

The NEW ZEALAND Beekeeper

DECEMBER 2015 | VOLUME 23 No. 11

Biosecurity risk pathways

Quentin Chollet

New approach to sustainable bee populations

Philip Cropp

Managing mānuka: carrying capacity and competition

Dr Linda Newstrom-Lloyd



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Front cover: An Italian honey bee foraging on borage in the garden. Photo: Elliott Kennedy.

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IT STARTS WITH YOU



A FEW EXTRA DOLLARS GO A LONG WAY

Ricki Leahy, NBA President

Our industry has been experiencing huge growth. For some time now, it has become apparent that the representative operating model that we use at present will be unsustainable in the future. Furthermore, this model doesn't induce the desired level of certainty—or indeed produce the type of professionalism—to which our industry needs to aspire.

So many of our funding issues are dependent on voluntary donations, and many of our industry tasks are undertaken on a 'good old' voluntary basis. Sadly, not all of us contribute and everything, as always, seems to depend on the goodwill of the same caring minority.

We cannot have the basis of our industry continually dependent on volunteers, especially in these times when the stakes and responsibilities are so high.

Restructured draft constitution on website

Hopefully everyone is aware that the restructured draft constitution is now posted on the [beeunified.org](http://www.beeunified.org) website for all to read. Go to <http://www.beeunified.org/Apiculture-NZ-Consultation.php> and click on Draft Constitution.

Posted on that same page are:

- some consultation questions and answers
- a proposed subscription costing for the first year
- a feedback form you can download to offer any comments that you may wish to make.

Your feedback and questions are welcomed: this will enable the interim Apiculture Industry Governance Board to consider all input received and answer any questions raised. This will give each of us the information that we need to make an informed decision when the time comes to vote on the adoption of this new constitution.

Proposed subscription rate

You may notice that the proposed subscription rate is reasonably similar to what we in the NBA pay currently. For beekeepers, the rate incorporates a 'levy type' system that is calculated by how many hives you may have, which is then added onto a base subscription. I say it is a 'type of levy' system because it isn't actually compulsory as such.

Surely a dollar a hive is very affordable. I believe it would be fair to suggest that for us

**Surely a dollar a hive
is very affordable.**

beekeepers, a dollar a hive would be equivalent to less than 250 grams of honey, even if our honey prices were to crash.

You will also notice that packers and marketers will also pay a levy, but this will be on honey. We do need to understand that it's necessary for us all to contribute and on a scale that is fair across all stakeholders within our industry.

Just as a matter of interest, in Australia, the Australian Honeybee Industry Council (AHBIC) successfully runs a voluntary system of sorts to fund themselves. The AHBIC acknowledge, with their permission, the Packers and Queen Bee Breeders who make voluntary contributions by publishing their names in their industry journal, the *Monthly News*. This informs their members of whom in the industry are contributing, thus enabling members to decide with whom they may prefer to do business. I am not necessarily advocating exactly the same for us, but by crikey, their system appears to achieve positive results for them.

Nothing of grandeur would be funded by the changes being proposed for our industry: no pushed-out ivory tower accommodating excessive salaries or fancy cars. It is reckoned that many of the costs of running the Association will be similar to what we incur at present. However, we must provide extra funding for our industry management team, as they have struggled with a 'short shoestring' for long enough.

We definitely must budget to pay for more staff time so the industry management team are able to achieve the work required of them. As a key primary sector industry, we must position ourselves to be able to afford the cost to prepare submissions, to have reports written, and to have the other myriad tasks and requirements undertaken professionally and in good time. The industry management team must be well funded and have the required skills to perform all those tasks.

Office space obviously is part of this equation. It's probable and sensible for the restructured industry association to operate from a Wellington base. It is very central and accessible from around the country for meetings and extremely handy to government departments and many other industry stakeholders who are constantly—and most beneficially—contacted on a personal level.

So in future, if the industry did agree to a mandate for a levy of some description (effectively trading the proposed voluntary levy for a compulsory levy), then those of us who have chosen to contribute by already becoming a member will experience very little

change. All those who are levy-eligible within the industry will then compulsorily contribute. Only then will our industry association be able to undertake its full responsibilities by contributing adequately towards critical research projects, our future biosecurity, and other industry-good activities.

Definition of a hobbyist

There is no specific or universal definition of precisely what the 'cut-off point' is for whether a beekeeper is described as a hobbyist or referred to as a commercial beekeeper. But as far as the NBA is concerned, a hobbyist is someone who has 10 hives or fewer.

It is assumed that you may still keep your hives as a hobby, even when keeping as many as 20 or even 30 hives. That is absolutely fine. You may describe yourself as whatever type of beekeeper you like.

However, once the subscription structure has been agreed and set, the amount you will pay for your subscription will be based on the number of hives you have in excess of 10 hives.

The last thing we want to happen is for beekeepers to not register their hives as a means of avoiding any higher level of subscription. The amount you pay has (and still is) always been voluntary insofar as declaring how many hives you have.

However, it is assumed—and with good humour—that if you have more than 10 hives, you should produce more honey than you could possibly consume within your family and therefore a portion may be traded.

Big-picture thinking suggests this trade represents a value that is reliant on the good health of our bee stock in New Zealand.

This good bee health is attained by all the collective effort that goes into research, biosecurity and industry-good undertakings that make this country a great place to keep bees. Surely it is no big deal to pay a few dollars in order to have an honest involvement with, and be a contributor to, the success of our industry.

Voting on the rules and constitution

Depending on the outcome of the NBA Executive Council meeting on 3 December, in February, NBA members may be asked to consider and vote whether the proposed new rules and constitution should be accepted.

A positive vote would enable the NBA to move forward and become the platform for the single representative body of a united New Zealand apiculture industry. I strongly urge you all to take the time to read through the rules, read the questions and answers and gain an understanding of what is being proposed.

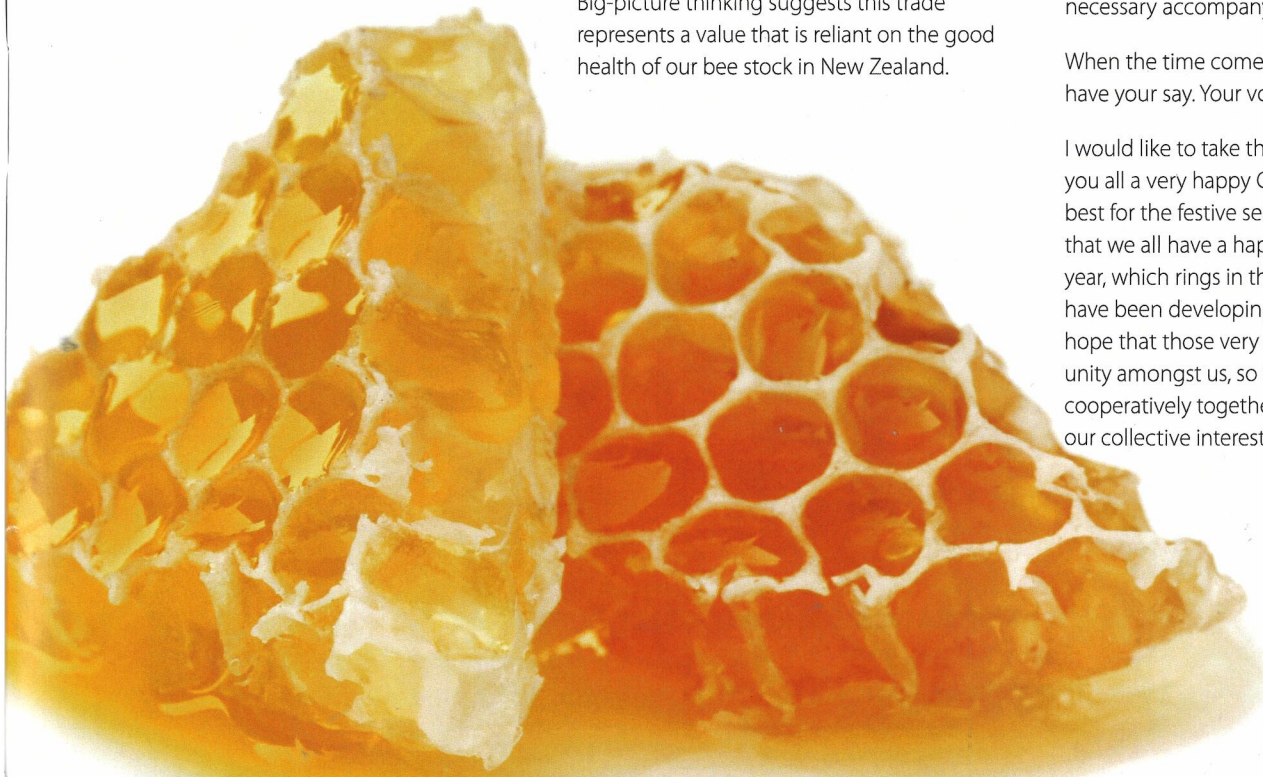
A final copy of the constitution will be drawn up after all the feedback from the draft copy has been considered and any amendments or corrections have been made.

