

ISSUE 33, APRIL 2022

APIARIST'S ADVOCATE



News, Views & Promotions - for Beekeepers - by Beekeepers



**American Foulbrood
Tools and Technologies
for Detection &
Prevention Explored**

AFB Elimination and the Tools at Hand



The question of American Foulbrood (AFB) elimination in New Zealand and whether it is possible is one that has long been questioned by beekeepers. Regardless of individual opinions though, the Pest Management Plan has elimination of the disease from managed colonies as a goal. If that's the destination, what tools and technologies do both beekeepers and the Management Agency National AFB Pest Management Plan have at their disposal to reach it? We take a look into several tools and technologies, both in use and potential.

The Agency are currently undertaking consultation with beekeepers over the structure of the AFB PMP for 10 years from April 1 2023. Within these pages in recent months there has been considerable discussion pertaining to the potential use of AFB sniffer dogs to aid the Agency's efforts. They are far from the only tool, technique or technology that beekeepers have, or could have, at their disposal though. Before we dive into them, let's take a look at the current state of the road to elimination.

ROAD TO AFB ELIMINATION

The reported incidence of AFB as a percentage of beehives in New Zealand has stabilised since 2017, going from 0.33% of registered colonies infected then, to 0.31% in the most recent reporting year. That equates to 2526 colonies across the country.

The full goal of the Plan is to "eliminate clinical AFB from managed colonies within New Zealand". This is sometimes confused with eradication of the organism from New Zealand entirely, something that would be much more challenging due to the long-lived nature of AFB spores.

Because many beekeepers have been able to effectively eliminate AFB from their operations, the Agency is confident that this can be replicated on a national scale and the elimination goal achieved.

Currently, beekeepers can use a variety of methods to control AFB within their operations, but hives must be registered with the Agency and are subject to either annual Certificate of Inspection (COI) by a beekeeper with a Disease Elimination Control Agreement (DECA) with the Agency, or they are inspected according to the procedures agreed in a DECA between owner and the Agency. This agreement usually contains requirement for at least two beekeeper inspections of every hive each year.

Clifton King, national compliance manager for the AFB PMP stresses the importance of beekeepers complying with existing rules if AFB is to be eliminated.

Regardless of the method used to identify AFB infected colonies, national compliance manager Clifton King stresses the importance of a key concept on the road to elimination.

"The fundamental principle of our elimination strategy is for AFB beehives to be found and destroyed before they infect another beehive. When I say 'before they infect another beehive', what I actually mean is before they infect one or more other hives," King says.

As it stands, the Agency primarily uses clinical inspections through trained beekeepers known as AP2s (Authorised Person 2) to monitor beekeepers' AFB elimination performance. Honey sample spore testing is also used, with negative tests providing evidence of which beekeepers are doing a good job of eliminating AFB from their beehives, along with culture, PCR or qPCR testing on individual hives or equipment very occasionally.

CLINICAL INSPECTIONS

The current strategy is based largely around human inspection of hives, by beekeepers under the COI or DECA system, as well as visits by AP2s. While the national rate of AFB infection is not fast moving towards elimination using this strategy, King stresses the great value in beekeeper inspection and that, should all hive owners adhere to COI and DECA agreements, he believes elimination is possible.

"Management Agency experience, where we have been closely inspecting and monitoring what happens, is you can reduce the level of AFB in a beekeeping operation by 90% in one year, if all you do is thoroughly inspect all of the hives twice a year and burn the AFB hives. Only twice," King says.

Clinical hive inspections for AFB by beekeepers, which usually involve testing for roping out of brood such as this, are the benchmark against which other tools and technologies should be measured, Agency national compliance manager Clifton King believes.



Crucial to the strategy is taking the correct actions once AFB has been diagnosed in a hive to ensure that all materials and appliances associated with a case of AFB are destroyed.

For a beekeeper that is complying with their DECA inspection requirements and destruction of infected gear, then "elimination is the natural outcome" King says. The 90% reduction in AFB infections in year one can effectively become 99% if it is repeated in year two, in the Agency's experience.

HONEY SAMPLE SPORE TESTING

Of course, there are those beekeepers who are not fully complying with their DECA and thus hives are either not receiving adequate inspections and/or the correct remedial action is not being taken once AFB is identified. These offenders are a massive pot hole in the road to elimination and thus the Agency is focusing added attention on them. Honey sample spore testing is playing a crucial role in that strategy.

The AFB test in honey has been used by the Agency for many years, but now they use it with greater purpose King says. Rather than random samples being tested, they are collecting honey samples from those beekeepers who have large hive holdings but low reported levels of AFB. This helps determine whether they are doing an excellent job of eliminating AFB.

"Honey sampling is a fantastically cheap way of effectively inspecting hundreds of beehives with one sample to confirm the absence of AFB. It is far more cost effective than lifting the lids on all of those beehives and inspecting every brood frame for AFB," King explains.



The AFB Management Agency is increasingly using spore testing in honey samples as part of their surveillance programme.

"We don't need to worry about the beehives owned by those beekeepers getting negative honey sample results, because we've already got good evidence that they're doing a great job and we can prioritise our resources elsewhere."

Over the past year more funds have been allocated to honey sample testing by the Agency and they are now increasingly using the technique to target elimination efforts.

DIAGNOSTIC TESTS

Until last year, diagnostic testing of AFB in beehives required sampling of dead bees or suspicious ropy materials from individual hives, making it highly accurate but also highly expensive on a large scale.



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"For Culture, PCR and qPCR testing on honey bee samples to become a commercially viable alternative to clinical inspections, the cost of these diagnostic tests needs to reduce significantly and/or there needs to be significant benefits over and above what can be achieved from clinical inspection," King says.

Some of those barriers may have been lowered though, with the introduction of a swabbing method of sampling hives for qPCR testing. The Foster Method, developed by Gisborne-based lab dnature diagnostic and research, also allows effective pooling of many hives into one test which reduces cost-per-hive. A swab can be quickly swiped across the entrance of the beehive to collect the sample.

Up to 12 samples are being pooled in each Foster test at present, but dnature are hoping to move to a greater number going forward, says technical director John Mackay.

"If you find a positive, you can pull individual samples out and retest. Or you can tell a beekeeper those 12 hives are fine, those 12 are fine, but there has been a positive result with that group of 12. Have a close inspection."

Previous AFB diagnostics tests cost approximately \$80 per sample, whereas each pool of Foster method tests – so up to 12 – costs around \$140.

One of the earliest uses of the Foster method was in Project CleanHive, carried out by a group of Southland and Otago apiarists which saw more than 800 hives tested between 2018 and 2021. The project concluded that "early intervention when clinical cases are discovered within a business, along with qPCR screening,



The Foster Method of hive sampling, using swabs as pictured here, allows for pooling of samples for diagnostic AFB testing.

should potentially allow for eradication of clinical AFB in one season".

Project CleanHive used testing of hive entrances, but Mackay says the method could also be used on equipment in beekeeper's sheds.

"Potentially, if you have stacked up honey supers you could run a swab back and forward across the top of the frames and test them," Mackay says.

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From the Agency's perspective, there is potential in the new qPCR method developed by dnature, and the Agency is looking forward to the Gisborne lab's research being peer reviewed and published. Until that burden of proof is reached, the method cannot legally be included in the PMP, King says.

That time could be sooner rather than later, with Mackay saying it has been submitted, reviewer comments have come back, and he is confident it will be accepted for publication and then potentially wider use.

"It's a tool in a tool box," Mackay believes.

"I would love it if dogs could be proven in the peer-review process too as I see qPCR testing as quite complementary to the dogs. If they indicated on a stack of boxes, or a pallet, then you could follow with the diagnostic test to confirm infection."

