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Apiarist's Advocate

News, Views & Promotions – for Beekeepers – by Beekeepers

Fire, Fury and a Whole Lot of Hot Air

We explore what led to the mass destruction of beekeeping equipment in Canterbury

Fire, Fury and a Whole Lot of Hot Air

It's a New Zealand beekeeper's worst nightmare – burning diseased hives or beekeeping equipment on a large scale. On May 14 Springbank Honey owner Steven Brown went public with emotional pleas on social media for help in fighting what he deemed an unlawful order to destroy "10,000 boxes" of beekeeping equipment which burned behind him. Now he is threatening legal action and vowing to continue his fight for compensation, while the Agency who ordered the destruction say compliant beekeepers have nothing to fear, and destruction of equipment on such a scale is lawful and only a last resort in their ongoing effort to help beekeepers eliminate the disease. *Apiarist's Advocate* editor Patrick Dawkins speaks with both Brown and the Agency he opposes in an attempt to push through the hot air and best discern the facts of the sorry tale.

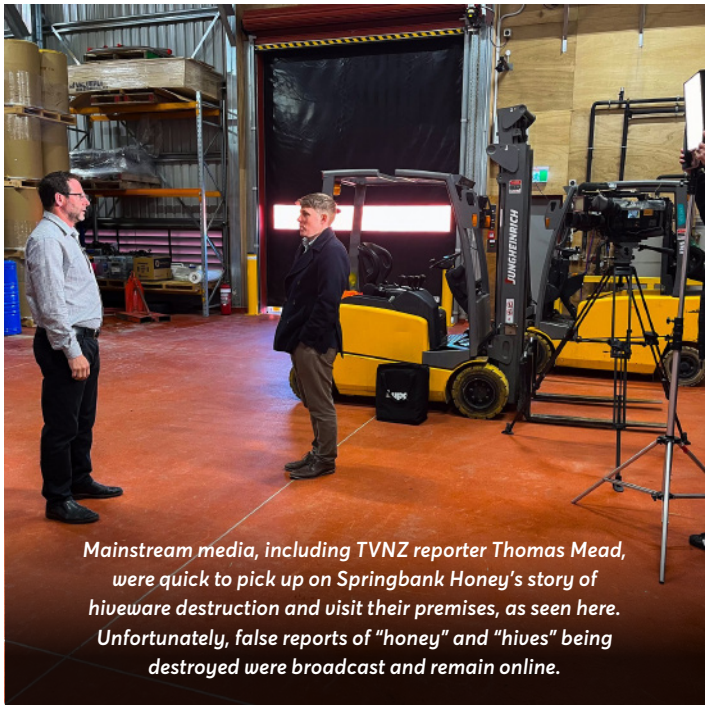
Few things can gain a headline like a big fire and Springbank Honey in North Canterbury, in their desire for public support, have well harnessed theirs. The conflagration, which was the outcome of an order from the Management Agency National American Foulbrood Pest Management Plan (aka 'the Agency') to destroy, under the Biosecurity Act 1993, served as a sorry but spectacular backdrop to a series of photos and videos posted and boosted via payment to Facebook, Instagram and YouTube over several days from May 13. An ashen-faced Brown made pleas to the public for support and took viewers inside his shed in an attempt to explain why he believed the order to destroy was unjustified.

Mainstream media were quick to pounce and the story was covered by TVNZ, Newshub and Radio New Zealand, among others.

"Nearly one in two people in New Zealand have seen this," Brown says of their coordinated publicity campaign across social media, speaking from his home in Lees Valley, North Canterbury on May 26.

"And we are continuing to push it into the political sphere and really get it out on social media. And now we're pushing it throughout the world. So, it will continue getting publicity throughout the United States and Europe."

A coordinated social media campaign from Springbank Honey – which has included several pleas from owner Steve Brown for help, but also a series of contradictions – has gone viral, with the beekeeper saying it "reached" over 2million people in New Zealand alone in May.



Mainstream media, including TVNZ reporter Thomas Mead, were quick to pick up on Springbank Honey's story of hiveware destruction and visit their premises, as seen here. Unfortunately, false reports of "honey" and "hives" being destroyed were broadcast and remain online.

However, the story and picture of New Zealand beekeeping practices which Brown and Springbank Honey are telling the world are littered with contradictions, inaccuracies and allegations which Brown has, thus far, been unable to provide evidence of. The highly inflammatory postings – literally and figurately – variously claim "all" Springbank Honey's boxes were condemned, while at other points Brown says it's "all these hives" in the firing line. Thus, it is perhaps unsurprising that the Newshub Live at 6pm television broadcast perpetuated the inaccuracies when they led their bulletin on May 15 claiming "nearly two million dollars' worth of honey" had been destroyed, a story which remains online, among others with similar falsities.

Clarification of the facts remain difficult, with the Agency constrained under privacy rules to speak to specifics of a beekeeper's situation, and Springbank Honey as yet unwilling to provide the Order of Destruction they received, any AFB spore test results on their equipment, or a waiver to have their AFB history released.

SPRINGBANK HONEY'S CLAIMS

Brown has since clarified that his claim is that 10,000 boxes, each holding 10 frames, were ordered to be destroyed. His grievance is that the Agency overreached when they went into his shed where that hiveware was stored and tested the equipment for spores of AFB. Following positive test results from some of the swabs taken, the destruction order was made by the Agency.

The Springbank Honey owner is not disputing that spores were identified in his equipment, saying the counts were 2000 and 31,000 spores and that at the levels detected were not a risk to further contamination, and destruction was not required.

The Agency has recently begun using the Foster Method for spore testing of beekeeping equipment not in use on hives, saying without brood present it is difficult to diagnose clinical AFB.

Brown has also variously made claims that some of his personal details were released online, although could not provide specifics, and that an AP2 "spat in his face". The later appears to be an exaggeration of an earlier claim, made both in his online postings and to the Agency directly, of a person "blowing raspberries" in his face. The Agency investigated the April 2024 visit in question, and found the claims to be unsubstantiated and supposed video evidence, which Brown said he possessed, was never presented.

Legal action will follow Springbank Honey's publicity campaign the owner says, as they seek compensation for loss and an apology from the Minister for Biosecurity.

THE AGENCY'S POSITION

While Brown's emotive attempts at garnering publicity for Springbank Honey's cause have been 'fiery', the Agency tasked with supporting beekeepers in eliminating AFB from managed beehives has sought to fight it with a cooler approach. Since Springbank Honey went public in mid-May the Agency has fronted gatherings of beekeepers in Otago, Southland, Christchurch and

Tasman, as well as addressed various forms of media, including this publication, and further clarified their communications on social media and via direct emails to beekeepers.

"There are a number of other beekeepers who encounter AFB and manage it appropriately," AFB PMP board Chair Mark Dingle says.

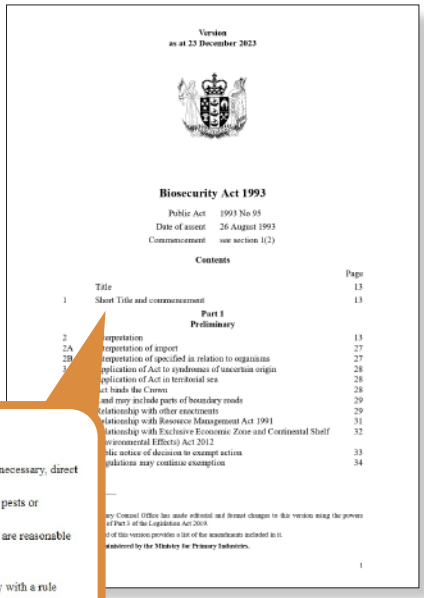
"The Pest Management Plan relies on individual beekeepers to check their hives, identify AFB, report it to the Management Agency and destroy those hives within seven days. So long as they do that, we don't have an issue. The notice to destroy is a last step in a lengthy process. We will issue a notice to destroy because all the things leading up to that point have not been complied with."

AFB PMP national compliance manager Niha Long says they must respect the Privacy Act and thus cannot discuss specifics of Springbank Honey's hive locations and history in managing AFB without a waiver to do so from the business, which owner Steve Brown says will not be forthcoming.

AFB PMP board Chair, Mark Dingle says the "vast majority" of beekeepers in New Zealand comply with the Pest Management Plan, but there is "a small pocket who, for whatever reason, think that the rules don't apply to them".

AFB was first detected in New Zealand in 1877 and by the 1890s it was having a large, negative, impact on honey crops. Since the 1950s beehives have been burned in New Zealand in order to control spread and eliminate the disease. AFB kills honey bee brood (unhatched bees) and is spore based. It can be clinically diagnosed in living hives, which typically relies on sight and smell assessment of the brood.

The Agency acts under industry body Apiculture New Zealand (ApiNZ) which is named as the management agency responsible for implementing the Biosecurity (National American Foulbrood Pest Management Plan) Order 1998. In essence The Plan is supported by beekeepers by way of an annual levy for the primary objective of reducing AFB reported incidence by an average of 5% each year, towards the end goal of eradicating the disease from managed honey bee colonies.

