eaten raw, and the tui and kereru (pigeon) devour them in great quantities. Early settlers' wives made jam or 'Konini pudding' from the berries.

Maori considered the Kotukutuku to be a sacred tree of Tane's and could not be used for firewood, although the leaves were steamed on a fire and women sat on mats over the steaming leaves after childbirth.

Although Maori placed a Tapu on the Kotukutuku, the early settlers called it the 'bucket of water tree' as the wood, even when dry, cannot be made to burn well.

Not only does the tree lose its leaves but the bark is shed also. Early settlers used the bark as tobacco 'when short', rolling it into a cigarette. It burned well but the smoke was hot!

- Tony Lorimer

Correction

Apologies to our readers and to Tony Lorimer for the typographical error that appeared on page 28 of the June 2006 article 'Trees and Shrubs of New Zealand *(Cordyline australis)'*. Paragraph one refers to the word *'Australis'*, which was illegible in the printed version. We regret the error.