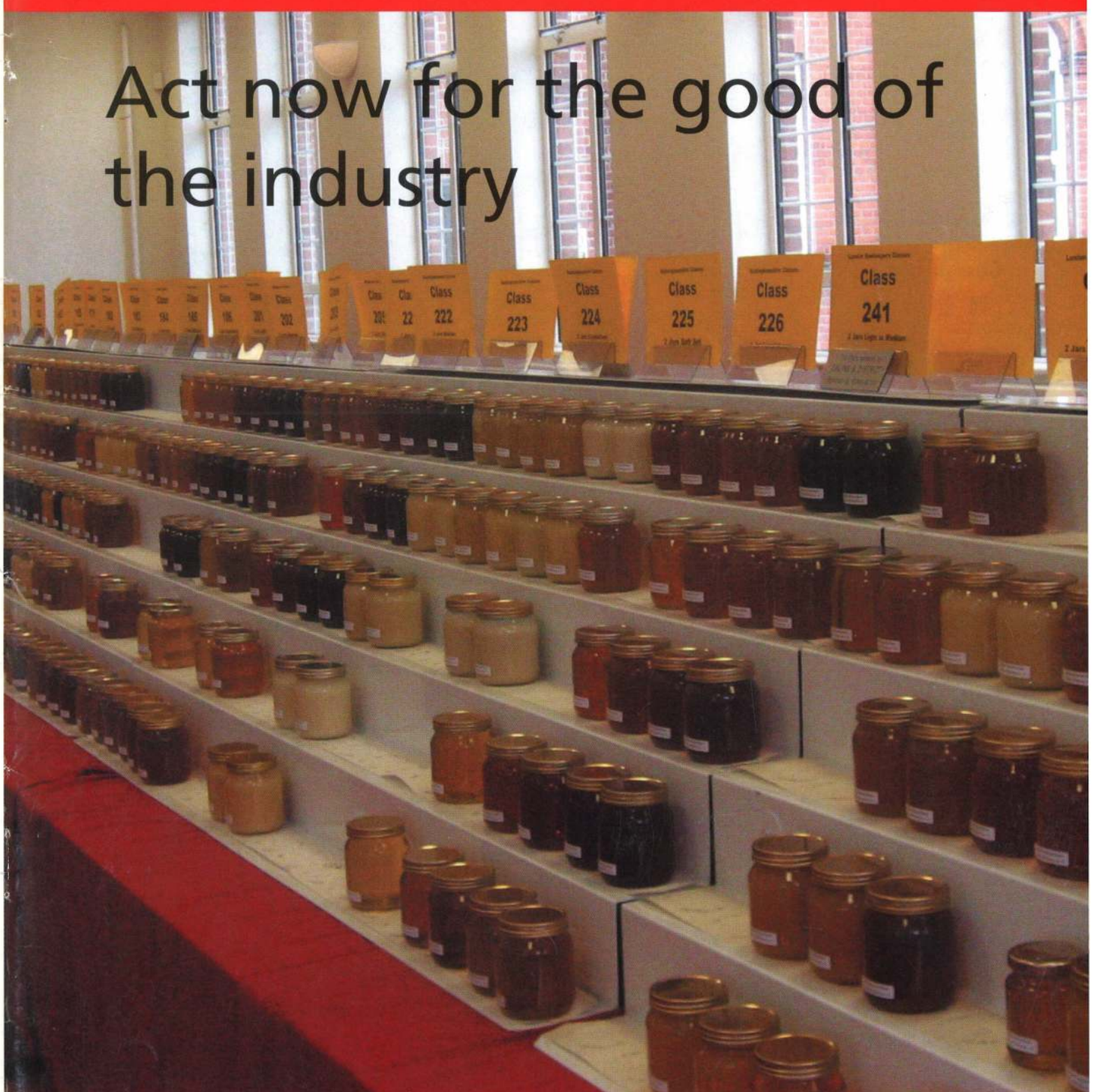
June 2010, Volume 18 No. 5

The NEW ZEALAND BeeKeeper

Act now for the good of the industry



- What every good beekeeper should know
- Toxic honey—the actual story
- Looking after the new beekeeper

CLUB CONTACTS AND BEEKEEPING SPECIALTY GROUPS

WHANGAREI BEE CLUB
Meets first Saturday each month (except January)
Time: 10.00 am, wet or fine (we are keen)

Contact: Mike Maunder
Phone: 09 437 5847
Arthur Tucker
Phone: 09 436 1631
Kevin & Melissa Wallace
Phone: 09 423 8642 (Wellsford)

AUCKLAND BEEKEEPERS CLUB INC
Meets first Saturday monthly at Unitec, Pt Chevalier, Auckland.

Contact: Kim Kneijber, President
Phone: 09 418 1302
Email: kimk_bees@hotmail.com

Carol Downer, Vice President & Secretary
Phone: 09 376 6376
Email: thefairy@xtra.co.nz

Website: www.aucklandbeekeepersclub.org.nz

FRANKLIN BEEKEEPERS CLUB
Meets second Sunday of each month at 10.00 am for a cuppa and discussion.
10.30 am open hives.

Contact: Lydia Pascoe, Secretary
Phone: 09 232 0280

WAIKATO DOMESTIC BEEKEEPERS ASSOCIATION
Meets every third Thursday (except January) at Lab 1, Wintec Campus classroom, Hamilton Gardens, Gate 2, Cobham Dr., Hamilton, at 7.30 pm

Contact: The Secretary
Phone: 07 853 6304
Email: davew@gallagher.co.nz

HAWKE'S BAY BRANCH
Meets at 7.30 pm, Arataki, Havelock North for workshops or meetings as advised to the members
Contact: Mary-Anne Thomason, Branch Secretary
Phone: 06 855 8038
E-mail: kintail_honey@xtra.co.nz

John Berry, Branch President
Phone: 06 877 6205

TARANAKI BEEKEEPING CLUB
Contact: Stephen Black
685 Uruti Road RD 48, Urenui 4378
Phone: 06 752 6860
Email: beeclub@beesrus.co.nz

WANGANUI BEEKEEPERS CLUB
Meets every second Wednesday each month (except January), at 7.30 pm at Canaan Apiaries, Mosston Rd., Wanganui.

Contact: Neil Farrer, Secretary/Treasurer
Phone 06 343 6248

MANAWATU BEEKEEPERS CLUB
Meets every fourth Thursday in the month at Newbury Hall, SH3, Palmerston North

Contact: James Gellen
55 Bruce Road
Levin 5510
Phone: 06 368 8553
Email: james.gellen@paradise.net.nz

WAIRARAPA HOBBYIST BEEKEEPERS CLUB
Meets the second Sunday of the month except January, Norfolk Road, Masterton, 1.30 pm.

Convenors: Diana and Neale Braithwaite
Phone: 06 308 9101
Fax: 06 308 9171
Email: nandd12@xtra.co.nz

WELLINGTON BEEKEEPERS ASSOCIATION
Meets every second Tuesday of the month (except January) at 7.30 pm in the Trust Room, Johnsonville Community Association Building. All welcome.
Contact: Andrew Beach, Chairman
7 Teoti St., Paraparaumu.
Email: andrewbeach@hotmail.com
John Burnet
21 Kiwi Cres, Tawa, Wellington 5028
Phone: 04 232 7863
Email: johnburnet@xtra.co.nz

MARLBOROUGH BEEKEEPERS ASSOCIATION
Contact: James Jenkins, President
159a Budge St., Blenheim
Phone: 03 577 5433
Mark Biddington, Secretary
8 Belvue Crescent
Witherlea, Blenheim 7201
Phone: 03 578 9746
Email: amandab@xnet.co.nz

NORTH CANTERBURY BEEKEEPERS CLUB
Meets the second Monday of April, June, August and October

Contact: Mrs Noeline Hobson
4/76 Tennyson St., Sydenham, Christchurch 8023
Phone/fax: 03 337 3587
Mobile: 021 2112 655
Email: n.hobson@slingshot.co.nz

CHRISTCHURCH HOBBYIST CLUB
Meets on the first Saturday of each month, August to May, except in January for which it is the second Saturday. The site is at 681 Cashmere Road, commencing at 1.30 pm

Contact: Jeff Robinson, President or
Lee Carmichael, Secretary
PO Box 167, Kaiapoi
Phone: 021 662 973
Email: alpinebee@gmail.com

SOUTH CANTERBURY REGION

Contact: Peter Lyttle
Phone: 03 693 9189

DUNEDIN BEEKEEPERS CLUB
Meets on the first Saturday in the month September–April, (except January) at 1.30 pm. The venue varies so check phone or email contact below.

Contact Club Secretary: Margaret Storer
Phone: 03 415 7256
Email: flour-mill@xtra.co.nz

ACTIVE MANUKA HONEY ASSOCIATION (INC)

P O Box 19348, Hamilton
Website: www.umf.org.nz

Contact: Moira Haddrell, Chairperson
P O Box 862, Cambridge 3450
Phone: 64 7 827 3286
Email: info@haddrells.co.nz
or
John Rawcliffe, General Manager
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Phone: 09 575 3127
Cellphone: 027 441 8508
Email: rawcliffe@actrix.co.nz

NZ COMB PRODUCERS ASSOCIATION

Contact: John Wright
Phone: 09 236 0628

NZ HONEY BEE POLLINATION ASSOCIATION

Contact: Russell Berry
Phone: 07 366 6111

NZ HONEY PACKERS AND EXPORTERS ASSOCIATION INC
Contact: Allen McCaw
Phone: 03 417 7198
Email: amccaw@clear.net.nz
or
Mary-Anne Thomason, Phone: 06 855 8038

NZ QUEEN PRODUCERS ASSOCIATION

Contact: Russell Berry
Phone: 07 366 6111

BEE PRODUCTS STANDARDS COUNCIL

Contact: Dr Jim Edwards, Chairman
Phone: 06 362 6301

Is your group or Branch missing from here? Or have your details changed? Please contact secretary@nba.org.nz
Please also send any changes or additions to: editor@nba.org.nz

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Cover photo: Honey competition entries at the British National Honey Show, 2009. Photo supplied by Maureen Maxwell.

