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The NEW ZEALAND BeeKeeper

Responding to universal issues

- Manuka honey research
- Organic varroa control
- Pollination and quality honey crops
- How to inspect a hive

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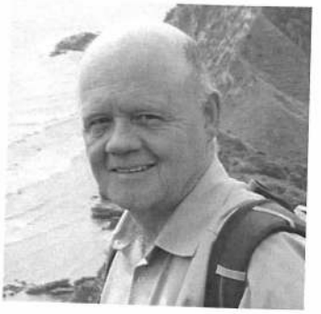
Front cover: Helping make up nucs: this photo taken by Mary-Anne Thomason won first place in the Portrait section of the 2012 NBA photo competition sponsored by Ecroyd Beekeeping Supplies. It shows Marni Ward (then 16 months old) assisting her grandfather, James Ward. This photo originally appeared in the December 2010 journal as part of an article about Kintail Honey.

Responding to universal issues

By Barry Foster, NBA President



August has been busy. Apiaries are humming as plants start to flower, triggering the bees into action for the new season.

You know you've hit the right note when large numbers of beekeepers (by our industry's standards) turn up at a workshop or a meeting. In the past it has been in response to a crisis, as when varroa was first found. Indeed, another crisis could happen with resistant varroa or—perish the thought—a biosecurity incursion. With greater co-operation within our industry, plus the skills, knowledge, finance and greater public recognition to match, we may be better prepared if it does. But we are certainly not there yet.

The workshops I speak of were, of course, the two workshops in Christchurch and Hamilton in August, as part of the necessary extension to the Varroa Sensitive Hygiene (VSH) queen research and development over the last eight years conducted by Plant and Food Research. Dr Mark Goodwin and Michelle Taylor spoke of their work in developing these traits in selected queens and of the development of resistance to synthetic controls. Other speakers followed including Philip Cropp and Rae Butler of Nelson Apiaries Ltd, who are taking over the queens expressing VSH traits from Plant and Food Research with the intention of maintaining these traits and breeding from them to further develop and release these queens to the industry.

Other speakers, such as Frans Laas and Peter Sales of Betta Bees Ltd, spoke of their own company's developments with VSH queen traits and the work they are doing with the University of Otago on the genetics behind various traits. About 680 people (17% of the total number of registered beekeepers) attended the workshops.

The overarching message is that we are going into a more uncertain future. At some point we have to be able to fully adapt to living with varroa resistance to synthetic controls. How we go about doing that is one of the strategies that the NBA is planning, and these workshops proved to be useful starting points.

Key issues for the industry

We have identified four key issues facing our industry: bee health, biosecurity, varroa and market access. The NBA is developing strategies to confront these issues, and we will be looking for input from members on each.

A strategy cannot be developed in isolation: it has to be a living document, with the broader aims being decided on as part of the strategy to which we can point our compass. The issues outlined above are shared by our entire industry, but sadly they are not tackled co-operatively. Greater communication and co-operation could—and should—be the way to tackle these universal issues. To even reach the majority of beekeepers in any formal way is difficult and can only be done at present on AFB NPMS matters. Therefore, getting approximately 680 beekeepers at two separate venues was a landmark achievement.

At the end of both workshops, I asked the audience for a show of hands of those who agreed in principle to a compulsory levy to fund more research. In both workshops, by rough estimate three-quarters raised their hands in approval. While certainly not a mandate, it gave some indication of audience thinking on the need for more research and how it might be funded.

Levy considerations

Having a compulsory levy imposed is a complex process that cannot be done quickly. Questions need to be asked such as:

1. What is the commodity that you want to levy?
2. What will the levy funds be spent on?
3. Who will be the levy payers?
4. What will be the basis of the levy?
5. How will the levy be collected and by whom?[1]

Having another levy imposed on the industry (which by definition should be much wider than just beekeepers) would obviously meet with quite a bit of opposition, at least in its early stages. Obviously no one wants to pay more expenses than they have to. Taking a wider view, the funding of research into addressing universal issues affecting us (e.g., market access, varroa, bee health and future similar issues) should not fall unfairly on those who volunteer to contribute to their resolution, but from all who benefit principally from such research. Even defining beneficiaries augers substantial debate. Universal issues require a universal response and sometimes a change of mindset.

Gisborne Farm Forestry Trees for Bees field day

Dr Linda Newstrom-Lloyd, local beekeeper Paul Badger, entomologist Dr John McLean, East Coast QE2 representative Meg Gaddum,

Continued on page 6

Poverty Bay beekeeper Paul Badger (left) giving his address to the Farm Forestry Trees for Bees field day. At right is farmer Peter Hair.

[1]Guide to the Commodities Levy Act 1990 http://maxa.maf.govt.nz/mafnet/rural-nz/profitability-and-economics/compliance-costs/commodity-levy-act-guide/comlev02.htm

Continued from page 4

Some of the approximately 30 participants at the field day. Photos: Dr Linda Newstrom-Lloyd.

farmer Peter Hair and I spoke about the Trees for Bees project at an excellent Farm Forestry Field Day held near Gisborne on Sunday 12 August. We later visited a nearby demonstration farm where the Poverty Bay NBA Branch had planted two plots on Peter Hair's property as part of the Trees for Bees project. It was an afternoon of good discussions between local beekeepers, interested parties and farmers.

Trees for Bees at Eastwoodhill Arboretum

Dr Linda Newstrom-Lloyd is soon to start work at Eastwoodhill Arboretum, searching among the 3500 species documented in the arboretum for trees that could well fit within the profile of Trees for Bees. Surely some gems are yet to be discovered. For example, it was mentioned at this Farm Forestry Field Day that sycamores have very high protein content in their pollen, yet they are deemed a weedy species largely because of wide and prolific seed dispersal. The curator of Eastwoodhill spoke about one species of sycamore at Eastwoodhill that does not exhibit the traits of a weedy species. This is the sort of collaboration that can lead to significant benefits. I look forward to some exciting discoveries. See www.eastwoodhill.org.nz.

Left to right: Barry Foster, John McLean, Peter Hair, Dr Linda Newstrom-Lloyd, Paul Badger (beekeeper) and Meg Gaddum (farmer and QE 11 National Trust East Coast representative) at the demonstration farm at Patutahi. Photo: John McLean.

RESEARCH

Honey anti-inflammatory factor identified

By Professor Peter Molan, University of Waikato

Four different brands of honey wound dressings are now on sale internationally as registered medical devices, all made from manuka honey because of its well-established reputation as an antibacterial agent.

What is not so well known is that manuka honey also has a potent anti-inflammatory activity, and that this is very important in the treatment of wounds.

Inflammation in a wound prevents healing because it activates enzymes that digest the growth factors and tissue matrix, which are essential for tissue repair to occur.

Inflammation also makes wounds painful and causes the exudation of serum, which can be difficult to manage. Pharmaceutical anti-inflammatory agents cannot be used on wounds because they inhibit the healing process.

A large amount of evidence from clinical studies and research on laboratory animals demonstrates that honey has an anti-inflammatory activity on wounds. However, for the medical profession to accept the use of the anti-inflammatory properties of honey, the mechanism of action needs to be known. We investigated this with cultures of inflamed white blood cells as a model of inflammation in a wound. We found that honey suppressed the inflammatory process by inhibiting phagocytosis, which is the process of white blood cells engulfing bacteria and dead tissue to clear up infection and tissue damage. Phagocytosis is the start of a cascade of steps when inflammation is stimulated. Thus we established that honey suppresses the very first step in the process that gives rise to inflammation.

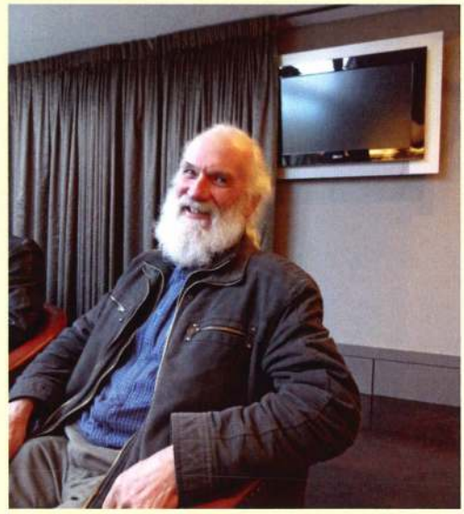
We found that manuka honey was much more effective than other types of honey in this action, also that there were large differences in effectiveness between different batches of manuka honey. We found that this was not correlated with the level of non-peroxide antibacterial activity. By separating the components of manuka honey on chromatography columns and testing the isolated components, we were able to identify the component responsible for this activity. We found that it is a bee protein, Apalbumin-1. Because this bee protein can be expected to be present at about the same level in honey produced from all types of nectar, we had to explain why manuka honey had a much higher level of activity and why it varies from batch to batch. We found that Apalbumin-1 gets modified by reaction with methylglyoxal, which is present in large quantity only in manuka honey, and this modification makes the protein much more potently anti-inflammatory. These findings will allow wound dressings to be manufactured with the level of anti-inflammatory activity standardised as is currently done with their non-peroxide antibacterial activity.