Please participate and have your say. Your vote is valued.

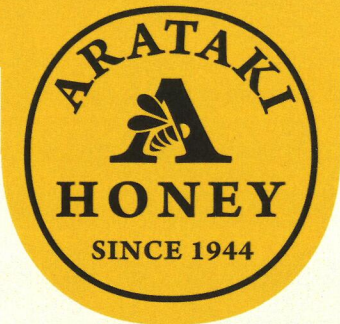
The final version of the constitution will then be mailed out to all members with all the necessary accompanying information.

When the time comes, please participate and have your say. Your vote is valued.

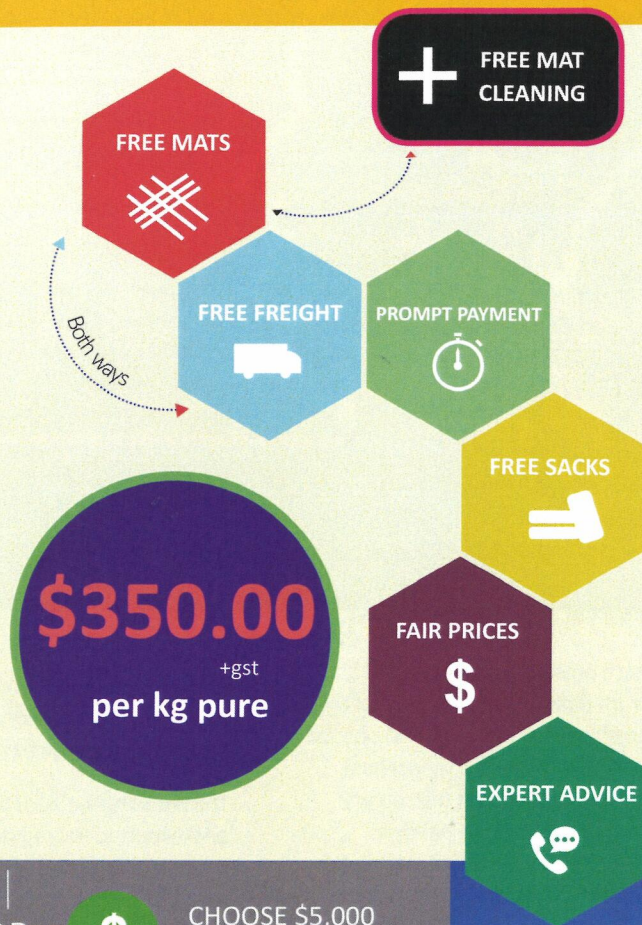
I would like to take this opportunity to wish you all a very happy Christmas and the very best for the festive season. I sincerely hope that we all have a happy and prosperous new year, which rings in the desired changes that have been developing for so long. Let's all hope that those very changes foster a sincere unity amongst us, so we all genuinely work cooperatively together for the betterment of our collective interests. Happy beekeeping.



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AIGB UPDATE/INDUSTRY UNIFICATION

WE ARE ON OUR WAY! GOOD FEEDBACK FROM CONSULTATION PROCESS

Neil Walker, Chair, Interim Apiculture Industry Governance Board

The consultation process for the restructured organisation's draft Constitution and Rules, membership structure and strategic intent has now closed. We have received good feedback, much of it constructive, which will assist and guide the IAIGB as they prepare the content of the final documents. We will be reading all submissions very carefully and replying where possible.

We started work on this task in late November with the goal of publishing the final Constitution and Rules as soon as possible. We will ensure all industry stakeholders have the time to consider them and make an informed decision prior to an NBA special vote to change the constitution, should this take place (see below).

Our view is that it is very important that all NBA members are fully informed and that the information provided is self-explanatory to ensure they are able to express their views, and that those views are actively listened to and taken into account as part of this process.

For our part, the IAIGB is concerned to ensure this same principle applies to everyone engaged in this process and that they have an equal opportunity to contribute to it.

However, we are now waiting on our partners, the NBA Executive Council, to confirm that they will indeed hold a special vote so members can decide whether or not to adopt the new Constitution and Rules.

So, as I write this, the IAIGB is ready and waiting to proceed. We can't do much more to progress the tasks we were mandated to do at last year's conference until we have a decision on the special vote by the NBA Executive Council.

That decision will hopefully be made just as this copy of the journal reaches you. We will update you on next steps as soon as we have confirmation from the NBA Executive Council. If the NBA Executive Council does opt to hold a special vote, our understanding is that they will, of course, manage that process.

Something really exciting and positive is happening here, where we can at last bring everyone together and we can really see the whole bee industry as a united group taking its place among the premier agriculture and horticulture industries of New Zealand.

If you have any questions or concerns to raise with the IAIGB, please email these to info@beeunified.org.



THANKS, EVERYONE: SEE YOU IN FEBRUARY!

The Publications Committee (Frank and Mary-Ann Lindsay, Serena Richards and Jenny Nelson) and journal editor Nancy Fithian wish you all a safe and happy festive season, and a bumper crop for 2016.

We hope you will be able to take some time to be with your nearest and dearest before resuming work.

Sincere thanks to our advertisers, without whom the journal would not be published—please support them! We are also grateful to everyone who has contributed articles and photos over the past year.

Many thanks to the members of the Executive Council for their tireless efforts on behalf of all NBA members, and to South City Print for a job well done again this year.

NB: The deadline for the February 2016 journal is Friday, 8 January, with a cutoff date of 15 January for articles and advertising. Please mark the date in your 2016 diaries now.



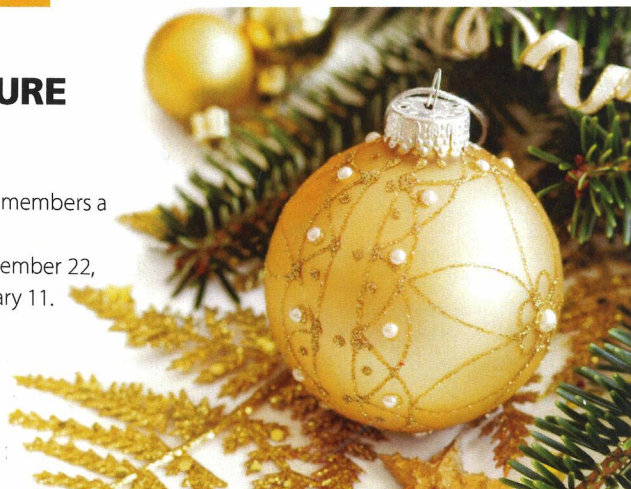
NBA HOLIDAY CLOSURE DATES

The NBA Management Team wishes all NBA members a safe and happy festive season.

The office will be closed from Tuesday, December 22, and we're back on deck Monday, January 11.

See you in 2016!

Best wishes,
Daniel, Pauline and Lauren





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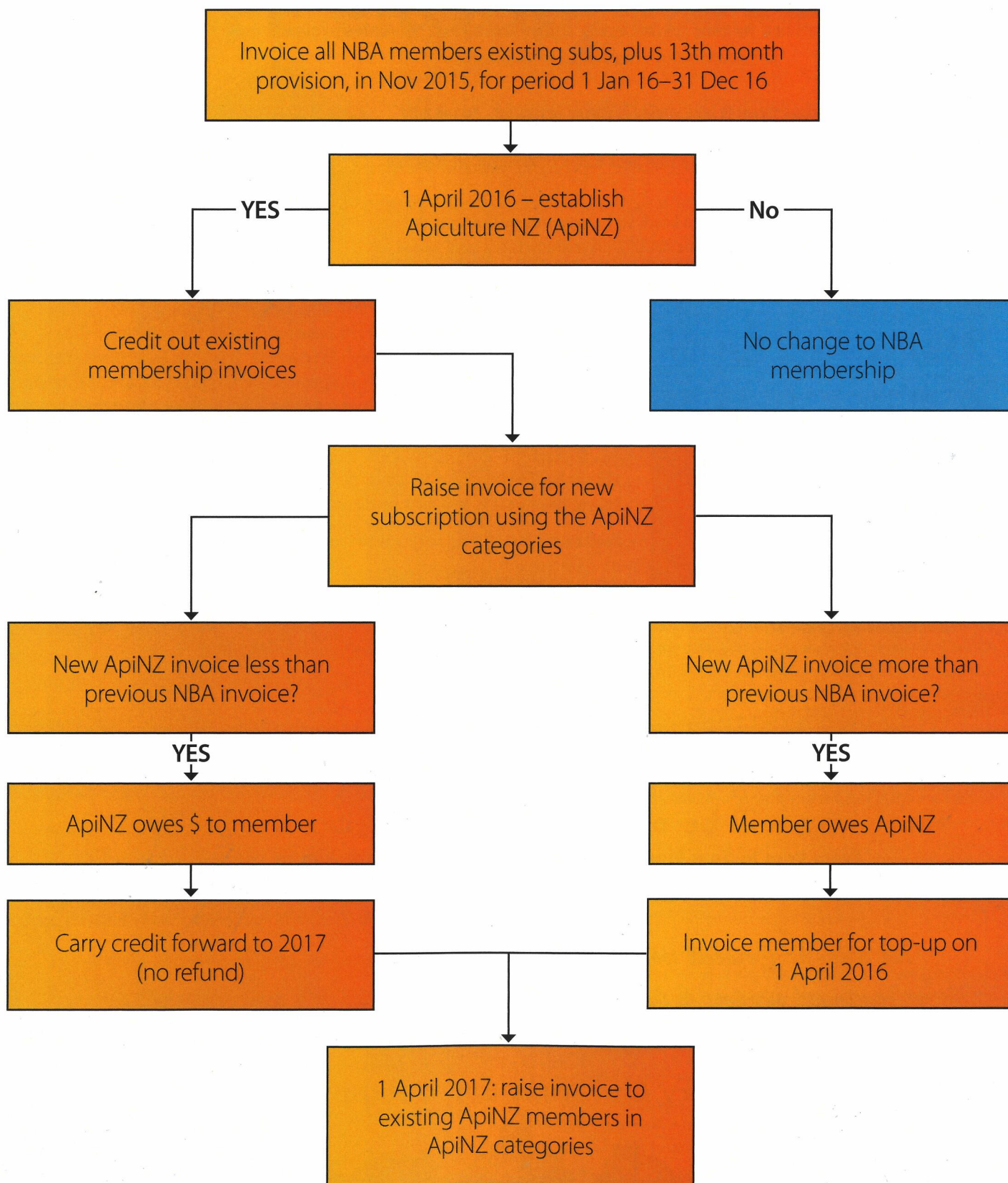
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NBA 2016 MEMBERSHIP SUBSCRIPTION PROCESS