Act now for the good of the industry

By Frans Laas, NBA President

The current debate on the subject of Manuka Honey is still quite dynamic, but progress is being made with the presentation of a White Paper outlining the way forward.

Industry consultation is clearly essential to debate these suggestions. At the recent AMHA meeting, many of the members felt uncomfortable with some of the proposals set out in the White Paper. While the debate continues we should not forget that the monofloral standards process must continue, especially for manuka. This is probably more critical than the non-peroxide activity (NPA) issue. Until we get the monofloral standards ratified and accepted internationally, the whole issue of bioactivity in New Zealand honey could be rendered irrelevant.

Industry status

While we are talking about rationalisation in one sector of the industry, should we be looking at how the rest of the beekeeping industry deals with its industry-good activities?

Since the split in 2002 there has always been a desire for reunification. Outside and inside, commentators have always felt that this industry, with its small number of participants, has always spread its energies and money very thinly over a variety of different industry groups. While the manuka industry and the BPSC are currently under the spotlight, should we be considering the whole idea of a unitary industry organisation? Food for thought.

Australian visit to NSWAA conference

Last year, when I was in Australia on an Advanced Instrumental Insemination training session with Susan Cobey, the Australians asked me to speak at the NSW Apiarists' Association Conference about the New Zealand system of AFB management. Our system of industry self-management appears to be quite successful compared with what is happening in other countries, where government authorities are responsible for controlling the process. Despite AFB regulations being surprisingly similar throughout the world, our system is generally looked upon as being the best. At the time of writing this report I am travelling to Australia to present my talk on 20 May at Port Macquarie.

New AFB NPMS board member required

Due to the resignation of Glenn Kelly from the Executive Council (EC), we need to find a replacement for the vacant position on the AFB NPMS Board. The Executive Council has decided to appoint this replacement from outside the Council: see the notice on page 18 of this journal. The skills required to sit on the AFB NPMS Board are somewhat different than those on the EC. The NPMS has statutory responsibilities for the whole of the beekeeping industry, and requires the ability to have a high tolerance for frustration and to have a good ability to understand and implement legislative processes. The role is primarily governance, with most of the day-to-day work carried out by our contractors.

> "...should we be looking at how the rest of the beekeeping industry deals with its industry-good activities?"

Assistance to the Executive Council

Last month I asked for volunteers to assist the EC to formulate a Code of Ethics/Conduct as some people envisage it. A group of Waikato Branch members contacted the CEO to offer their assistance. We appreciate these efforts to assist the CEO in this process. We look forward to the time when this document can be sent out to the membership for discussion and eventual ratification. We also need to bear in mind, as I have mentioned before, that we also need to develop an industry code of practice as well. This code needs to be applicable to all beekeepers, not just those who are members of an industry organisation.

Many members are somewhat reluctant to stand for the EC due to the commitment required. However, many of you may be able to commit to short-term projects that may come up from time to time. In the future we will be asking for more volunteers for these projects.

Remember the new deadlines!

As you know, we are working towards getting the *BeeKeeper* into your hands earlier each month. Advertising and articles are now due on the 6th of the month prior to publication. Material received after the 15th of the month and prior to publication might not be published.

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Bee research and funding in Australia

By Emmanuel Kelly, Upper South Island Ward study group representative

I was fortunate to be involved in the Australian Small Hive Beetle (SHB) field research trip in early May 2009. I would like to thank the organising committee of this trip, largely comprising members of the Auckland Branch of the NBA.

Thanks also to the wonderful hosts we had the pleasure of meeting, who went out of their way to accommodate a large group of 14 Kiwi beekeepers. Finally, I acknowledge and thank the Honey Industry Trust Fund, who through an NBA application provided the funds to make this trip possible. So, thank you to all those involved for your time and energy, which resulted in a busy, comprehensive and enjoyable trip.

Funding

Funding of research for the Australian honey bee industry is generated through industry levies and government contributions. Honey is the main revenue generator with a current levy of 1.5 cents/kg as of 1 July 2009. This has increased from 1.2 cents/kg in 2006 and 0.8 cents/kg prior to this time. The industry voted to voluntarily increase the amount of the levy over this period.

The Australian honey industry produces between 20,000–30,000 tonnes of honey annually, contributing approximately AUS $300,000 for research and development through levies. The levy is charged at the point of commercial packaging for retail sale of volumes over 600 kilograms (this is generally paid by the large honey packaging outfits in Australia rather than individuals/apiarists). Queen bee breeders and producers also contribute with a levy of 0.5% of the retail sale value of the queen. A queen bee averaging AUS $14.00 results in a levy of approximately seven cents per queen bee sold. Pollination fees are not included within the levy at this stage. The Australian government matches this dollar for dollar up to 0.5% of the industry's gross value of production.

The total combined revenue towards research and development is approximately AUS $600,000–700,000 per annum.

The funding is facilitated through the Rural Industries Research and Development Corporation (RIRDC), comprising 22 different primary industries, with the RIRDC Honeybee R&D Advisory Committee guiding individual project funding.

Research

Research and development decisions and assessments are made by the advisory committee in consultation with industry, which includes the Australian Honey Bee Industry Council. They work to a five-year plan that is re-evaluated yearly, with funding directed at industry applications.

"The total combined revenue towards research and development is approximately AUS $600,000–700,000 per annum."

The industry is, at present, focusing on the following six objectives:

1. Pest and Disease Protection (45% of budget)
2. Productivity and Profitability Enhancement to lift beekeeper income (15%)
3. Resource Access Security and Knowledge (10%)
4. Pollination Research (10%)
5. Income Diversification including new product development (10%)
6. Extension, Communication and Capacity Building (10%).

(Source: Australian Government Rural Industries Research and Development Corporation, www.rirdc.gov.au)

Both public and private institutions may apply for funding, including departments of primary industries (DPI), universities and other research facilities.

Visit to research institutes

On this Australian trip we were fortunate enough to visit two such institutes that had received research funding, as well as a field trial of small hive beetle traps.

At the Animal Research Institute, Yeerongpilly, Brisbane, we met a number of people employed by the Queensland Department of Primary Industries and Fisheries. Diana Leemon, senior scientist (Mycology) gave an in-depth presentation on SHB and its biology. Diana was also looking into the use of Metarhizium and Beauveria fungi as biological control methods. She then talked on her research into yeasts as a SHB attractant. This research was in its early stages but looked to have potential if used in conjunction with 'out of hive' SHB traps. The feedback from beekeepers was that this was the preferred path to head down. We then received a rundown of alternative feed trials (pollen substitutes) conducted by Peter Warhurst, in relation to the upcoming government-imposed ban of the keeping of bees in state forests in 2024.

Ian Rodger, senior officer Biosecurity Queensland, provided an operational response perspective of the *Apis cerana* (Asian honey bee) incursion into Cairns 2007. Their response was comprehensive and ongoing with surveillance still been conducted.

This tied into a presentation by Patricia Smith on Queensland's varroa surveillance, including sentinel hives at ports and nominated surveillance hives distributed amongst 55 commercial and hobby apiarists.

We also travelled inland to John Tadman's apiary, where he and Hamish Lamb (apiary inspector) were conducting research into

SHB traps and their effectiveness. Although all the traps worked, we found none to be effective enough to provide more than small reduction of the adult beetle population. They were also in the very early stages of developing and trying 'out of hive' SHB traps, using yeasts provided by Diana Leemon.

Towards the end of this field trip we visited the Hawkesbury Campus of the University of West Sydney, where we were hosted by Robert Spooner-Hart and Michael Duncan. Robert talked about the campus, which has a long history in apiculture going back to 1914. Members of the campus had recently, and were currently doing research into pollination studies of horticulture, pesticides and honeybees, biology and management of native bees, hive formation and function based on x-ray computer tomography, sperm viability in *Apis mellifera,* and small hive beetle. The SHB research was based around four research areas:

1. SHB threshold for egg laying and egg survival
2. susceptibility of queenless and weak hives to SHB damage
3. monitoring SHB movements in and out of hives
4. SHB sheltering in the immediate vicinity around the hive.

Robert himself was currently researching the sustainable control of SHB through targeting in ground pupation. Michael, who was the first person to discover SHB back in 2002, was also looking into the spreading of AFB by the SHB.

Fortunately for New Zealand apiarists, we have the advantage of the Australians undertaking a lot of this research on the SHB. So if and when it arrives on our shores, we will be able to have a greater understanding of the SHB and consequently greater opportunities at options of control.

Full reports on the completed research discussed above, as well as many other apicultural projects funded by RIRDC are available on their website www.rirdc.gov.au

[Editor's note: This is part 8 of a series of reports on the NBA's Small Hive Beetle study trip to Australia in May 2009.]

Looking for workers?

Just a reminder to all members that the NBA website now has an employment section. If you're looking for someone to join your crew or to help out from time to time when you're busy, go to www.nba.org.nz and log in. Visit the members' Notice Board and under the Employment tab you'll find all you need to know about your potential future employee. New employment wanted ads are posted nearly every week.

Toxic honey—the actual story

By Frank Lindsay, NBA Life Member

NZFSA is reviewing the Tutin Standards over the next couple of months and has sought beekeeper input.

Imposing tutin regulations on the whole of the North Island in the first instance as a food safety measure was justified, as testing has identified new areas where there previously wasn't a known toxic problem. However, as more knowledge is gained, the regulations should be tailored to target the problem areas.

I'm one of those beekeepers who has been looking at tutin bushes each week for scolypopa and recording my findings by photo essay and in a book for the last two years. I have also looked for hoppers in the New Zealand bush when I visit other areas of New Zealand.

I don't believe we have a problem in the Wellington area or for that part, most of the central/lower North Island. I acknowledge that there are scolypopa in the Wellington district, and at times they are high in numbers on blackberry (causing honeydew) and other plants in people's gardens, but they are not in numbers on the mature tutu bushes (trees up to four metres high). Scolypopa are mainly associated with new spikes that grow from the base of some bushes each year that are surrounded by uncontrolled grass and bracken.