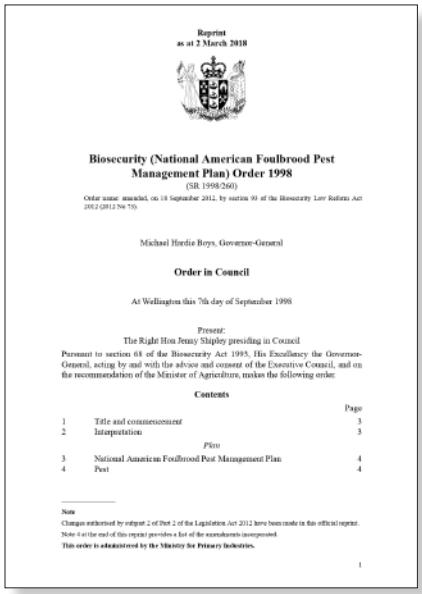


Version
as at 23 December 2023

Biosecurity Act 1993

Public Act 1993 No 95
Date of assent 26 August 1993
Commencement see section 1(2)

Contents



Reprint
as at 2 March 2018

Biosecurity (National American Foulbrood Pest Management Plan) Order 1998

(SR 1998/260)

Order name amended, on 18 September 2012, by section 90 of the Biosecurity Law Reform Act 2012 (2012 No 73).

Michael Hardie Boys, Governor-General

Order in Council

At Wellington this 7th day of September 1998

Present:
The Right Hon Jenny Shipley presiding in Council

Pursuant to section 68 of the Biosecurity Act 1993, His Excellency the Governor-General, acting by and with the advice and consent of the Executive Council, and on the recommendation of the Minister of Agriculture, makes the following order.

Contents

Note

Changes authorised by subpart 2 of Part 2 of the Legislation Act 2012 have been made in this official reprint.

Note 4 at the end of this reprint provides a list of the amendments incorporated.

This order is administered by the Ministry for Primary Industries.

1

Section 122 of the Biosecurity Acy 1993 which the AFB Management Agency says gives them power to order destruction of material which 'there are reasonable grounds to believe harbours a pest or unwanted organism', such as AFB spores.

122 Power to give directions

(1) An inspector or authorised person may, whenever that inspector or authorised person considers it to be necessary, direct the occupier of any place or the owner or person in charge of any organism or risk goods—

(a) to treat any goods, water, place, equipment, fitting, or other thing that may be contaminated with pests or unwanted organisms; or

(b) to destroy any pest or unwanted organism or any organism or organic material or thing that there are reasonable grounds to believe harbours a pest or unwanted organism; or

(c) to take steps to prevent the spread of any pest or unwanted organism.

(2) An inspector or authorised person may, by notice in writing, direct any person who has failed to comply with a rule included in a pest management strategy to comply with that rule.

(3) An inspector or authorised person may direct the owner or person in charge of risk goods or a craft to take steps to avoid, remedy, or mitigate an effect of non-compliance with a pathway management plan.

Section 122: replaced, on 26 November 1997, by section 83 of the Biosecurity Amendment Act 1997 (1997 No 89).

Section 122(3): inserted, on 18 September 2012, by section 52 of the Biosecurity Law Reform Act 2012 (2012 No 73).

The AFB PMP Agency acted under the Biosecurity Act 1993 and the AFB Order to which it gives effect when they ordered Springbank Honey to destroy what they deemed was beekeeping equipment posing a risk to their own and other beekeepers' hives, but Springbank Honey owner Steve Brown says the equipment did not pose a risk and wants compensation and an apology.

An email to all registered beekeepers in New Zealand on May 28 clarified many aspects of the Agency's response to Springbank Honey, including the use of spore testing.

'According to Clause 35 (2) of the AFB NPMP the methods approved for use by the Management Agency are required to be *"methods generally recognised by the scientific community as effective in the detection of American Foulbrood"*. While spore PCR tests is currently not mentioned within the current AFB NPMP, The Management Agency uses this new technology as an alternative tool where the AFB status of a hive or equipment is unclear. It is 100% reliable and is already used to support our decision to destroy under Clause 25 of the AFB NPMP ('Destruction of beehives posing risk') when encountering dead out hives or abandoned hives. Spore tests are also used to verify the suspicion that a systematic failure of AFB management exists in a beekeeping operation and that AFB-contaminated equipment has been created over time within the beekeeping operation,' the email stated.

"The vast majority of the 8800 beekeepers out there know what their responsibilities are, and follow through and do what is required of them. There is a small pocket who, for whatever reason, think that the rules don't apply to them," Dingle says.

WHERE THE SPARK EMERGED

While Springbank Honey has complied with the order to destroy their equipment, Brown is of that group of beekeepers who believe the Agency's interpretation of the laws are wrong.

"The AP2 and the Agency doesn't know anything, and that's the problem," Brown says.

"I've worked beehives for 35 years. I started as a kid. I did queen raising for years. I've lived, breathed, slept beekeeping. I've worked in places where they did have AFB problems and helped solve AFB problems. These people don't know what they're doing," Brown says.

He disagreed with an Authorised Person Level 2 (AP2) inspector's diagnoses of clinical AFB in Springbank Honey hives, saying he believed the majority of the cases to be sacbrood, which is not infrequent in their organic hives.

"I have no issue with them checking my hives. I have an issue with the level of care they took on my hives and I have an issue that they didn't actually know what they were doing," Brown says.

"I don't trust the way that they test the hives in the field. And I don't trust the way that they're using the testing to make a decision and I don't believe that decision is correct."

Springbank Honey's history of compliance or non-compliance with AFB management and the Agency is publicly unknown.

Roping out of AFB infected brood, a clear sign of a clinical infection in a beehive which should be destroyed in New Zealand.

"The Privacy Act prevents us from releasing or publicly discussing beekeeper's hives and AFB incidence," Agency national compliance manager Niha Long says.

"Regardless of whether a beekeeper is compliant or not, we must respect their privacy."

Brown would need to provide written consent for the Agency to release Springbank Honey's data. While that would undoubtably help educate both the beekeeping industry and general public to the issue at hand, Brown says he won't be providing that waiver.

FANNING THE FLAMES

So, while Springbank Honey's history with AFB is unclear to the general public, the Agency has been clear about the sort of behaviour from beekeepers which leads them to spore test equipment which is not on hives, and the reasons for their actions.

"Having AFB in your operation is never the problem," Long says.

"What you do, or don't do, after that is what catches our attention. By and large, we allow beekeepers to self-manage, report it and destroy within seven days. In those cases, there is no need to intervene, but where we have got strong evidence to suggest that is not happening, and where we have reached out proactively and asked about the issue they are dealing with and whether they need help, but got blanket denial and pushback, we get more interested. And we have to get more interested, for the protection of other beekeepers.

"90% of inspections we do, beekeepers welcome. We notify beekeepers that we are coming along, they might grumble a little bit, but there is no evidence of manipulation or hiding things. What is there to hide? We are there to take an accurate snapshot of the health of your hives. Where there is evidence they have been manipulated or moved and we have found AFB in significant, high levels, which have not been reported, then we must look closer. Then that rings alarm bells for us."

SPREADING IT AROUND

So, what would have happened to the "10,000 boxes" and associated frames had the Agency not intervened by spore testing and ordering destruction? "They would go on to beehives," Brown says, clear in his plan.

"You put the boxes on to hives, you then cheek the hives for clinical disease, the bees put honey in them and, if you find clinical disease, you then burn the hive. We have followed that plan. So yes, those boxes would have gone on to living hives. Those hives, there is no spread. The only way they can spread AFB is if the hive dies with AFB. The boxes are not spreading it."

When asked to clarify if taking a super from one hive with AFB and putting it on another and thus creating two hives with AFB was seen by him as spreading the disease, Brown admitted that is "correct", but he has confidence his beekeeping team can then halt the spread in the field.

"Even if 50% of those hives or boxes were diseased, you would still not burn the boxes … You take the gear, your keep the gear, you isolate the apiary, you check readily and burn the hives that come down with it. That's how you deal with AFB."

And that's again where Springbank Honey and the Agency disagree, with Long saying the risk of that approach is too high.

"If you are finding spores in your gear it is because it has been associated with a clinically infected hive. So, you obviously haven't caught on to it at the right time, or you have identified it and said 'I can live with it'. Unfortunately, a minority choose to try to live with it and do not separate or quarantine the gear and the biosecurity risk is too high."

Brown says they have traceback systems that mean they can track which honey supers (boxes) came from which apiaries and thus limit spread. Long says, if Springbank Honey have such systems, they were not communicated to the Agency.

ANYONE THERE?

And communication, or lack thereof an effective form of it, has clearly led the two parties down this path of destruction.

"We have asked Steve and his employees to accompany us [during inspections] and that has not been happening. Most of the time we have had issues with lack of communication. We have made efforts to communicate with this beekeeper, but sadly it has not been reciprocated," Long says.

Brown says he has spoken to Long and his local Authroise Person Level 1, Marco Gonzalez, on various matters though. However, he says he is "too busy" to accompany Agency inspectors on hive visits.

"I'm happy to talk to someone who is at my level. But I'm not here to talk to juniors sorry, I'm not," he says.

"There's very few beekeepers like me. I sell nearly 10 percent of New Zealand's honey. There are plenty of experienced beekeepers in New Zealand, but not on my level … I'm the best at what I do."