NB: NBA members pay the 13th month for the 2016 year only. There is no third year required.
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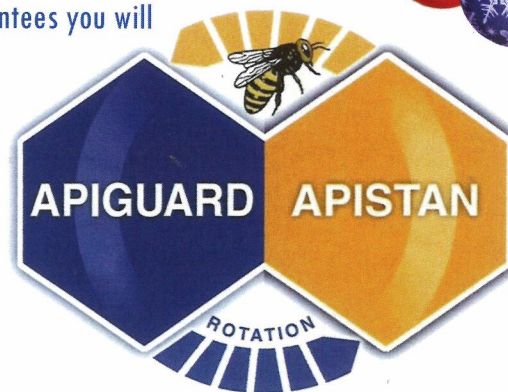
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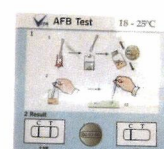
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Have a very Merry Christmas and a Happy New Year!



BUSINESS/MPI

STRENGTHENING THE REGULATORY FRAMEWORK FOR BEE PRODUCT EXPORTS

On 5 November 2015, the Ministry for Primary Industries (MPI) released MPI Discussion Paper No: 2015/41. The consultation paper and related documents can be found at <https://www.mpi.govt.nz/news-and-resources/consultations/proposals-to-strengthen-the-regulatory-framework-for-export-bee-products>. Submissions close on 17 December 2015.

The following has been excerpted from the MPI consultation paper. This article concludes with commentary from Frank Lindsay.

4.1.1 Enhancing traceability

Problem definition

Currently, there is an inconsistency in the standard of traceability being imposed on bee product exports. A full electronic traceability model is currently used for bee products exported to the European Union (EU) whereas a mixed paper–electronic traceability model is used for bee products exported to all other countries requiring official assurances. This distinction creates [several] problems.

Proposal

MPI proposes to mandate the full electronic traceability model. This means discontinuing the use of paper operator declarations and mandating the use of E-cert generated eligibility declarations and eligibility documents for all inter-premises transfers. This will result in a unified, consistent and effective traceability model.

The proposed requirements are specified under Part 7 of the attached Animal Products Notice: Official Assurances Specifications – Animal Material and Animal Products.

4.1.2 Listing of beekeepers

Problem definition

Questions have been raised about the ethics and integrity of honey being supplied by beekeepers due to media reports on stolen hives. This leads to the inevitable, albeit reasonable assumption that honey obtained through illegal means could be entering the official assurance chain. There is a reasonable argument for MPI to impose minimum but necessary measures in order to protect the integrity of our official assurance system, maintain its credibility as a regulator

Proposal

MPI proposes that listing of beekeepers is added as a general eligibility criteria for exporting bee products to countries requiring official assurances. Under this proposal, any beekeeper who supplies honey to an RMP operator for the purposes of export to countries requiring official assurances must be listed with MPI. Obligations will be placed on RMP operators to ensure that any bee products they process for export to countries requiring official assurances are only sourced from listed beekeepers, and to maintain a clear system of separation between eligible and non-eligible honey.

Comment from Frank Lindsay

MPI has done it again. They work all year on proposals, then put it out for consultation when beekeepers just don't have the time to look at anything, as obtaining an income for the next 12 months is more important. (Honey is produced over a six-week period, or a couple of months if you follow the regional differences, but not year round.) MPI did not submit an article to *The New Zealand BeeKeeper*—you have to monitor their website or be part of the Bee Products Standards Council to know what's going on. MPI staff then take a Christmas break and have time to sort through things when they get back from holiday.

We have raised this issue with MPI at conferences and advised that the best time to put up proposals is during the winter, when all beekeepers have time to look at them and consider the ramifications.

Some of the proposal is good, but just how much honey is stolen? And does it justify the additional costs placed on all small commercial beekeepers who supply honey to RMP processors from now on (forever)?

At the moment, everybody is seeing mānuka dollars but there will be a downturn when the definition of mānuka honey comes in. The new standards will require a higher amount of mānuka in the pot. Blends will not attract such high prices. Beekeepers will need to process honey more carefully, selecting frames to produce a purer product.

Not everybody supplies mānuka honey. Smaller beekeepers supplying honey to a RMP processor don't know where their honey will be marketed. This is decided by the packer, who looks to the market that provides the best return. Listing of beekeepers will add additional costs. MPI does nothing for nothing. To use the electronic tracing system will add another lot of additional costs. These transactions will have to be verified by ASureQuality every month that the system is used by beekeepers, at a further cost.

For the few tonnes stolen, does this justify putting costs on all beekeepers? Surely the use of electronic trackers and hive monitors will be a much cheaper option and will be a one-off cost. If there were no costs associated with this extra security, I'm sure all beekeepers would be happy to be part of the system.

Honey prices are high locally because of exports. Small-scale beekeeping is marginal during a dry season. Beekeepers not wishing to be associated with extra costs will simply put more honey on the local market and this could reduce prices domestically, taking us back to a period where we produced honey as a 'way of life' and not necessarily for profit.

All beekeepers should read the proposal, answer the questions and put in a submission to MPI.

Tis the season.

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BIOSECURITY RISK PATHWAYS

Quentin Chollet, Apicultural Technical Advisor,ASUREQuality Limited

New Zealand may be remote from the rest of the world and protected by the fact it is surrounded by oceans. However, our means of transport and volume of trade are such that the risk of a biosecurity incursion still is high. Indeed, more than three million visitors stepped foot in New Zealand in the past 12 months, as well as more than 600,000 containers transiting through our ports. Both of these numbers have been rising continuously in the past 10 years, representing an ever-increasing chance for a pest to pass through our borders. In addition, ships' ballast water, vessel hull fouling, used vehicles and machinery, mail and courier packs, smuggling (such as pets or seeds), wind and ocean currents can contribute to the spread of pests and diseases.