SNIFFER DOGS

Dogs have been used by beekeepers as a tool to detect AFB in beehives for several years now and research to verify their accuracy in spore detection in a clinical setting has been completed and is being written up, as detailed in *Passing the Sniff Test* in our February issue.

As with the new Foster Method of qPCR testing, the Agency will not adopt the use of sniffer dogs until the research is fully proven in the field. This could be a challenge for the industry as research costs ramp up.

Advocates for the use of AFB sniffer dogs believe they could be a valuable addition to both beekeepers and Agency though, such as Frank Lindsay detailed in *AFB Dogs Dilemma* last month.

"Correctly trained dogs have the ability to cover a large amount of hives in a short space of time," says Manawatu beekeeper Jason Prior, owner of DownUnder Honey.

"For a beekeeper wishing to eliminate AFB from their operation, this can help identify hives which will require closer scrutiny. For the Agency, it could mean AP2 inspections are better targeted to apiaries or hives in which dogs indicate there is greater likelihood of clinical AFB.

"Further to those apiary and hive visits, dogs could play a crucial role in identifying AFB infected equipment stored in sheds. If we are truly serious about elimination, then removing this gear from beekeeping sheds is critical."

In addition to those uses, sniffer dogs may also be able to assist within any regional elimination plan, by helping identify AFB hives before they are migrated and the disease spread into new areas.

Dr Neroli Thomson of Massey University has run a trial on the ability of canines to detect AFB spores in a clinical setting and there are hopes field trials can be funded in the near future.

PHAGE THERAPY

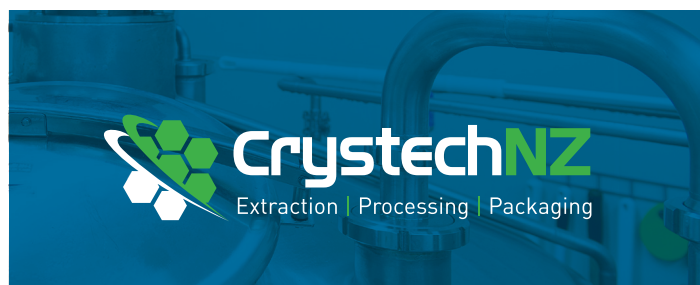
While some countries allow antibiotic treatment of AFB infected colonies, this is illegal in New Zealand. However, there is growing hope that a preventative treatment might be possible in the form of "phage therapy" and a New Zealand lab is playing a role in the global research.

Bacteriophages are a form of virus that infects bacteria, eventually killing off their host. They are however the most numerous entity on the planet and found everywhere. Finding the right mix of phages to target the AFB-causing bacteria *Paenibacillus larvae* – a task researchers have described as "finding a needle in a stack of needles" – is required before any preventative can be designed. Such AFB-targeting phages were first found in North America in 2013, but the search continues for the right mix, including in New Zealand where the ABAtE project are searching for phages specific to New Zealand's strains of AFB.

"We have successfully formulated and tested multiple bacteriophage cocktails in the laboratory setting and found excellent activity against the majority of *P. larvae* strains from here in NZ," says Dr Heather Hendrickson who leads the ABAtE research, now based at Canterbury University.

"The work continues though as we perfect these cocktails for practical use, test them in honey bees, and expand our collection of bacteriophages to kill the remaining strains that are resistant to the bacteriophages we have now."

Therefore, although promising, any potential treatment or preventative using phage therapy is a long way off being



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accessible to beekeepers or the Management Agency. If it came to fruition though, phage therapy could play a significant role in AFB elimination.

ONWARDS

From the national compliance manager's perspective though, human inspection of hives is still the best option available to locate infected colonies. Therefore, other tools or technologies

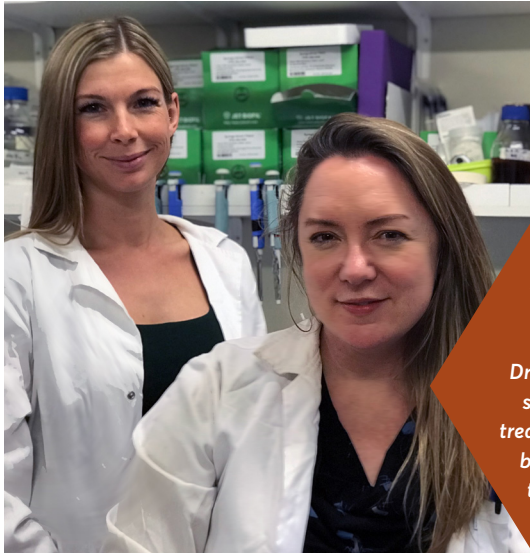
should always be compared against beekeeper inspection to ascertain their value.

"Clinical inspections have stood the test of time," King says.

"So new technologies need to have proven significant cost savings compared to clinical inspection, or significant performance advantages over clinical inspection. Ideally, if there's new technologies that are both cheaper than clinical inspection and more effective, well, that's your eureka moment that is really going to change things."

Despite any technologies that prove themselves, New Zealand's effective management of AFB and any hope of elimination is still 100 percent reliant on beekeepers taking the appropriate remedial action once infected colonies are identified.

"People can get so excited by new technologies that they forget the fundamental principles that you need to apply to those technologies," King explains, adding "elimination can only be achieved by finding AFB and destroying it before it infects other beehives". 🐝



Scientists on the ABaE research programme Danielle Kok, left, and Dr Heather Hendrickson are seeking to develop a hive treatment system which could be a game-changer in the task of AFB elimination.

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Varroa Diaries: Damage Likely Lessened This Autumn



This time last year beehives were dying in much larger numbers than usual in several North Island regions, and the recent release of Landcare Research's NZ Colony Loss Survey pointed the figure squarely at varroa. A year later, we check in with some experienced and connected beekeepers in the Hawke's Bay, Bay of Plenty and Waikato to get a feel for if the colony damage is being repeated this season.

"Much lower", "a lot better" and "I haven't heard anyone screaming out like they did last year" are the reports on varroa mite from commercial beekeepers Jane Lorimer, Russell Berry and Dennis Crowley, among others, across the North Island.

Although impossible to confirm why hive losses and mite numbers are appearing lower this season, beekeepers are happy at the fact. However, there are still reports of some apiarists getting caught out, particularly with varroa, as bee forage dwindles and queens continue to lay. The concerns are certainly not on the same scale as 12 months ago though.

While at the time many of the colony losses were thought to be unexplained, discussion has since pointed the finger at heavy varroa mite loadings in hives that had spent time in areas of high

hive populations. Kiwifruit pollination areas were thought to be particularly problematic.

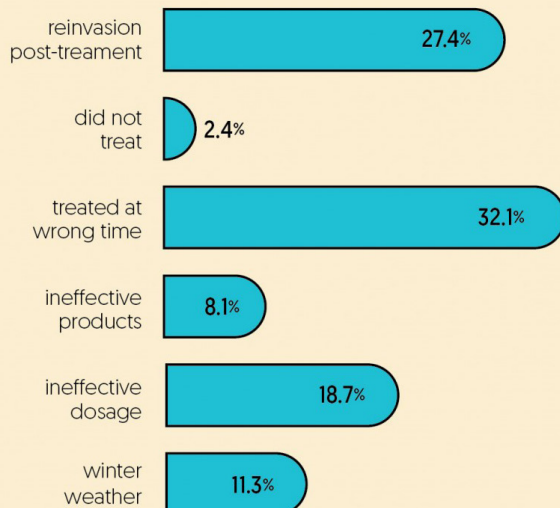
NZ Colony Loss Survey results, from data gathered last spring, were released in March and respondents identified varroa as the leading cause of hive deaths. It dived deeper into the management of varroa and found that either treating at the wrong time, or hives suffering from reinvasion, was attributed as the main reason for colony death due to varroa in 60% of cases.