Even once an order to destroy equipment was made, there was a breakdown in understanding of the exact requirements and Springbank Honey appears to have undertaken unnecessary measures in destroying equipment which had not been on beehives.

"The notice of direction was very clear and we would not issue a notice of direction to destroy new gear, because new gear has not seen bees, at all. There is no scientific rational to issue a notice to destroy something that has never seen bees. The notice is very clear on used equipment and tells you where it is located," Long says.

Brown decried the need to burn such equipment in one of the videos filmed between receiving the order to destroy and the destruction taking place. Asked why, in the seven days he was allowed, he didn't seek to clarify if this was a requirement of the order, he says he did try to phone the Agency but got no answer. Why didn't he push harder to communicate his concerns?

"I had no intention of dealing with crooks," Brown admits.

So, the unused boxes and frames went up in flames.

"If a beekeeper had, at any time, confusion or is unclear about the notice, then we always tell them to please contact us to get clarification before you action it, because we would rather have a chat about it," Long says.

DAMAGE DONE

So, new equipment or used, highly infectious or nay, the destruction is complete. And now, Brown wants compensation for his losses, saying 10,000 boxes, each with 10 organic wax frames, were on the Springbank Honey books for $200 each, a total value of $2million.

It's a value which is nearly double what full replacement cost appears to be though, let alone what used items would sit on a balance sheet at. Major South Island hiveware supplier NZ Beeswax list large orders of assembled, dipped and painted, full-depth boxes ready to go into the field at just $32 each. Frames embedded with organic wax are priced at $7.75 each, meaning a new box holding 10 frames would only reach a total value of $109.50, making the Springbank Honey owner's claims appear fanciful.

However inflated the values may seem, the Agency says it ultimately doesn't matter because there is no avenue to claim compensation under the current laws.

"The Biosecurity Act gives effect to the PMP and, unlike some other PMPs, the AFB PMP specifically states there is no compensation," Dingle points out.

"You want to include compensation and the levy is going to skyrocket."

Springbank Honey owner Steve Brown believes the Agency responsible for helping beekeepers eliminate AFB from their beehives and ultimately New Zealand are going about it the wrong way, acting outside their powers, and his management approach would be more appropriate, saying "There's very few beekeepers like me … I'm the best at what I do".

ABANDONING THE FACTS

For Brown though, it's the goal of the New Zealand beekeeping industry to eliminate AFB that is fanciful, not his claims.

"It's not going to happen. Anyone with half a brain knows it is not going to happen," he says.

A big hurdle to eradication is the number of abandoned beehives in New Zealand, due to a downturn in honey prices in recent years, a fact the Agency has previously acknowledged. However, Brown has sensationalised the issue in Springbank Honey's online postings, placing the number of abandoned beehives at a whopping 500,000. With just under 600,000 registered honey bee colonies in

Springbank Honey owner Steve Brown destroys hiveware from his North Canterbury business after being ordered to do so by the AFB Pest Management Plan Agency in the name of eliminating the disease from New Zealand. It's an order he disagrees with and says he will fight through the courts and social media.

New Zealand as of 2023, following a peak of 918,000 in 2019, Brown's claims fall well outside the data available.

A reduction in hive numbers does not mean the hives have been abandoned either and, when questioned on the issue, the Agency says in the last 12 months it has been made aware of just 682 colonies across the country that were unregistered and had to be destroyed as posing a risk. About half of those apiaries were in North Canterbury though they say, and an AFB problem was not found in the equipment.

MORE TO COME?

So, while Brown may not have presented the evidence to back up many of his claims, it hasn't stopped them spreading far and wide and he says Springbank Honey will continue to fight – in court and online – for what they believe is right, and that is changes to the Biosecurity Act.

"At the end of the day this is not about us beekeepers, this is political," Brown says.

"I'm not actually doing this for me. I don't want it to happen to other people and I would love this Act to be changed. What they can do under that Act is so draconian."

It's not the first time he has fronted a drive for change in the beekeeping industry, with Brown's claims that glyphosate was killing his beehives part of a television news report in 2020 which ultimately threatened New Zealand honey exports to Japan and has since lumped significant honey testing requirements onto beekeepers and exporters. The current AFB issue runs the risk of a similar outcome, with honey exports to China already strictly limited to those with tests that prove them to be negative of AFB spores. There's the potential for other countries to follow suit, despite AFB posing no risk to humans.

From Long's perspective, in the day-to-day management of the AFB PMP, the publicity has been intriguing.

"Destroying large amounts of gear has happened, historically, in the sector. The only difference being, there is social media now and there wasn't the same level of social media 10, 15 years ago," she says.

"It has created a lot of emotional response and, because it was so widely shared, a lot of people who are not beekeepers, who are just members of the general public and who do not know about this disease or the Pest Management Plan, and that this is how we deal with AFB in New Zealand have seen it. There was a lot of emotional response from overseas in seeing what they were seeing.

"Once that died down, we found the narrative changed a bit and there was some healthy debate going on between beekeepers and what the right way to manage AFB is. Then the conversation moved to vaccines and antibiotics. Which we are quite thankful that a lot of beekeepers are against. The sector wants to extend into new, high-value markets, and these are not something they are looking to as an option. By and large the support for the Agency remains and we are heartened to see it."

That's a silver-lining of sorts for the Agency, to what has been a large cloud of smoke. Regardless of the hot air surrounding the issues, plus disagreements and miscommunications, a beekeeping business, its owner and staff have all been hard hit.

Brown says they have "had their moments" over a challenging couple of weeks, but adds, "I know I am in the right and we will carry on".

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EDITORIAL

New Zealand Beekeeping's Taste of Modern Media

Patrick Dawkins, editor.

BY PATRICK DAWKINS, EDITOR

May 15, 6.29pm, and my cell phone pinged with a text message 'Paddy and Laura. I hope you are ok with the latest bee-honey drama.' I immediately knew to what my concerned compatriot would be referring, with news of Springbank Honey's big burn-off having garnered media attention in the last 24 hours. I didn't know, but would soon learn, that it had just led the 6 o'clock news where it was said by that most trustworthy of talking heads, Mike McRoberts, that large amounts of "honey" had been destroyed.

I got my fast thumb out and tapped a reply to our concerned former parish Priest – who despite having moved out of town was continuing to keep a close eye on his extended flock! – to explain that we would be fine and that we had recently burned three hives of our own, to prevent more wide-spread destruction in ours or others' beekeeping enterprises.

The next day I spoke to a person whose opinion I much value who posed the question, "what if the AFB Management Agency decide they don't like something you write and come after you?", giving me pause to think further about the rules in place. Laws need to be watertight to prevent improper use of powers, whether we believe the personal currently with those powers are capable of wielding them in an inappropriate manner or not. With that in mind, if the legal action which Steve Brown is promising comes to

fruition, it will be interesting to see if the courts decide there is a loophole which needs tightening in our current AFB rules, or not.

Then there's the court of public opinion, and hasn't this latest incident with AFB, spore testing, and orders to destroy beekeeping equipment been intriguing in that regard.

Stories with such a negative angle are not enjoyable to write for me, but I thought it was important to cover the Springbank Honey story by not just laying out the opinions of both Brown (who I thank for taking the time to speak his part to me) and the Agency (who I also thank for their cooperation and timely response to requests), but by also seeking to corroborate claims made. And that's where it gets difficult, really it is up to Springbank Honey to back up what they are saying with something more than their own – perhaps understandably – emotional response. Without further information, it appears they have actually destroyed more equipment than what they were ordered to do, then used that as a tool to further promote their agenda.

I have heard beekeepers express concern over the ability for one person or business to control a narrative on such a large scale, which they believe to be not only false, but potentially very damaging to their livelihoods. To me, that's modern media and our own media consumption habits coming back to bite us. We know many forms of traditionally mainstream news reporting are struggling – and in a past life I have witnessed firsthand the degradation of a newsroom as the money ran out. Basically, we spend more of our time on social media, and less time consuming what were once well-researched news outlets. Thus, a coordinated social media campaign by people with the time and skills to implement it, can be very effective in putting a completely unfiltered message out into the world.

So, if you don't like it, what's the answer? Well, I never said I had one! But the old traditional and trusted 'mastheads' did, and maybe still can, serve as an information filter that a reader can learn, over time, to trust. That's why I started *Apiarist's Advocate* – my attempt to filter "news, views and promotions" to our industry's little corner of the world, and to give full transparency over who is behind the messages being delivered. The same can't be said of social media and online forums, where anyone can create an account with any name.

So, if you appreciate the effort a publication is making to improve the quality of discussion, do what you can to support them – and these days the best thing might just be sharing properly researched stories on social media, rather than by going off half-cocked in the comments yourself. The way algorithms work, you are actually just adding fuel to the fire of misinformation if you're not careful.

From the perspective of *Apiarist's Advocate*, if you don't like what we are doing, tune out, don't share any of the stories, and don't support our advertisers. If you do like our small contribution to this large world, tell fellow beekeepers about us and how they can subscribe for free, follow us on social media platforms, share our content any way you feel comfortable – there's links to every individual story via our website, and the eMagazine pages all print well onto A4.

But most importantly … support our advertisers! Some of them have provided you this free and independent source of information *continuously* for almost five years.