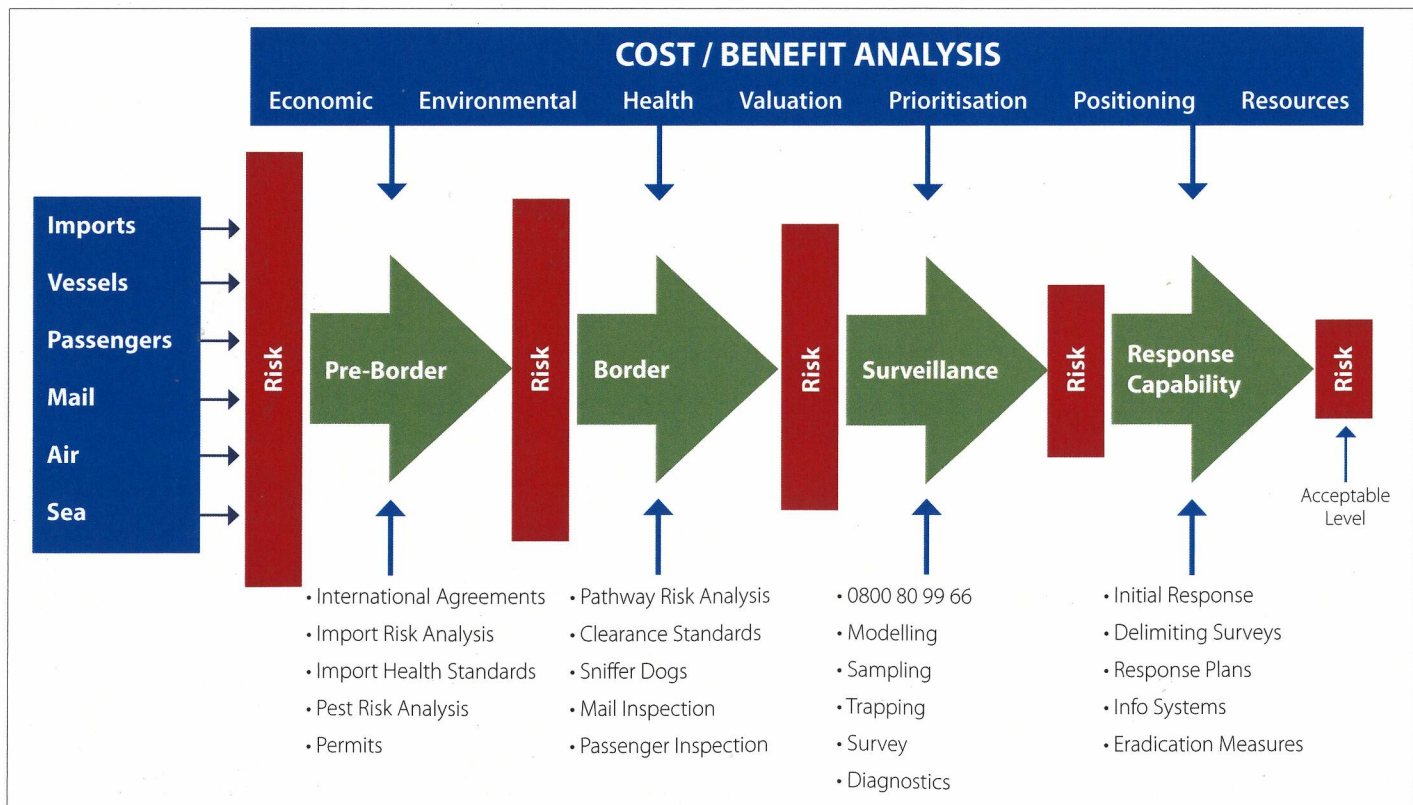


Figure 1: The multiple layers of New Zealand's biosecurity system.

continued...



Female golden web spider Nephila pilipes, Bali, Indonesia. Photo: mauriziobiso. Spiders are a commonly reported contaminant/pest.

To reduce the risk of the most important exotic pests and diseases to our economy, our environment and even our health, New Zealand, like many of our trading partners, carries out a range of activities designed to protect the country from bio-incursions.

In New Zealand, the framework for biosecurity activities is set by the Biosecurity Strategy dating from 2003, which is currently being updated by the Ministry for Primary Industries (MPI) into a Biosecurity 2025 Direction Statement.

How is biosecurity achieved?

Protection against biosecurity risks in New Zealand relies on seven layers of activities classified into three areas (see Figure 1):

1. Pre-border activities
2. Border activities
3. Post-border activities.

PRE-BORDER ACTIVITIES

Pre-border activities occur in the country from where the goods are coming into New Zealand.

International plant and animal health standard development

This is a set of standards based by the International Plant Protection Convention and the World Organisation of Animal Health.

Trade and bilateral arrangements

New Zealand partners up with some countries to develop Import Health Standards (IHS), and engages in technical cooperation allowing the establishment of free trade agreements.

Risk assessment and Import Health Standard development

Import Health Standards are the result of assessments of the risk related to particular diseases or pests (likelihood of invasion, effect on New Zealand, ways to manage the risk), and then looking at these risks in relation to a product. Countries exporting goods must comply with these regulations.

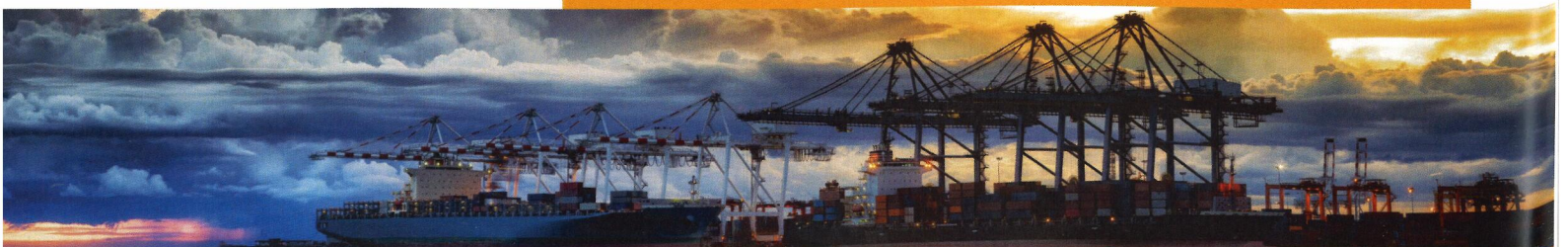
BORDER ACTIVITIES

Border activities are those that literally happen at the border to ensure pre-border measures are applied correctly, and to physically prevent the entry of any pest by any pathway. The border can be the port of arrival but also the transitional facility in which containers are opened for the first time on New Zealand ground. These transitional facilities can be located hundreds of kilometres away from the port of entry.

Border intervention

The frequency of checks operated by MPI Biosecurity officials on containers entering the country varies depending on the 'profile' of the goods. Several parameters (risk item pathway, the nature of the item, country of origin and previous history of the person or company sending the item) are combined to determine the risk associated with every good.

Biosecurity controls regarding travellers entering New Zealand are achieved by the quarantine declarations that are completed on the aeroplane or ship prior to arriving in New Zealand (pre-border control) and reality checks operated at the airport upon arrival (border control).



POST-BORDER ACTIVITIES

Post-border activities are those that happen after the border.

Surveillance

The goal of surveillance is to detect new pests or diseases to enable a quick reaction from MPI and the concerned industry. In the New Zealand beekeeping industry, surveillance for exotic pests and diseases is run every year byASUREQuality Limited on behalf of MPI. Three hundred and fifty apiary sites located in 'hot spots' (near international airports, ports, transitional facilities, tourist areas and large population centres) are checked visually and samples taken to the lab for further analysis.

Surveillance also enables MPI to provide economic partners with disease freedom attestations. The causative agent of European foulbrood, for example, is guaranteed not to be found in New Zealand apiculture products.

In addition to this active surveillance, MPI and ASUREQuality investigators respond to notifications of suspect exotic pest and disease incursions and other unusual mortality events through the Exotic Pest and Disease Hotline (0800 80 99 66).

Readiness and response

MPI and primary industries are now working towards GIA (Government Industry Agreement), which will help to guide the response process in the event of an incursion. Specific measures for major threats and generic programmes covering any possible scenario are to be set up to ensure New Zealand's response to an incursion is adequate and effective in eradicating the new pest or disease.

Pest management

Pest management plans can be put in place to control diseases that are established in New Zealand. The AFB Pest Management Plan is a great example of a national management plan dedicated to the eradication of one specific bacterium. Pest management plans are supported by specific legislation.

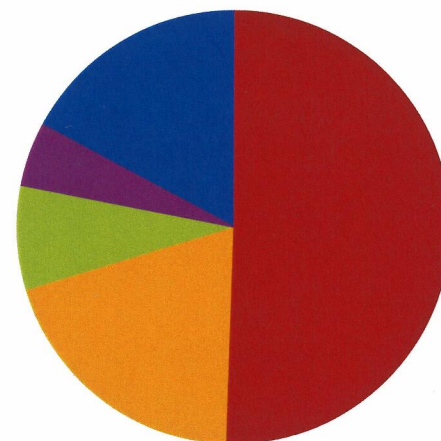


Figure 2: Left: Proportion of sea containers imported into New Zealand, by port 2012; right: Proportion of sea containers imported into New Zealand, by region last loaded 2012 (Source: MPI).

How significant are biosecurity risks to New Zealand?

New Zealand is in an enviable position from a biosecurity perspective. We have one of the lowest percentages of the world's top biosecurity pests and have no land borders. However, as with most other nations, New Zealand is a part of the world trade scene and as such, must put measures in place to minimise the biosecurity risk while not unnecessarily hindering trade.

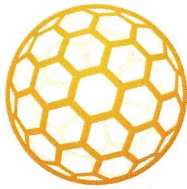
Sea containers

In 2014, more than 600,000 containers were imported into New Zealand (over 1600 per day). Most of these containers came into four main ports (Auckland, Tauranga, Wellington and Lyttelton). These containers come mainly from Australia, Asia and the Middle East, Southeast Asia and the Pacific Islands, where major bee pests are already established (e.g., European foulbrood in Australia, Asian honey bees in Asia). See Figure 2.