Unsurprisingly the middle North Island, where anecdotal evidence suggested greater autumn losses occurred, also suffered the most winter losses according to Landcare Research's more scientific survey. The area, which includes Waikato, Bay of Plenty, East Coast and Hawke's Bay had a loss rate of 18.7%, as compared to the national average of 13.6%.



Main factors attributed to varroa losses

Single largest factor underlying losses attributed to varroa and related complications, according to respondents



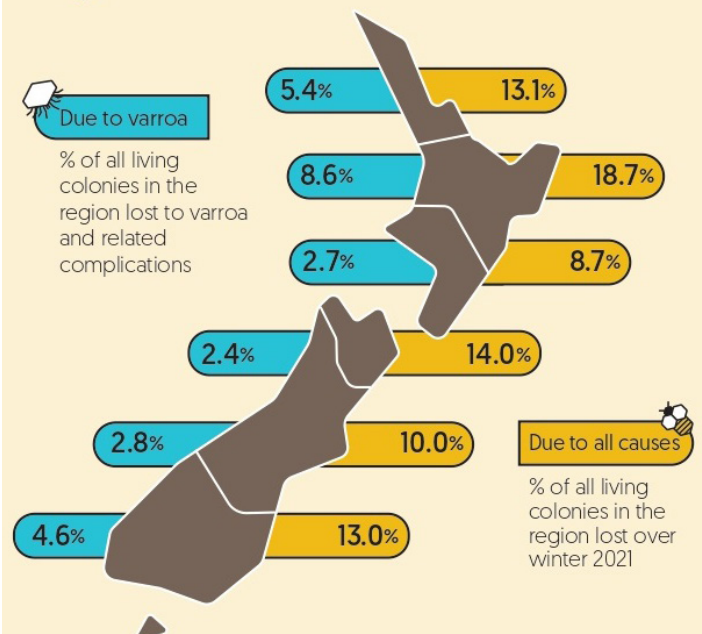
Results from the NZ Colony Loss Survey 2021



Regional estimated loss rates



Due to varroa
% of all living colonies in the region lost to varroa and related complications



Due to all causes
% of all living colonies in the region lost over winter 2021

With bees seemingly healthier in those key areas this autumn, putting a finger on the reason for that improvement is difficult and unscientific. However, the seasonal conditions providing better late season forage and thus stronger bees overall to combat varroa is being mentioned.

"This year beekeepers have had to work to get hives up to the grade, but since Christmas there has been better forage," Crowley says of the conditions he has seen in the Te Puke area.

"Weather conditions play a part in it," says Berry, whose Arataki Honey hives cover large areas of the middle North Island.

"Perhaps with beekeepers going broke last year, maybe there is not quite so many around not treating for varroa."

Lorimer, a long time Waikato beekeeper, floats that idea too.

"It could be that some people have lost hives and not come back in to it, meaning those who have been beekeeping for longer have been able to get their levels under control," she says.

The Colony Loss Survey estimates that 2.4% of beekeepers don't treat for varroa.

With beekeepers noticing higher mite loadings last autumn, extra winter treatments might have gone into surviving colonies of more vigilant beekeepers, thus reducing levels of the external parasite, some suggest.

As is often the case, views on miticide resistance differ, but it is another reason floated for why beekeepers were caught out last autumn. However, the Colony Loss Survey had it at the forefront for only 8.1% of beekeepers whereas "ineffective dosage" was

Varroa mites had their way with many honey bee colonies in the middle North Island last year, but reports are the damage isn't nearly as bad so far in 2022.



at 18.7%, signalling that some beekeepers might be the masters of their own doom.

While mites can wreak havoc inside the hives, wasps can do so outside and Lorimer is pleased to see their numbers much lower in the Waikato now.

"There are one or two about, but this time last year you didn't want to open your mouth around the hives, lest you get one fly in," she says.

Explaining the reason for the year-to-year changes in hive health is no exact science, with Crowley summing it up, "sometimes when dealing with insects and nature, nature just kicks you in the arse". 🐝

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NZBI to Launch Separate AFB Consultation



Beekeepers who may have missed earlier consultation rounds will have another avenue to have their opinions heard on the future of the National Pest Management Plan (PMP) for American foulbrood (AFB) this winter.

Industry body New Zealand Beekeeping Inc (NZBI) plans to run their own consultation process to shape a proposal they will present to the Minister for Primary Industries regarding the PMP for the bacterial disease of beehives. The AFB Management Agency is already two rounds into an extensive consultation process which began in June 2021 and is expected to wrap up this winter.

However, NZBI president Jane Lorimer believes a better feel for beekeeper opinion on the Plan will be gained by adding their consultation and proposal alongside that of the Agency.

"There are some areas where we feel beekeepers are not getting good opportunity to offer input into the Agency's review of the PMP, primarily because of the timing of it. The timing of

the consultation was terrible along with the amount of time given for beekeepers to respond following the webinar series – in one instance three days," Lorimer says.

The AFB PMP is due to expire on April 1 2023 and thus the industry has been asked to consult and provide feedback to the Minister prior to that date. The PMP is what holds beekeepers accountable for the identification and destruction of infected beehives, to prevent the spread of disease.

The Agency has communicated their consultation process with beekeepers in a wide range of methods, including emails direct to registered beekeepers. They are partway through three rounds of consultation, which began with an initial call for feedback via an online survey June 24-July 11 last year. Responses from that first round were collated into a 16-page booklet titled *Let's Talk:*



AFB Pest Management Plan

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The Next 10 years of the PMP for AFB elimination, which beekeepers consulted on in November and December via a series of webinars and seven roadshows from Whangarei to Invercargill. Now, feedback from those meetings will be presented and detailed changes proposed before a final round of consultation in June and July, then the Agency's proposal is to be presented to the Minister.

"They (The Agency) might argue they have done enough, but when it is the beekeepers' PMP, I think they could have done more to consider what was the most appropriate time to call for feedback. The process itself may be ok, but if the timing of that process is poor it makes the outcome of the consultation questionable," Lorimer says.

"When they started the webinar series to discuss the PMP, it was at commercial beekeepers' busiest time. I believe they have only got a small proportion of beekeepers responding to their consultation."


The first round of consultation from the Agency garnered responses from 434 beekeepers and Agency national compliance manager Clifton King says he is surprised at the decision of NZBI, being that, "the Management Agency is genuinely committed to engaging with beekeepers, listening to their feedback and addressing that, to then put a proposal to the Minister together".

King agreed that having any consultation during a busy period for commercial beekeepers, such as November and December are, is not ideal. However, the alternative was to drag the process out another six months and then end up with the final round of consultation in spring 2022 anyway.

"That is just substituting one problem for another," he says.

NZBI's process of consultation is yet to be fully finalised, but will make available to beekeepers a consultation document (available via www.nzbeekeeping.co.nz/afbpmp-review and potentially direct delivery), telephone discussion and likely in person meetings as well as webinars. After that, they expect some follow up discussion before a draft proposal is circulated for final feedback and adjusting. A proposal will then be presented to the Minister.

"It's good to have a variety of opinions and some diverse feedback," Lorimer explains.

"If the two reviews come up with similar ideas of how the AFB PMP could be improved, then that will give strength to the review. If they are dissimilar, then MPI and the Minister will need to consider the different approaches being advocated and the reasoning behind those differences." 

The Management Agency has released this booklet following consultation with beekeepers, then further consulted on it in November and December.



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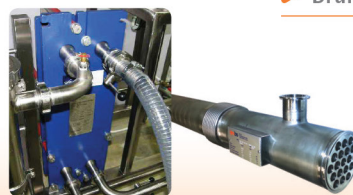


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BY PATRICK DAWKINS – EDITOR

This publication has grown greatly since our first eMagazine release in August 2019, and now we have a new adaption to offer our readers, ***Print Reads Winter '22: The best of Apiarist's Advocate January to June 2022***. The printed magazine will be the first of its kind for us, having previously released a PDF eMag for our first 33 months.