And, as always, keep in touch – we welcome any feedback (positive or negative) and also any news-tips or story ideas.

editor@apiadvocate.co.nz

Discussion Days Takeaways

From trying to shape better industry representation, to American foulbrood (AFB) management, pollination importance, even tips on running your honey processing facilities, and much more in between, there was a wide range of topics traversed as New Zealand Beekeeping Inc (NZBI) hosted three South Island 'Discussion Days' in May. *Apiarist's Advocate* editor Patrick Dawkins sat in on two to report some of what was discussed.

It's three down, three to go, for industry group NZBI with their South Island events in Southland, Christchurch and St Arnaud at the top of the island, on May 25, 28 and 30, in the books. June will see the group's executive host gatherings in the Bay of Plenty on the 8th, Whangarei on the 11th and Manawatu on the 15th.

Around 30 beekeepers made their way to the Gore and St Arnaud discussions, while approximately 60 attended in Christchurch. A major focus of the get-togethers was to help NZBI get a feeling towards how beekeepers think their industry should move forward, and thus how the group should approach any future contributions towards the Honey Industry Strategy 2024-30. That document was put forward by fellow industry groups Apiculture New Zealand and Unique Mānuka Factor Honey Association (UMFHA) in February.

Conversation on that topic was surprisingly muted in Christchurch, while St Arnaud's event saw a more free-flowing conversation result. Ideas raised included:

- The need for the apiculture industry to be better recognised for the value of the pollination service provided, but at present our industry is "not big enough, we don't get heard" it was said.
- The need for a more coordinated domestic honey marketing strategy to boost consumption.
- A constraint to beekeepers is the lack of information that flows from the honey markets back to producer, giving them a lack of confidence they are receiving the true value for their product.
- "Mānuka alone will not get us to the $1billion goal set. The only way to get there is more R&D. How the industry will support it is the million-dollar question though," contributed Sri Govindaraju of The Experiment Company.
- There was concern in St Arnaud at the potential for a pest management plan for varroa, but the American foulbrood Pest Management Plan Agency's Marco Gonzalez did point out they field a lot of calls from beekeepers wanting their help with neighbouring hive owners who are not controlling varroa well, and they cannot act.
- UMFHA chief executive Tony Wright joined the meetings in Christchurch and St Arnaud, usually happy to take notes, but occasionally called on to try to help clarify parts of the Honey Industry Strategy. Regarding decarbonisation of beekeeping, he warned that the need for higher standards are coming internationally "whether we like it or not".
- NZBI advisor Ian Fletcher chaired discussions in Christchurch saying "the strength of beekeepers is there is no groupthink, but it can also be a major frustration".
- There was concern that honey packers hold sway with government and that beekeepers lack the ability to have common sense ideas put forward on their behalf.

Bookending those more general industry discussions were presentations from experts on a range of topics. Some of the key takeaways from Christchurch and St Arnaud events were:

- On Farm Support is a division of the Ministry for Primary Industries that beekeepers may not be aware of, but can help beekeepers with a wide array of concerns and will try to facilitate solutions. "Don't be afraid to give us a call, we don't charge for our time" offered regional advisor Sarah O'Connell.
- NZBI executive member and vastly experience beekeeper and businessman Russell Berry of Arataki Honey dished

Ashburton Apiaries owner Geoff Bongard speaks to the approximately 60 beekeepers in Christchurch on May 28 who attended the second of New Zealand Beekeeping Inc's six Discussion Days around the country.

out some pearls of wisdom. He implored beekeepers to get together and communicate – "business is done at meetings and afternoon tea breaks". "Control varroa, control wasps" he emphasised, with wasps "thrashing hives" in some North Island areas this past season. "Do not over capitalise and do not put all your eggs in one basket".

- Berry also announced that Arataki Honey was looking to buy propolis for $200/kg pure and they could collect, clean and return mats. He had some advice for collecting and storing the sticky stuff, but "above all", he quipped, "keep your hives alive. Dead hives do not produce propolis".
- Another veteran beekeeper, Geoff Bongard of Ashburton Apiaries, imparted some advice in Christchurch regarding improving honey crops. His business has a 10-year average of 46kg a hive and achieved a 65kg average last year he says, with all hives double queened. He called "good, well-trained staff" their main asset while also stressing the need to keep queens young and ensure protein levels in the hive are maintained in times of natural dearth. They usually undertake at least two rounds of pollen patty feeding in each of spring and autumn and match the patty size to the colony size to reduce waste. "Limited pollen in autumn will limit spring hive strength due to reduced winter brood rearing".
- Bongard also detailed a scientist friend who was having success with a new "stick" medium for dispersing oxalic acid to colonies over a longer period than conventional 'strips' or 'staples', and who is looking for beekeepers to assist with trials.
- The presentation of AFB Management Agency staff Niha Long and Marco Gonzalez were pertinent, given recent high-profile coverage of the Pest Management Plan. Long detailed a five-point plan for advancing the PMP: ongoing upgrades to Hive Hub, implementing commercial beekeeper training around AFB management, Disease Elimination Conformity Agreement reviews with beekeepers, an improved communications strategy which seeks to tell the Agency's story better, and more efficient management of their resources given the decline in levy income in recent years.
- Gonzalez reinforced "the main thing that contributes to AFB is not your neighbour, but your own beekeeping practices" and reassured beekeepers "enforcement actions from the Agency are the last resort and used when other options are not followed … if you are doing the job of AFB elimination, I am not interested in going into your sheds". He also stressed that the AFB spore counts in supers "does not need to be high to spread the disease".
- AsureQuality RMP auditor Ilona Hart gave advice on how to achieve Step 7 and thus annual audits to the St Arnaud gathering. "Compliance is ongoing. It is not something

AFB Pest Management Plan AP1 Marco Gonzalez displays where the infectious disease of honey bees has been located in the Canterbury and West Coast regions in recent years.

you do the day before the auditor arrives," she stressed, adding "doing what you have always done will not be enough for some people to stay at Step 7".

- At that top of the South get together, Govindaraju's presentation of their latest kānuka honey research generated interest from beekeepers when she outlined The Experiment Company's findings that the honey has anti-inflammatory properties and potential as an ointment to control eczema, psoriasis and hyperpigmentation of the skin. They have also developed a testing method to measure key compounds in kānuka honey which they will be making available to beekeepers in the coming honey season.
- David Perry, general manager of AgFirst Nelson who acts as a consultant to orchardists, says hale-netting is common on new orchards in the area, but they recommend that 20-30% of it can be rolled back during pollination season to aid honeybee activity. Perry says a lot of research is needed to determine best practice pollination on new apple varieties. "There is huge opportunity for us to come together as growers and pollinators and determine best practice".
- Ivan Baird of Grasslandz provided insight into some of their clover growing trails in Canterbury and observed that honeybees tend to work white clover crops first, then red clover in the afternoon, noting it usually needed to be at least 20°c before they were seen on red clover plots.

Honey Strategy to Take Centre Stage at Hamilton Summit

Apiculture New Zealand (ApiNZ) and the Unique Mānuka Factor Honey Association (UMFHA) will be hosting a one-day Industry Summit for beekeepers in Hamilton on Tuesday June 18. It's a free event, with discussion surrounding the Honey Industry Strategy 2024-30 leading the programme. We check in with the organisers, who say they want beekeepers to come along ready to listen to, and participate in, discussion on the strategy.

While beekeepers have become accustomed to multi-day, winter conferences hosted by ApiNZ since the industry body's formation in 2016, this June things will be quite different, but still with plenty packed into the one-day event.

There will be no trade displays around which attendees can mingle at The Pā building on the University of Waikato campus this year, but with Hamilton the site of the New Zealand Honey Bee Science Symposium, the day prior, and New Zealand Beeswax's get together, the day following, there is still much to draw those in the apiculture industry to the area from June 17-19.

The programme for the Industry Summit Day features a mix of speakers from outside the beekeeping industry – but with expertise in trade, commodity levels, business and politics – plus more beekeeping focused personal such as scientific beekeeper Randy Oliver "Zooming" in from California to speak to his latest research, and Niha Long from the American Foulbrood Pest Management Plan Agency to provide an update on their work.

At the forefront of the programme is the Honey Industry Strategy 2024-30, which was *released in February* and branded a "living document" by ApiNZ. It proposes a levy on mānuka honey exports to support various industry-good initiatives.

The Pā building on the University of Waikato campus in Hamilton will be the venue for ApiNZ and UMFHA to both provide more details on their Honey Strategy, and get feedback, June 18.

"The Summit Day is an opportunity for people to feed into the Strategy and the thinking around it," ApiNZ CEO Karin Kos says. "I am very conscious that we launched it in February, which was a busy time for beekeepers. So, we wanted to give them some time to think it over, and so we could put a programme together that reflects the direction of the strategy."

The programme of events will see Sophie Craig, New Zealand Trade and Enterprise's UK/EU commercial advisor, present via

video link, before New Zealand Winegrowers GM for advocacy, Sarah Wilson, details their industry group's development and use of a levy. Sector advisor and lawyer Stephen Franks will then preset ideas surrounding how an effective industry body might be formed.

"It's as much an opportunity to give feedback, as it is to hear from the authors of the strategy and from best practice, such as from New Zealand Winegrowers, and a panel of industry personal to say their piece and to hear from beekeepers," Kos says.