This year I found only three mature scolypopa on one small (protected from the elements) tutu bush in the Otaki area, but the blackberry bushes in Otaki were covered in them. Elsewhere there were none.

I have also noticed that adults do not appear until mid-February, yet we have to start weekly monitoring from 1 January each year, so this made me look at the research for some of the answers.

Past research on tutin

Most of the research into scolypopa was done by Philippa J Gerard, 1981–1984 (funded by the NBA). She was at that time based at AgResearch, Ruakura, and used a valley one kilometre from the airport to do her studies on *Scolypopa australis* (the passion vine hopper), and a parasitoid of the hopper *Centodora scolypopa*, which proved ineffective as a possible control agent.

The nymph stage starts appearing in October in the Ruakura area (when temperatures reach 10°C), with adult stages appearing in January, which is possibly where NZFSA got its information for the start of the monitoring time.

> "...weekly monitoring should be tailored to known problem districts on a weekly basis and where there isn't a known problem..."

As knowledge is gained the regulations should be amended to fit in with the ecology of the insect and topography of the land (refer to the article published in the February 2002 issue of *The New Zealand BeeKeeper* by Dr R Mark Goodwin). We don't see any scolypopa in the high country above 300 metres in the lower North Island, so weekly monitoring should be tailored to known problem districts on a weekly basis and where there isn't a known problem, adjusted to fit in with a beekeeper's three-weekly round of apiary sites.

My wife also discovered a paper in our files written by M D Sutherland (one of the original researchers), entitled 'New Zealand toxic honey—the actual story', published in *Analytical Proceedings*, March 1992, Vol. 29.

Apiary Instructor C R (Roy) Paterson provided toxic honey from the Pongakawa Valley in the Bay of Plenty in mid-1945 for the Dominion Laboratory in Auckland to analyse. He instigated the first fruitful investigation of the sporadic New Zealand toxic honey problems, and a few months later identified honeydew on tutu leaves as being the possible cause after noticing bees collecting the honeydew. Roy Paterson was never given recognition in the literature for this until a review by T Palmer-Jones in 1965.

Scientific methods in those days were not as refined as today. To identify the toxic substance, they repeatedly stirred the toxic honey with refluxing acetone and the concentrated syrup acetone extract was first washed in petroleum spirit and then chloroform and finally ether to produce "TXB" crystals (12 milligrams per 100 grams).

The crystals were sent to the Dominion Laboratory in Wellington for carbon and hydrogen analysis, which revealed C15H18017. A literature search provided only two isomeric amaroids, namely, the chemically distinct picrotin and hyenanchin described by Henry in 1920 from the scrub *Hyenanchin globosa*. This proved to be a new compound, so was named mellitoxin by Sutherland.

At the same time the crystals were sent to T Palmer-Jones at Wallaceville Animal Research (Upper Hutt) for toxicological studies using guinea pigs and when his assays became available, it was found that the mellitoxin (TXB crystals) only contained 15% of the total toxicity of the honey.

After unexpectedly high toxicities were found in some aqueous fractions, a special extraction and quantitative assays were conducted on all the extracts and residue liquors in each part of the process. They found that half the toxicity remained in the honey layer after repeated acetone extractions, that the chloroform extract which was expected to contain the tutin was strongly toxic, and that the ether-yielded mellitoxin was only moderately toxic and the aqueous residues were significantly toxic. They found two additional toxins, including one of similar solubility to tutin and another not extractable by acetone from honey.

In 1964 mass spectrometric study related the structure of mellitoxin to that of tutin, thereby providing the structure and stereochemistry of mellitoxin. This was confirmed in 1969 by Professor D Arigoni of the ETH, Zurich.

How hyenanchin crept into the equation

Palmer-Jones, in his 1965 review, mistakenly stated that mellitoxin is now known to be identical with hyenanchin with a reference to Henry's hyenanchin only. He also incorrectly described hyenanchin as a more correct name than mellitoxin, presumably having applied biological priority rules to a chemical matter.

In 1966 Hodges and White reported the first isolates of tutin from toxic honey and identified hyenanchin (so called) identified by an m. pt with decomposition, which was different from Henry's H. *globosa hyenanchin. [Editor's note: we surmise the term m. pt in this context refers to a melting point.]* Hodges and White used a gross mixture, so should have been correctly said in a footnote that this confirms the identity of mellitoxin with one constituent of Henry's hyenanchin.

Hodges and White confusingly changed the name of the TXB crystals from mellitoxin to hyenanchin (their diagrams were incorrectly drawn), and so the name hyenanchin was then adopted by *Chemical Abstracts* without comment or indication of any change.

L A Porter's 1967 Picrotoxin review included sections on tutin, mellitoxin and Jommi's hyenanchin (ienancina) but not on Henry's hyenanchin (from the scrub). The names mellitoxin and hyenanchin were used to differentiate the toxin from honey. The actual chemical name should be Hydroxytutin.

A 1979 gas chromatography showed two minor peaks closely associated with the major peaks for tutin and 8-hydroxytutin from the C and H NMR spectra of concentrates: these compounds were recognised as dihydrotutin and dihydro-8-hydroxytutin, respectively.

March 1992 Sutherland stated, "Astonishingly, there is a very significant probability that the current methods of analysing NZ honey for toxic amaroids are seriously flawed because the currently quantified toxic components account for perhaps as little as half of the total toxicity of the honey".

It took me a day to work out the history. No wonder NZFSA was floundering when these problems first arose a couple of years ago.

References

References will be supplied on request to Frank Lindsay, email lindsays.apiaries@clear.net.nz

What every good beekeeper should know

By Dr Karyne Rogers, Senior Scientist, National Isotope Centre, GNS Science, Lower Hutt, Email: k.rogers@gns.cri.nz

"Sugar adulteration" and "rejected export product". These are words no honey producer wants to hear; more so if you are an Active Manuka honey producer and your entire shipment could be rejected.

Preventing contamination of cane sugar in your honey is the key to providing a top-grade product for market. Feeding bees with cane sugar is still recognised as a good way to ensure brood stock survival through colder winter months, and trays of sugar water can also entice bees to stay around particular unifloral varieties. However, if this cane sugar is transferred from brood boxes or from the sugar syrups in frames during the collection phase, then it can 'contaminate' and affect the purity of the honey.

The honey industry is estimated to have exported around 8,600 tonnes of honey in 2009, generating revenue in excess of NZ$100 million. Manuka honey alone accounted for around NZ$70 million of that revenue. However, poor knowledge surrounding a basic but crucial sugar test that is applied internationally as the main generic C4 sugar adulteration test, means that export markets are being lost, reputations damaged and brands tarnished.

The "added C4 sugar" test currently offered by GNS Science estimates the amount of C4 sugars (cane sugar or high-fructose corn syrup) present in the honey, using a stable isotope test devised in 1977 for the Association of Official Analytical Chemists (AOAC). This sugar test is based on the isotope analysis of the honey and its protein (a component found in honey). The carbon isotope values of the two products must be virtually identical (within 7%) if there are no added sugars. Protein is produced naturally in the honey, reflecting the plant input. If any sugar is added to the honey, then the carbon isotope value of honey will be changed, while the protein value is unchanged.

Unfortunately it is quite common that unadulterated New Zealand manuka honeys, including higher-value UMF and active varieties, fail this AOAC sugar test. Until now it was largely unknown why these honeys fail the sugar test, which is routinely used worldwide to assess the authenticity of honey. Recent research at GNS Science by Dr Karyne Rogers has uncovered the reasons behind genuine manuka honey failing these tests. The key problem lies with the internationally recognised AOAC testing method, and could have severe implications for New Zealand manuka export markets if the method is not modified.

"...manuka honey often has higher levels of pollen compared to other honey types."

Making true comparisons

Many overseas importers are now requiring a honey carbon isotope test to ensure they are selling an unadulterated product. This testing is usually conducted in European labs by the importer. For the unsuspecting producer, a failed C4 sugar test can reduce a high-quality export shipment into a more modest, lower-quality domestic product, and affect future brand confidence and reputation.

Dr Rogers and her team have found that manuka honey often has higher levels of pollen compared to other honey types. The pollen levels are artificially high because of the intensive "scrape and centrifuge" extraction method used for manuka honey collection, compared to "prick and drain" methods often used with lower-value honey. Manuka honey is thixotropic (very thick), and because of its high value, producers wish to gain as much product as possible.

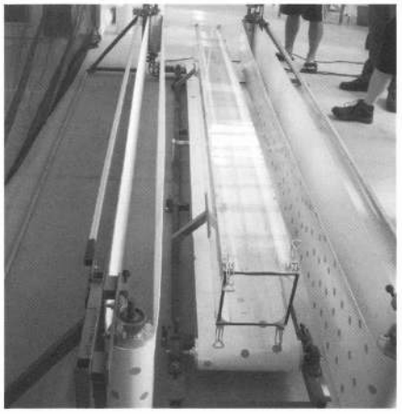
Dr Rogers found that pollen contained in manuka honey had a different isotopic value to the protein. The current AOAC method isolates the protein from the honey for comparison testing, but the current protein isolation method does not remove the pollen beforehand. Protein isolated from manuka honey with high pollen counts ended up with the pollen contaminating the protein isotopic value. These values were being 'artificially' shifted away from the honey, giving a false positive result for added C4 sugars and failing the test. When the pollen was removed before the protein extraction, the honey passed the test. Dr Rogers has shown that a true comparison can now be made between the whole honey and the protein.

The key advantage of the method modification is that it does not preclude the detection of residual sugar feeding of bees or extension of honey with added C4 sugars. In fact, the proposed modification to the AOAC test will reduce false positive tests and improve the overall reliability of results.

Although the pollen 'contamination' issue with manuka honey has only recently been solved, Dr Rogers has published a peer-reviewed paper outlining the problem so that international testing agencies could adopt the modification. Meanwhile the GNS Science Stable Isotope laboratory continues to offer both the traditional and modified methods, and has already assisted several companies to verify their products that have previously returned false positive results.