Air transport

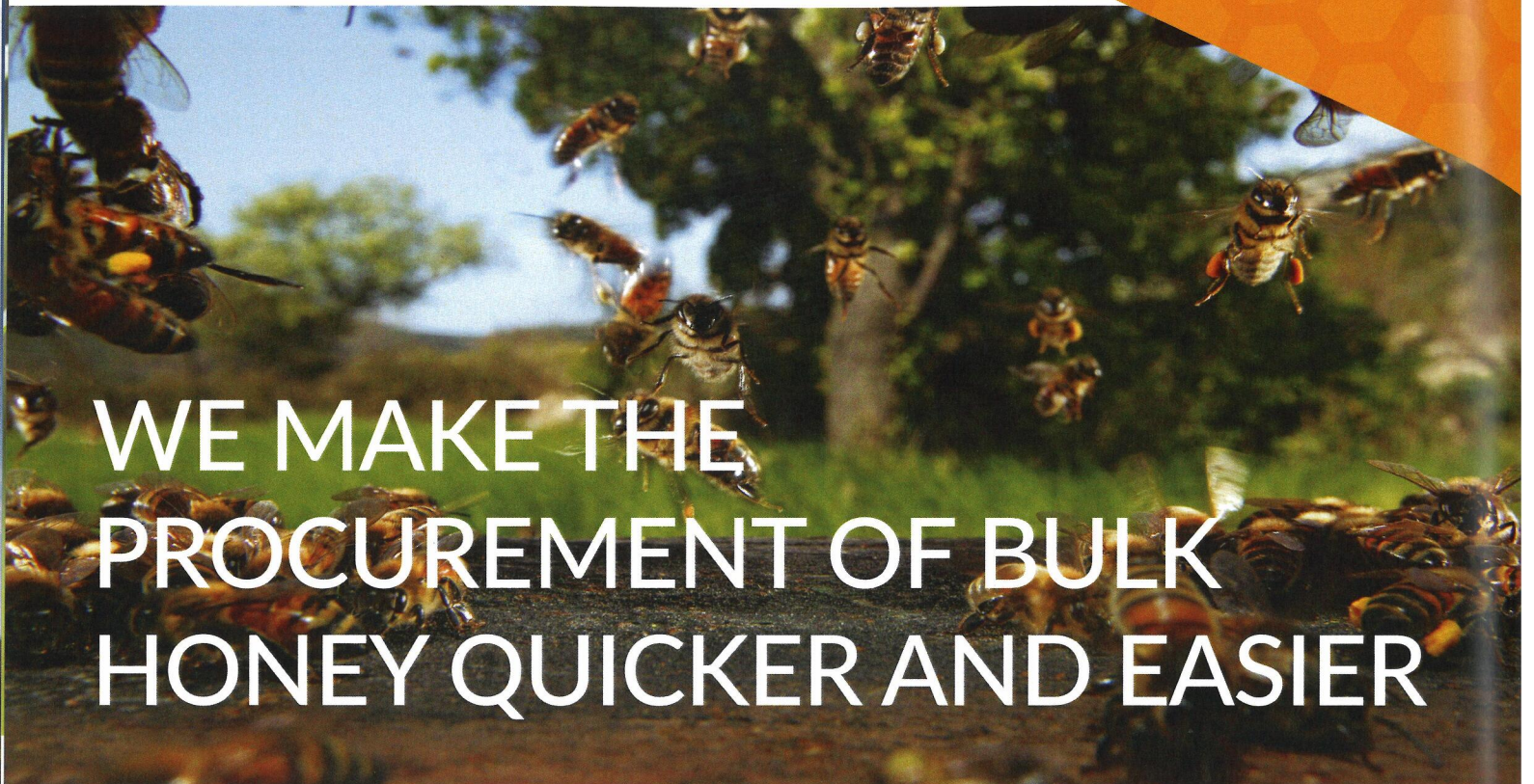
Air travel is a significant pathway for pests and diseases. In some cases, it is a more effective vector due to the speed at which transfers take place. An example is the Asian mite (*Tropilaelaps clareae*), which allegedly cannot survive long without honey bee brood as they cannot feed on adult bees. While Asian mites may struggle to survive long enough to be transported by ship to New Zealand, a flight, being a much shorter timeframe, could improve their odds of survival.

continued...



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Table 1 below shows the number of contaminants and pests reported by New Zealand officials between April 2014 and March 2015. There are no specific data regarding the beekeeping industry, but it is easy to picture the risk to which we are exposed. Soil harbouring small hive beetle larvae, swarms carrying diseases, contaminated honey being smuggled into the country ... our industry could be significantly affected by many of these biosecurity risks.

CONTAMINANT TYPE	NUMBER	%
Spider(s)	785	26.7
Insects (except ants)	675	23.0
Seeds	346	11.8
Soil	312	10.6
Other (e.g., cobwebs, rubbish, water)	243	8.3
Plant products	197	6.7
Untreated wood packaging material (non-ISPM 15)	83	2.8
Insect damage	66	2.2
Mould/fungi	83	2.8
Ants	41	1.4
Amphibians	23	0.8
Snails	19	0.6
Reptiles	18	0.6
Bark/straw	21	0.7
Animal products	13	0.4
Mammals (e.g., rodents)	7	0.2
Birds	3	0.1
Total	2935	

Table 1: Contaminants reported by Approved Persons (APs): April 2014–March 2015.

What can I do?

It is tempting to say that as biosecurity is the responsibility of the Ministry for Primary Industries, it should implement systems that protect us from these risks. However, while it is true that MPI is responsible for ensuring that biosecurity risk is managed, it is in the best interest of all New Zealanders to ensure that we maintain our enviable pest and disease status. As an industry, it is in our best interest to help ensure that exotic pests and diseases of bees are kept out and that if they pass through the border, they are found at a point where eradication could be attempted.

Therefore, as beekeepers we need to educate ourselves in what to look for when inspecting hives and to report anything that looks unusual. We would rather have a sample test negative than have no sample and discover a new pest or disease too late.

It is also good to remind everyone that the import of honey, used beekeeping gear and queens is strictly forbidden.

FURTHER READING

Container Transitional Facility information:

<http://www.mpi.govt.nz/importing/border-clearance/transitional-and-containment-facilities/>

The New Zealand Biosecurity System and how it operates, available online at: <http://www.kvh.org.nz/vdb/document/94099>

Ministry for Primary Industries. *Biosecurity 2025*. Available online at <http://mpi.govt.nz/law-and-policy/legal-overviews/biosecurity/biosecurity-2025/>

LETTER TO THE EDITOR

WHAT IS A HOBBYIST?

Stephanie du Fresne

While unification of the diverse group of people who keep bees is leading to lots of word changes, new acronyms and the like, I would like to question the classification system that divides beekeepers into “hobbyists” and presumably ‘serious beekeepers’—the title for the non-hobbyist beekeeper never seems to be made explicit.

As someone who keeps bees for other than commercial purposes, it would make sense to me to distinguish commercial from non-commercial beekeeping; and in the complex process of setting fair levies it might make sense to distinguish small-scale beekeeping from larger-scale beekeeping.

However, hobby is defined in the *Oxford English Dictionary* as “A favourite subject or occupation that is not one’s main business; a spare-time activity followed for pleasure or relaxation.” And the examples given make the status of the hobby clear, thus: ‘Kirk’s painting had always been more of a hobby with him than a profession’; ‘Trade and industry were interesting hobbies but not serious vocations’. I’m aware of small-scale non-commercial beekeepers who look to me as if they have a very serious vocation for beekeeping, and I do my beekeeping when the bees need keeping, not in my spare time. And while it’s always fascinating and rewarding, sometimes it’s not at the time pleasurable or relaxing.

And I do notice that “hobbyist” beekeepers are the ones thought to need lots of training and education, whereas it seems to me all beekeepers need to be on a permanent learning curve, and the length of one’s experience—plus one’s openness to learning—is likely to be more important than the number of hives one keeps.

In the very helpful feedback to us hobbyists from Kim Poynter at the IAIGB Meeting, I note that it is proposed that those with 1–10 hives will be defined and levied as hobbyists. This lobbyist hobbyist is lobbying for that to be correctly labelled as an issue of scale; and where the issue of commercial as distinct from non-commercial beekeeping arises, for that also to be correctly labelled.

[Editor’s note: Ricki Leahy addresses this issue in his President’s report on page 5.]

TREES FOR BEES CORNER

MANAGING MĀNUKA FOR CARRYING CAPACITY AND COMPETITION



Dr Linda Newstrom-Lloyd

The medical value of mānuka honey has produced a prosperous new sector in the agricultural economy, especially for landowners with unproductive marginal land. These opportunities have brought many new people into beekeeping, with hive numbers doubling in five years from 300,000 in 2010 to nearly 600,000 today (Figure 1).

Risks posed by overstocking

Such rapid growth of hive numbers has given rise to new challenges. John Berry recently said, "Beekeeping has never been more profitable but it has also never been more stressful". When Trees for Bees started in 2009, we did not imagine that the challenges to bee nutrition would reach the proportions that we see today, particularly the overstocking issues near the centres of high-value mānuka honey harvesting.