This research was done by Amanda Bean for her PhD thesis, supervised by Professor Peter Molan and Dr Ray Cursons, supported by an Enterprise Scholarship funded jointly by the Government and Watson & Son Ltd.

Executive Council news

It is with great regret that the NBA Executive has accepted Kerry Gentleman's resignation from the Executive Council and NBA Research Committee due to family commitments. Kerry has made a huge contribution in time and knowledge to both the Executive Council and Research Committee during her years of involvement with the NBA. The Executive Council wish her all the best for the future.

While Kerry will be greatly missed, the NBA is very happy to announce the appointment of Ricki Leahy from Murchison as Upper South Island Ward representative. Ricki brings many skills and perspectives to the Executive table, and he is a welcome addition to the team. Keep an eye out for a full profile on Ricki Leahy in the next edition of the journal.



Ricki Leahy. Photo: Pauline Downie.

Researching New Zealand manuka honey

By Jonathan M Stephens, Comvita Innovations

The Comvita Innovations team, based at The University of Auckland, has undertaken a series of research projects to categorise the New Zealand manuka honey crop.

We have principally used field collections of manuka honey, arranged with a number of beekeepers around New Zealand, and a set of manuka honey drum samples that had been aged in standard conditions.

We have found there are a number of distinct chemical markers that identify manuka honey. Firstly, there is the pairing of dihydroxyacetone and methylglyoxal, which must be present in manuka honey. These chemicals give rise to the non-peroxide antibacterial activity uniquely present in honeys derived from the *Leptospermum* genus. However, because of variability in nectar dihydroxyacetone concentration between and within the many varieties of manuka (*Leptospermum scoparium*) found throughout New Zealand, these sugar derivatives are unsuitable for use to determine monoflorality. In addition, the dihydroxyacetone and methylglyoxal pair's concentration alter significantly throughout the life of a manuka honey.

Students in the Comvita laboratory.

The Comvita Innovations team.

Secondly, we have also investigated the unique phenolic acids present in manuka and kanuka honeys, and have found these phenolic acids will allow separation of these honey types. However, in view of the amount of manuka/kanuka blend honey harvested from sites throughout New Zealand, this differentiation may be unnecessary. Furthermore, it has become apparent the phenolic profile of manuka honey, due to its complex nature, undergoes age modification and therefore these phenolic acids may not prove suitable for determination of monoflorality.

Whilst pollen analysis is a good marker as proof of origin, it has become clear that in some regions of New Zealand high-grade manuka honeys do not carry an elevated level of manuka/kanuka pollen.

However, development of a new technique to determine monoflorality at The University of Auckland shows considerable promise and may be able to be employed in a general way throughout the industry in due course.

The team is embarking on new research to intensively investigate the recognised contamination of the manuka honey crop with C4 sugars. This problem has become increasingly prevalent in the last few years and may have come to a head with the poor manuka harvest in the last season. We intend to treat a large set of hives with a number of feeding regimes and collect samples sequentially throughout the honey season to establish all parameters that may influence the colonies' movement of stored C4 sugar into the honey boxes.

We're also beginning a research project on the heating of manuka honey, which is known to elevate methylglyoxal concentrations and accordingly increase UMF rating. Elevated temperatures during extraction or storage of manuka honey inevitably leads to elevated HMF (5-hydroxymethylfurfural) levels in the honey and consequently a breach of Codex Alimentarius Standards.

For both of these projects, we intend to gather enough satisfactory data to allow publication in an international journal. Furthermore, we aim to make available a summary of the findings and recommendations for best practice to the industry in general.

The Comvita Innovations team has become more focused on identifying methods that may assist with honey production standards in New Zealand. We hope to be able to provide the industry with a practical set of guidelines ranging from honey purity to optimum extraction temperatures.

Affiliation

Dr Jonathan Stephens is a full-time employee of Comvita Innovations and an honorary research fellow of the School of Biological Science, and is permanently located at the Institute for Innovation in Biotechnology (IIB), The University of Auckland.

A Comvita beekeeper.
Photos supplied by Comvita Ltd.

Organic varroa control—part 8

By Michelle Taylor, Warren Yorston and Omar Martinez, The New Zealand Institute for Plant & Food Research Limited

Following is a summary of the results from the three organic trials conducted throughout 2007–2010.

Plant & Food Research (PFR) and the National Beekeepers' Association (NBA), in conjunction with Sustainable Farming Fund (SFF) and contributions from individual beekeepers, ZESPRI and the Avocado Industry Council, have been working with beekeepers to develop sustainable varroa control methods.

Worldwide, varroa have developed resistance to the synthetic chemical controls that we rely on in New Zealand, and now resistance to some of these chemicals has been reported here.

The purpose of our research was to determine the effectiveness of proprietary organic varroa control products and whether their effectiveness could be improved upon.

In this eighth article we summarise the results from the three organic trials conducted throughout 2007–2010. For further information, including the final SFF report, please refer to the SFF website http://www.maf.govt.nz/sff/about-projects/search/09-011/index.htm.

The treatment threshold used in these trials meant that if a colony had more than 40 varroa per 300 adult bees, as determined using a sugar shake method discussed in the *Control of Varroa* book (Goodwin & Taylor, 2007), the colonies were treated with a synthetic product.

2007/2008 trial: Efficacy of organic varroa control products in spring and autumn

A single treatment of Apistan®, or one of four organic thymol products: Apiguard®, Apilife VAR®, Thymovar®, and thymol crystals, was applied according to label, to both single and double brood box colonies, in spring 2007 and autumn 2008. At the spring post-treatment assessment, the synthetically treated colonies had zero varroa per 300 bees whereas the organic hives had between zero and 21 varroa. Based on the threshold, the varroa populations in these colonies did not require a second spring treatment as long as the colonies were treated in early February.

Of the colonies treated in the first week of February, only nine (7.7%) required a synthetic treatment immediately after the organic treatment. However, all beekeepers found that the mite numbers in the colonies increased throughout the organic treatments, and although colony survival was not observed through winter, more recent work suggests that these colonies would have died or been severely affected by the end of winter without additional treatments. All of the colonies that were not treated with an organic product until March 2008 either had more than 40 varroa per 300 bees post-treatment or were dead. All of the live colonies required a second autumn synthetic treatment (Bayvarol®/Apistan®) to control the varroa and enable the colonies to survive through the winter.

From these results all further autumn treatments were required to be applied by the first week in February.

2008/2009 trial: Will an integrated control approach increase the efficacy of organic varroa control products?

In 2008 the number of double brood box colonies requiring assessment by the seven cooperating beekeepers was reduced by using Apiguard® as a representative of the four organic treatments previously used. Apiguard® was selected based on the least number of organic colonies that died during the previous trial and because the beekeepers considered it to be the easiest to use. No other differences were observed between the products, so it is likely that Apiguard® results are representative of Apilife VAR® and Thymovar®.

The efficacy of Apiguard® as a varroa control product was assessed alone and in conjunction with ventilated floorboards and/or treatments of oxalic acid and food grade mineral oil (FGMO). The honey crop was removed from the hives by the first week in February 2009. A single application of oxalic acid was applied immediately after the removal of honey, and at the same time that the Apiguard® treatment was applied. FGMO was fogged into the allocated colonies every 3–4 weeks throughout the season.

Two treatment thresholds were used in this trial. Colonies containing between 20 and 40 varroa per 300 bees in a sugar shake, post-treatment, were re-treated with the organic product (orange, spaced, dotted horizontal line in Figure 1). Colonies containing more than 40 varroa per 300 bees were treated with Bayvarol® (orange horizontal line in Figure 1).

All of the colonies (n=105), across all treatment groups had, on average, fewer than 5 varroa per 300 bees (Figure 1) in the pre- and post-spring treatment assessments (September–October) and prior to the autumn treatment (first week in February). However, 7% of the Apiguard®-treated colonies had between 20 to 40 varroa per 300 bees and 5% had more than 40 varroa per 300 bees. In comparison, none of the Bayvarol®-treated colonies had more than 20 varroa per 300 bees. Based on these varroa population indicators, a spring Apiguard® treatment appeared to control varroa through to the first week of February in 95% of the Apiguard®-treated colonies.