To prevent rejection of honey, Dr Rogers recommends that any producer who sugar feeds their bees should submit their honey for isotope testing. She adds, "blending a batch of honey collected too early from C4 sugar-fed bees can contaminate an entire shipment". To avoid costly mistakes, producers should test each batch to eliminate any questionable batches from the main harvest. Testing will also help producers to understand withholding periods of sugar before collection occurs to minimise the risk of a failed test. Other solutions to this problem could include the removal of brood boxes from the collection boxes, or wintering bees using natural products such as honey.

speed of the images on each side can be manipulated to make the bee change speed, direction and height. Principles of insect vision have many applications in defence, search and rescue, law enforcement and crop monitoring.



Vision experiment using perspex tube. Photo: Sarah Peacey.

The Institute is also carrying out some tethered experiments that require bees to be removed from the hive, tethered to a paper clip using dental glue and studied with the aid of virtual reality computer programs. This work is focusing on how the bee streamlines its body, takes off and lands and how the bee's brain measures optic flow and olfactory memory to measure distance and recognise landmarks. When the virtual reality images get too fast the bee actually stops flying; as they speed up it starts streamlining its body for maximum speed and efficiency.

These bees unfortunately tend to die in the name of science, as they are isolated from the hive. The stress this creates causes the brain to shrink and they die after about two days.

The Institute is also working on understanding the neurological reasons for aggression. This work is attracting significant funding from the health sector.

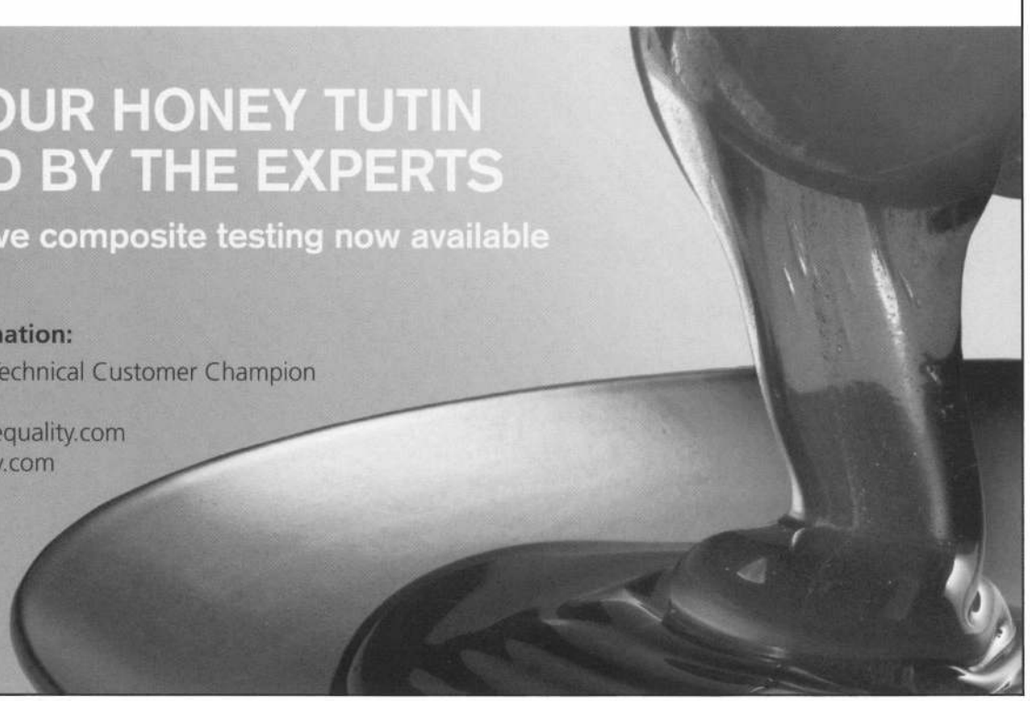
The bee has a brain about the size of a sesame seed. From the time of emergence to taking on field bee duties, the memory-processing portion expands approximately five times in size, then remains the same size for the rest of its life. Although the bee's brain is smaller than ours we share many similarities, with a couple of exceptions.

Virtual reality experiment. Photo: Brian Lancaster.

Bees have fewer detoxification and immune genes, which make them more susceptible to changes in their environment: perhaps bees really are the canaries of the environment.

Take note of what the bees are up to and give them a sustainable environment to live in, and we may avoid some of the issues other countries face.

[Editor's note: This is part 7 of a series of reports on the NBA's Small Hive Beetle study trip to Australia in May 2009.]



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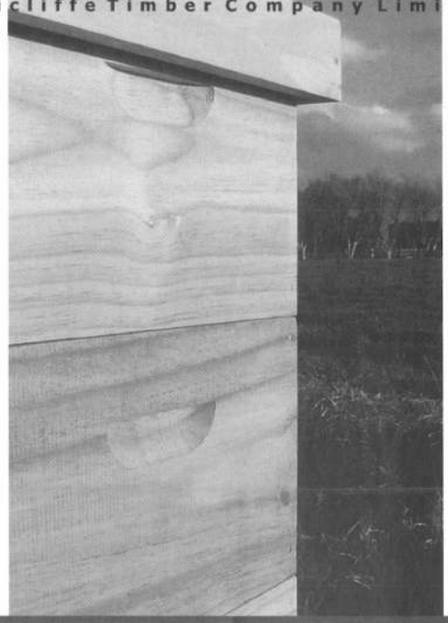

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Effects of EFB and OTC on beekeepers

By Frank Lindsay, NBA Life Member

The March 2010 issue of *The New Zealand BeeKeeper* contained an article on how Professor P. Parvanov from Bulgaria dealt with EFB in hives.

In March the EFB working party in New Zealand produced some interesting recommendations. However, there are implications for every beekeeper if oxytetracycline (OTC) is ever used in hives to combat EFB in New Zealand, should it get here.

- Hives fed OTC will potentially contain residues, especially if beekeepers themselves make up the patties; hence the recommendation for prepared mixed packs.
- The EU forbids treatment of EFB with OTC.
- In Australia, honey can only be exported to the EU from hives treated with OTC after the second extraction, and provided that testing shows it below the residue level of 10 parts per billion (ppb). It's easier for the Australians to manage possible residue problems because beekeepers there can get five different crops, and can be extracting every couple of weeks during their long season.

Coming back to New Zealand, how then will beekeepers get on once we treat with OTC?

> "There are implications for every beekeeper if oxytetracycline is ever used in hives to combat EFB in New Zealand..."

We basically only have two crops at most, unless you move hives from the low country into the high country. Therefore the possibility of residues poses a problem.

Those beekeepers who get an early crop, extract it (this could become industrial honey if residues are found), and then go on to produce a manuka crop could still have possible residue problems. But those going from an early crop to pollination will be better off, provided they extract any sugar syrup that is converted to honey, or honey gathered naturally while in pollination. This honey/sugar nectar could be tested and if found to be residue-free, it would mean that hives placed on a late manuka crop would be eligible for export to the EU. This would entail a lot of extra work and expense because we would be introducing an antibiotic chemical into our hives.

The good news

We have very good pollens available for our bees in the spring from gorse, broom and willow. Hives are generally not stressed unless we have long periods of inclement weather—at which time we could feed the bees a pollen substitute—so EFB shouldn't be all that bad.

Now add to the equation that thymol (already available with some varroa treatments) is known to help prevent chalkbrood and sacbrood (and, I believe, EFB), and our hives shouldn't need to be treated with OTC.

This is the direction we should be following: resistant bees, no drugs, bees feeding on rich natural pollens. Then we won't need to think about residues or have our AFB NPMS compromised.

2010 NSWAA CONFERENCE

Thursday 20 May–Friday 21 May 2010
Venue: Panthers Port Macquarie Club
1 Bay Street, Port Macquarie NSW 2444

Port Macquarie is located approximately 390km north of Sydney and 570km south of Brisbane, on the coast, at the mouth of the Hastings River.

Programme:

- 2 days of seminars and reports
- AFB & Small Hive Beetle

Accommodation: Port Macquarie has an abundance of accommodation to suit all needs.

For information & bookings contact:

Port Macquarie Visitor Information Centre
Corner Clarence & Hay Streets
Port Macquarie, New South Wales
Phone: 1300 303 155 (within Australia) or +61 02 6581 8000
Email: tourism@pmhc.nsw.gov.au

Registration: Early Bird Special until 10 May 2010:
$100.00 for members; $110.00 for non-members (Australian dollars)
Registrations on the day of Conference will incur a $10.00 surcharge.
Contact the Secretary, Julie Lockhart
Email: nswaa@bigpond.net.au

NBA website forum

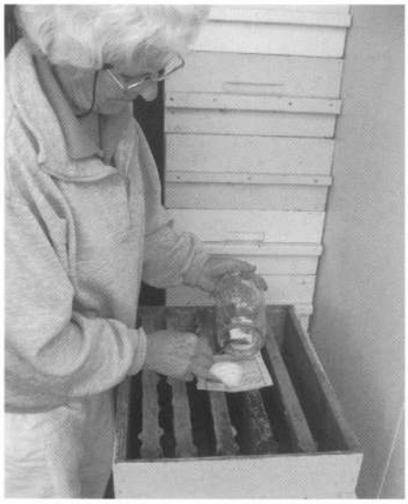
The NBA has recently launched a forum on the members section of the website at www.nba.org.nz. At the moment there are two forums: a general one, and one for hobbyists. The forums are a place to ask questions of more experienced beekeepers, to share information and chat about all things beekeeping with like-minded people. NBA members can simply log in to the site, click on members and then forums. The forums are a work-in-progress, so if you have any feedback or ideas please let us know at secretary@nba.org.nz

Preparing frames and boxes for winter

By Anne Hulme

Now that extracting is finished, it is time to think about cleaning and sorting your frames and boxes and making replacements or doing any necessary repairs.

1) scrape the wax and propolis off all your frames, boxes, queen excluders, syrup feeders and crown boards. Keep your wax and propolis separate, so that you can melt the wax in a solar wax melter or a double boiler. Strain the wax through muslin while hot and pour it into moulds for sale or to use later. You will need it to wax your plastic frames or for making food grade mineral oil (FGMO) cords for organic varroa control. Store the propolis in the freezer until you have enough to sell: it is worth a lot of money.