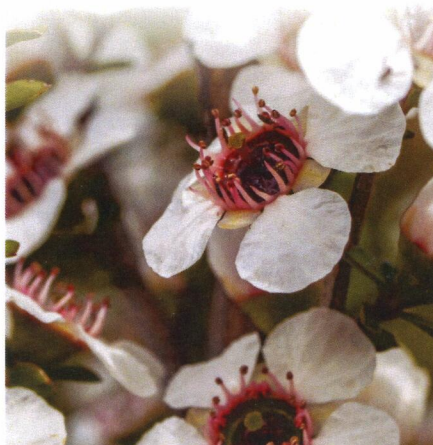
The rapid rise in hive numbers relative to beekeeper and apiary numbers (Figures 2 and 3) has generated unprecedented levels of overstocking in many regions, not only for the honey harvest but also for overwintering sites that deliver autumn and spring pollen and nectar.

Deanna Corbett told us that overstocking and carrying capacity are concepts well understood by livestock farmers. She explained:

if a farmer puts one more cow on a pasture beyond the stocking rate for the amount of food within the fenced area, then the herd will not reach its best live weight. Put 10 or 100 excess cows on and they end up with a live weight deficit and health issues. The problem is that bees have no fences.

Newcomers to the beekeeping industry may be unaware of the carrying capacity of an apiary site because they cannot readily see it.

How can the carrying capacity be estimated for bees living in hives and flying over fences? The carrying capacity can be defined by



the foraging range of the bees (three- to five-kilometre radius) in relation to the floral resources of pollen and nectar within that range. Over time, beekeepers learn to estimate how well different vegetation types can 'carry' a given number of hives. If the carrying capacity of the foraging area is exceeded, then there will be less (or even no) surplus honey to harvest. If carrying capacity is greatly exceeded, there will be malnutrition and colony failure due to diseases or starvation. For example, malnutrition leads to susceptibility to diseases like *Nosema ceranae*.

Estimating colony food and water needs

How much food and water does a single bee colony need? Bees need pollen to raise their brood and nectar to fuel their activities. The farther they have to fly, the more fuel they use up.

John McLean has given us some estimates based on a single wild colony in a cold, temperate climate, citing Thomas D. Seeley's book *The Wisdom of the Hive* (1995). The annual hive requirements are approximately:

- 20 kilograms pollen (pre-digested by nurse bees fed to queen, brood, and other workers)
- 120 kilograms nectar (energy food for all life stages made into honey: it takes five to eight grams of honey to make one gram of wax)
- 25 litres water (evaporative cooling of hive and vital for nurse bees for royal jelly)

A rule of thumb is that about one-third to one-half of a normal nectar harvest is used up by the bees to keep the colony alive. For this reason, beekeepers have historically been careful not to encroach on the foraging range of neighbouring apiary sites based on the 'golden rule' of beekeeping.

A concentration of too many apiary sites with too many hives has an impact on all beekeepers in the area, but most of all on the traditional beekeeper who originally occupied that site, usually for decades.

Paul Badger reports:

most mānuka sites (probably about 90%) are summer sites (approximately 3 months) for honey cropping. If these are overstocked, everyone just gets a reduced honey crop. If there is no crop and no money this should eventually be self-limiting. The rest of the year (9 months) bees are on their wintering sites. This is where the real problems are happening.

Spring build-up can be compromised by lack of suitable forage as well as dealing with periods of bad weather. This is where the health problems will have the greatest effect. A hive with low bee numbers going into a mānuka flow will never gather much honey because it will use the flow for building up bee numbers. We do not want to get to the situation of trying to keep bees in sterile deserts with hundreds of hives fed on sugar syrup instead of nectar and artificial pollen as a their only protein source.

The importance of foraging range

To manage mānuka carrying capacity, a good understanding of the foraging range can help a new investor, farmer or landowner to assess the probability of successful honey harvests from their proposed mānuka installations.

he area covered by the foraging range needs to be examined not only or its carrying capacity, but also for any potential for competition from other apiary sites placed too close to the new plantation. A three- to ve-kilometre radius is a huge area and few farms would be that large. A cluster of small-scale farms working together cooperatively could be managed to cover the area of a large-scale farm that encompassed most of a foraging range.

ut it is not simply a matter of competition from other apiary sites placed too close. To be sure to get a good mānuka harvest, the foraging range must also be assessed for any competing plants that flower at the same time, especially if they offer better nectar than the mānuka variety planted. A flower producing more nectar with higher sugar concentration is generally preferred by bees, particularly if the nectar is more accessible. If abundant enough, these preferred flowers will distract the bees from foraging on mānuka, which deliver nectar in very dry drops.

Another problem to watch is the composition and abundance of the pollinator fauna in the area that could compete for the mānuka flowers, such as native bees and flies that frequent mānuka flowers.

Any of these sources of competition can decimate the targeted honey yield that was planned for—encroaching apiaries for summer overwintering, alternative nectar sources nearby, or competing pollinators. To manage carrying capacity and competition well, the investor, landowner or beekeeper need to be aware that the scale of the mānuka plantation and potential concentration of nearby apiary sites is critically important.

Respect the 'golden rule'

Equally important is the flowering calendar of the surrounding pollen and nectar sources for spring build-up, summer honey harvesting and overwintering survival of the bees. If the area is rich in diversity and abundance of bee plants, then the apiary could be resilient to competition from any of the sources. A return to the 'golden rule' of beekeeping—to respect the foraging ranges of neighbouring apiaries—will safeguard the health of bees and honey yields for everyone and make investments in mānuka honey plantations less risky.

Harry Foster has proposed that Trees for Bees plantations can help mitigate the problems arising from lack of sufficient pollen and nectar due to overcrowding on a site. We agree with this proposal and believe that mānuka plantations can be sustainable if they include sufficient range for spring and autumn. Installing plantations of bee feed trees and shrubs to cover spring and autumn will ensure sustainability for a residential apiary system.

Planting high-performance bee feed plants can go a long way to alleviating and preventing overstocking problems. However, there is a limit to how many trees, shrubs and herbs that will fit into a hectare. Therefore, self-regulation of apiary sizes and placements will also need to be tackled by beekeepers, farmers, landowners and investors in a cooperative manner. Everyone must come to terms with the fact that carrying capacity for bees in any area will have a limit and since bees have no fences, overstocking leads to reduced profits for everyone.

Source

Seeley, T. D. (1995). *The wisdom of the hive: The social physiology of honey bee colonies*. Cambridge, MA: Harvard University Press.

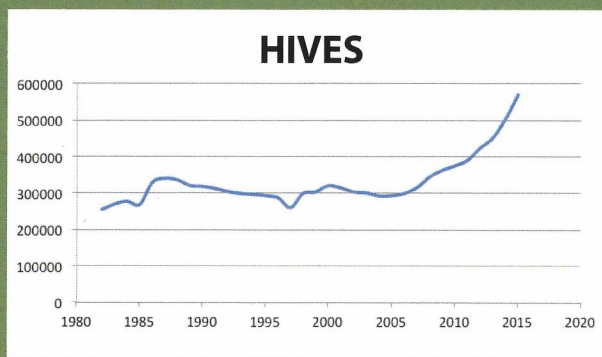


Figure 1. Number of hives in New Zealand from 1980 to 2015. Hive numbers have nearly doubled in five years from 2010 to 2015, reflecting the growth of the mānuka honey harvesting industry. This raises the question about carrying capacity for bees.

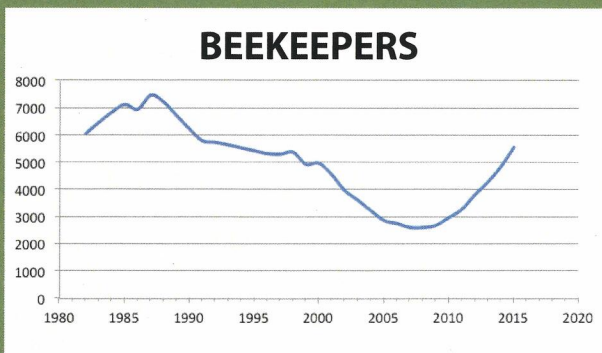


Figure 2. Number of beekeepers in New Zealand from 1980 to 2015. Beekeeper numbers were as high as 7000 in the late 1980s, but declined after 2000 when varroa arrived in the North Island. The rise in beekeeper numbers has accelerated since 2010.

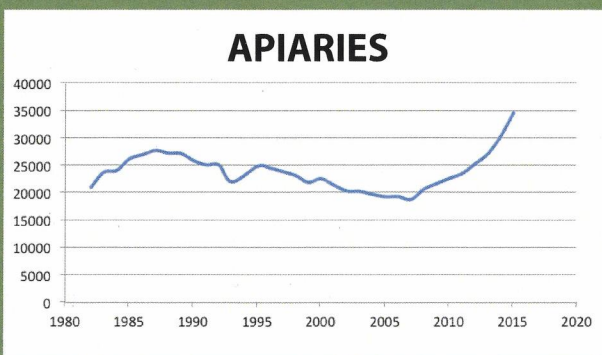


Figure 3. The number of apiaries in New Zealand from 1980 to 2015. Apiary numbers have remained relatively stable with a slight decline after 2000, when varroa arrived in the North Island, and then a sharp rise since 2007, reflecting the growing interest in mānuka honey harvesting.