After the autumn treatment there were significantly more varroa in the Apiguard® colonies than the colonies treated with Bayvarol®. Of the colonies that were treated in the first week in February (n=90) and based on the threshold levels, 14.4% (n=13) required a second organic treatment, and an additional 7.7% (n=7) of colonies required a synthetic treatment. In comparison, all of the colonies that were treated in the second half of February (n=15) had more than 100 varroa per 300 bees and all required a synthetic treatment to reduce the number of varroa below the threshold. ➜

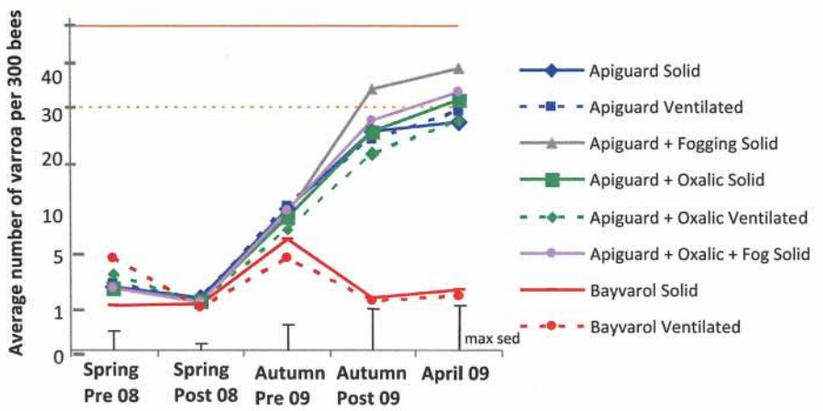


Figure 1. Average varroa per 300 bees over time from colonies with or without ventilated floor boards and treated with either Bayvarol® or Apiguard® and/or oxalic acid or FGMO. Individual colonies requiring a synthetic treatment at the pre-autumn treatment assessment are not shown in this graph.

The treatments did not have any effect on the amount of honey collected by the colonies, or the size of the colonies at the end of the season.

The results show that a single Apiguard® treatment (a representative of the other organic products) when used in conjunction with oxalic acid, FGMO, and ventilated floorboards was unable to control varroa in autumn.

2009/2010 trial: Does more ventilation in the colony increase the efficacy of organic varroa control products?

Lodesani and Costa (2008) showed that Apiguard® was 93% effective when used with a 7.5 cm spacer on top of the brood box. In this trial we compared the effect of 1 cm and 7.5 cm spacers on the effectiveness of Apiguard®, and whether spreading half the Apiguard® on the top frames was more effective than leaving it in the tray. We also compared the varroa control in these colonies with colonies that were treated with Bayvarol®, and 10 that were not treated. The treatments were conducted in spring and autumn 2009/2010.

The "20–40 varroa" and the ">40 varroa" thresholds that were used in the 2008/2009 trial were also used in this trial.

There were no significant differences (P = 0.5) in varroa numbers pre- or post-spring 2009 treatment between the colonies treated with Bayvarol® and Apiguard®, as only two of the 181 colonies had 20 varroa per 300 bees and the rest had less than 12 varroa.

Only 94 Apiguard® colonies were able to be analysed. The rest were either not assessed by the beekeepers or died from undocumented reasons. Based on the threshold levels, 17% (n=16) of the 94 colonies that were to be treated with Apiguard® in February 2010 had between 20 and 40 varroa per 300 bees and an additional 27% (n=25) had >40 varroa. In comparison, 13% (n=3) of the colonies to be treated with Bayvarol® had between 20 and 40 varroa per 300 bees and 22% (n=5) had >40 varroa. At the February pre-treatment assessment, there were no significant differences in the varroa populations between the colonies treated with Apiguard® or Bayvarol®.

At the end of the February Apiguard® treatment, 6% (n=6) of the colonies were re-treated with a second organic treatment, 27% (n=19) were re-treated with Bayvarol® and two of the colonies were dead. We are unable to report on the status of colonies in April that received two Apiguard® treatments as some of the beekeepers re-treated these colonies with Bayvarol®. By April, 57% (n=54) of the colonies in the Apiguard® treatment had received or required an additional synthetic treatment to reduce the varroa. Although we did not follow the organic hives that were not treated with a synthetic product throughout winter, a large number of these colonies were reported to have Parasitic Mite Syndrome, larval symptoms related to high varroa populations, in spring, and several required synthetic treatments during winter.

The February 2010 pre-treatment assessment showed that the 10 untreated colonies had significantly (P<0.001) more varroa than the 94 treated colonies and the 23 Bayvarol® colonies. Seven of them had between 47 and 247 varroa per 300 bees. These colonies received a Bayvarol® treatment.

This trial showed that the larger spacer did not increase the efficacy of the Apiguard® treatments. The spreading of the Apiguard® may more effectively control varroa in the spring than having it in the trays. However, the sample size was too small to be conclusive.

There were no significant differences in bee and brood numbers, or the amount of honey collected, across treatments for those colonies that survived.

In conclusion, we were able to use an organic product to control varroa in spring, but the effectiveness of organic products in autumn was highly variable. When considering using an organic varroa control product it is therefore extremely important to:

- monitor your hives after treatment by assessing the number of varroa per 300 bees. It is possible that the product may not effectively control the varroa population, and may require an additional treatment.
- commence an autumn treatment no later than the first week in February. This will allow you time to re-treat the colony if the varroa populations are too high.
- understand that in 2010 a single spring treatment of Apiguard® was able to control varroa. However, as the effectiveness of the autumn synthetic treatments becomes less reliable, as chemical resistance develops, the varroa populations may be higher in spring and this may mean that a single spring treatment of an organic product may not be able to control the varroa as effectively as shown in 2010.

Acknowledgements

Our special thanks go to the 13 beekeepers that took part in these trials. Without their generous supply of hives and their time spent counting mites and applying treatments, these trials would not have been possible. Thanks also to Ceracell Beekeeping Supplies,

Ecroyd Beekeeping Supplies, and Reuben Stanley for providing products for use in the trials. Harold Henderson, AgResearch, also provided valuable assistance in the analysis of these trials.

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Disclaimer

This report covers trials carried out by The New Zealand Institute for Plant and Food Research Limited under contract to the National Beekeepers' Association. All "industry standard treatments" and trademark products used in trials were discussed with and agreed by the National Beekeepers' Association.

[Editor's note: part 7 of this report was published in August 2009.]

October issue deadlines

The October issue of *The New Zealand BeeKeeper* goes to all registered beekeepers in New Zealand. The deadline for articles (and for reserving advertising) is 6 September 2012.

Articles and advertising material received after 12 September might not be published.

See page 3 for further information and contact details.

Update from the committee

By Don MacLeod

The Technical Committee (Dr John McLean, Roger Bray, Don MacLeod and Barry Foster) had a well-deserved face-to-face meeting at the NBA Conference in June. Until this meeting we have communicated by email and telephone as we do our work.

Since our last report in February, we have been busy. Our focus has diversified as we start to look at some of the main issues that our bees face in the environment.

We have made submissions to the EPA on the following products:

Application ERMA201268 (Bayer Quickbayt)

This is a spray-on insecticide for the control of flies. This product contains the insecticide imidacloprid (a neonicotinoid), a pheromone and sugar.

Of special interest here is that we did not learn about the sugar until the applicant (Bayer) provided 12 megabytes of data about imidacloprid and the chemical's effects on bees! The fact that the product contained sugar was never mentioned in the original EPA application for approval under the HSNO Act.

This product looks exactly like the discontinued 1080 jam bait that Dr Mark Goodwin spoke about at the conference but it is designed for flies, not possums!

The EPA has indicated that they will be holding a hearing on this product in the first week of September.

Application ERMA200886 Dow AgroSciences GF-2032

This is a new insecticide with the active ingredient sulfoxaflor, which is similar to but different from the neonicotinoids. It has the same origins as neonicotinoid chemistry. This substance has been shown to be toxic to bees and the proposed use of this product was of major concern to the Technical Committee. Dow has apologised for writing such a poor application to the EPA—they said it was a cut-and-paste job from a herbicide application! We are certain no one in their Australian office read and checked the application before it went in the mail. This is an increasing problem. As major chemical companies downsize, they are writing their applications in overseas offices and applying data in risk assessments that may not be appropriate for the New Zealand environment.

On Friday 27 July, the Technical Committee met with Dow Agrosciences at the EPA offices in Wellington to discuss the application and to allow Dow to respond to our submission. Dow brought ecotoxicologist Dr Vincent Kramer from the USA to specifically discuss the product at this meeting.

At the end of the meeting, Colin Sharpe (Regulatory Affairs and Science Leader for Dow Agrosciences) indicated that Dow might delay their application to approve this product to allow the seeking of new data. We are awaiting to hear what the process will be from now on.

Meetings

Dr John McLean has given a special presentation to the Plant Protection Society and the EPA staff members on the effects of pesticides on bees. This has been very well received.