Placing thymol on paper on the brood frames.

2) Sort the frames into five lots:
   a) dry extracted honey frames
   b) wet extracted honey frames
   c) good frames from the brood boxes
   d) frames with pollen in them
   e) frames that need melting down. These are the broken frames or ones that have too many drone cells, or are so dark that you cannot see the light through them when holding them up to the sun. Aim to replace about three brood frames out of each brood box, every year.

3) Stack the dry extracted frames in the cleaned supers, with a crown board underneath and another on top. These won't need treating for wax moth if there is no pollen in them. You could put bay leaves in them to deter ants.

4) Make another stack of wet honey frames in cleaned supers over a drip tray to collect any honey leaks, and put a crown board on top. Seal the supers in a plastic bag so that the honey doesn't attract moisture and ferment. Label them to use first in the spring. These shouldn't need treating for wax moth either.

5) It is harder to store used brood and pollen frames. You can put them in the freezer for a day or so to kill the wax moth eggs and larvae, before you put them in the cleaned boxes. Space them out six or seven frames to a box and stack the boxes about five high outside in an airy shed, up off the ground with a queen excluder bottom and top to deter the mice; OR

6) Put a spoonful of thymol crystals on a piece of paper over the spaced out frames in the top box. The fumes are heavy and will permeate all the frames. Cover the stack with a crown board and check the thymol every couple of months. You could leave these boxes in a shed. The thymol deters the ants too, better than the bay leaves. You will have to air out these boxes of frames before you use them in the spring. *Don't use PDB crystals* as it leaves a residue in the wax and is outlawed now.

Anne Hulme cleaning gear outside of her home shed. Photos: Graham Pearson.

Don't use thymol in the stored honey supers either as it can taint the wax and honey. If you have used a queen excluder on top of your brood boxes when the honey supers are on you won't have a problem with wax moth in your honey frames, because there won't be any brood residues there.

AFB RECOGNITION AND COMPETENCY COURSE

The Franklin Beekeepers Club will be hosting a Refresher/Test.

Saturday 19 June, at 9.30am, Ramarama Hall.

Full Course $50 Refresher $25 (includes lunch).

To **register by 1st June**, or for more details, contact:

Matt 0224 203040 tunzy@clear.net.nz

Looking after the new beekeeper

By Anne Hulme

The Wanganui Beekeepers' Club has always encouraged new beekeepers from the time that they turn up to a monthly meeting until they become fully fledged hobbyists sharing their skills with others.

In their first week they are helped to get their protective clothing (usually borrowed) and are taken to another hobbyist's hives to get used to bees flying around them. They are into the action straight away, learning how to use a hive tool correctly, and how to lift out frames carefully. In this first lesson they are shown the parts of the hive and the difference in the cells containing honey, pollen, capped brood, and larvae. They always ask to see the queen but that is left for another day.

When beginners decide that they really do want to keep bees, they can join the monthly classes that are run at the club's apiary and learn there the skills needed to look after their own hives. They are paired with an experienced beekeeper and given a hive to work on slowly, with lots of discussion. The novices are expected to keep written records and to write the status of the hive they are working on in the club apiary book. Also they are given a list of 30 seasonal jobs that they can progress through, ticking them off during the season as they become confident. (Our thanks to the Auckland Beekeepers' Club for the idea.)

While they are waiting for their bees and queen cell to become available, someone visits their property to see where best to site their hive and to help with getting the new apiary registered. At this stage they decide on what size hive they want and find out where best to get the hiveware, either new or second-hand. Then they can paint it while they are waiting for the bees.

Novices Bruce, Stella and Geoff cleaning the club gear. Photo: Graham Pearson.

Novice beekeepers usually buy their own nucleus hive in October/November although some like to get a 10-frame split with a queen cell, while others prefer to go with another beekeeper to catch a free swarm when one is available.

> "When the club's honey is ready to come off we treat it as a social occasion, and the novices join the extraction party, learning what to do so that they can deal with their own honey."

At each monthly club meeting, the novices are encouraged to speak about what is going on in their hives and to ask questions. We buy some of the necessary equipment in bulk so that it is readily available for them when they suddenly realise that they have to treat for varroa, or have to put a honey super on because the bees are hanging out the front at night. They soon learn to look at their skills list, think ahead, and be prepared for the next step.

We have also held preliminary classes for those who are nervous about attempting the Disease Recognition and Competency test, comprising mainly quiz sheets, games and flash cards for picture recognition. Up until now all members attending those classes have passed confidently.

When the club's honey is ready to come off we treat it as a social occasion, and the novices join the extraction party, learning what to do so that they can deal with their own honey. Then they can borrow one of the club's small extractors, and usually someone is available to get them started with their extracting if they need help. There is a special section for the novices in our club honey competition, and it is great to see them proudly carrying in their entries, knowing that they are up against only the other new beekeepers.

For a number of years now our novices have continued to stay with the club, which has become a nice friendly group: all willing to help the other new beekeepers get started in this absorbing hobby.

Taming your technofear: part 4

By Andrew Lindsay, I.T. geek

Security of your factory, equipment and work sites is always of concern for any business person.

I am not referring to security as defined by some radicals in America, who advocate the Second Amendment and protect themselves and their family through stockpiling guns and explosive devices, razor or piano wire hung at neck height, or punji sticks on a track.

All may provide security against some physical invasion—as will a strategically placed electric fence or caltrops sprinkled around on the ground—but the police take a very dim view of such countermeasures, and their use may cause the AOS to end up on your doorstep or with a consequent free trip to the courts. Unlike the above measures, we will be discussing electronic countermeasures and what equipment is available to secure your property.

Most people will have been awakened or disturbed by the sound of a car alarm or house alarm going off at some point, but not everyone will have jumped up to check what was happening. The majority of people would roll over in bed and mumble something in the vein of 'bloody alarm; someone should turn that off'. Most audible alarm systems are ignored by the general population as an annoyance rather than a deterrent to theft. Similarly, little square boxes with flashing LEDs are now easily recognised as dummy cameras. (Take a look in any corner shop, where there are probably only one or two real cameras in the shop.) The best security is provided by hidden cameras so that the perpetrator does not know it is there, and therefore doesn't think to avoid it.

Visual security

CCTV and CCD cameras and motion-detecting cameras are available everywhere in many price ranges. The most important thing you can do is to watch the video and look at the pictures before you delete them. Even if nothing has happened, you might spot someone 'having a look round'; in other words, doing the preliminary work for a robbery or act of destruction (vandalism). Remember that the quality of the camera (the higher the number of lines 300–500+ megapixels for CCD; higher for still cameras), the focal distance and optical or digital zoom are important, and therefore quality costs more. The lower the quality, the less reliable or recognisable the picture will be.

"Lighting is also important, whether it is the visual spectrum or infrared."

Lighting is also important, whether it is the visual spectrum or infrared. The type and quality of floodlighting is also just as important as where it is positioned; i.e., to fully cover the area being monitored. Remember to cover the approach as well as the area you wish to monitor. Good lighting helps you get a good photo of the car/truck, which helps to identify the offenders.

It's also a good idea to consider external housings and covers as these provide better protection from the elements and increase reliability. Use these rather than standard or lower-cost exterior camera equipment. For short-term surveillance, an alternative would be to use a dedicated mountable "hide" (game) type. These are still motion-detector cameras which can be chained to trees and set to take a number of still photos or video when triggered.

Other countermeasures are used to circumvent facial recognition on recorded visual media (photos and video for the uneducated masses). These range from a balaclava to a baseball cap mounted with an infrared LED to obscure the face, just as wearing gloves stops fingerprints.

Physical security

A large range of locks and doors are available to provide physical security of your plant and equipment, but what about your hives, out in a field or at remote apiary sites? The police take a very dim view of sitting in the

bushes in full camouflage or in a ghillie suit with a loaded rifle (you are not even allowed to use a paint gun). You could secure your hives with ratchet ties to a platform or pallet and place a fence around the site to stop animal damage, and erect signage warning the public about the possibility of bee activity in the area. But there isn't a lot you can physically do to stop large two-legged animals with less intelligence than their bovine equivalent, unless they are caught in the act by the police. Providing electronic measures (alarms that notify you by cellphone and cameras that provide quality pictures or video good enough to easily identify the culprits) will greatly assist the police in gaining a prosecution.

There's a lot of evidence that hives are being rustled in New Zealand. In the USA they use RFI chips in hives, but up until recently these chips have been expensive and when you are purchasing more than 100, the cost adds up. Prices are coming down and now the latest chips are selling for under US$1 each. Unfortunately the scanners and readers still go for $100 to $500, unless you build your own from a kit and attach it to a laptop in your truck. Then you must still maintain a list or database of the boxes going in and coming out at each site (aarghh, more blimming paperwork), otherwise the whole purpose of tracking your property is moot.

Example of an RFID hand-held reader.

GPS locators

Identifying the hives once they are found is one thing, but how do you find them when they go missing? The answer is GPS locators. Personal GPS locators have been available for a long time but were mainly used as emergency locators (EPIRBs) to find your exact location in the world, either land or sea. Newer units utilise GSM technology (cellphones) to send a text message to your phone when the receiver moves out of a pre-defined area. These units are mainly aimed at tracking children or dogs, but they might do the trick for monitoring the location of your hives, or you could build your own with instructions found on the Internet: check out SparkFun Electronics for kits or Google www.sparkfun.com.

Most of these types of receivers rely on the unit being initially set up with a pre-defined (electronic fence) area that the unit can move around freely within. The unit only alerts the monitoring phone when the receiver moves outside of the fenced area. The downside of this type of device for long-term deployment is its power requirements for continued running. Unless you can charge the device constantly (either with solar or a wind power-generation device), someone needs visit every site and replace the battery pack on GPS receiver before the battery runs flat. There are also 'LIVE' monitoring GPS units for covert tracking (mainly used by the police), but these are price prohibitive and have a limited battery life (i.e., 15 to 200 hours; any longer and the batteries get too large). Other devices only have a three-kilometre range due to radio frequency limitations and are paired with a single hand-held device.