BUSINESS/HEALTH AND SAFETY

TRAVELLING WITH BEES

John Bassett

[Editor's note: with a busy new season upon us and many new entrants to the industry, we felt it was timely to reprint this article originally published in the August 2013 journal. John Bassett has made some minor modifications to bring it up to date.]

Bees and beekeeping are enjoying increasing public awareness and support. It is therefore important that our industry strives to minimise the adverse effects that inevitably result from some of our work practices.

Two activities that regularly receive negative attention are travelling with bees and transporting honey supers. A few bees left flying around the fuel station lights or at the lunch bar might be nothing to beekeepers, but it would be 'hundreds' to a member of the general public who will have to cope with those bees long after we have gone. And the sight of bees spewing from the back of a truckload of honey supers certainly doesn't indicate professionalism.

Shifting hives

The majority of hives shifted are for pollination or migratory cropping, and more often are done with the entrances open to prevent overheating. The load is usually covered with a 'scrim' so that bees are securely contained even in daylight or under lights. Some points to remember are:

1. an excellent 'scrim' cover can be made from green 80% shade cloth. The heavy-duty knitted variety does not 'pull' on the corners of hives, nor billow excessively in the wind
2. even if you prefer to travel at night uncovered, take your cover with you in case of delays
3. the best time to load is in the half hour before dark and after bees have stopped flying. The load will be happier too!
4. a diesel motor left running at idle will encourage bees to sit quietly on the truck if you stop
5. at refuelling stations, pick the pumps furthest from bright lights, then park in the shadows as soon as possible
6. beekeepers using screened bottom boards for varroa control are usually able to plug the entrances for shifting



A truck-load of hives under scrim.

7. top screens with spacer cleats fitted under the roofs and the hives secured with EMLock® straps are excellent, especially for small numbers. With entrances plugged, they can then be safely transported in daylight, but all the equipment must be bee-tight
8. foam rubber strips made from a 25-mm topper pad are very efficient for plugging entrances
9. in the event of an accident or spill, bees can, if necessary, be killed efficiently with foam (detergent/water mix). Serious operators should carry a foam-type (not powder) fire extinguisher.



Examples of a top screen and escape board (showing top and reverse sides).
Photos: John Bassett.

Honey loads

When honey is harvested using escape boards the supers are free of bees, and with a little care the load can be kept that way. Where bee blowers (or other methods) are used, it is common to have a load of honey with quite a few bees. Unfortunately, some beekeepers still head for home with the load uncovered to let these bees out. Food hygiene regulations require honey supers to be covered during transport (i.e., "minimise exposure to contamination" in the harvest declaration) and it makes good sense.

1. Escape boards make excellent covers for honey stacks and allow for robbers to escape one or two at a time.
2. The time-honoured system of using sacks or a scrim cover rolled back as loading progresses will keep some of the bees out. However, it is not very efficient, especially with the modern emphasis on hygiene.
3. Individual covers (such as escape boards) have a bad habit of coming loose under load straps. A tarpaulin or 'scrim' over them is advisable on the open road.
4. If the load has attracted a significant amount of robbers during the loading

process, it is better to cover up (tarpaulin or scrim) then briefly stop and uncover a few hundred metres away before re-securing the cover for the road home.

5. If you must let bees out, do it at your own apiary or depot—not someone else's!
6. Some beekeepers with truck-mounted cranes now stack their supers of honey on pallets and cover with a large plastic bag before loading onto their truck. Trapped bees can escape through a hole in the top of the plastic bag.
7. Sticky supers still need to be covered for transport; otherwise they will cause trouble for someone wherever you stop.

we all suffer when
those with a 'cowboy'
attitude undermine
the public's increasing
goodwill

Most of the complaints from businesses and the public relate to bee spills from commercial beekeepers. The majority of us are professional operators, but we all suffer when those with a 'cowboy' attitude undermine the public's increasing goodwill towards our industry. Some of the above points may be useful to those needing guidance.



CARELESS TRAVEL WITH BEES

Miriam Nicholson, former NBA Executive Secretary

The importance of following best-practice guidelines when travelling with bees can't be overstated. Careless travel not only endangers the public, but can have disastrous consequences.

Neil Farrer, in his 'From the Colonies' reports published in the *[March and April 2013]* journals, highlighted an incident where beekeepers were parking their trucks overnight in the centre of town, causing issues for the general public (Farrer, 2013, March).

Additionally, it was noted that, "a truck loaded with hives stopped to fill up with diesel", causing the BP station to "close for several hours" as a result of the chaos. Neil reported, "Now all Wanganui-area BP fuel station managers have decided to automatically ban from their forecourts any truck that arrives with bees on or flying around it" (Farrer, 2013, April).

The Ruapehu District Council also wrote to the NBA in March [2013] about safety issues when travelling with bees.

The council's letter said, "The council is aware that there is a lot of activity with bee keeping traffic around the Ruapehu District at this time of year. The majority of rural roads are unsealed and narrow with low traffic numbers; however it is not unusual to meet traffic of all sizes on them. Care must be exercised at all times."

The letter continued, "the concerns from Board Members are that bee keeping truck drivers may be unfamiliar with the area and are not driving to the conditions; there have also been observations of bee keeping trucks travelling more quickly than the road environment would suit." (Ruapehu District Council, personal communication, March 2013)

The NBA believes that careless travel with bees has a damaging effect on the reputation of beekeepers.

[Editor's note: Frank Lindsay adds, "Since this article was written, enforcement officers are now writing out tickets for insecure loading for loads not covered. If they see a bee flying off, you get a ticket."]

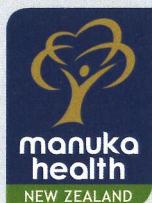
Things to consider when loading and travelling with bees and/or honey

- Ensure you follow guidelines, not just when transporting bees but honey boxes as well.
- Slow down through road works. If you have to wait for a 'lollipop man', be considerate and stop 100 metres away so road workers are not affected by hovering bees.
- Travel at night whenever possible.
- Put a cover over the truck. You can use scrim (hessian cover).
- Ensure the load is secured tightly to avoid anything falling off or becoming unstable and therefore requiring you to stop.
- Check loads regularly during your trip, ensuring you stop away from housing or schools etc.
- Park in uninhabited places. Do not stop in built-up areas or anywhere that will cause a problem—service stations, towns, motels etc.
- Fuel up prior to loading.
- Be considerate and use common sense.

We all need to do our part when travelling with bees. If not, we risk the possible formulation of regulations around this issue. We need to ensure that it doesn't become a persistent problem by acting considerately and remaining informed of best practice for the greater good of the industry.

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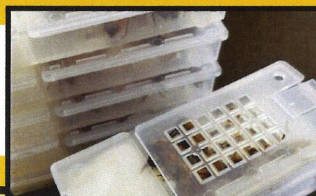
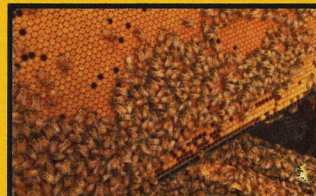
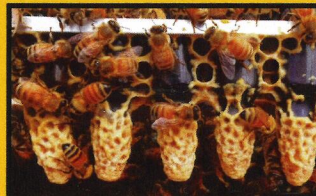
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PEST AND DISEASE CONTROL

A NEW APPROACH TO A SUSTAINABLE BEE POPULATION

Philip Cropp, Project Leader, Rainbow Honey E-mail: philip@nelsonhoney.com

Sustainable Farming Funding was granted to Rainbow Honey in June 2014. The application was for 'A New Approach to a Sustainable Bee Population'.

The long-term goals for the project were:

1. to improve the selective breeding techniques of honeybees to the varroa mite and other economically important traits
2. to develop reliable methods for long term sperm storage
3. to identify bee peptide profiles associated with the inhibition of varroa reproduction.

This project was designed to improve the selective breeding techniques of honeybees for tolerance to the varroa mite and for other economically important traits. We looked to develop reliable methods for long-term sperm storage and identify bee peptide profiles associated with inhibition of varroa reproduction.

These methods will contribute to quick, inexpensive and accurate assessments of breeding candidates, enhance control and timeliness of mating, and provide better management of genetic diversity in the New Zealand honey bee population.

We proposed to develop an environmentally sustainable alternative to chemical treatments for varroa that will make the bee population healthier and cheaper to maintain, and provide pollination security for all bee-dependent agricultural sectors. This will benefit the bee products industry, pollination-dependent fruit, seed, and vegetable industries and producers of animal products dependent on bee-pollinated forage species. Pollination security is crucial for primary production sectors that contribute approximately \$5.1 billion per annum to the New Zealand economy.