On 27 July, the Technical Committee took the opportunity to meet with other chemical industry representatives. We met with Graeme Peters, CEO of AGCARM which represents the major pesticide and animal remedy companies. Of interest is that AGCARM wishes to see that they are doing the right thing with respect to bee safety. →

The meeting was an excellent opportunity to share with AGCARM some of our thinking. Unfortunately AGCARM admits they do not represent the whole chemical pesticide industry, so this makes things difficult.

We also met with Peter Fisher, New Business and Development Manager for Bayer New Zealand Limited. Bayer is developing some new chemistry and bringing a number of new products to the market. A new fungicide, Luna Devotion, is to be marketed shortly and Peter provided background information on this product. This product will be applied during flowering as it is effective on the fungus *Sclerotinia*. You can learn about this product at Luna World http://www.bayercropscience.us/products/fungicides/luna/luna-world

This was a very good meeting and we exchanged our thoughts on a number of subjects.

Recent developments

Hive losses

At the 2012 NBA conference we were approached by a concerned Bay of Plenty beekeeper about the loss of hives in areas soon after the harvest of maize crops. His experience is that his hives die if placed near paddocks that have been recently harvested for maize within a period of up to two months.

This experience is similar to that of Poverty Bay beekeepers who have lost hives on the intensely cropped Gisborne plains. Down south we have heard of beehive losses when pollinating canola and rapeseed crops, and word from Australia is that beehive losses are common around canola crops. No one knows the cause of these hive deaths. What is worse is that no one appears to be monitoring the long-term effects to the environment of cropping methods and we do not know who should be: the local Council, the regional council or the Ministry for the Environment.

If you lose hives with no explanation when pollinating crops or adjacent to cropping land, please advise the NBA, as the data is important for ensuring that it does not happen again.

Surfactants

Back in 2000, R. M. Goodwin and H. M. McBrydie published in the *Plant Protection Journal* their research paper "Effects of Surfactants on Honey Bees". Twelve years on, one can rightfully ask what has happened since that paper was published. If you said nothing, you are right!

Recently we have been talking to the EPA and are working on a strategy to address the issues. Of interest is that surfactant products used in a 'wide and dispersive' manner on horticulture and agriculture are still not regulated in any manner at all.

These products get a free-ride entry past the EPA by what is a called a Group Standard and are not regulated by the New Zealand Food Safety Authority even when applied to food crops. And none of the products identified as toxic to bees in 2000 show label warnings to help protect bees in 2012.

Watch this space in next month's journal for an article on surfactants.

Is pollination compatible with quality crops?

By Dr Karyne Rogers, GNS Science

At a recent NBA meeting in Tauranga, Dr Karyne Rogers was asked how to avoid contaminating honey with excess sugar fed during pollination.

Sugar 'contamination' has gained more publicity recently because of several international border fails of honey this year. Up to a third of all manuka honey destined for export market has failed the C4 sugar test.

Karyne has recently started a short-term project to assess the cause and propose new sugar authentication tests to avoid current false positive issues with the existing test. She is finding that the test (AOAC 998.12 method) shows both genuine fails and false positive fails in New Zealand manuka honey, which suggests some beekeepers need to be more cautious about the amount of sugar being fed to bees. Part of her study has involved analysing 'honey' sampled from hives fed with dyed sugar syrup, which shows that sugar is quickly stored into the brood box for later use.

For many beekeepers, pollination has been the icing on the cake to improve hive profitability. But more recently for some beekeepers, it has become a necessary diversification to ensure business survival due to poor nectar flows.

If this stored sugar is moved into supers during the nectar flow, it will increase the C4 sugar content of the extracted honey, causing it to fail after harvest if there is insufficient dilution with nectar during the season. It is possible to avoid sugar syrup being stored into brood boxes and later transferred into supers or honey collection boxes when hives go out of orchards onto nectar (in particular manuka).

Optimum sugar feeding

There are usually two schools of thought when it comes to retaining bees in orchards: either always have sugar syrup available or only feed a certain amount per hive per day (usually around 1 litre/day).

But what is the optimum sugar feeding requirement for each hive, and how can beekeepers avoid contaminating a high-value honey crop with residual sugar carried over from pollination?

Although various scientific sugar feeding trials are under way, any research outcomes to suggest feeding guidelines will not be available until next year. For this season, beekeepers going from pollination to honey collection need to be aware of the problem and take steps to minimise any 'excess' sugar feeding. Even with good research, Karyne qualifies that only the beekeeper can truly assess what each hive requires to stimulate brood, without overfeeding resulting in excess sugar storage.

> "...only the beekeeper can truly assess what each hive requires to stimulate brood..."

The level will not be the same for every beekeeper, and will change every year due to seasonal differences in temperature, weather conditions, brood numbers, geographical location, flower sources and nectar availability. Changing and unpredictable weather conditions will require that beekeepers become more reliant on keeping accurate feeding records combined with brood box observations.

To assist beekeepers, Karyne suggests inverting a double brood box when taking it out of the orchard and onto the nectar flow, by placing the bottom brood box on top. It has been observed that most stored sugars go into the top box, so by swapping them over, the excess sugar will be placed at the bottom of the pile and when moved by bees, it will preferentially go into the new 'top' brood box.

If the beekeeper is running single brood boxes, it might be best to consider a two stage collection system when the hives go out of pollination. The first collection box will be the initial super, where the bees can push up excess sugar, combined with the early nectar flow. The first box is swapped out after 2–4 weeks, depending on nectar flow, with a second collection box. The new box will collect a higher purity honey as most of the stored sugar will either be already consumed or moved. The benefits of two-stage collection will ensure that should the first box catch some sugar syrup, it will not affect the entire crop as the two collections can be extracted separately.

Karyne stresses that while feeding trials will provide knowledge to reduce residual sugars found in honey, only the beekeeper can set the right feeding conditions required to stimulate and sustain brood specific in their own region. Beekeepers should closely monitor any changes to their normal hive management practice, and change only one factor at a time per hive.

For more information you can contact Dr Karyne Rogers at GNS Science, Lower Hutt. Email k.rogers@gns.cri.nz, Tel 04 570 4636.

Publications committee news

This month we are pleased to welcome Serena Richards of Wanganui and Tom Baty of Auckland as new proofreaders. Serena is an accountant. This is her second stint on the committee, and we're happy to have her back.

Tom, also an accountant, is doing a copy-editing and proofreading course, so we look forward to providing him with plenty of opportunities to polish his skills ☺

Frank Lindsay
Chair, Publications Committee

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An interview with Roger Bray

Roger Bray is the new Central South Island Ward representative on the Executive Council, in addition to being one of the NBA Librarians.

The Secretariat interviewed him about his role and experience in the industry.

What made you decide to become a beekeeper?

My enthusiasm for beekeeping started at a young age. When I was 12 I inherited three beehives and soon after, I got a job with a business that is now Airborne Honey in Leeston, Canterbury. I absolutely loved it—I haven't really looked back since then!

I am now well past the point of no return, so the next question to ponder will be, when will I decide NOT to be a beekeeper? Somehow I suspect the answer will be never. I think I will always harbour a passion for beekeeping.

Tell me about your current business.

My wife, Linda, and I are both 'hands on' operators. We produce bulk honey, as well as providing bees for pollination. We also run a small sheep farm (where small relates to the size of the farm, rather than the sheep).

What do you enjoy most about beekeeping?

I have a fascination and respect for nature that has produced a passion for beekeeping. Even after all these years, I still really take pleasure in and appreciate the ability of the bees. I will never get sick of their social structure—the epitome of a cooperative community!

Why did you decide to become an Executive Council member?

I'm a strong believer in the importance of an independent beekeeping organisation that can work for and represent our collective needs. I see a lot of potential in the NBA, and I think at some stage we all need to stand up and do our part for the industry.

One area of the beekeeping industry that I think needs attention and strong representation is bee nutrition. I see a lot of opportunities for the NBA to promote weeds, such as gorse and broom, as a potential food source for bees. I want to explore as many options as possible for the enhancement of bee nutrition. That's why we're all here, after all—to look after our bees and keep them safe.

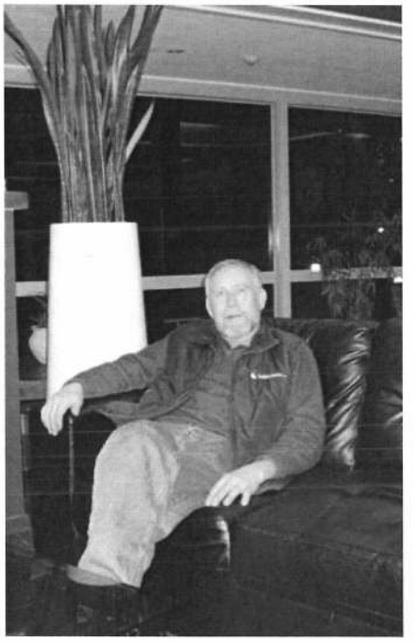
Tell me a bit about your role on the Executive Council, including your priorities as an Executive Council member.