Our publication will continue in electronic form going forward, both in eMag and via our [website](#), so beekeepers can continue their free and easy access to our content. We want to test the waters on the interest level in a printed "highlights package" style magazine every six months though.

In our more than two and a half years publishing we have received some great feedback from readers about our content and the eMag form allows many beekeepers to access the stories. However, it would be good to give those stories greater permanence. A regular printed version of the publication should do that. I envisage it sitting in the smoko room or on the coffee table at home over the winter months when beekeepers have more time to dive further into stories, then it heading to the bookshelf or office for posterity and as a reference point and snapshot of our industry.

I am looking forward to going through our first six editions of the year to sift out what I believe will make for the most suitable stories, with still a few months to go there is already plenty to choose from. We have got some great reads about beekeepers all over the country (from Maggie James's excellent profiles, to our Club Catch-Ups), have dived into some big issues of apiculture (AFB sniffer dogs, UK trademark battles, a major recap of the honey season...), while also tapping into expert advice and insight from a wide-range of corners of our industry (Apiarist Opinions, Management Matters, Varroa Diaries...).

While the eMagazine and website are free to subscribers – thanks to the support of advertisers – Print Reads comes at a cost of \$29, which includes GST and delivery to your mailbox. We expect it to contain 50-60 pages of quality reads and thus be great bang for the buck. We will compile it immediately after the release of our June issue and plan to have it into mailboxes by mid-June. I invite you to order now:

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The Reluctant Beekeeper



BY MAGGIE JAMES

Geoff Bongard had no intention of becoming a beekeeper. Son Greg? no qualms - he wanted to beekeep! Maggie James travels to Ashburton Apiaries where she meets Geoff in a state of transition – gradually handing over the reins of management to his son, 40 years after launching the 1800 hive business. She learns of a career brushing shoulders with some of the most well-known names in the history of New Zealand beekeeping and which went from reluctance to over five decades of devotion, and continues on to a second generation.

Based in the Mid Canterbury town for which the company is named, the Bongards of Ashburton Apiaries are in a state of transition, with succession from Geoff to Greg in progress. Its 1800 double brood-box full-depth hives produce mainly bulk, clover, brassica and beech dew honey, extracted on site. Pollination contracts are brassicas and carrots. A significant number of five or six frame nucs are run all year.

Greg is fulltime in the business, with Geoff now a Jack of all trades. There are two full-time staff who both also have their own beehives. The business is well known in the area, and Geoff has family connections in Mid Canterbury, but his path in life and beekeeping started in the North Island.

FAMILY INFLUENCES

Geoff's grandfather, the BNZ bank manager in Leeston, intended Geoff's father to follow suit and he did so, briefly at BNZ Ashburton, then the Reserve Bank Wellington; where Geoff was born. Pre vaccination era, his father at age seven suffered severely from polio and treatment involved extensive scraping off the skin on foot soles. Therefore, standing as a bank teller caused extreme

pain, subsequently ending this career and consequently for many years in Hastings, Geoff's father was a driving instructor and taxi driver. It was back in the South Island where a beekeeping connection in the family was first established though.

"In 1950s Leeston, Bray & Gosset Ltd were one of the biggest beekeeping businesses in Mid Canterbury and the two partners, Jasper Bray and Arthur Gosset, were my uncles by marriage," Geoff reminisces.

"They married two sisters, my aunts. Therefore, Peter Bray, Airborne Honey, is my first cousin."

Despite the connection to such a strong beekeeping family, it was another area of primary industry to which he turned his hand, commencing in 1969 a farm cadetship studying at Hamilton Polytech whilst working 70 hours per week on a dairy farm.

Geoff's father despaired over his son's long hours and pathetic wages. His previous banking experience told him Geoff would never own a house. Uncle Arthur decided Geoff needed to diversify and was adamant a beehive was required. However, the 17-year-old, highly terrified of bees, was a nonstarter for Uncle's brainwave!

Gosset told Geoff to stop being silly, he would sort it! Consequently, Dudley Lorimer (father of Tony) supplied one hive, running this at the Cambridge dairy farm and assisting Bongard who insisted on being totally suited up when in the vicinity!

Lorimer was a great mentor, and his patient guidance soon came into play, unexpectedly. Drought struck, cows dried up, crippling the dairy industry. In 1973 Gosset suggested Bongard contact Ian Berry in Hawkes Bay at Arataki Honey, Havelock North.

"THE ARATAKI DAYS"

"I was lucky. Ian Berry was another great mentor, and with my beekeeping wages triple that of dairying and less hours, suddenly I liked bees!" Geoff recalls.

"I recall being truck passenger, Havelock North to Taupo; where we met Rotorua Arataki staff, and this is when I first met Russell Berry (brother of Ian). Arataki Rotorua were in expansion mode, and we would spend a day or two working in the Rangitikei area. Bees on the volcanic plateau were a different breed – German, black, nasty, vicious. Fortunately, at Arataki Havelock North the bees were quite nice, and they had their own breeding programme.

"The return trip was 420km, and we would drive back towing a trailer, the size of a milk tanker, containing extracted honey."



Geoff Bongard of Ashburton Apiaries with their automated paraffin wax vat, capable of holding 12 full depth boxes. To avoid wax igniting, there is an enclosed diesel burner chamber below the paraffin tank fitted with a thermostat. If power goes off, the whole unit shuts down. Photo: M James.

MIGRATION TO THE MAINLAND

"After three years with Ian Berry, with Arthur often suggesting working for Gosset & Bray, Ashburton branch, I migrated south working as a fulltime fill-in manager 1976 to 1981 managing 1800 hives. 200 hives would be sent to the West Coast for kamahi then promptly followed the southern rata flow. In those days kamahi was just a feed crop and these boxes were removed, then taken back to Ashburton for spring feed, but rata was extracted."

While the move south was ultimately a permanent one, the decision wasn't made lightly. In 1970s New Zealand, travel was still often quite limited and expensive, as were landline toll calls (more so if they were longer than three minutes!), and there was less leave. Generally, regular letter writing was the main form of distant communication. It was a big thing to shift so far away from family and friends.

"My fiancée Angela was still in Napier and I went back especially for our wedding in 1976. For several years we lived in a cold little old cottage, requiring a bag of coal (70kg) weekly. 1979 we bought our first house," Geoff says.

In 1981 Geoff worked four days on for his employer, then three days "off" managing his own 450 hives. In 1982 Bray & Gosset became Airborne Honey, and Geoff and Angela became totally self-employed as Ashburton Apiaries.

Then, in 1986 under Gosset's business mentoring they expanded taking on board Arthur's adamant comments – "You won't get anywhere if you don't use other people's money, nor being a sole operator. It's too tough if you get sick. Get someone else to do the work".

"So, we moved to our current Ashburton site and got our first employee. Over the years we have been very lucky with quality staff," Geoff says.

At first, when viewing their new property, which had been on the market twice, the house was very run down and surrounded

by rubbish and Bongard didn't recall it. However, upon entering the honey house he most certainly recalled at age eight or nine, when down on holiday to his Leeston Bongard grandparents, visiting Ashburton with Jasper Bray and picking up a full truckload of 60lb (just over 27kg) tins of honey for packing at Leeston. Tins were how beekeepers' crops were purchased, prior to honey drum use. At that stage, brothers Roy and Ron Newton (uncles of Derek) owned the property, before vacating 12 years prior to the Bongards' purchase.

THE NEXT GENERATION

"When son Greg announced he would take up beekeeping, it was decided not to spend his first fulltime year with me," Geoff explains of his son's entry to the industry.

"It's important to hear other's viewpoints on life and see how they keep bees. So, Greg worked a season with stalwart Canterbury beekeeper John Syme.