That panel discussion will lead the afternoon session, while ApiNZ Chair Nathan Guy will facilitate a Q&A discussion in the morning in an attempt to get ideas from attendees. The whole programme is based around learning and listening, whether it is the beekeepers or Strategy authors doing that.

"It's about showing people the big picture, the breakdown of the steps we need to get there in terms of structure or regulatory framework that might be needed, and where the individual components of the industry fit it, whether that be a commercial beekeeper, an exporter, or a non-commercial," Kos says.

Since releasing the Strategy, ApiNZ has hosted a webinar with members to discuss it, while Kos and Guy have visited some regional beekeeping groups where the document has been a talking point. A "roadshow" of events to present and discuss it is also in the plans, but no dates have been set. It has also been discussed and well received amongst UMFHA's membership of mānuka honey exporters, according to CEO Tony Wright.

"I want to hear from the people who are not our members, to find out what else we need to be incorporating into our thinking," Wright says.

The New Zealand Honey Strategy 2024-30 was released in February. Now, with beekeeping workloads lessening over winter, Apiculture New Zealand want to hear what beekeepers think of it at an Industry Summit Day in Hamilton on June 18.

"Is there anything we haven't thought of? I think the focus is right from a UMFHA perspective, based on the feedback I have had so far, but it needs to be right for the whole sector, the whole country."

Since the Strategy was released in February, there has been work done behind the scenes to advance it says Wright, who also sits on the ApiNZ board.

"There has been a lot of work undertaken around understanding governance models and legal frameworks. We should be able to provide a fairly good update at the summit around the evolvement in thinking around what might be the best legislative support we need, and the best governance approach. Then we want to get some feedback on that."

With the event free of charge, they are trying to remove as many barriers as possible to taking part in the Strategy discussion. And, while it may not be a gathering on the same scale as other ApiNZ conferences, it will be valuable to beekeepers all the same, Kos believes.

"As much as it is an opportunity for people to have their say, and listen, it is also an opportunity for people to catch up, which is really important," she says.

Limited Registrations Remain for Science Symposium 2024

It's a new venue, but a similar, successful format for the 5th iteration of the annual New Zealand Honey Bee Research Symposium in Hamilton this month.

Plant and Food Research's Ruakura campus will host up to 100 scientists, beekeepers and anyone with an interest in the latest research into honey bees and related subjects on Monday, June 17. Like in previous years, the event has been scheduled to coincide with an Apiculture New Zealand gathering, this year that is ApiNZ's Industry Summit Day in Hamilton the following day.

The symposium allows for scientists to present, inform, and understand the honey bee research landscape in New Zealand, but everyone is welcome to attend. It is a great opportunity to learn about recent research from scientists working in the apiculture field, hear some of the scientific challenges facing the industry, and understand how research in New Zealand addresses these issues, organisers say.

Last year's Honey Bee Research Symposium in Rotorua was attended by around 120 people. This year organisers have capped numbers at 100 to the June 17 event in Hamilton and so they advise those interested in attending to register online early.

Last year around 120 people attended in Rotorua, but this year the number will be capped at 100, with preregistration, costing $75, required. Attendees are asked to register by June 10 at the latest.

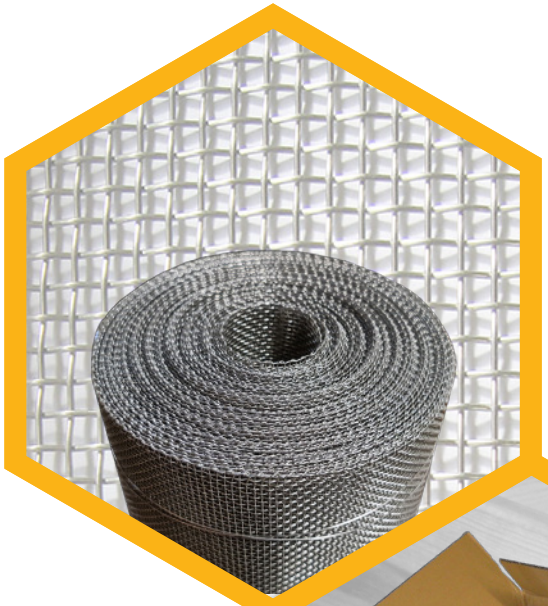
While the exact lineup of presenters has not been confirmed at time of publishing, organisers say topics likely to be included are research into varroa, such as an update from Victoria University of Wellington on their cutting-edge RNAi trials, plus other areas of bee health and nutrition, and pollination effectiveness. Presenters will be from a mix of private labs and research organisations, universities, and industry.

While this year's Symposium is at a different venue to the ApiNZ gathering at Waikato University, the two venues are close by, on opposite sides of Ruakura road, and thus practical for visitors from out of town who might want to stay close by.

Registration is available ***here***.

WINTER ESSENTIALS

the colder months are coming...



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Honey, We Need to ~~Talk~~ Listen

With June shaping as a key month in the discourse surrounding the *New Zealand Honey Strategy 2024-30*, with authors Apiculture New Zealand (ApiNZ) and the Unique Mānuka Factor Honey Association (UMFHA) hosting an Industry Summit Day on June 18 to discuss it, and various New Zealand Beekeeping Inc Discussion Days continuing around the country, we thought it pertinent to highlight some research into the industry from just three years ago.

Kathryn Reid is a 2021 Kellogg Scholar who is not an industry stakeholder, which she believes makes her ideally placed to research the honey industry with an independent, impartial eye, and ear. The industry is tasked with increasing export earnings and Kathryn's Kellogg report undertakes to determine whether the industry is set up to achieve this – amid significant industry challenges.

Based in Drury, South Auckland, Reid has a background as a marketing consultant and bachelors degrees in commerce, majoring in marketing, and in physical education. She grew up on a Waikato dairy farm, where bees were kept. Despite the loose connection to the honey industry, she is passionate about making a difference in the rural sector, taking inspiration from her grandmother Gladys Reid who earned an OBE in 1983 for pioneering the use of zinc to treat facial eczema in cattle.

The Kellogg Rural Leadership Programme has been running in New Zealand since 1979, developing leaders for New Zealand's rural and agri-food sector. It is a six month training course which includes 18 days of programme content and culminates with participants presenting a research project designed to deliver leadership outcomes.

Reid's report, *Honey, we need to ~~talk~~ listen* suggests a plan of action for meeting the immediate requirements and future expectations of the New Zealand honey industry. Fifty-seven New Zealand honey industry members were consulted regarding what was working and not working in the industry.

KEY FINDINGS

While a link to the full report is available at the end of this story, the key findings are as follows.

New Zealand relies on bees to pollinate crops and pasture worth at least $5 billion annually to its economy. In 2019/20, honey export value reached $425 million. In July 2020, the Government released its *Fit for a better world* vision. While it did not separate the impact on the New Zealand honey industry individually, the numbers infer the industry is being tasked to add $65 million in export earnings cumulatively over the next 10 years.

This task falls to the 935 export registered beekeepers (about 10% of total registered beekeepers) to supply mānuka and/or non-mānuka honey for export. The report found that the New Zealand honey industry needs to change if it is to achieve this task.

Of the 57 industry members asked via survey about what is working and not working in the industry, over half indicated they wanted change across five of the following six areas.

1. **Sustainable livelihood:** 54% want industry change to provide them with a sustainable living comparable with other New Zealanders.
2. **Industry structure:** 77% want industry change to better serve them by uniting them and giving them one voice to influence regulators and enforce rules.
3. **Effective communication:** 58% want industry change to help them be informed, gain trust and feel engaged in the industry.
4. **Good leadership:** 61% want industry change to set a culture, protect its people and pull them into the future.
5. **Clear vision:** 84% want industry change to provide a sense of purpose and direction for the industry, help define short and long-term goals, and guide decisions along the way.
6. **Self-fulfilment:** 19% want industry change to satisfy their feelings of fulfilment equal with other New Zealanders.

The report identified planned change management as key to creating these changes and recommended a two-phase plan of action:

PHASE 1: WHAT DOES THE INDUSTRY NEED TO CHANGE?

This is about finding all industry members and capturing their voice for change following a three-step process, which looks like this:

1. Developing a national database.
2. Creating a national communication campaign.
3. Sending out a national survey.

PHASE 2: HOW DOES THE INDUSTRY CHANGE?

This is about listening to all industry member's responses and guiding them through change by following Kotter's proven eight-step process of leading change, which looks like this:

1. Creating a sense of urgency.
2. Forming a powerful coalition.
3. Developing the change vision.
4. Communicating the vision.
5. Empowering industry members to act.
6. Creating quick wins.
7. Building on the change.
8. Anchoring the change into industry culture.

According to Moore's adaptation of the Law of Diffusion of Innovations, this plan can work if 15%-18% of industry members commit to creating change in the industry.

Certain aspects which the report suggests can be seen to have been taken up in the approach by ApiNZ and UMFHA through the ongoing Honey Strategy.

You can download and read the full report here:
https://ruralleaders.co.nz/a-proposed-plan-of-action-for-meeting-the-immediate-requirements-and-future-expectations-of-the-new-zealand-honey-industry/

NZ Beeswax Hamilton Open Day to Compliment June Events

New Zealand Beeswax are adding to the education on offer in Hamilton this month, with an open invite to beekeepers to attend their Free Open Day on Wednesday June 19 which will provide insights into practical and use-now research findings.