My main priority on the Executive Council will definitely be ensuring the protection of bees. For many years, I have been involved with Canterbury Branch efforts with pesticides. I have submitted against registrations of chemicals with the aim to have adequate 'controls' placed on chemicals to prevent damage to bees. This is an area that we really need to be active in. Luckily I find it so interesting!

What key issues and challenges do you see the beekeeping industry facing?

This is an interesting time for the beekeeping industry, with a lot of challenges in the pipeline. It's an extremely exciting time to be coming on to the Executive Council. Very soon discussions will need to take place around the proposed Government Industry Agreements, and the impacts of genetic engineering on our industry. Future funding for 'industry good' needs careful consideration—do we need common good funding? And if we do, what would be the basis for this funding? How would this funding be spent?

There are also ongoing issues facing the industry that we need to think about, particularly in terms of bee health—nutrition, pesticides, diseases, pests. I believe the AFB NPMS also needs refocusing, to concentrate



on the eradication of AFB rather than being focused on the 'rules'.

What will you do about those issues and challenges, during your time on the Executive Council?

I hope to be part of the team involved in representing beekeepers' needs on some of these issues. I would really like to see strong communication between the Executive and members, to ensure that we can create solutions to these issues that will benefit the entire industry. I will continue to be an advocate for bee safety in terms of pesticide issues, which is crucial in agricultural areas where the farmers/spray operators do not always take bee safety into account.

When you're not at work or attending a Council meeting, where will we find you?

Unfortunately for me there is not much time after beekeeping, industry matters and local environmental issues. My wife and I enjoy time spent with our grown-up family (no grandchildren as yet). I am keen on old cars and have some 'projects' at various stages of repair, or, rather, disrepair. And when the sun has gone down, I can be found asleep in my armchair!

NSWAA 2012 Conference report

By Frank Lindsay, NBA Life Member

Arriving in Brisbane in May was one of those 'ah' moments. Coming from the cold, it was just like slipping into a warm bath with the sun on your body and temperatures in the mid 20s.

We had arrived in Queensland a few days before for the New South Wales Apiarists' Association (NSWAA) conference so we could visit a few beekeepers as we travelled down the coast from Brisbane.

One of these was David Cowling in Townsend, NSW. David lives a couple of kilometres from Maclean, on high ground because the Clarence River floods. He runs 300 hives and his son Ross has 600 eight-frame hives. David has a number of different hive sizes: eight, 10- and 12-frame Langstroth supers. He uses the 12-frame hives mainly as two six-frame queen units in a single brood super, with a queen excluder and then more 12-frame supers on top. The main problem with these hives is that they tend to lose one queen and are hard to requeen again to keep productive. The other problem is the weight of the full honey supers—you need a lifter to handle them.

David's house and honey house are on the same 12-acre property with an apiary in the back, plus queen rearing hives around the shed. He has two five-tonne trucks, each fitted with an EZYLoader.

Commercial beekeepers in Australia set out apiaries in loads; the size of an apiary is dependent upon the number of hives the beekeeper can carry on his truck or truck and trailer. David's load is 70 hives, placed in pairs on metal stands at an easy working height to keep them off the ground and away from cane toads and snakes. However, David mentioned that despite the wet weather, cane toad numbers had reduced in recent years as the crows had learnt to eat them without being poisoned.

The roofs on their hives fit flush on top of the supers so hives can be pushed together for easy moving. These roofs have 40-mm sides, creating a roof cavity where bees can hang if overcrowding occurs in the spring. David told us that they place a lino hive mat across most of the top bar surfaces to discourage the bees from building brace comb in the roof cavity, but if the hive is not supered early or runs out of comb, the bees will build comb in the roof space.

> "Australia is said to be the lucky country; i.e., lucky if you are not bitten."

The roofs are held on with either cleats or EMLocks®. EMLocks are mostly used by beekeepers that have hives on pallets; one EMLock to a pair of hives pushed together. Two pairs of hives are fitted on each pallet facing the same direction with approximately 100 mm between them. Incidentally, some beekeepers have changed the bands on the EMLock to stainless steel rather than ordinary steel, as stainless steel bands don't unravel and will lie on the ground where you left them.

Hive beetles and other creepy crawlies

Hive beetles can be found in nearly all hives at this time of the year, but this being winter (daily highs of 19-22°C), they were not breeding so it was safe to open hives and inspect the brood. We inspected all the brood frames in one apiary before putting on the escape boards in preparation for removing the honey super the next day.

Hives at this time of the year are mostly two high, with the top super fully capped with honey and the bottom super honeyed down to three quarters of the frames. Most bees were working a flow but beekeepers just let the bees pack down as they tend to develop nosema if pushed to work a winter flow. Nosema can get so bad in Australia that hives can take a full season to recover.

Australia is said to be the lucky country; i.e., lucky if you are not bitten. During that day, the owner of the property stepped on a red-bellied black snake (*Pseudechis porphyriacus*) that struck him in the jeans. It's not considered to be a bad snake as it has to hold on while it lets the venom flow down the outside of its fangs. Rob also pulled off a leech that was feeding off his stomach and we were advised to shower that night just in case we picked up any ticks—things we don't encounter over here.

Apis ceranae control

The exercise in trying to control the spread of the Asian bee *Apis ceranae* is continuing. Quite a few of the NSW beekeepers have had the odd trip up to Cairns to assist biosecurity officers in finding and destroying nests. The bees are tracked mostly by bait stations or from locals calling in when they find a nest. *Apis ceranae* is a very small bee that can virtually nest anywhere: in small hollows, letterboxes and even under railway lines. They have some peculiar habits in that when a hive is disturbed by scratching at the entrance, they will walk out and away from the nest rather than defend it—their natural defence to honey bears. Another peculiarity is that they fly only a metre off the ground, so to see them you have to have the sun behind them.

Bait stations are good at attracting bees but they also attract the local stingless bee in great numbers, so poisons can't be introduced as the local bees and *Apis mellifera* bees are also attracted. Some of the beekeepers feel that it would be best to just move out the *Apis mellifera* beehives and then poison everything in the area. There are so many local stingless bees (they can be found every metre of so in banks) that they would soon repopulate the area once the poisoning ceased.

AFB control and government responsibilities

AFB was discussed at the conference again this year. As in New Zealand, the Australian government is looking at ending its services in helping the industry control this disease, handing it over to the beekeepers to manage by perhaps setting up a similar system to our National Pest Management Strategy.

Several things are different in Australia that could make AFB harder to control. Beekeepers do not register apiary sites with the Department of Primary Industries (DPI), so authorities would find it difficult to track sources of outbreaks unless they had a tool like APIWEB as the number of hives in an apiary is considerably larger than ours (ranging from 70 to 120). Perhaps the most difficult problem to overcome is that all Australian states have to buy into the proposal and restrict or ban the use of oxytetracycline (OTC).

Several beekeepers in the audience expressed concern that they would still like to have OTC available as a tool, even though they might only use it once every 10 years when European foulbrood (EFB) became extremely bad in the spring.

One thing that has changed is that the responsibility for bees has been transferred to Plant Health Australia. Their horticultural sector is more aligned than the livestock sector, so Plant Health Australia will control emergency responses and put funding into pollination research—a happy union.

Leadership training encouraged

The Australian beekeeping industry has become involved in leadership training. For the first time, a young beekeeper (Ben Hooper) gained a Nuffield Scholarship to study coolroom technology in America for controlling pests (hive beetle) and wintering hives.

Ben showed a news report of a beekeeper who had previously suffered high winter losses. Instead of going to almond pollination, this beekeeper put hives into a coolstore to create a brood break and proper wintering conditions. The bees all came out healthy. The beekeepers had trouble controlling the carbon dioxide levels given off by the bees, but felt that this high level could have also attributed to the survival of the bee colonies.

Another young fellow, James Kershaw, took himself off to America for a couple of months to work with David Mendes for just board and keep. David is based in northern Florida and moves 10,000 hives to almonds. When the hives return they are split in half and a few weeks later they were given a box of plastic frames to draw out. David didn't think they would do it but the hives just exploded in three weeks with pollen supplement and the natural flora. Consequently David sells a lot of bees to beekeepers who need replacement hives.

David Mendes and his crew make up lots of new gear each year to replace all that is sold and purchase new pallets by the semi-load. He rents a disused golf course and drops 1300 hives into it each day so the crew could set them up for the blueberry pollination 2000 miles away. James Kershaw said he had to learn to catch a queen in eight seconds; otherwise the manager would 'dong' him on the head until he did so.

> "The Australian beekeeping industry has become involved in leadership training."