"He then worked a season in Scotland, which he loathed – dark black grumpy bees, cold wet sunless season, trucks bogged, taking hives up to the moors for no heather honey reward."

During Greg's Scottish absence, Chris Berry, grandson of Ian and son of John, worked for Ashburton Apiaries, keeping the beekeeping connection between the families strong.

"On return, Greg was still keen on bees, but we thought an electrical apprenticeship prudent, prior to entering the business," Geoff says.

SOME CURRENT INDUSTRY ISSUES – GB'S TAKE

More than ever before there are multiple major issues within beekeeping to react to and Geoff believes compliance regulations is one of them. In particular food and safety regulations, which he thinks are now way over the top compared to other industries. Consequently, the related costs are seriously crippling the industry, Bongard believes.



The Bongard family have had a strong connection to well-established beekeeping entities, including Airborne Honey in Leeston where Greg Bongard and daughter Laila (centre) attended an event last year. Alongside are Jeff Lukey (Nelson, left) Robyn Davies (partner of Peter Bray), James Corson (Whitecliffs, right).

"Since 2010, Varroa has totally changed beekeeping, and it's made beekeeping a hell of a lot more difficult. The next pathogen to present will make things even more horrendous," he says.

"We manage each hive as a separate unit, not as a total apiary. Managing units as total apiaries in specific constraining time frames does not allow for the differences of time-consuming beekeeping issues that can vary from hive to hive in an apiary. An owner/operator can often easily make immediate decisions and rectify anomalies on the spot. And yes, this it might take a bit longer in an apiary than planned, but certainly pays dividends in the long run, improving hive health and production."

Varroa and AFB are of course an ongoing concern, but Ashburton Apiaries keep on top of those problems and have found no AFB cases in their hives this season after taking strong action last season.

"For several years at one apiary we were getting an AFB hive per season. We spent a huge amount of time disease checking, then last season we had four cases at that apiary, source unknown. Constant checking stresses hives, making them less productive, and in that time we didn't remove any honey. It was frustrating, time costly and non-productive. So, last season Greg and myself decided to cut our losses, with a sacrificial burning of the 12 remaining non-AFB hives, then deregistered the apiary site."

Climate change is also concerning Geoff. In flash floods last year Ashburton Apiaries lost 100 insured hives, but it took a fair

bit of discussion for payment and, even then, staff time was not recompensed. The team had to pick up gear from all over some farms, a frame here, a frame there!

Bongard believes many farming practises must go back to basics, and this will aid honey bee forage. He cites a world shortage of fertiliser with prices escalating to "unaffordable levels", therefore farmers will need to increase clover production for economic nitrogen availability e.g. seed production or underrun pasture. Bongard predicts much Mid Canterbury dairying will disappear and the area revert to previous high yield seed and grain production levels. Whilst grains are not bee fodder, in the past clover reappeared after harvest, sprouting in fields, giving bees a second late lick of clover.

That's all looking to the future though and it's a future in which, for Ashburton Apiaries, son Greg will be steering the ship through totally different issues, having moved on site as of March 31. Meanwhile Geoff is settling into a new role ... if not a new office.

"Angela and I have vacated the site, buying an excellent smaller property nearby. I will continue with company admin. A matter to work through is lack of an office," Geoff says, adding "I'm under strict orders not to knock out or add walls to create one!"

Next month we visit Ashburton Apiaries honey house, queen rearing aspects, electrician Greg's incubators, varroa management, planning for small hive beetle arrival, and workmate pranks!

To discuss any aspect of this story with Geoff Bongard,
email geoff@ashburtonapiaries.co.nz 🐝

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Mānuka Orchard: Honey Services that Bear Fruit

Before an orchard bears fruit there must be growth and, while Mānuka Orchard may not be home to trees in the biological sense, the mantra is still true on many fronts. The concept behind the Bay of Plenty honey storage facility was first seeded almost three years ago and in that time their facility has flourished to one providing a wide range of honey services, from extracting right through to its sale. We learn how a desire to be better not only in their services offered, but to make Kiwi beekeepers' honey better, is bearing fruit for all involved.

While the tasks they undertake are often quite technical in nature, the overall philosophy of Logan and Tania Bowyer's business is quite simple.

"I like to tell beekeepers we are part of their team," explains Logan Bowyer.

"We are just an extension of them and hopefully doing what they normally would, but to a higher standard because we specialise in it."

Specialisation is at the heart of Mānuka Orchard's service, with the Paengaroa facility aiming to play their role in ensuring New Zealand honey is the highest quality in the world by using their expertise to assist in extraction, storage, testing, moisture reduction, creaming, blending and honey sales – everything beyond the hives.

"We have focused on the area from extraction through to selling honey. The

idea is to specialise in it and do it well," Bowyer says.

"Beekeepers have the expertise to make sure their hives are as productive as possible and we have the expertise at our facility to make sure the value of their honey is fully obtained by ensuring best practice through clean and hygienic extraction and then value adding through appropriate storage, management and then sales."

MOVING HONEY

Soon after concept it was realised selling of their beekeeper clients' honey would be a crucial part of the Mānuka Orchard model, with the facility maintaining a database of potential buyers who receive weekly data on what honey is stored at the facility and up for sale.

When it comes to helping beekeepers sell their honey, it's not just about

collating the database of honey on hand and having contact details of potential buyers though. The Mānuka Orchard model is also heavily focused on making sure honey is in the best state possible to appeal to buyers. To this end, they have introduced a grading system from fully tested and compliant "A" grade honey to "D" grades which have arrived onsite untested, and everything in between. This system makes it easier for both buyer and beekeeper to understand what they have.

"We used to focus on getting honey and getting it stored, but now we have a greater focus on compliance and making sure the honey is fit for market. That is not just any market, it means the best market and the one that is paying the most," Bowyer explains.

ALL THE GEAR AND THE RIGHT IDEA

Carrying out tasks such as gathering samples for testing, storing for growth, drying, blending or creaming require not just the most appropriate equipment and facilities, they require the expertise to get them done correctly and cost-effectively.

The equipment and facilities are constantly evolving to meet beekeepers' demands and Bowyer's previous career specialising in chemical cleaning and engineering in food and pharmaceutical plants, then streamlining honey processing plants, is continued with his Mānuka Engineering business which operates alongside Mānuka Orchard. The engineering team spend the majority



Mānuka Orchard founders
Logan and Tania Bowyer with
children Chloe and Joel.



Demand for Mānuka Orchard's expert honey extraction services has risen four-fold this season.

of their time improving the Orchard facilities as it grows, but then also provide specialised engineering solutions in honey sheds all over the country.

As for the Mānuka Orchard team's expertise in honey management, that is all geared towards extracting maximum value for beekeepers' honey.

"There is a lot of consultancy that goes on between us and the beekeepers and those that choose to use my knowledge do quite well out of it," Bowyer says.

"It starts by having the right testing done in the right sequence, to avoid wasted costs. It then moves to having a conversation with the customer to determine what the best steps are going forward, to add the most value – growing out honey can be a big part of that."

GROWTH

While growing honey is a core service, there is plenty more growth going on around the facility – which incidentally was once the site of a kiwifruit packhouse.

Since conception their handled drum tally has climbed to 10,500, with 4500



The pallets don't stay empty for long, with Mānuka Orchard currently holding 4500 drums of honey in stock.

drums currently on site. It's not just honey in drums rolling in though, word is getting out about Mānuka Orchard's extraction expertise and their throughput has quadrupled this season. Such growth is driven by their attitude to the job Bowyer says.

"It is the professionalism we bring to it. Yeh, we are slow at extracting at only 120 boxes a day, but that is because we put emphasis on the quality of the product and not the quantity. My target is not to make money out of extracting honey. It is

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The Mānuka Orchard yard is only getting busier as truck loads of honey come and go.

to make everyone more money by getting honey that is compliant, ready for any market in the world and can demand the highest possible price."