"Our goal is to provide the latest science that beekeepers can use today and in the near future," NZ Beeswax general manager Nick Taylor says of the get together at Hamilton's Distinction Hotel and Conference Centre.

"Rather than help which is five or ten years away, we want to let beekeepers know what the latest tools and science at their disposal are, to make short and medium term decisions to improve their business."

The Wednesday get-together is the day following Apiculture New Zealand's Industry Summit Day, which itself follows the Honey Bee Research Symposium on the Monday, making for three days of apicultural events in Hamilton. Taylor says they don't intend to "step on the toes" of the Symposium, stressing that the focus of the NZ Beeswax event is more immediately appliable findings and products.

Varroa management, American foulbrood, queen rearing, and the latest research from Veto-pharma, the French laboratory behind varroa treatment Apivar, will be major talking points. Plant and Food Research scientists will be presenting, as will dnature diagnostics and research's John Mackay.

Taylor says the science is finally catching up with what beekeepers have been anecdotally finding in recent years with several organic varroa control methods, and the Free Open Day will be an opportunity to present this research so beekeepers can make more educated decisions around varroa management.

"It's from 9am to 3pm and we will be putting on free morning tea, lunch and even the first drink at the bar too, so we would love beekeepers to RSVP and come along," Taylor says.

To RSVP to the June 19 Free Open Day, email hamilton@beeswax.co.nz.

Beekeeper Wellbeing: Financial Aspects

Subjective wellbeing of New Zealand beekeepers was empirically measured for the first time in the 2023 Colony Loss Survey, with the finding that beekeepers' wellbeing was among the lowest across all primary industries. Data on eight different factors which affect beekeepers was collected, including 'financial aspects of beekeeping' which we take a deeper dive into here.

No factor was found to impact commercial beekeepers' wellbeing in 2023 as profoundly as the financial aspects. That will surprise few – and possibly no one – in an industry whose main source of income, honey, has fallen so dramatically from the highs generated in the mid-2010s.

The preliminary results of the 2023 Colony Loss Survey found life satisfaction of commercial beekeepers as below that of the dairy industry, sheep and beef, arable, horticulture and forestry, as detailed in *Beekeeper Life Satisfaction Worst of Primary Industries*. Since then a full and comprehensive report of all the wellbeing findings of the survey have been published in the international journal Bee World as an open access document, *Perspectives on Well-being Among Commercial Beekeepers in New Zealand*.

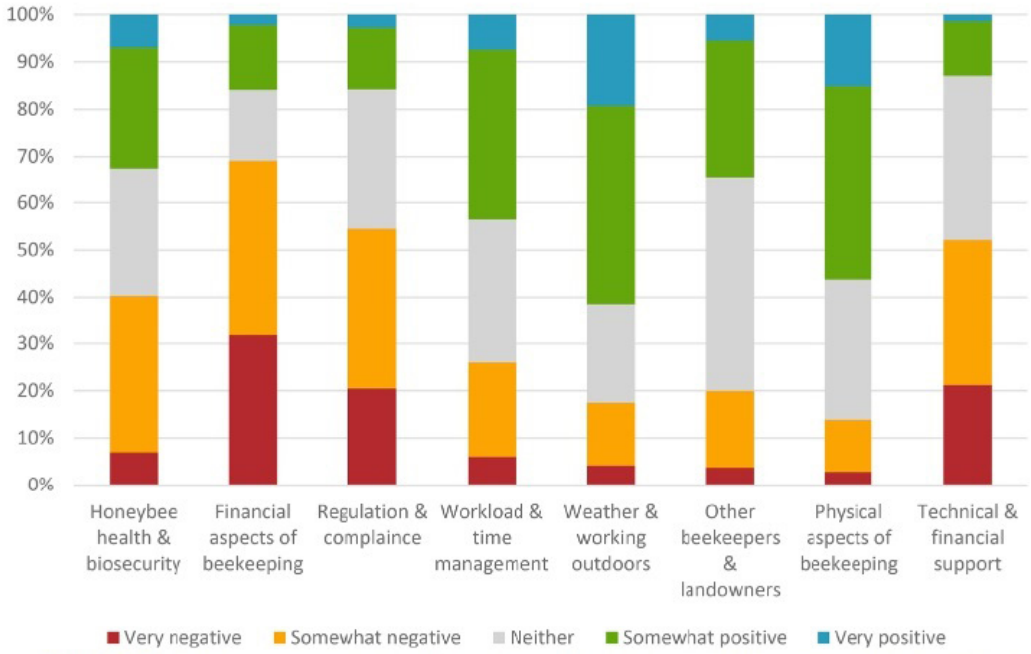
The survey found that 32% of New Zealand beekeepers were "very negative" about financial aspects of beekeeping and 37% were "somewhat negative", for a total of 69% with a negative slant. Only 14% were "somewhat positive", with just 2% "very positive". The middle ground of "neither negative or positive" was occupied by 15% of survey respondents.

While the *Bee World* paper outlines a wide range of factors that could impact the financial aspects of beekeeping, honey prices are the obvious lead influencer. Otago beekeeper and chartered accountant Russell Marsh was among those who contributed to the article.

"Input costs have risen steeply in price in the past two years, alongside even sharper reductions in honey prices. Increasing expenses coupled with significant declines in income have forced many beekeepers out of business while straining the wellbeing of those sticking it out," Marsh's contribution states.

While there is no published guide to honey pricing, the Ministry for Primary Industries (MPI) include their estimation of prices paid to beekeepers for hive products in their annual Apiculture Monitoring Data, which gives some insight into the pricing pains. In 2016 MPI detailed non-mānuka honey prices reaching up to $16/kg, by the 2019/20 season $5.50/kg was the best non-mānuka price reported, and low grades fell to $2.50. By 2023 an improvement in prices has been experienced, with a $4-$12 range for non-mānuka honey detailed by MPI.

For mānuka honey, the demand and pricing slide has been more recent. The MPI figures report value up to $160/kg to the beekeeper for high MGO honey, but that is not born out by anecdotal reports from beekeepers – including in the Colony Loss Survey findings – who say there is next to no demand for that grade of honey.



Beekeeper responses to how selected factors influence well-being at the present.

"You work extremely hard in this industry and when the industry is hit financially. It can become a game of mental will," wrote one survey respondent.

Another painted a bleak picture for the chances of their business's survival.

"Honey prices don't even come close to covering costs and honey is the driver for my operation, 100%, and has been for the last 10 years. Owning a business without debt and still not keeping our head above water is like flogging a dead horse. Something has to change."

Another stated "no money in the bank, but need to spend money to keep bees alive".

Marsh's commentary outlines the key role beekeepers play, and the compounding challenges that unfavourable finances can lead to.

"The beekeeper ensures the health of colonies by facilitating honeybee productivity, whether for honey production, pollination services, or other hive products. Yet, optimising productivity comes at considerable cost for commercial beekeepers. Labour, vehicles, bee health, and nutrition costs are the major input costs to beekeepers. To be effective, these inputs must be provided on time and without the beekeeper taking shortcuts.

"If a business is stable financially and has good access to extra finance, beekeepers can generally sit comfortably, knowing their livestock are healthy and profitability can be achieved. Even when things are not going so well, financially fit beekeepers can focus on fixing issues that arise. However, when funds are tight, beekeepers may need to make judgment calls on what is a priority or affordable. Any reduction in yield can ultimately impact future bee health and create a downward spiral effect on the business as the timing or quantities of management activities are compromised," Marsh states.

The director of the NZ Colony Loss Survey, Pike Stahlman-Brown, says he is not surprised that financial aspects are the leading contributor to low wellbeing, given the inflationary environment's role on costs, coupled with honey prices below the overall cost of production. These factors are well known and have seen many beekeeping businesses recede or fold for a number of years now. He knows only one other industry where financial aspects are playing such a leading role – strong wool producers.

While the survey results show that the financial impacts are not negatively felt across the board, that is not the perception amongst many beekeepers who are up against it, as one respondent offered.

"Mine is the same story being told by all beekeepers in the country. The financial burden of trying to maintain good strong colonies while having to continuously pay more for running costs and still being unable to sell your product for a profit or sell it at all is overwhelming for every beekeeper at this present stage."

'At this present stage' is perhaps the telling point, as those beekeepers sticking out the financial strains would logically have an eye to a more profitable future, but in the meantime the wellbeing of more than two thirds of them are taking a negative hit.

Hill Labs' Honey Testing Journey: Advancing Quality and Innovation

This year Hill Labs celebrates 40 years at the forefront of laboratory testing across a range of industries. Meghan Stannett, market sector manager for food and bioanalytical, details the honey testing journey of the proudly Kiwi-owned Hill Labs and how they are continuing to invest in helping New Zealand honey producers remain world leaders.

Here at Hill Labs we are proud to be celebrating our 40th anniversary, a big milestone that highlights the enduring impact of our founders, Dr. Roger and Anne Hill. We are New Zealand's largest privately owned analytical laboratory, offering services in agriculture, environment, and food and bioanalytical sectors. Dr. Jonno Hill, the current Managing Director, joined the family business after completing his PhD, and he attributes the success to the values and culture his parents instilled. He is committed to preserving these values, seeing them as crucial for the company's strategic direction and competitive edge.