Larger vehicle fleet-based systems that monitor multiple signals via the Internet or a radio base station would require extensive modification to fit to hives and would be easily recognisable through the large GPS receiver and radio antennas.

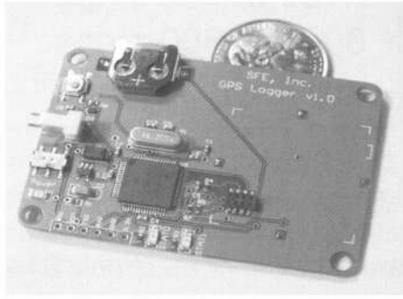
By sandwiching the receiver between a top board and hive lid or in a blank frame inside the hive, the tracking device could be effectively hidden from potential thieves.

Of course, receiving a text message with longitude and latitude co-ordinates is advantageous when you need to provide information to the police about a theft. But if you want to track the device yourself, or have moved a unit and forgotten to remove the tracking module, a visual display device can help in finding it. I am, of course, talking about mapping GPS devices, whether they are in-car devices, hand-held, phone or laptop-based. Devices and software are available from the major manufacturers (Garmin/TomTom/Magellan/Navman) and the device you choose is all about personal preference for the user interface. They all do approximately the same thing.

Example of a mapping GPS device.

Data loggers

Data loggers are GPS units with internal storage and can be used to track and record movements after the fact. Many manufacturers are producing off the shelf units ranging from $150 to $500 or more, but with a bit of soldering and assembly you can make a unit from components purchased over the Internet for a bit cheaper (just not as pretty as the example shown below).



Data loggers can be mounted in your trucks and cars used by employees to make sure they have visited apiary sites they were supposed to and not just spent the day at McDonald's. By attaching one of these devices to vehicles and retrieving the data later, a track of their movements can be plotted on Google Maps or Google Earth. These loggers are also useful for tracking teenagers who borrow the car, as some can not only log position and time but speed as well. Check the SparkFun website (www.sparkfun.com) for GPS-08755 or GPS-08334. The more functions a device performs, the more parts it requires, and although it can get a little expensive it shows what you can build.

How and what to get

I am not going to recommend any one product to buy. I am just making you aware of what you can buy or build. Your local security expert (or if you have a tame electronic engineer) may help you decide, but this is no substitute for doing the research yourselves and working within your budget. Remember that you can buy over the Internet from the US or China to save money. When using the Internet, however, there are a few things you should be aware of:

- A low-cost item might have a high shipping cost, or the listed price covers bulk buying rather than the cost per item. When you buy, check that you are only paying postage for one item rather than the bulk postage price.
- When purchasing overseas, look for one that uses postal service or a two-week delivery rather than air express.
- Import duties will be tacked on by New Zealand Customs for high-value purchases.
- Purchase by using PayPal if it is available, as this is more secure and the money is not transferred until the item is dispatched. You can also ask them to cancel the payment within a month if the item is faulty or doesn't work as advertised.

Photos supplied by Andrew Lindsay.

What do you think?

We've had feedback from a couple of members saying that the colour of the font in the *BeeKeeper* journal is a tad light. If you agree, please email secretary@nba.org.nz.

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FROM THE COLONIES

Auckland Branch

A meeting open to all beekeepers has been arranged to discuss your experiences of working with the tutin standard, and future options for managing this problem leading to changes to the tutin standard (if required).

Date: Wednesday, 7 July
Time: 7.30 pm
Venue: Ramarama Hall (west side of the southern motorway, adjacent exits 466)

Jim Sim, Principal Advisor (Animal Products), New Zealand Food Safety Authority will be in attendance. Jim has requested and encourages club and hobby beekeepers to attend. You do not have to be a member of any organisation or club to attend.

To assist with catering, please RSVP by contacting Ian Browning on 09 236 0764 or email Bob Russell: bob.russell@paradise.net.nz

Note: this is not an Auckland Branch NBA meeting.

Bay of Plenty Branch

Oh to be a sugar merchant! We seem to have fed tank after tank to ensure the bees have sufficient stores for the winter. With the exceptionally dry weather there seems to have been pollen but no nectar around, with the stores left on the hive at honey raiding time having been eaten some time ago. Compounding the problem is that the hives are still quite full of brood in most cases as the weather has stayed warm and the drones haven't been tossed out yet.

We have had our first rain in some months last night, but only a fraction of that forecast. No doubt the rain will arrive sometime soon, hopefully not all at once. Apart from the dry conditions, everyone seems to be comfortable with hive health and looking forward to a break before the cycle begins all over again. We are off on holiday then head to Nelson to catch up with those going to conference.

Branch meetings have resumed with a few new faces, which is great to see. If you are not on my circulation list for updates on when meetings are being held, please email me on hikuhoney@xtra.co.nz. We generally meet in the evenings once a month in Tauranga at Buretta Park up until September, when we recess for the busy months of the year.

- Barbara Pimm, Branch Secretary

Nelson Branch

It was a good honey season for the Nelson/Golden Bay area in the end. A bizarre spring confused us all. The level of swarming and supersedure took us by surprise and we prepared ourselves for a meagre crop. Instead we got a fantastic summer and a longer-than-usual flowering season on our bush species. Kamahi, northern rata, manuka and kanuka all flowered well. Then the honeydew did its thing for those close to beech forest! It never pays to complain too early about the season, does it?

The West Coast got a great flowering of southern rata. Murchison got off to a wet start, but made it up to an average yield thanks to the manuka flowering longer.

Marlborough started out looking really good but the weather caused it to be an average season. Honeydew is flowing abundantly and those areas without large wasp numbers will winter well.

We have had a huge mixture of experience on the varroa front. Some areas are only just getting it, while others are well into the chronic phase. Areas that got varroa later in the season last year had hives that were collapsing at harvest time this season. Some beekeepers got caught out by not treating early enough. All that swarming is likely to have created a problem for next year! We need to be looking at treatment rotation and keeping open minds to new ideas for varroa management.

Right now we are enjoying a dry autumn, which is making wintering down a bit more pleasant. We are loving the weight of our hives also. The bees are going into winter with plenty of honey and we won't need to think too much about them for a few months. Yeah!

Conference update

The conference program is now finalised. Look on the NBA website for more information on seminar times.

Thank you to all our sponsors for enabling conference to happen! They are:

Ecroyd Beekeeping Supplies Ltd, Ceracell Beekeeping Supplies Ltd, Tecpak, Comvita, Hill Laboratories, Manuka Health NZ Ltd, 100% Pure NZ Honey, FMG, Apivar/NZ Beeswax Ltd, Tunnicliffe Timber Company Ltd/Arch Wood Protection/Port Prime Ltd, Beetek Ltd, Airborne Honey, Natural Sugars (NZ) Ltd, VIP Packaging, NZ Honey Co-op Ltd, Boutelje Products, AsureQuality Limited, Comag Agencies Ltd/Croftpak Ltd, Milburn Apiaries Ltd, NZ Sugar Co. Ltd, Auckland Drums, M & K Stafford Engineering Pty Ltd, Kai-iwi Honey Ltd, Beegreen Ltd, Alliance Beekeepers Woodware, Apiary Services Ltd, NZ Labs, PML, Cawthron, Waimea Truck and Crane, Maureen Maxwell, Glenbrook Machinery, Barry Foster, Knapp Engineering Ltd.

See you all at Conference 2010 in Nelson!

[Editor's note: see page 22 for information about the New and Small Beekeepers' Forum.]

- Kerry Gentleman

Canterbury Branch

It has been a long, dry, warm autumn in Canterbury. Every day at this rate with this balmy weather is going to make winter one day shorter. The downside to this incredible run of weather is the lack of rain. Averages say that the spring may be reminiscent of a couple of years back. Not something to look forward to.

This has been an incredibly long season for me in particular, being my first year with varroa. It has been a steep learning curve to get on top of it and I'm still not sure that I have. The extra amount of work that varroa has created within my beekeeping operation (especially surveillance) has me rethinking exactly how many colonies I can easily run. One thing I know is it won't be as many as I used to.

With conference in Nelson this year, it will be a good chance for beekeepers (especially South Islanders) to make the trip and talk to people who have dealt with varroa and come out the other side. Personally I am indebted to several North Island beekeepers for their advice and encouragement. You know who you are, and thank you for →

your help. This is your chance to talk to people and learn from their mistakes. I have always found that people who have been prepared to share their mistakes and/or disasters and enjoy sharing them with you are inevitably at the top of their game. I guess that comes with being confident within yourself and your abilities.

- Brian Lancaster, Branch President

Otago Branch

What has been a pleasant autumn is sliding into winter today with some colder air and light rain. Our drought has eased finally and as one farmer said to me recently, "At least it's a different colour now". The green is disguising a very dry subsoil.

Varroa being found in Queenstown last week, apparently transported there last spring from Canterbury, has left local beekeepers shaking their heads with disbelief. Their conscientious efforts not to bring hives or queens southward has needlessly been undone.

It is only luck that the hives were placed in an area targeted for the exotic survey and thus discovered now. If we weren't looking for Tropilaelaps there may have been no sticky boards either. With frequent droughts, and now treatment costs starting well ahead of what could have been, clover producers in the south face an uncertain financial future.

That it happened at all reminded me of the tutin poisoning in Coromandel. With the NBA no longer having a compulsory membership and no advisory service disseminating information, it leaves us wide open to any new beekeeper who may simply not know things they need to know. Unless it concerns AFB, no one is obliged to make sure they do. It soon became obvious no one was going to automatically advise all southern beekeepers about the varroa find either. It seems a situation we shall just have to live with.

On the brighter side, I can report a big increase in well-trained new beekeepers in our area and impressively over 45 sat their Disease Recognition and Competency test at a recent course. I just hope they can be encouraged to join a beekeeping organisation—the NBA would be nice—and thus stay well informed.

Happy hibernating, if you get the chance.

- Peter Sales, Branch Secretary

The British National Honey Show

By Maureen Maxwell, NBA Executive Council member, Northern Ward

This would have to be the benchmark honey show—check out the silverware, which is very eagerly sought after.