Extraction costs \$15 per honey super, while storage costs are fixed for two years which allows both clients and the Orchard to budget together – all part of the mantra of working for and alongside their beekeepers.

WHAT'S NEXT

There are considerable plans for the future of the facility and for gaining

even greater value for clients' produce, but two simple rules which have been in place from the start will remain.

"One, don't have any complicated contracts that put people off – be good and honest and do deals up front," Bowyer says.

"Two, don't own any honey ourselves. I can't gain trust from people who I am trying to sell honey for if they think I am prioritising mine."

Further to those rules, simplifying the process of marketing customers' honey and best matching it to buyers is at the forefront of the management team at Mānuka Orchard's thinking. Accordingly, the beekeeping industry should keep their eye out for some big innovations coming soon, Bowyer signals.

Maintaining open and effective communication with their clients, and prospective clients, is crucial too. So, they will continue regular email updates and host a second Mānuka Orchard Expo Day at the facility in July. The first hosting of the event in winter 2020 drew beekeepers from around the North Island, as well as industry suppliers and several

experts who spoke to the gathering.

So, while the Orchard has already provided plentiful "fruit" for beekeepers, it won't stop now and the owner says it is beekeepers that have ultimately made it all possible.

"Through beekeepers' support we have managed to grow this system of honey extraction, storage and sales. Tania and I want to thank our clients for that," Bowyer says, adding "If they keep on supporting us, we can keep on growing for them." ■



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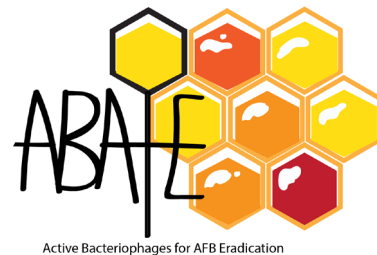
Phage Research into AFB Prevention Gets Funding Boost



Research into the potential use of bacteriophages as a treatment against American foulbrood (AFB) infection in beehives has gained the financial backing to continue for another 18 months, moving it a step closer to potential field trials.

Dr Heather Hendrickson's lab, which she has relocated from Massey University in Auckland to Canterbury University in Christchurch this year, will continue the hunt for phages which can kill off AFB pathogens and potentially prevent infection in hives, as well as the next steps in the research dubbed "ABAtE".

New funding secured totals \$140,000, made up of \$100,000 from the Agriculture and Marketing Research Development Trust (AGMARDT) and \$40,000 from the Honey Industry Trust.




"We are really lucky to get this money and I would like to thank both organisations for their support of our research," Dr Hendrickson says.

PHD student Danielle Kok, who is working on the ABAtE project, plans to relocate to Christchurch to continue the "phage hunt" while also working with Dr Ashley Mortensen of Plant and Food Research to carry out some critical testing of honey bee larvae and the impact of AFB bacteria and phage combinations on them.

"At the end of this season we have managed to get a little bit of larvae testing done with Plant and Food Research, but there was something weird happening with the experiment. So, we would really like to repeat that. This funding will allow us to do that," Hendrickson says.

"We have to carry out more of the larvae tests and then once we have established the safety of the bacteriophages, we need to do field trials. So, it is about scaling up to the point of doing field trials. We have got a lot of support from industry, in terms of where we could carry out the trials, but it is about getting to the point where we can. This funding is a big help in that regard.

"There is very little you can do without ongoing funding, but we are lucky in that people feel this research is really important to do and we have a great crew working on it." 



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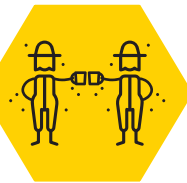
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Bees Keeping Olivia Young “In Every Way” at 89



At 90 years-of-age, how many beehives do you plan to keep? Auckland Beekeepers Club (ABC) life member and 89-year-old Olivia Sheehan can answer that question with confidence – she still plans to have her five! We caught up with the beekeeping stalwart to find out what motivates her to keep popping the lid on those hives, how her relationship with the local club has grown through the years, and how she has gone from 1960s California to an idyllic home in manuka and pohutukawa clad ranges.

“I have done a hell of a lot in my life,” Sheehan says of a journey which began in Maryland, USA, 1933, but only saw her enter retirement this year.

“I love it,” she says of her career as a mental health nurse, which she continued upon reaching New Zealand’s shores in 1968.

“I’m really, really, really sorry I gave it up.”

Despite her advancing years, she’s not hurrying to put herself in a similarly regretful situation when it comes to her bees though.

Her five hives will stay on her Karekare property, a bush clad hillside overlooking Auckland’s Piha beach. She has called the spot home for most of her 54 years in New Zealand and her hives have done the same since Sheehan first dived into beekeeping in 1986.

At that time she decided she needed a hobby to dedicate herself to – “something else to do on the weekend other than cut the bush back”. A story in the local newspaper caught her eye.

“There was a beekeeper on one side, an elderly couple with a white house, white car and white washing on the other side,” Sheehan explains, 37 years on.

“They were suing him because of all the little brown spots on their washing, white house and white clothes. So, I rang him and said, ‘you need to get rid of some hives’. He was not amused.”

While that deal never got off the ground, she soon found a local beekeeper willing to part with a hive.

“I wrestled it up to my section, which is quite steep, and next morning I opened it up and they came out all over me. I thought, ‘hmmm I need to know a bit more about this’. So, I asked somebody where I was working and they said, ‘come to the club’. So, I did.”

Not only was she glad to have joined the club – with members providing a wealth of knowledge for a fledgling beekeeper – but the club has benefitted from the now 89-year-old’s contribution. Right from when she first joined she has had the role of maintaining the membership journal and has served many years



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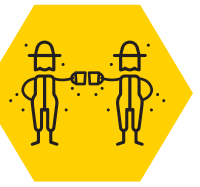
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Octogenarian beekeeper Olivia Sheehan prepares to crack into her five beehives at her bush-clad Auckland property, something she has been doing for 36 years.



on the club committee. The octogenarian was awarded her life membership "a few years ago".

Sheehan credits long-time club member Dennis Waite as an influential mentor, while a most enjoyable part of her role with the club is to welcome members, new and old, to gatherings.

"I've welcomed all the people that have come in. I know a lot of them. I always say 'how are you and how are your bees?' and they tell me."

A self-confessed 'people-person', the role has suited her down to the ground, much like her long career as a community mental-health nurse.

While certain tasks in the hives provide their challenges at her age, it is the support of the club and its members that is now paying her back for her contributions.

"I do have a helper. I taught him and his son about beekeeping, maybe 15 years ago at least. He went to the club and couldn't really get it sorted out. So, I said, 'well come to my place and I'll teach both of you'. So, I did and now he and his now grown-up son help me out."

At one point Sheehan kept as many as 11 hives, but alongside her nursing work it became too much. Now her five hives keep her young in every way she says.

"I love working with them. I love watching them. They don't love me. I don't buy queens and I let them do it naturally. So, I have bush bees and because I live in the bush, they do a fantastic job," Sheehan explains.

That "fantastic job" resulted in the top prize in the hobbyist section of the national honey awards in 2011, for her Karekare manuka honey.

"Watching bees is like a meditation, it's very calming. They're busy. I'm not. I'm just watching," she explains.

As if she was not busy enough for someone knocking on the door of 90, Sheehan also teaches yoga, so knows a thing or two about meditation.

Previous to landing in New Zealand she had spent a period in California in the 1960s and while she says "I wouldn't have thought so" to the implication she might have a bit of the hippy vibe of that era, it has certainly been an interesting journey so far. The trip to New Zealand itself was amongst a crew of five on a South Pacific island-hopping yacht in 1968, before falling in love with the country she has called home ever since. Her travel has continued though and Sheehan says she has visited both Antarctica and the Arctic Circle, "and about 100 countries in-between".