In the evening the hives are trucked out (460 hives to a load and six hives to a pallet) and a new lot brought in to work on. About 12,000 hives go to blueberries in Maine for four to five weeks and 8,000 go to cranberries in Massachusetts a month or so later for four to six weeks in very small lots. It can take a night to put out a truckload.

On return the hives are split again and made ready for the almonds next year and the extras are sold off. James Kershaw said they were very good beekeepers and recommended anybody should go over there for the experience.

Other conference topics

The conference also covered the use of logbooks as a means of controlling fatigue. All drivers of trucks weighing 12 tonnes or more use logbooks. Drivers must have an eight-hour break every 24 hours.

Another topic was Nick Annard's ongoing research into hive beetles and macadamia pollination. Beekeepers put hives into macadamias to build up, but research indicates there wasn't much difference in natural pollinators and wind compared with bee pollination, so growers will continue not to pay for pollination.

Vibrators and vaccinium were also covered. A number of banana growers are putting in a few acres of blueberries under cloth and would like beekeepers to pollinate them. Unfortunately these are planted on hillsides and in some orchards there isn't anywhere that hives can be dropped. The beekeepers will also have to learn how to manage their hives in blueberries, as they produce very poor pollen that stimulates EFB unless protein is added to the hives.

More visits

We also visited the workshop of Mark Stratford in Ballina, NSW, next to the airport, where they make the EZYLoaders. When we arrived, two were sitting on stands ready to be picked up by a couple of Melbourne beekeepers. A small 125 had all the bells and whistles—hydraulic controls, remote control and brake—and was going to be fitted onto a trailer rather than the tray of a truck. The other was a 200 kg hydraulic model ready for a larger truck.

Mark was reconditioning a five-year-old 200 kg model with a new universal plus the latest modification—a cam that sits on the side of the universal and takes the load off the universal joint when the boom is lowered. Without this cam, the universal will gradually wear, making it difficult to locate the boom into the lock-down cradle. Mark had also replaced the release cable, LED night light and new levelling sensor, as well as checking the hydraulics. It was interesting to see him work as it gave me an understanding to the workings of my lifter.

From Ballina we visited another beekeeper for a cup of tea and chat. Father and son run 300 hives on the coast and inland from Tweed. Beetles weren't considered a problem in that area this year, perhaps due to the wet weather and flooding. They hadn't used any traps or controls in their hives and had only lost 22 hives, mostly because they had →

gone queenless. They were also quite pleased with their honey crop (40 tonnes), enough to consider replacing their old truck with a new one. One of their problems this spring was low mating success—only 50%. They have something we don't: birds that catch and eat queens during their mating flights.

These beekeepers had a nifty idea for dealing with beetles. The bees corral the beetles into areas under the hive mat to prevent them from laying eggs in the brood frames. But when the hive mat is removed, the beetles

David and Rossi working hives. Photo: Frank Lindsay.

are freed and will run from the light down into the hive, where they start mating and laying eggs.

They reckon they can catch 50% of the beetles on the top bars by using a battery-operated vacuum cleaner to suck them up before they have a chance to run down amongst the frames.

From there it was an easy, quick trip back to the airport and back home to the realities of winter.

I would like to thank all the beekeepers we visited for their hospitality and for giving information so freely.

HOBBYISTS' CORNER

Frame making workshop

By Anne Hulme, Wanganui Beekeepers Club

The Wanganui Beekeepers Club was a hive of activity for our last meeting.

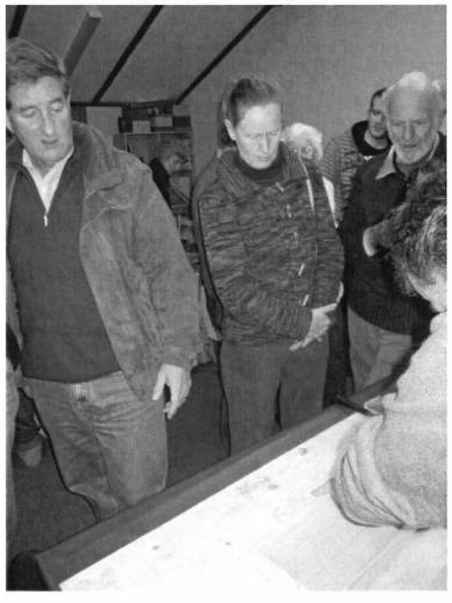
The room was crowded with as many onlookers as there were participants. Eight experienced beekeepers had supplied their own gear for the novices to use while teaching them how to nail, wire and insert wax foundation into wooden frames.

A great selection of wiring boards was available with some well used and others practically new, all with their own little idiosyncrasies.

The novices soon learnt to take care and not cut their foundation into three pieces when heating the wires. Luckily someone was available to expertly join up the pieces.

Some very happy novice beekeepers went home with a box of 10 frames each, all ready and waiting for the honey flow, which we promised will come eventually.

Below left: A study in concentration. Centre: Linda, our scholarship student, is on a roll. Right top: Alf and Sandy. Right bottom: Neil and Ned. All photos by Graham Pearson.



2012 National Bee Week - L♥ve our Kiwi Bees!

The NBA would like to thank the following Branches and individuals for their very generous donations to the 2012 National Bee Week held 20–24 August.

Wild Forage Ltd
Southern North Island Branch
Waikato Branch
Frazer Wilson & Kerry Gentleman

We would also like to thank the following businesses, some of which are NBA members, for their generous donations of product for prize giveaways.

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Nature's Country Gold
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A full report on 2012 National Bee Week will be printed in the October journal.

FROM THE COLONIES

Bay of Plenty Branch

The local branch meeting held on 6 August was attended by 30 people, all keen to understand more about the work that Dr Karyne Rogers is doing to better understand the issues of sugar in honey and solutions to the flawed C4 sugar tests. Dr Rogers also discussed the pros and cons of feeding bees sugar and protein.

Much discussion was had about hive management practices, particularly the impact of sugar syrup feeding during kiwifruit pollination prior to moving hives to crop honey. The Zespri representative present re-emphasised the reliance on bee pollination this coming season due to Psa and the shortage of male kiwifruit pollen. We learnt that KeyStrepto™ will likely be approved for use again this coming season for control of Psa in kiwifruit, but were assured that restrictions will remain on usage. Recommended protocols for access and hive movement in orchards will not likely change from last year.

Psa remains a serious issue for the industry. Symptoms of Psa are showing on newly grafted G3 vines and established Hayward variants, but the effect will not be known until later in spring. Hi-Cane® is started to be sprayed so the season is getting under way again.

Most of us in the Bay are still savouring what remains of the winter break and are waiting for the paddocks to dry out a bit before we venture to our apiary sites.

Grant Stanley reports, "Had some nice sunny days where bees have been busy. Have had a relatively mild winter and is looking like an early spring with the vigorous younger queens starting to move. Reports are that the macadamia flowers are 2 to 3 weeks earlier than normal. Preparing for a good season this year as the last two have been disappointing in terms of manuka harvest: a good season should (by law of averages) follow two consecutive poor seasons. Wattle is flowering and willow won't be far away. No drones in hives yet but stronger hives are laying drones now".

- Greg Wagstaff

Poverty Bay Branch

After a very dry June, July has been the wettest on record for 23 years. When checking the hives in the first week of August, most of the doubles were still very heavy but most of the singles needed a feed of syrup. It was still too cold at the beginning of August to open them up but hopefully they will be OK. I am anticipating quite a few of the autumn 2012 queens will be fizzling out as the spring comes on due to poor mating conditions in autumn.

Trees for Bees project

Planting has finished and the wet July has given the plants a good start. In Gisborne they will have to get used to dry summers or they will not survive.

AFB Recognition and Competency Course

Gisborne is holding a course on Saturday September 29. Registrations to be in to P Badger by 14 September.

May the willow flow be with you.

- Paul Badger, Branch President

Hawke's Bay Branch

In July NIWA announced we were in for a dry period and of course it hasn't stopped raining since. I suppose it's better now than later in the spring. Nothing much is happening at the moment, although we will have to move as soon as the weather starts to improve, as it looks like a lot earlier flowering than last year on many of the fruit trees. This is because we have had a decent amount of winter chilling this year.

It was lovely to have you all in Hawke's Bay for the conference and I was delighted to show Mana and Michele from the Chatham Islands around my shed a few days afterwards. I hope to return the visit one day as the Chathams are somewhere I have always wanted to visit.

- John Berry, Branch President

Southern North Island Branch

Weather-wise it has been wet and cold, but not as wet as other areas. In Wanganui most paddocks are dry enough to drive through, which is unusual for this time of the year. In the Wanganui area hives are starting to move, so maybe we will have an earlier spring.

Regional news

Manawatu Bee Club is very active. A few members from the club have gotten enthused about Bee Week, and are planning on visiting a couple of local country schools in the Tararua District, and plan to invite a journo from the *Bush Telegraph* along to get some newspaper coverage as well.