Hill Labs honey testing journey began in 2006 and has since seen them pioneer a test for MGO, as well as develop a test for mānuka honey markers.

Our honey journey began back in mid-2006, with testing for para-dichlorobenzene (pDCB), a moth treatment for beehives. But that was just the start. In 2008, we made waves in the Mānuka honey industry. Collaborating with Professor Manley-Harris and her team at the University of Waikato, we pioneered a chemical test for Methylglyoxal (MGO), a vital antibacterial component in Mānuka honey. This world-first innovation drastically cut down testing time, providing quicker and more reliable results compared to the old microbiological methods. It set the standard for producers to certify their honey's quality efficiently and accurately, benefiting the entire industry.

As the industry evolved, so did we. When MPI introduced the scientific definition to authenticate New Zealand mānuka honey, we sprang into action. MPI tasked us with developing an analytical test method for "Mānuka Markers," and our scientists tackled the challenge head-on, completing it within a couple of months, even over the Christmas period.

Our commitment remained strong. With a team deeply experienced in both testing and all things honey, we revamped our operations, investing in new technology and automating lab processes to increase testing throughput. This not only satisfied our growing client base but also upheld our reputation for excellence in service delivery. Our team's culture, fuelled by our company values, played a significant role in our success. They're not just high-performing; they're a bunch of great people who love what they do and put the client's needs first.

Our team is always innovating, constantly seeking ways to improve. By integrating new technologies and enhancing operational efficiency, we now offer industry leading, next-day turnaround times for the majority of our high-volume tests, including 3-in-1 Honey Suite, Mānuka 5 Attributes, Glyphosate, Tutin, American Foulbrood (AFB) and Leptosperin. With 99% of our honey jobs reported within our stated turnaround times over the past year, we have proven that we can deliver on our service commitments.

What's next? We continue to invest in new technologies and methodologies, staying ahead of future challenges and opportunities. By maintaining a client-focused approach and investing in both people and technology, we are well-positioned to support the honey industry's sustained success, ensuring it remains at the forefront of quality on the global stage. ■

Hill Labs have a client-focused approach and it shows, with 99% of honey testing they are tasked with reported within their stated turnaround times.

The Treasure of the Humble

Why do queen bees mate with so many drones? How does the colony decide what drones to evict? And, while we are at it, why are there drones at all...? Science writer Dave Black scours beekeeping literature for the answers, pulling a 100 year-old leather-bound 'treatise' from his bookshelf before detailing the latest findings from academia.

BY DAVE BLACK

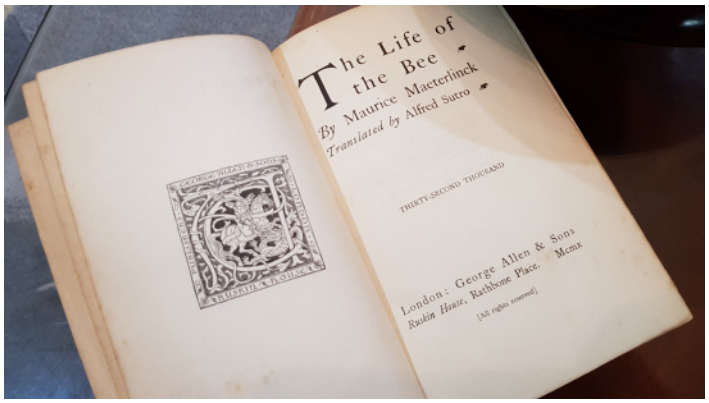
My favourite 'bee book' must be *Life of the Bee*. I have a leather-bound pocket edition from April 1910, printed in Edinburgh and translated from the original French *La Vie des abeilles* by Alfred Sutro, a friend of the author, Maurice Polydore Marie Bernard Maeterlinck[1].

It's an unlikely, but worthwhile, combination. Maeterlinck was a Belgian symbolist writer, playwright, and poet, beekeeper but not a scientist. The book is as well observed and technically accurate as any 100 year-old bee treatise could be, just better written than most. As it should be from a Literature Nobel Laureate.

In the penultimate chapter 'The Massacre of the Males' he describes the hive's autumn wind-down, and the fate of the drones:

Indelicate and wasteful, sleek and corpulent, fully content with their idle existence as honorary lovers, they feast and carouse, throng the alleys, obstruct the passages and hinder the work, jostling and jostled, fatuously pompous, swelled with foolish good natured contempt; harbouring never a suspicion of the deep and calculating scorn wherewith the workers regard them, of the constantly growing hatred to which they give rise, or of the destiny that awaits them.

The drones of course are not just sacrificed for the coming winter, a colony's investment in potent males is one of a number of outcomes that advantage the colony's reproduction in one way or another. Drones may or may not be as uselessly indolent as Maeterlinck thinks, but the deeper question is why are there drones (plural) at all; why polyandry (many fathers) when you could have just one (monandry), and why as many as 30 or more, and not, say, six? While we're at it, why not polygyny, (multiple mothers), surely that's an equivalent outcome? As all these permutations are found in the Hymenoptera order of insects, more empirically we might ask 'how' instead, (Science doesn't do 'why') can we explain the evolution of multiple mating?



Dave Black's much loved, leather bound, pocket edition of La Vie des abeilles or Life of the Bee published in 1910 and home to some florid prose on the nature of honey bees.

KINSHIP

One explanation for colonies of social insects is that they gather because of a common interest in reproducing their genes, they could be highly related families. In other words, social because 'kinship'. This is especially true if the male mate has a half set of chromosomes. These haploid males are of course, relatively frail, with a limited number of genetic answers to environmental challenges they may face. A female mated to such a male (haploid/diploid mating) produces offspring closely related to the parents, although multiple mates would actually reduce the degree of relatedness.

Despite this, multiple mates confer a number of advantages. In honeybees, sex chromosomes need to be pairs of different chromosomes (for females), or unpaired (for hemizygous, haploid males). Pairs of the same chromosomes (in diploid males) are a fatal combination. More mates reduce the chance of the female mating with a male carrying a matching chromosome and producing inviable (male) eggs. It also allows her to 'harvest' a greater quantity of spermatozoa, she can lay more eggs for longer, without having to risk subsequent mating trips. Less obviously, the queen and her worker family have to resolve a strategic conflict over which sex to invest their resources in. In order to promulgate their genes workers should invest in producing more queens, not drones, because queens are the only 'sister' that mates and are more closely related. While queens (equally related to their sons or daughters), should have no preference. Multiple mating minimises this conflict as the worker 'relatedness' decreases.

Not only can these multiple-mating colonies be big, and long-lived, but there's a strength in diversity. The greater number of possible genetic combinations produce slightly different individuals, permits task specialisation and division of labour, and increases the group's tolerance to a greater range of environmental challenges, pathogens and parasites. However, the

Law of Diminishing Returns applies, you can have too much of a good thing.

ASSESSING THE FAMILY

It's not very likely that one or other of these reasons is the important one, but that all of these reasons at one time or another, have had a different value for the evolution of the six or so species of Apis bees we have today. Nor is this a settled process, the closer we look we continue to see that this subtle genetic competition between the interested parties continues. In a paper published this March a group at Purdue University wondered if non-reproducing workers can assess the reproductive quality of their queen, it wouldn't be surprising if they could assess their drones too. After all, they are not particularly related, and drones are very 'expensive'. Do workers 'harbour a deep and calculating scorn' for drones as Maeterlinck would have it?

The Purdue study[2] took measures of drone quality, size, and cuticular hydrocarbon profile (CHC, the waxy layer on the outside of the exoskeleton, can be an indicator of 'unhealthy' individuals), and looked to see if the workers discriminated against drones using differences in these indicators. They carefully measured drones, before subjecting some of them to an 'immune challenge' by injecting them with part of the lipopolysaccharide membrane from *Escherichia coli*, and then verified that the immune-challenged (IC) males actually lost weight and shifted their CHC profile.

The drones were added to colonies set up to test whether the workers would assess and evict the IC drones more frequently, and it was clear that IC drones, and small drones regardless of their health status, were evicted significantly more often. However, it wasn't clear that the workers used CHC profiles at all

Another successful mating, and there is pros and cons to queen bees mating with many drones, Dave Black explains.

and the study suggested they pay no attention to the CHC on a drone. They do pay attention to size. Lots of research as well has shown that larger drones are more likely to be found at drone congregation areas, more likely to mate successfully, and that size correlates with their fertility.

So, does nature select for lots of big drones? Not exactly. Apis colonies may have the ability to be choosy, but are they always? Large colonies can host more drones than smaller ones, they don't need to be as fussy. If colony resources are low, as in the autumn Maeterlinck presages, drones are evicted. During any periods of abundant food availability eviction becomes a less likely choice. Size also correlates with flight onset in drones (smaller drones start to fly earlier than a larger individual of equivalent age) and they go on mating flights more often[3]. By doing this, at a colony level, the dispersal of mating flights from drones over the course of time increases the chances of mating with nearby queens, a rationale of 'if you aren't the best, be the first'. Nature always hedges her bets.