Despite having seen many sights, her home in the western edge of the Waitakere ranges overlooking the sea and nestled amongst 150-year-old pohutukawas, holds a special place for Sheehan. It will be her home for a while yet, and her bees too.

"I can't see any reason to stop beekeeping," she says, adding, "If I can climb the hills that are around here when I'm 90 or 92 or whatever, I'm going to keep bees." 🐝



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Sugar for the Bees



BY DAVE BLACK

If you're a beekeeper, you probably think about sugar a lot, whether you know it or not. Science writer Dave Black takes a deep dive into the honey bee's relationship to sugar, the various types, and how there is more to nectar than what you might think.

Biologists talk about four essential types of 'molecules for life': proteins, carbohydrates, lipids and nucleic acids. Beekeepers think about carbohydrates a lot.

Sugar is the generic name we use to describe soluble carbohydrates, or 'saccharides'. Insoluble carbohydrates are dubbed polysaccharides and, being large and insoluble, are frequently used for their structural properties – the exoskeleton of the bee is actually made with the polysaccharide chitin, derived from glucose.

The soluble saccharides, that we call sugar, are generally used to provide energy for getting around, to power the chemical reactions that make bees tick, or turned into a form (like a lipid) that allows them to be stored to use later.

The 'sugar' bees use, either collected from nectar or fed to them directly, is mostly a mixture of three sugars, sucrose, glucose, and fructose, but they can use others. Sucrose is a di-saccharide, because it's made of glucose and fructose mono-saccharides joined together. Scientists, being an orderly lot, give sugars names ending in -ose so they are easy to spot.

Bees use a lot of sugar. The best estimates we have suggest that a resting bee will use a little less than 1.0mg/hr and a flying bee will use 10-14mg/hr. When you start to do the arithmetic for 20,000-60,000 bees, for 365 days, you can arrive at budgets in the order of 300-400kgs of syrup/nectar that bees will need to sustain themselves in a year, and that's without allowing for your 10%.

The natural source of sugar for bees is plant nectar and/or insect honeydew. There are some significant differences between

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these, as well as considerable variation within each source. Sugars that bees are understood to use are glucose, fructose, sucrose, trehalose, maltose, and melezitose, but floral nectar is known to contain at least 37 different sugars and an abundance of other things, all both good and bad for bees. Nectar has a lot of things going on. It's provided as a food for fortunate allies, but it must be defended from thieves, and if it becomes contaminated by something, the plant has to protect itself. Besides chemistry, there's a whole microbiome in nectar.

It is important to recognise that it is not just a sugar solution. The quantity of the three main sugars (glucose, fructose, and sucrose) in nectar is pretty consistent for a single species of plant, but the total sugar concentration can vary from 8%-80% (20%-30% is probably the most common) across species and this can be almost all sucrose (like avocado) or nearly all glucose with fructose (rata is notable for its glucose content). The rest isn't just water. Lipids can be present in high enough amounts to be visible: the nectar from jacaranda flowers appears slightly milky because of the lipids in it.

There are also small quantities of amino acids and proteins, vitamins, hormones, alkaloids, phenolics, terpenoids, metal ions, and of course many more sugars: some, if not sufficiently dilute, can be toxic. For now, we don't understand either the dietary significance of all the constituents of nectar, or their ecological implications for floral visitation or pollination. However, we do understand that we cannot completely replace nectar or honey



A honey bee searches for nectar, their main source of carbohydrates, in a vipers bugloss flower. But what makes up this "sugar for the bees"?

Photo: Peter Bray.

with manufactured sugar solutions, and there are instances when nectar and honeydew are not perfect bee foods either.

Dave Black is a Bay of Plenty based hobbyist beekeeper who now works in the kiwifruit industry. He has a degree in Environmental Science and for the past 25 years he has been reading and writing about bees and beekeeping. His essays are available at www.beyondbeebooks.substack.com 🐝

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How Should we Think About the Ukraine?



BY IAN FLETCHER

How should we think about the war in Ukraine?

It's certainly the end of the post-World War Two settlement – a settlement amended but not fundamentally altered when the cold war ended in 1989-91. Like the long European peace after the end of the Napoleonic Wars from 1814-15, the post war settlement has facilitated good things: the EU has brought permanent peace to most of Europe, China and China's people have been lifted – by their own efforts – from dire deprivation to a decent middle income. India may well be on the same path. Horrible diseases have been pushed back almost everywhere. Millions of people have seen grim, grinding poverty alleviated. There's a lot more hope in the world now than in 1945.

Now that's all at risk. The war is already accompanied by poverty, disease (polio is spreading in Ukraine) and a shattering loss of hope. What does it mean for New Zealand?

First, for us – on the other side of the world – it's our first "economic" world war: the first two world wars involved our soldiers as well as the economy. Today, for us, the economic choices and consequences come first.

First, inflation. We can see commodity prices going up, wages too, more protectionism and actual shortages of important food and industrial products for the first time in decades. Good news for dairy producers (rising prices), bad news for an economy still dependent on imported fuel. Maybe switching off the Marsden Point refinery will prove a costly mistake. Higher inflation means higher interest rates, higher input costs and maybe higher wage growth. But it's bad news for mortgage payers, and it may mean more of us head overseas for higher-paying jobs.

This will lead to a more fragmented global economy. For New Zealand, having worked so hard for a rules-based global system, it's a real setback. Market access opportunities will be less certain and less predictable, and we will inevitably be under pressure to take sides.

And there are sides: we've seen a strong and effective Western response against Russia. We're more or less part of that. But it's worth remembering that China, India and other major economies are either on Russia's side or firmly on the fence. The UN vote against Russia saw an overwhelming number of countries vote with Ukraine, but countries amounting to over half the world's population either abstained or voted with Russia.

We also need to remember that we depend on exports (including tourism) that rely on long, vulnerable shipping or air

routes, and all depend on oil-based fuels (whatever our zero-carbon aspirations, that's the current truth). Physical or economic disruption to the flow of these products would hit us hard, and there's nothing we can do. Time to make a plan for an oil shock.

It's clear that this will be a long crisis. There will be no overnight resolution. Even if the shooting stops, many companies will be reluctant to return rapidly to the Russian market. The shift in the German mood is more than symbolic. New Zealand needs to be thinking how to survive and then thrive in a world where supply chains are closely scrutinised, and distance is suddenly a real issue.

Can we just sit it out? Maybe. But if the economic conflict spreads and future sanctions include China, we will have a problem. China's frayed relationship with Australia risks pulling us in to an already tense relationship between our two biggest export markets. Our growth model has been selling to China: milk, meat, forestry, tourism. Australia is our biggest source of tourists, and jobs for Kiwis in search of a better life. What will we do if China does invade Taiwan? Time for another plan, and some serious investment in regional security.

The current kerfuffle over China's proposed agreement with the Solomon Islands is a first test of how we handle this local challenge. Chinese naval visits to the Solomons would put pressure on Australia and help China surround Taiwan. If we help manage the crisis (for that's what it is) we will at least be a player in the region. If we don't, our Pacific neighbours will know we're nice but fundamentally unreliable.

Domestically, the economic challenges are more acute: improving skills, better use of technology, tackling productivity are now even more important. So far, our debate has lacked urgency.

This is all part of the same crisis of world order: Russia's invasion of Ukraine, and some of China's actions too are fundamentally saying the nationalism trumps globalism, and self-interest based on armed power alone is the legitimate arbiter of success. As a small country that can't ever be in our interest. We can choose to meet that challenge both at home and abroad, or not. We can't escape it.