The club has booked a site for the Manawatu Country Living Expo. Peter Rogers will be giving a seminar/demonstration on 'How to keep bees in the town and in the country'. The club will also be using the stand for fundraising and to attract new members to the club, as well as to a two-day beginners' course they are running at the end of September.

Other beekeeping clubs in our area are active teaching new chums on how to make up boxes, frames, etc. ready for starting new hives in spring.

The VSH for Varroa seminar in Hamilton recently was very well attended with around 400 beekeepers present. It was amazing to see how many hobby beekeepers attended as they also have an interest in varroa control. A considerable number from the SNI Branch were there and we came away better informed on the situation.

There will be a Southern North Island field day at Robin McCammon's and the Pohangina Hall to be held on Sunday, 23 September. For further details, contact Frank Lindsay (Secretary) or Allan Richards (Chairman).

- Neil Farrer, NBA Life Member

Canterbury Branch

Canterbury is still well and truly in the grips of winter. June was the coldest month in many years, and July could be well be one of the wettest. Conditions underfoot are very wet and access is going to be a problem unless we have a significant change in the weather.

The colonies that I have managed to get around in June for their oxalic acid treatment have been light on stores, so I for one am keen to get cracking. I'm guessing the light condition is due to the mild start to winter we had, followed by the decidedly colder later months.

It was good to attend the road show regarding Suppressed Mite Reproduction. Thank you to the NBA for organising this. Thanks also to the team from Ruakura for making the effort to come down and explain where we are at, and how the programme is going to continue into the future with Betta Bees and Phil Cropp. It is my hope that beekeepers get behind these people and support them as they have made a large personal investment on our behalf.

A few big decisions are coming up within our industry in the next few months, the most important being (in my opinion) what we do regarding GIA. I'm hoping we stay well and truly out of it. An old joke that comes to mind is, when the doorbell rings and the guy at the door says, "I'm from the government and I'm here to help," just shut the door!

AFB Recognition and Competency Course

Canterbury Branch will be running a Disease Recognition and Competency Course in Ashburton, November 2012. Please look out for the details in the October journal.

Conference 2013 update

The 2013 NBA Conference will be held in Canterbury in June 2013, and will celebrate the centenary of the NBA. More next month.

- Brian Lancaster, Branch President

Otago Branch

The Otago winter has been fairly typical with some great clear and frosty weather. Much of July had warmer-than-usual afternoon temperatures and bees were out and about gathering pollen. There will be plenty of brood already. Now in early August we have a spell of easterly weather, which is not much fun. Cool winds, cloud and drizzle have kept my bees on the coast indoors for about ten days in a row. The East Otago country at least has had a good soaking, which is always a good thing this side of summer.

On the social side it has been quite a busy winter with three branch meetings, a joint branch and beekeepers' club meeting, and the VSH seminar attended by 150 plus in Christchurch. Many southern beekeepers made the trip, and no, not just for the free lunch so unkindly suggested at the time! The Hamilton audience was twice the size but rather subdued compared to their southern counterparts. Maybe the bad season in the North last summer had dampened spirits a little.

Having said that, the 500 or so beekeepers who attended the seminars seemed very interested in the drive to select genetically improved honey bees that can better cope with varroa. I have little doubt that this can eventually be achieved but those involved in the programmes understand it will be a long haul. To advance from some very promising breeders to an entire population of bees significantly able to cope with varroa is a big task.

Fortunately, there is a clear path forward to that aim and some very enthusiastic people working on it. Five or 10 years from now, who knows, maybe we will have some good results across the country just as strip treatments really begin to fail. As an industry we have to try but one challenge is how to pay for it all fairly. The idea of reinstating a commodity levy to support beekeeping research both for bee health and market access fortunately seems to be gathering momentum.

Branch field day

The Otago Branch will host a field day once again in Lawrence on Sunday, 23 September. Programme planning is under way and as usual we will encourage all Otago beekeepers to attend.

By then we will be all varroa hunting and well and truly into the spring rounds.

- Peter Sales, Branch Secretary

LETTER TO THE EDITOR

E-cert system perplexing

By Gary Jeffery

At long last beekeeping is going into the IT world with the advent of e-certification of our exports.

A good idea in principle, although I am not certain the charge of 17 cents a second is cost effective.

When I was first introduced to the e-cert idea, the first step was to look it up on the Internet. It nearly made me pull my hair out, which would be hardly noticeable in my case, but having this effect on our secretary, who is computer savvy, was a shame.

What I couldn't understand is why would someone in Food Safety work so hard to put out a very complicated guide that few could understand at first reading. What I had expected was a step-by-step guide from start to finish, but it did not resemble this at all. Perhaps Food Safety should think along these lines and revise the present system to suit.

My secretary and I are very grateful for the very patient help and guidance given to us by Tony Roper of AsureQuality. Because of his help, we now can successfully fill in required e-certs.

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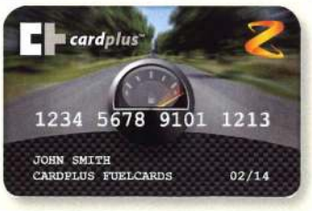

Buzzy Bee supports Bee Week. The NBA logo has been placed onto Buzzy Bee and a percentage of the profit on the products sold is contributed to the NBA.

Queen bees: changing cages

By Gary Jeffery

It is sometimes necessary to change bees in cages.

First, stock the new cages with fresh candy. I use the Frank White Recipe (see below).

It is best to stock the new cages with bees before adding the queens. If you add the bees to the queen, the bees will often attack the queen, who will make a shrill piping sound. If not rescued immediately, she will be killed.

Some queen cages require bees to be added individually, which is painstakingly slow. I like the Airborne cage. I shake bees from one or more hives into a fairly deep cardboard box. Take bees from above an excluder to avoid drones, which don't last in cages very well.

If the weather is overcast or cool, the bees will cluster on the sides of the box. Open the cages to about halfway and scoop the bees up the side. With practice you will end up with 10 to 12 bees per cage.

Next, leave the newly caged bees for perhaps half an hour as by then the bees will be feeling queenless and will accept the new queen.

Queen cage at centre. Photo: Gary Jeffery.

Then open the new cage enough to add the new queen with your finger over the opening and open the old cage. Preferably do this near a window with a bench underneath. If the queen flies she will either be on the window or the bench. (Ensure that no insecticides were used previously.)

It is best to open the cage enough to actually catch the queen with your finger as she tries to leave the cage, rather than let her just fly. I find it better to carefully grasp the queen with my fingers than try to catch her by her wings. Place the queen at the opening of the cage, avoiding letting the worker bees out, and she will run inside.

The cage is then closed, ready for using in queenless hives.

Candy recipe

(This was given to me by Frank White, a queen breeder from Kamo.)

10 cups of white sugar
3 cups of water
One small teaspoon of tartaric acid

Stir and bring to the boil.

Once boiling, reduce heat to simmer for 35 minutes.

Use invert syrup. Heat and mix with icing sugar until firm and still slightly sticky.

Leave overnight in a plastic bag. Then add more icing sugar if needed to fill cages.

Keep cages once filled in a sealed container to stop the candy from absorbing moisture from the air.

Strawberry, tamarillo and honey smoothie

By Maureen Maxwell, President, Apimondia Oceania Commission and Honey Ambassador for the NBA; www.wildforage.co.nz

Smoothies are a fast meal or healthy drink all by themselves, with low glycaemic index (GI) honey always a welcome extra to the blender.

Smoothies can be easily made dairy free by substituting the milk with juice and ice.

2 or 3 strawberries
1 tamarillo
1 heaped teaspoon honey, to taste (use your favourite sort)
1 cup Calci Trim milk

Optional extras: yoghurt, ice cream, 1 raw free-range egg

Place milk into blender first. Add hulled strawberries, peeled tamarillo and honey. Whizz all together until smooth. Decorate with an extra strawberry on the side of the chilled glass for a special treat.

To bulk up for pre- or post-sports events, or to make this into a fast meal on the go, add a banana, perhaps add an egg or yoghurt and honey to taste.

How to inspect a hive

By Frank Lindsay, NBA Life Member

It's now time to do your full hive inspection.

Select a good warm day and roll up your sleeves. If your arms get cold, it's too cold to work bees for an extended period.

Think about what you are going to do in the hive. Check how many frames of honey there are, and check the laying pattern of the queen. How many missed cells are there in a 75-millimetre (100 cell) square? If there are more than 15, you should consider replacing the queen.