The competition is intense with a huge panel of judges working over two days.
This show is also run over a weekend alongside workshops on beekeeping and associated topics, with a series of guest speakers, both local and international. There are also a large number of trade stands and other stalls selling much bee paraphernalia.

Photo supplied by Maureen Maxwell.

Show trophies for various categories.

Help run one of only two National Pest Management Strategies

The American Foulbrood National Pest Management Strategy (AFB NPMS) Board is looking for an NBA member to fill a vacancy due to a resignation.

The goal of the AFB NPMS is to eliminate AFB in managed colonies in New Zealand. The AFB NPMS has statutory responsibilities for the entire beekeeping industry as prescribed under the Biosecurity (National American Foulbrood Pest Management Strategy Order 1998).

The Board role is one of governance with the majority of the day-to-day work carried out by its contractors.

The suitable candidate will have most of the following attributes:

- Understand the governance principles required for a board role
- Ability to work productively and contribute constructively to achieving the goals of the Strategy.
- Ideally should be a registered beekeeper
- Have a history of compliance with the strategy
- Have an appreciation and belief in the strategy
- Be a team player who has a vision for the future of the strategy
- Have additional skills outside of beekeeping which in turn might add value to the strategy
- Be without a conflicting interest such as a contracted service provider
- Must declare any conflicts of interest at nomination point. This will include association or membership of any political or industry groups
- Attend four face-to-face meetings per year
- Attend one-two telephone conferences per year (as needed)
- If you're interested in applying for the position please contact Frans Laas on: f-laas@xtra.co.nz or 03 489 4597.

Western Australia Beekeepers' Conference

By Frank Lindsay, NBA Life Member

Last June I was lucky enough to be invited to talk to the Western Australian beekeepers' Conference in Perth, where I provided a beekeeper's perspective on varroa and how we deal with AFB in New Zealand.

Conference presentations that stood out for me were:

- Professor Giles Hardy of Murdoch University looked at the impact that plant diseases are having on the natural ecosystem. Their forests are suffering from serious "dieback", some of it caused through introduced diseases and others by the loss of their marsupials. (Perhaps we could give them back the opossums.) You can see the dieback evidence everywhere when driving through the forests—it's quite alarming.
- Dr Garry Levot of the NSW Department of Primary Industries talked on their research in developing a trap for the small hive beetle. The beetle is isolated in the meantime to the northern border, and was accidentally brought across in irradiated AFB hive material.
- Dr Denis Anderson of CSIRO Entomology described current honey bee research and current threats to the bee industry. *Varroa jacobsoni* has now made the jump and is breeding on *Apis mellifera* bees in Papua New Guinea. Australia will have to put this pest on our first schedule again. Previously it didn't breed on *A. mellifera* so wasn't considered a threat.

During my short time there, I spent a couple of afternoons with the president of the WA Farmers group, David Leyland (see Bees Neez Apiaries on the Beekeeping in Western Australia website http://www.beekeepingwestaus.asn.au).

I also attended the AGM of the WA Apiarists Society Inc., (the hobby beekeepers' group). This is a Perth-based hobby club with 65 members, and is well run, with different members taking control of activities. One very good idea is that they present a "Busy-Bee" medallion to members who have made an outstanding contribution during the year: a tangible award for a job well done. They also had an excellent speaker for their AGM, Queensland Brain Institute head of Visual Neuroscience Professor Mandyam Srinivasan from Brisbane University, who spoke on bees' eyesight and how the knowledge gained from the Institute's research is being used to auto pilot low-flying aircraft.

"Some of the best beekeepers produce between 200–300 kilograms or more per hive during the year."

Perth is a pretty city with over 1.5 million inhabitants. The place is green, planted with a great mix of fauna, with most trees in the city coming from other states. Something is always flowering and unlike the eastern states, their eucalypts and ground sources provide good pollen, so the beekeeping season can go from September to July each year.

Some of the best beekeepers produce between 200–300 kilograms or more per hive during the year. Just imagine a hive in your garden producing 300 kg of honey—what would your family do with all of it? Unlike what you may think, their honeys are very nice with a mixture of mild flavours: it's only the heated stuff coming into the state that's a bit rough.

A commercial operation

The majority of commercial beekeepers live within 70-odd kilometres of Perth. Like all Australians, they are used to moving their hives via truck and trailer to apiary sites to take advantage of seasonal flows. Unlike some New Zealand enterprises, hive numbers per beekeeper are not large. You don't need a great number of hives when you are harvesting honey every couple of weeks during their season, so they talk in "loads" rather than numbers. Apiary sites are on a mix of private and Department of Conservation land. David Leyland of Bees Neez Apiaries pays a fee of $80 per apiary (the fee has just doubled), but there is no limit on hive numbers. As can be expected, he has a large number of registered sites, but not all are used each year. Beekeepers tend to work in together and will often share each other's sites. Forest fires are prevalent, and after a fire it can take up to four years for the forest trees to start secreting nectar again, hence you need a large number of sites. David would like six apiary sites in each of his locations so he can dump full loads without excessive travel between apiaries.

An empty apiary site.

At present David has five loads of 112 hives. The frames he uses are the same depth as ours but the supers are only eight frames wide. Hive entrances are at the side as he places the hives (four, end on end), on a steel frame (pallet). Each block of four hives is given a number and each hive within that pallet is colour coded. David runs a single brood nest with a queen excluder and three honey boxes, all full depth so frames are interchangeable. →

He uses New Zealand Maharangi frames with plastic foundation insets. Frames are assembled and the plastic foundation inset is bowed a little and slipped into the frame: no wiring and waxing is required.

Each of David's hives is fitted with a half super, bottom pollen trap. Pollen is so plentiful when red gum is flowering that hives can produce 500 grams per day. Pollen is collected every third day, and it's not unusual for him to collect 500 kgs off his hives each trip, which he sells for $10 per kilogram (wet).

David's truck is fitted with a hiab on the end of the tray, which allows him to lift the pallets off the truck and trailer. He places his hives in a square of eight pallets (3x1x3x1, with all entrances facing outward). David unloads the supers into the centre of the square and takes off the honey using escape boards. With the hives being in a square, he is working each hive with a minimum of walking. Each yard's supers are kept separate during storage and processing and go back on the same hive. Should a group get mixed up, David knows that only one other hive with the same number and colour code will have that super; therefore he doesn't have an AFB problem.

David's truck.

As you can imagine, beekeeping in this climate is pretty intensive. David starts work at 6 am at the apiary site and works until dark but doesn't work weekends, which is reserved as family time. He can work in temperatures as high as 40°C—he lost 11 kilograms during the year.

David has his own extraction plant which is B-Qual registered (the same as our RMP). He has an early model BeeQuip, deboxer, uncapper, 120-frame horizontal radial extractor and two cappings spinners. Frames are chain fed along the rack and air-rammed into the extractor, which pushes the extracted frame out. The extractor is set on a 10-minute cycle.

David's shed.

The honey supers come in and are loaded into a hot room in their separate apiary loads. The hot room has underfloor heating powered by six solar panels. Extraction starts early in the morning. They are on dual night/day power and their night rate is only five cents a unit (i.e., 19 cents per day). David and his wife Leilani start early to take advantage of the night rate and have about 150 supers done by morning tea. They extract their five lots over two days: 300 supers on the first day and the rest on the second day then load up, ready for an early start in the morning.

Cappings from the uncapper go into the spinners, and when the first one is full they load the second and empty the first. Honey from the extractor is pumped into settling tanks and the wax residue is allowed to settle on the top. The honey is then gravity-fed in 1000-kilogram ICBs.

Most of their honey is sold in bulk to the big packers in the area, although some is packed and sold through their factory shop along with other bee products. Bees Neez Apiaries is situated just off the main eastern highway and has tourist buses visiting, providing them with a steady income.

David took me out bush to see some of the forest apiary sites close to his home. Although the forest roads are dusty, the main ones are in very good condition, especially if they are logging in the area. (Their forest conservation department is not given an operational grant from the WA State government. Revenue comes from logging, which they have to balance with conservation.)

It was nice for a Kiwi to see kangaroos, an emu, a couple of cuckoos, and a wedge-tailed eagle (*Aquila audax*) in the bush. Eucalyptus trees are identified by their bark and leaf size. It's a little difficult at first until you get your eye in.

As in New Zealand, a lot of older beekeepers are looking for experienced beekeepers to assist or take over from them. If sites are given up, it's very hard to establish new ones in the forest again. Anybody starting commercial beekeeping can purchase sites from existing beekeepers: there are plenty available, I'm told. Not many hobbyists make the transition to commercial beekeeping, as it takes a certain type of drive and an ability to work in the heat to be successful there.

If you are thinking of beekeeping elsewhere for a season, there's plenty of work in WA for a competent beekeeper. I recommend that all young beekeepers have a season or two in Australia: they certainly know how to produce honey.

David with new supers and frames.
Photos: Frank Lindsay.

Time for reflection

By Frank Lindsay, NBA Life Member

In our garden the bees are still active during most of the day, although they are now no longer hanging around the honey house door.

I have also seen hives with quite a few drones still in them; an indication that nectar flow is still on and that the bees haven't settled into winter mode.

Gorse is in full flower, an excellent pollen source. Winter-flowering eucalyptus is producing a fairly good nectar supply, but it produces poor pollen and hives can go backwards if it's their only pollen source. In the urban areas, the odd sources like ivy and ornamentals are still flowering but are just about finished.

NIWA has predicted a mild winter: sometimes a mild winter is not such a blessing. A few weeks ago the queens in most hives had stopped laying and the last of the brood was emerging. When I checked some hives last week, the queens had started laying again in two frames; stimulated, I think, by continued warm weather and the early flowering of tree lucerne. This will, of course, mean that the bees will start using honey stores a lot earlier than anticipated. Should brood rearing continue, the hives may develop large populations over winter, and by spring they could be running short of honey reserves before you realise it and die out. Or if everything goes well in the early spring (meaning the bees get ample nectar and pollen), this situation could initiate early swarming.