I'll leave the last word to my man Maurice, from one of his earlier essays. *"How strangely do we diminish a thing as soon as we try to express it in words".*[4]

Dave Black is a commercial-beekeeper-turned-hobbyist, now working in the kiwifruit industry. He is a regular science writer providing commentary on "what the books don't tell you", via his Substack Beyond Bee Books, to which you can subscribe here.

Drone bees get short-shrift from their worker half-sisters in autumn and winter, and size does matter according to a very recent study from Purdue University in the USA.

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Chapter 1: Home to Help

Despite growing up in a beekeeping family, at 16 years-old 'Aimz' left the Bay of Plenty for a career as a mechanic, taking her to Western Australia. Twenty years later she is back home though and, with a plot of land and a family of her own, recently found herself hauling honey under the summer sun with her dad. Now, at 37 years-old, the beekeeping bug has bit and Aimz is 'Home to Help'...

Entering the beekeeping world at 37 has been like a fresh breath of old memories awash in smoke ... and stings ... and propolis.

The year I was born my father caught a swarm in a box after instruction from a local beekeeper. The beekeeper never did come pick the bees up and, after a few weeks, my father in his curiosity wound some net curtain around his wide brim hat and dared to enter into that one box that would inexplicitly change his life.

I grew up crawling around the extracting room floor (our kitchen, and later a small shed my parents rented from friends), playing with drones, and being carted around the countryside in our station wagon from bee site to bee site. I spent more time exploring farms, forest, hedges and drains than I remember being at home. One of the best sites was at the golf course, there were always plenty of balls to be found in the grass around the hives (must have been one heck of a bogey...) – although there were some pretty nasty Angus bulls that would on occasion charge the bee truck. It was my older brother's job to open the gate as his long legs could see him out of most trouble! I would dance carefree through swarms and wake some mornings to find nucs placed around our Kent fireplace - my mother is the most nurturing kind and, like the shepherd she would try to save every one.

That's me! With dad's first ever honey crop – two drums.

'Aimz' is back home in the Bay of Plenty and undertaking a new career in the family beekeeping business where she has invited Apiarist's Advocate readers to follow her journey each month.

I was immersed in bees, but kept my distance from the keeping.

I dabbled in refitting frames with wire and foundation and scraping boxes for pocket money. As a young teen I spent a few summer holidays manning the extractor, while my brother uncapped with a hot knife in our now RMP facility.

My dad's business had grown – but so had I, and, meeting the love of my life at 16 I flew the ~~coop~~ hive. It would be 20 years that the bee blood would lie dormant in my veins.

Though not idle, I qualified as a mechanic when I was 18 and left the same year with my partner (a boilermaker) for five years in Australia. We worked in and around the mines then bought a house in Perth. I got full-time work at a local service bay while he flew in and out to offshore oil rigs and hard to pronounce places full of red iron sand.

After having our first child, a son in 2012, the decision was made to come home. My mother found a property on TradeMe and, after

While I had never been a "beekeeper" per-say until recently, I have never been afraid of bees as I grew up surrounded by them. Here I am in the year 2000 with a swarm caught outside our house in the sunny Bay of Plenty.

Last summer – getting stuck in on the blower and harvesting honey in the Bay of Plenty. I survived and will be back for more next season.

little deliberation, we were the proud owners of a slice of rural paradise without even setting foot there. And what a property... no snakes, lizards, or scorpions in the garden! The house was bare with a mighty breeze that gusted through the joinery as we sat on the floor around a fire in January. I missed the West Australian heat, but we soon made it our home and our three daughters were all born around that roaring fire in the following years.

Which brings me back to bees…

Stepping in to fill a labour shortage last honey season I donned my suit and gloves and sweated my beehind off running full boxes of mānuka honey to the truck and stacking them four high. I must have manhandled four tonne of honey that one week and the adrenaline from hard work and the enjoyment from working alongside family was catching. Then came the long drives bringing bees home from the honey crops and finally, after a succession of unreliable and incompatible workers, my dad agreed to train me as a beekeeper. I must have broken through his bias of perceived "boys' jobs" when I proved my physical competence running honey, and I now find myself with my own suit and hive tool as we work our way around his 1000 hives checking stores and wintering down.

Keep a look out here each month to track my story, in my words. This is just the start for this newbee, my fascination grows daily as I endeavour to learn all I can – I'm 'Buzzin' with Aimz'. Lucky I have a great teacher, ay Dad…

We Have No Money, So We Shall Have to Think Instead

As the United States of America continue down the path of isolationist economic policy, and international experts stress the need for industrial economic policy, Ian Fletcher assesses the playing field and how New Zealand is placed. Are there winning moves to be made?

BY IAN FLETCHER

For those of us in New Zealand, there were two really significant events over the past month. Both point to the end of the post-WW2 economic order, and to a new and more uncertain time ahead.

The first was the US decision to impose prohibitive tariffs on Chinese electric vehicles, and lower (but still economically deterring) tariffs on a range of other goods, generally related to green energy production.

The second was much less visible. It was a conference of mainstream economists in Berlin (28-29 May), with the title "Winning back the people – Testing times for a new economic paradigm".

LESSONS FROM EACH

What we learn from the first is that the US has now decided that unilateral tariffs and other import controls for economic, political or strategic purposes are, once again a legitimate unilateral tool. This was always US policy except for the period from 1945 to about 2016, when the US was seen as the main player in the rules-based economic order. The US itself had created that order, from the wreckage of the wars and depression of the period from 1929 to 1945. The US has moved back to its previous, pre-war attitude.

What we learn from the second is that economists are now moving from considering whether governments *should* follow active industrial policies (intervening in markets directly) to how to do industrial policy effectively. The case for industrial policy isn't theoretical, it's practical: societies need to engineer the green transition, secure supply chains against disruption, create sustained and sustainable employment, and deal with geopolitical competition. The emerging new consensus is that none of this will happen by itself, and governments need to make it work.

Preeminent physicist Lord Ernest Rutherford adorns New Zealand's $100 note, and his quote "We Have No Money, So We Shall Have to Think Instead" fits New Zealand's current economic situation well says Ian Fletcher.

Prohibitive tariffs on Chinese-made electric vehicles are among a range of tariffs implemented by the US on imports recently.

The economists' conference is also dealing with the politics of economics. Decades of trade liberalisation and market deregulation have created winners and losers. The losers find themselves shut out of jobs, hope and a future for themselves and their children. They still have a vote, and they intend to use it. Politicians know they must respond to this anger. Many Māori and Pasifika communities in New Zealand are in this position, as are other communities who languish on minimum wages, or with low skills, or in places with poor transport and other infrastructure. It's why so many of us go to Australia, our great safety valve.

WHERE DOES THIS LEAVE NEW ZEALAND?

Beached and alone.

Beached, because we have had a political culture since 1984 where we 'believed' in open markets and minimum government intervention. Tax rates have been kept astonishingly low, and

US President Joe Biden's administration has been introducing unilateral tariffs, moves which harken back to pre-WWII US policy and have a flow on effect to the global economic order.

we had traded on the luck we fell into as China modernised, urbanised and globalised over the past 40 years. That luck is quickly running out. Our economy remains over-dependent on property investment (or speculation), with low savings, a poor set of national systems (health, education, transport and housing), and an impoverished science, innovation and investment ecosystem.

This will get worse. Our major markets will be less receptive to our goods as their populations age, and turn even more to protecting their own producers. Falling populations (which is the future) will be protective of whatever economic life they can preserve. They won't want competition from us.

Our touching dependence on multilateral 'market access' – others playing by multilateral rules – will not help us either. The WTO is on its last legs as the US has kneecapped it by blocking appointments to the appellate part of the dispute settlement system. Donald Trump did it first, but Joe Biden has continued that policy. So, there are now no effective sanctions against deliberate bad behaviour, except force.

And so far we have no industrial policy. We could change that (I believe we must), but to do so we need to change the political narrative in New Zealand first. We seem to be stuck in a doom loop of tax cuts (one party) versus more money for existing teachers, nurses etc (the other lot). The result is either decay, or a static system. We need to move to a culture of debate around saving and investing more with a view to a better, different future. I fear we will need a big crisis for that change to happen. Sadly, big crises are probably going to come along quite often.

IN OUR FAVOUR...

We have some advantages: we still have a growing population, and even without immigration, our demographics aren't as dire as most. We have a more resilient climate than we realise – its warming, sure, but we get rain from both the south and the north, and these climatic systems are more or less independent of each other. We can work on continuing to be an attractive destination for talent (though we're losing our edge there, too).

We'll never be big enough for an industrial policy to be effective in manufacturing or high-tech. But we have tacit knowledge and skills in food science, animals, farming systems, forestry, engineering and related fields. We need to think how to turn those skills into an innovation system, so science and research can be captured as intellectual property, and then monetised. In the world to come, ideas will be a route to a better future. Ideas are mobile. We have no right to them; we must persuade people to develop their ideas here, and keep the fruits here. As Lord Rutherford (New Zealand's only Nobel Prize winner) said "we have no money, so we shall have to think instead".

Ian Fletcher is a former head of New Zealand's security agency, the GCSB, chief executive of the UK Patents Office, free trade negotiator with the European Commission and biosecurity expert for the Queensland government. 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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