Do an AFB check of all frames. Look up your *AFB Elimination Manual* (the 'yellow book') and familiarise yourself with the photos of diseased brood. If you find any dark frames during this inspection (those you can't see light through), move them to the outside or replace them. The same goes for frames with broken lugs or those with more than 20 percent drone brood. If any of these frames has brood, move it one frame space towards the outside during each subsequent hive inspection, and then remove completely (or move it into the honey super when these are put on). Look at the hive foundation and condition of the woodware. Do you have replacements at hand?

Smoker technique

Light the smoker and get it working well. I prefer to use dry pine needles (ones that have been in a sack in the garage for a month or more to dry). Take half a handful and press into the bottom of the smoker. Now take another handful and light the bottom of the pine needles. As soon as they are alight, gently push them halfway into the smoker while softly working the bellows.

When you have a good amount of smoke, press the pine needles fully into the smoker and work the bellows, making sure it continues to produce smoke. When it's been smoking for 30 seconds or more, take another handful of pine needles and press them hard into the smoker to compact them. Make sure the needles are still producing smoke before closing the lid. The smoker should continue to produce smoke for the next half hour or more.

Opening the hive

Before opening the hive, make sure the zip on your bee suit is fully up, as bees can find small gaps to push through. Put four puffs of smoke into the entrance and repeat in another couple of minutes. Quietly lift off the roof and place it upside down in front of the hive. Break the hive mat seal with the hive tool and lift slightly, directing a puff of smoke over the top bars. Observe how many frames are covered with bees.

Put the hive mat aside for the moment. Crack the seal between the first and second super at each side and lift up slightly, then direct a puff of smoke between the supers. Sometimes a number of frames may have brace comb attaching the upper super's bottom bars. Just lever them apart (while holding the super up a little) until you can lift up the end of the super, then place this

> "Scraping propolis will restore the bee space between the frames."

across the roof, allowing the bees to hang down below the frames if necessary without squashing them. Next, lift back the bottom super and observe the number of bees hanging down under the frames. If you see bees hanging down under four or five frames the hive is ready for the next super, provided that most of the top super's frames were also covered with bees. If there are bees hanging below the frames, waft a bit of smoke underneath to drive them up so they won't be squashed when the bottom super is placed on top of the first super. Cover with the hive mat. This conserves heat and lets the bees settle.

Remove the bottom board and check the hive's foundation (or pallet if it was sitting on one). The hive is going to be heavy when it's full of honey so if you have any doubts as to whether the pallet or foundations will support this weight, replace it. Make sure the bottom board has a slight slope forward so rain runs off the landing area.

Clean the bottom board. Scrape any dirt off it and if you wish, scrub it with Janola (hypochlorite) and water and hose it off. Brother Adam (Buckfast Abbey) used to exchange bottom boards and wash them in lye water (sodium hydroxide) to sterilise them before reusing them.

Working from the side, put the bottom board back in position and replace the bottom super back on the bottom board. Puff a little smoke over the top of the frames. Take out the outside frame nearest you by first breaking the propolis seal between the super wall and the frame and then on the other side of the frame by pushing in the flat of the hive tool to prise them apart. This generally frees the outside frame so it can be lifted out by each lug, but if it is jammed in or if the top bar lifts off the end bars, free the next frame in and remove this one first. Lift the frame out slowly so that you don't roll any bees.

Gently shake most of the bees off the frame into the space made by the frame's removal. Is this frame empty, capped with honey, full of pollen and/or does it contain brood? We are looking for disease, especially any AFB cells or scale in the bottom of cells (AFB scale is difficult to remove and does not come out in one piece).

Inspecting the hive

Have a good look in the brood area for any capped cells that have been there from the previous season, perhaps on the outer reaches of the frame, and determine why they have been left capped. They are most likely to be either sacbrood or chalkbrood but could be AFB-infected cells. To be sure, remove the capping with the point of the hive tool. It could be a bee formed in the cell or scale from a dried-up larva. Everything but AFB is easily removed from the cell.

As you inspect the frames you will move into the area where the queen is now laying. Check that all the capped area has cells that are convex and are the came colour. Flick off the cappings on a few cells with the tip of the hive tool blade and look at the developing larva underneath. This gives you a far better idea of the queen's laying pattern; i.e., all cells may be capped, but are they all the same age? This shouldn't damage the developing bee in the cell, and the bees will recap it.

In the area of emerging brood in the centre of the frame, any cells that remain capped while all around them contain young larvae or eggs should be checked by flicking off the capping and checking those cells that remain capped. Get used to flicking off cappings as part of your normal inspection technique.

Replace the frame and remove the next one, shake off the bees and check this frame for disease. You are also looking at how the queen is laying (not many missed cells), the level of pollen reserves around the top of the frame (city hives sometimes have a width of up to 10mm of pollen), and honey reserves on the outside of the pollen. Don't look for the queen: just note that there are eggs present, indicating the queen is laying.

Before you return the frame in your hand back into the super, place the frame in front of the hive and scrape any propolis build-up on the high bit of the end bars of the frame you have already inspected. (Although I find this easier to do while the frame is sitting in the super rather than when it's out sitting on its side.)

Scraping propolis will restore the bee space between the frames. Left alone, the propolis will be built up by the bees, making it harder to return the frame into the super. Also, this extra propolis could widen the bee space between the frames, meaning a lot more bees will be needed to keep the frames warm instead of just one bee between the frames.

After you've finished scraping propolis, scrape any brace comb off the top bar into a container and then carry on with the inspection. (A quicker way is to scrape the top and bottom bars immediately after removing the super off the hive while it's standing on its end.)

From time to time the bees might get a little agitated, so waft a little smoke over the top bars to keep them under control. Don't use too much smoke as this could drive the bees out of the super along with the queen, and she could get lost in the grass or be stood on. Also be gentle in replacing the frames—that squashing sound you hear might be the queen. If there are nine frames in the super, push them together into the centre of the super so they all have the correct bee space.

Replace any rotten supers as you go. If you replace frames, put the new ones to the outside so the brood nest is not split as this will cause heat loss. This whole inspection should only take five to 10 minutes, depending on how clean the frames are.

If the hive is crowded with bees (i.e., covering the top super and hanging down below the frames in the bottom super), it's time to put on another super. Take two outside frames that are covered in bees and place them into the middle of the new super. Move the frames in the bottom super over and replace the holes left with drawn comb, or if this is not available, frames with foundation. This will encourage the bees to go up into the new super.

Making notes

This is your first major inspection. Note the date in your diary along with the number of frames covered with bees and approximate brood area (three half frames, etc) and the amount of honey stored in the hive. This inspection doesn't have to happen in the beginning of the month if the weather is still cool, but you want to get on with it early in the season.

Do you have old queens? She could be laying well when doing the first inspection, but be aware that although old queens lay well initially, they can't sustain the egg-laying rate when the hive builds and tapers off, resulting in supersedure cells or swarm cells.

Finding lots of drone brood early in the season indicates a strong, well-fed hive that could be preparing to swarm in October. Mark this one for inspection every 10–15 days so that you pick up queen cell development early. Split the hive as soon as you see an egg in a queen cell, or order a new queen and split the hive when the new queen arrives.

Drone brood removal

One method of mite control is the regular removal of drone brood during the spring build-up (September to November). You can encourage the bees to produce drone brood by placing an empty frame (i.e., without any wire or foundation) in the top super, second frame in, for the bees to build drone comb. The bees won't touch this frame until there are bees covering it and there's a nectar flow on. Check every 18 days when the majority of the cells will be capped and cut it all out as this frame will contain perhaps more than half the mites in the hive. Chickens soon get used to this drone brood and will make short work of this protein food. Note: If this frame is the only drone brood in the hive, leave a little drone brood along the top bar of the frame. Bees get agitated if they suddenly lose all their drone brood, as drones are essential to the wellbeing of the hive.

You could do a quick check for mites by forking out a couple of hundred pink-eyed drones and counting the results. If you find more than five mites per hundred cells of brood, put in another mite treatment. You can get the same indication with a mesh bottom board counting mite fall over a week. It's most important to check that whatever mite treatment you are using is actually working.

Don't do this inspection if your neighbour is mowing the lawns or weeding the garden. Wait until a little later in the day so the neighbours are not disturbed by your activity. If the hive gets out of control and starts stinging, smoke it and close the hive. Give it three days to settle down and start again. Quite often the bees will get upset just before a storm arrives or after a bout of bad weather. Allow the bees a day's good flying after a storm before disturbing them, as they could take another day to settle down after your disturbance. You want to get the bees flying as much as possible between showers.

Things to do this month

Check hives for AFB. Cull old frames from the brood nest. Feed if necessary. Spray or weed wack the grass around the hive. Check stored honey super for wax moth. Order more replacements if required.

It's most important to check that your miticide treatments are working. Think about trying alternative treatments on a couple of hives to see how they work in your area. Most of the alternatives are temperature dependent or if it's still cool outside (below 15°C highs), use the brood nest to provide the right temperature for the treatments to vaporise.

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