Ian Fletcher is a former chief executive of the UK Patents Office, free trade negotiator with the European Commission, biosecurity expert for the Queensland government and head of New Zealand's security agency. These days he is a commercial flower grower in the Wairarapa and consultant to the apiculture industry with NZ Beekeeping Inc. 🐝



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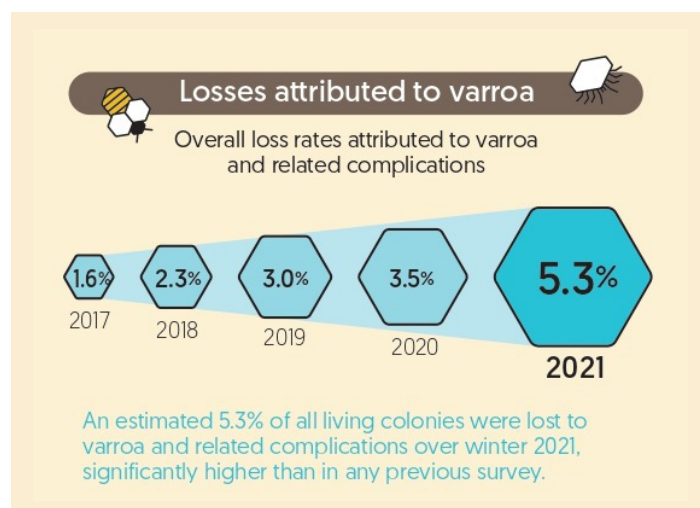
Col Loss at a Glance...



BY JOHN MACKAY

By now, I hope everyone has had a chance to look at the new Colony Loss Survey results. No excuse, Landcare Research even produce the 'at a glance' **infographic** that gives the information in a nutshell. If you haven't seen it, I'll wait . . .

My thoughts for previous years have been losses have been "fairly static at around 10 percent". And yes, if those words 'fairly static' convey a certain complacency then, guilty.



However, the latest results show a marked increase in colony losses this past year – up by 20%, from 11.6% to 13.6%.

Predicted losses varied around the country – from a low of less than 9% in lower North Island, up to almost 19% in middle North Island. In our work looking at bee viruses, noseemas and AFB, we have heard of major losses in many areas of the country and so we would expect these losses to be a minimum at best.

For the first time, losses due to varroa have been the major contributor, with varroa-related causes surging by 50% to 5.3%.

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Given that many of the queen issues reported may also be due to varroa (viral infection of the queen for example) then varroa may be responsible for over half the total losses. With the reports of beekeepers walking away from hives or unable to afford treatments in the current economic climate then perhaps these results aren't surprising. Looking at the varroa-related data more closely however does show some interesting information:

- 4.4% of beekeepers did not treat at all.
Was this question missed on the survey? Or are these the beekeepers who could not afford to treat?
- 13% of beekeepers treated their hives with only Bayvarol (synthetic pyrethroid) – not a best practice exercise as it promotes the evolution of resistance in varroa (genetic changes in the varroa which lead to Bayvarol not working at all). And yes, while 10% of beekeepers treated with solely amitraz products and ~10% with oxalic acid and other products, resistance to these has not been reported elsewhere in the world.
- Given the inaccuracies in monitoring varroa levels with methods such as sticky boards (the varroa get removed by something looking for a snack), then it is fair to say that most beekeepers are not adequately monitoring varroa levels in their beehives (only 31% doing sugar shakes or alcohol washes).

Two reasons are usually given for monitoring – one is to indicate when levels are high enough to warrant treating (rather than calendar timing). However, often treatment time availability is governed by the need to get treatment off before collecting a crop (especially if using amitraz in Spring) or the desire to have treatments out before winter. Therefore, one might question the need to monitor before treatment, given that you're probably treating anyway. However, to know if a treatment has worked to reduce varroa to appropriately low levels then monitoring after treatment should be performed as a best practice. For more on this, check out the Mite Monitor program from Martin Laas and Rae Butler covered in another article [here](#).

So, should we be alarmed? The increase is sharp and varroa has become the major cause (if it wasn't before). Perhaps more alarming is the lack of industry's ability to mitigate these issues. We are reliant on hope: hope that scientists will be sufficiently interested in the issue to obtain their own funding to work on the area, perhaps hope as well that the economics of the industry improve and effective treatment becomes more commonplace. Unfortunately, hope tends not to make the most sustainable of business models.

John Mackay is a molecular biologist and the technical director of Gisborne-based lab dnature diagnostics and logistics, as well as a hobby beekeeper. 🐝

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Post Season Planning



BY ANDREW STRATFORD

A good friend of mine is keeping around 230 colonies, up from about 160 last year. He had terrible overwinter losses last year and started the season feeling very discouraged.

Amazingly, he goes into this wintering season in really good shape. He harvested a relatively small crop, but put a lot of effort into preparing for next season. He made a plan, asked a lot of questions and worked hard to make sure he followed through on his plan. To his credit all his colonies now have young queens and plenty of bees, were treated early and are carrying fairly solid loads of honey to winter on. This is a recipe for success.

One of the areas my friend did well in was being humble enough to understand he had some issues that needed addressing. He bit the bullet and made plans to change some of his behaviour and some of his processes. He picked my brains on things he needed help with and then did the work needed. He goes into this coming winter with peace of mind and next spring should face the coming season with lower losses and far better colonies. Well done mate!

At this time of year most beekeepers are ready for a break and we all need it. Reality is, despite working hard, you may not be ready for winter. Planning is critical to success and if you haven't planned, you're likely to meet spring not in the best possible shape. You may be nervous about what you'll find when you open your hives in August. It's probably too late to change that now, however you can change future seasons.

Before you turn your brain into winter mode there are a few things you can do;

1. Be humble and admit you could have done things better.
 2. Think honestly about the areas you didn't do so well in this season.
 3. Write them down and start to form a plan so you don't repeat the same mistakes next season.
 4. Also think a little about what you're likely to face in the Spring and how you might remedy that.
 5. If you have questions that you don't have answers for, find someone who does. Either a better qualified beekeeper or someone online (look for someone tried and true) and put aside some of your downtime to search out the answers.
 6. Then listen, make a specific plan and follow through on it.
- My friend will then be in good company.

Remember the 6 Ps – **P**rior **P**lanning **P**revents **P**iss **P**oor **P**erformance.

Andrew Stratford is an apiculture consultant with 30 years beekeeping experience, including as a current business owner. He forms part of MyApiary's management advisory team. 🐝

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Neville Marr Chartered Accountant:

I'm a Blenheim-based chartered accountant, hobbyist beekeeper, and business partner with all of my clients. What's important to me is understanding my clients' business and bringing that personal touch.

Ph 027 276 7682, e: office@marrnz.com, www.marrnz.com.

BEEKEEPING CLUBS & GROUPS

Whangarei Bee Club: meets on the first Saturday of the month, 10am at Whareora Hall (820 Whareora Road, Whangarei). For details go to www.whangareibeeclub.co.nz/, select 'About Us' and then 'Club Day Invitation'. See you there.

Franklin Beekeepers Club: 137 Sim Road, Paerata, Auckland 2580. Meetings on second Sunday of the month, 9.45am start. www.franklinbees.co.nz.

Hawkes Bay Bee Club: Pakowhai Hall, Pakowhai Road, Pakowhai (opposite the shop) from 7pm on the first Thursday each month (except January). Email: beekeepershbinc@gmail.com

The Buzz Club Otaki: Waitohu School Hall, Te Manuao Rd., Otaki. Meetings every 3. Wednesday of the month, 7-9pm. Contact: thebuzzclubotaki@gmail.com.

Wellington Beekeepers Assoc.: Meets on the first Wed of each month (except Jan) at 7:30 pm at Johnsonville Community Centre Main Hall. Beginners class at 6:45 pm.

www.beehive.org.nz Email: secretary@beehive.org.nz

Nelson Beekeepers Club: Waimea Lounge, A&P Showgrounds, Richmond. Meets first Tuesday of the month (except Jan) 7-9pm.

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