Review last season and plan ahead

As beekeeping activity slows for winter, thoughts turn to winter work. Before you get into making up new gear, review the last season. Did everything go to plan? Did some hives experience excessive swarming and not a lot of honey, whereas others did well? Review where you have sited your hives and how you managed them. What pollen and nectar sources are available for the bees? Some commercial beekeepers plant two-metre-high sticks of pussy willow. They take a few years to get above stock height, but then produce a valuable early nectar and pollen.

Actually, I don't know of any beekeeping operation that completely goes to plan because bees follow nature and we sometimes aren't switched into it in time. There is always something we can try to improve. However, having a plan for the next season sets you in the right direction.

Most hobby beekeeping problems are about swarming and requeening, yet both activities can be integrated together. Once these activities are mastered or a plan is set in motion, beekeeping becomes easier.

> "Most beekeepers make the mistake of supering too late."

Swarming preparations take place a few months earlier when there is a surplus of nectar and pollen available. An early indicator is that the bees will start to produce drone brood. Look back over the notes you took last year and try to work out what actually caused the swarming impulse. Generally the bees get ringed in with nectar and can't expand. Bees usually won't swarm when they are building foundation, so plan to have a super of foundation ready. Give the bees a couple of frames to work on just outside of the brood nest. Most beekeepers make the mistake of supering too late. If you are not sure, add a super but put a couple of sheets of newsprint underneath it. If the bees need the room, they will chew through it. It also pays to intermingle a few fully drawn frames into a super of foundation.

One of the best methods to reduce the swarming instinct is to artificially swarm the hive by making a nucleus or to split the hive in half. To do this requires quite a bit of extra equipment but not necessarily so. By using a split board you do away with the need for additional bases and roofs. A split board is just a crown board with a 25 mm by 8 mm entrance cut in one side. I will tell you how to make them next month.

I have top feeders on my hives although I hardly ever use them: they are there just in case I need to feed a strong hive in the spring. I also use them to tell me when a hive needs another super; i.e., the bees start to congregate in the feeder when they get crowded. I'll provide more information on top feeders next month too.

Do you want to increase hive numbers or hold at the level you are now? It's very easy to increase numbers but each new hive needs five supers and you need drawn out frames for each. By planning ahead and ordering everything well before it's needed, you are better able to handle the situation should things change rapidly. Too many leave their ordering to the last minute and often find the gear is not available when they want it.

Apiary layout

Overseas magazines tell us that hives in full sun do far better with varroa and small hive beetle. Thank heavens we don't have SHB yet, but it doesn't do any harm to think about its implications and to make a plan for when this menace arrives.

I have put an EZYLoader on my small truck to save me work. (Apparently as we get older we don't achieve as much as we used to, although the brain tells us we still can.) The EZYLoader will do most of the heavy lifting for me, making it easier to under-super without too much effort and to move hives around to follow the flows in a more organised manner. However, to get the full effect of the loader, I have to reorganise my apiaries so the hives are in easy reach of the loader when I park; i.e., the hives have to be arranged in two rows so I can back between them. I can't get to some apiary sites with the truck using this new arrangement, so they will have to go. The same goes for the smaller beekeeper. You need easy access for a wheelbarrow—full honey supers are heavy! →

For the commercial beekeeper: are all your hives producing up to expectations? Your records of honey produced or at least supers removed (from harvest documents) will tell you the individual production from each apiary. In my area, farmers are clearing scrub off hillsides and out of ravines. Early pollen from gorse and broom is disappearing along with the manuka bushes. Some of my good sites five years ago are now not producing as they used to so I have moved the hives out. One thing about beekeeping is that apiary sites are not permanent. We don't own the land they are on, so we have to conform to farmers' wishes when they plan to increase their production by using every bit of land they have.

I put my hives on pallets as they keep the hives off the ground and provide airflow under the hives to keep them dry. In years past you could get a good selection of overseas hardwood pallets that some businesses were happy to get rid off, but my sources are now drying up. More and more business use cheap pine pallets, which don't last long under hives. I'm looking at purchasing tanalised pallets for long life and the security so they won't collapse under the weight of four heavy hives.

I also use pallets for stock protection. Four hives are harder to push over than one. Also, I ensure that each hive or a pair of hives on a pallet have their entrances facing a different direction to the next pallet to reduce drift. If a field bee can't find the actual hive it came from (because hives are set too close together or in a row all facing the same direction), it will go to the hive on the end of the row. Sometime the bee is accepted into the hive. Sometimes the bees accept the nectar from the bee, and then kill it. Drifting leads to production losses. Once you get more than a couple of hives, drifting can occur.

Preventing honey fermentation

In the extracting plant we may need to make some alterations. Getting honey off earlier to treat mites and moving hives to the next flow requires a smooth operation. But what if the honey has high moisture? I have heard of early extracted honey fermenting. First, you need to be able to measure moisture levels in your honey. Second, you need to know where to take that measurement. Each frame in a honey super can sometimes have a different moisture level. Occasionally there is a big difference between the outside frames and those in the centre. If you extract them at the same time, you can get an average moisture content that could be well above 18.5%.

Fermentation can be caused by two things: the area in which the hives are placed, and the beekeeper's practices.

The area: although we live in windy Wellington, it actually has a wet climate and with hives in or close to bush, my honey often needs drying as it's generally above 18%. Some valleys are wetter than others just a few kilometres away. Every season is different. A simple test can save you from losing your honey. Whenever honey has excessive moisture, I use a dehumidifier and fans over the top of stacks of supers, removing one percent every 24 hours.

Beekeeper practices: fermentation can also occur because of the way beekeepers store their supers. Storing them 'wet' can have its problems; i.e., they go into storage straight after extraction. This prevents wax moth damage and saves two trips to have them cleaned out, but it can also mean that quite often by spring, the little bit of honey in the frames has fermented. The beekeeper relies on the bees to clean out the frames before putting fresh nectar into them. If the supers are put on early, the bees will clean them, but if they're put on when there's a small flow, the bees will store this nectar on top of what's already there. This will start further fermentation, despite the moisture in the nectar being below 18%. It's a chemical process and fermentation produces water, which then adds to this activity.

These are some of the little things to think about during the winter months, or when you are sitting in front of the fire catching up with those as-yet-unread bee magazines.

If you have had a good year, consider coming to this month conference in Nelson, or take in an overseas conference. Often you learn a lot.

Things to do this month

Render down cappings and make up new gear for the coming season. Those who put strips in late should now be removing them from your hives. Unite any hives that have gone queenless with a strong hive. Keep an eye on those wasps.

Update: New and Small Beekeepers' Forum

The Art of Beekeeping: New /Small Beekeepers Forum on Sunday 27 June 2010, 9.00 am to 4.30 pm

The forum promises to be fun, informative and inspirational. Topics range from how to get started, maintaining your beehive, learning easy varroa management techniques, the methodology of beekeeping, obtaining your DECA, and interesting Apitherapy practices. International guest speaker Kirsten Traynor will share her experiences of living with varroa in America. Yukiyasu Uda PhD (from Japan but who now resides in Nelson) will discuss his practice of administering bee stings for medicinal healing. Maureen Maxwell, founder of BeesOnline Ltd and a qualified chef, will demonstrate easy ways to make honey skincare products and soaps. Maureen will also join us for Sunday lunch at the Prince Albert and briefly talk about cooking with honey. The historic Prince Albert Pub is a 10-minute walk from the conference venue: they will be offering a honey-related menu. Sunday lunch is optional and only $10.00 if you register by 20 June. Late registrations for lunch cost $20.00.

The Prince Albert Hotel, also known as the Fern Lodge, offers a variety of accommodation. It is located on 113 Nile St, ph 03 548 8477. Dormitory rooms: $27, Doubles: $65, Family: $100.

The day will provide the perfect opportunity to embrace new concepts and meet like-minded people. Note that with such an exciting array of speakers, we have had to change the timetable to run from 9.00am to 4.30pm.

You cannot afford not to bee there:

New/Small Beekeepers' Forum including lunch costs: NBA Members $60.00; Non-members $70.00

New/Small Beekeepers' Forum excluding lunch costs: NBA Members $50.00; Non-members $60.00

For registration forms and any further information please contact Rae Butler, ph: 544 6095 or mobile 027 430 1106; email runny.honey@xtra.co.nz or rae@endeavourhomes.co.nz

These are the days of our hives

The Mitchells would be the first to admit their lives revolve around hives.

Their bee-based businesses are humming, claiming award-winning honey and highly regarded pollination services.

Jody and Ralph can chat at length about their involvement with the NBA, the long hours put in taking hives around the regions so their bees "can work their little butts off" pollinating plants, and their plans to expand their honey-making operation.

But Jody is stumped when asked about hobbies.

"Beekeeping is a full-time enterprise," she says, laughing.

"Hobbies?" she asks Ralph.

"Travel, we like to travel. We have family overseas, and we're going to Canada this year for Ralph's brother's fortieth," Jody says. But then it's straight back to the business of bees.

Zoe's bees.

Looking after our bees. Photos: Jody Mitchell.

"Actually, a big Alberta beekeeper that imports bees from New Zealand also has bees on his brother's farm, and we have been invited out with one of the B.C. apiaries officers."

> "Beekeeping is a full-time enterprise..."

Despite there "not being much outside of bees" for the Kaimai-based family of four, it has taken time to learn to love them.

Jody hated bees as a kid. "I had family with bees but because I was afraid the bees regularly stung me, so that was something I had to get over." Her husband Ralph only ditched dairying and got into beekeeping after a serious car crash.

"Ralph was recuperating and we needed something that would get him back into the workforce, something agricultural, not a desk job."

A job as a labourer for "someone down the road" turned into beekeeping, which in turn led to the duo starting their own operation five years ago, the whole family pitching in to keep it all ticking over.

While one of their daughters is a "natural" beekeeper, their older daughter is going through a similar experience to Jody.

"She is learning to love bees," Jody says with a laugh, emphasising 'learning'.

So what do the Mitchells love about the NBA?

"It's really great having a body that can speak for you. We like having somebody fight in our corner—especially with issues like keeping foreign honey out of New Zealand. But mostly, we like that the NBA is a group of people who are givers, not takers."