The project started with great enthusiasm and anticipation. The project team was profiled and a steering committee was sought.

Field trials

Field trials commenced after a guideline handbook was written for the seven commercial beekeepers who had agreed to be part of the Varroa Tolerance Selective Breeding Programme. These field trials were part of an experiment to determine the genetic dose of varroa tolerance trait that bees need to manage varroa effectively.

As we attempted to determine the lowest threshold of varroa tolerance needed, we knew that we would have failures along the way. These provided opportunities for us to learn and improve our techniques.

In October 2014 the beekeepers received the following from Rainbow Honey (RH):

1. eight unmated varroa tolerant queens expected to mate with local area drones; i.e., the workers will receive 50% of

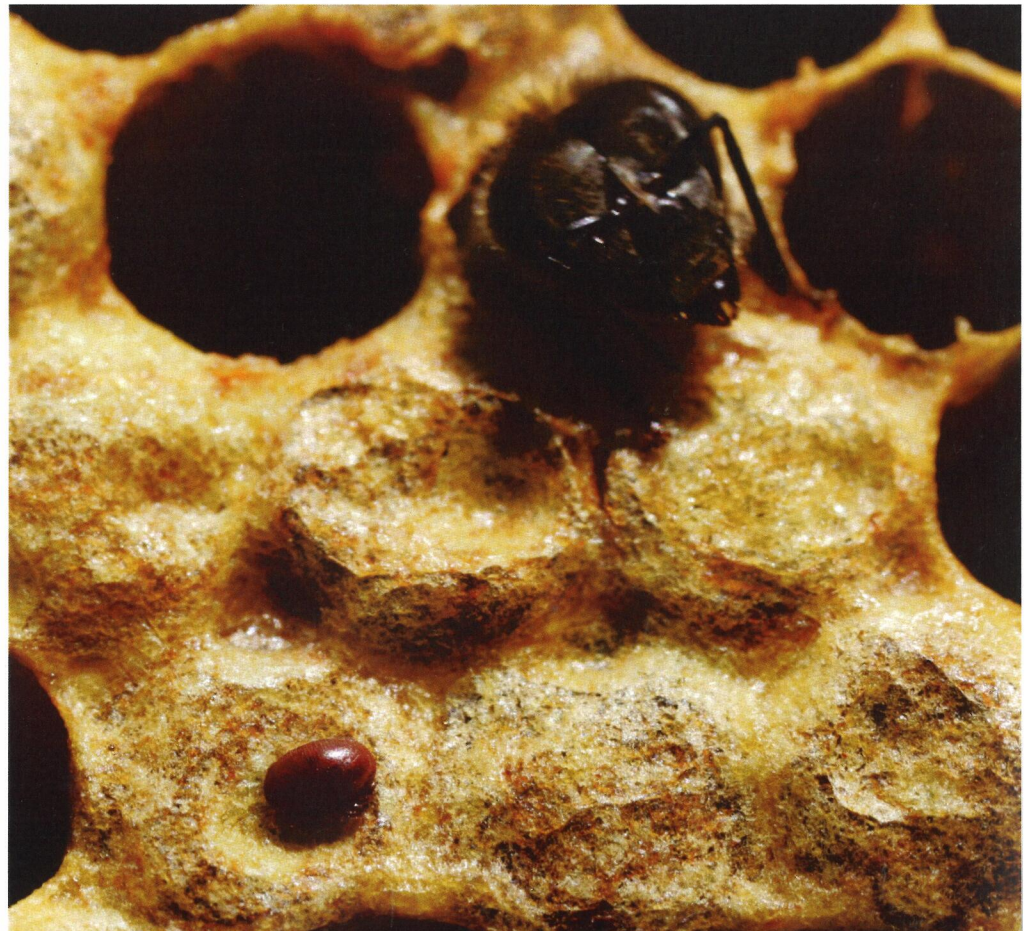
their genes from their varroa tolerant mothers and 50% from these beekeepers' commercial stock

2. eight mated queens already mated with drones from the varroa sensitive hygiene (VSH) hives; i.e., the workers receive 100% of their genes from varroa-tolerant stock
3. commercial beekeepers were to select potential breeding stock of their own to be monitored for VSH and other traits every two months by Rainbow Honey.

Some unanticipated issues arose with the above approach:

- beekeepers were not wanting to jeopardise their Italian stock
- beekeepers were spring-treating hives for varroa
- an overall lack of data.

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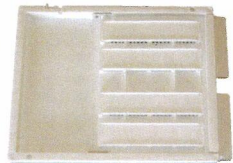
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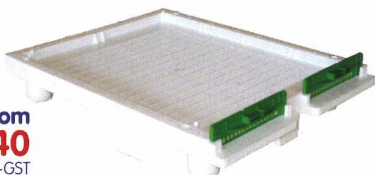
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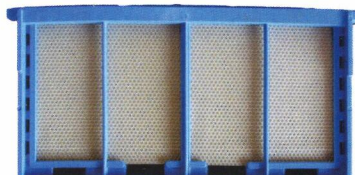
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This prompted Rainbow Honey to personalise each participating beekeeper's programme, resulting in:

- instrumental insemination between participating beekeepers' stock
- regular phoretic varroa counts.

Assay redesign

In the laboratory, the initial plan was to collect 480 semen samples and store them in preparation for an insemination schedule of 30, 60, 90, 270 and 365 days. The Cawthron Institute, upon reviewing other research articles and consulting with Brandon Hopkins and Rainbow Honey, redesigned the assay. Two hundred semen samples of five microlitres were collected in November 2014. Forty samples were fresh semen and the other 160 samples were divided into four varying types of coating solutions.

Twenty virgin queens were inseminated twice with five microlitres a day apart with fresh semen: they were the control queens. The rest of the semen was stored at a controlled temperature for 12 weeks.

The inseminated queens were monitored, and 30 days after insemination, the brood was assessed for viability.

There was not a high survival rate for any of the insemination treatments, including the controls. Hence the results were not conclusive, other than that the brood score was higher for both the fresh semen and the treatment with the highest antibiotics and antioxidants, indicating the semen viability was stronger.

Rainbow Honey chose not to commence with identifying the bee peptide profiles associated with the inhibition of varroa reproduction, instead choosing to concentrate on VSH increase and testing skills.

Taking stock

This year's programme has thrown up a number of questions, whilst at the same time producing some conflicting results. Across the board, including all results from Rainbow Honey and the seven VSH partners, our highest VSH percentage in a surviving hive is 57% with 27% in the 30+ range.

On a positive note, this indicates the continued presence of the VSH trait within our bees, but we need to refine our breeding programme to try and improve on increasing this trait. Anecdotally, we have heard that in the USA that it took eight generations of purely focusing on the VSH trait to produce a 100% VSH queen.

Now is an appropriate time to take stock, analyse the data collected and review the results as a means of quantifying what went well and identifying the areas that need refinement.

It is our belief that the scope of the project has grown to a level whereby obtaining accurate and consistent data has become problematic. Looking forward, we believe that the overarching project objectives need to be clearly re-defined, and that the overall size of the project base needs to be narrowed to increase the success rate of obtaining the long-term objective of producing a line of bees with high VSH.

We propose that the focus for the forthcoming season is on quality rather than quantity, adopting and refining a more scientific base for our test work with rigorous and standardised procedures in place for the collection of data, coupled with work towards ensuring the survival of our potential breeders.

It is our belief that the adoption of the corrective actions outlined above will result in a more robust set of data that will enable the project to move to its next level. We appreciate your support in this project to date and look forward to continuing working together in the future.



ACKNOWLEDGEMENTS

Rainbow Honey would like to extend a big thank you to all those involved in this project.

Project Team members include:

- Science Leaders: Drs Mark Camara and Serean Adams, Cawthron Institute
- Project Manager: Julie Varney, Business Development Company
- Project and Technical Leaders: Rae Butler and Philip Cropp, Rainbow Honey.

Steering Group:

- project members as listed above
- John Hartnell, Federated Farmers Bee Industry Group
- Professor Emeritus John McLean, Research Committee, National Beekeepers Association of New Zealand
- Ricki Leahy, President, National Beekeepers Association of New Zealand
- Jane Lorimer, Past President, National Beekeepers Association of New Zealand.

Commercial beekeepers and co-funders:

- Ashburton Apiaries Limited
- Manuka Health Limited
- MacKenzie Country Honey Limited
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Many thanks to all our Beekeepers new and old for their continuing support during 2015

BRANCH REPORTS

FROM THE COLONIES

Hawke's Bay Branch

After several years of few or no problems, spray poisoning has been occurring in pollination hives this year. Fortunately there has not been a lot but it is a concern.

Interest in beekeeping is increasing year upon year. Deanna Corbett had another large crop of budding hobbyists take her course this year and I really enjoyed hosting them for a few hours. Although everyone was given veils, I showed them through half a dozen hives without any protective gear to show them just how gentle bees can be when handled properly. By the end of the session everyone was a lot more relaxed.

- John Berry, Branch President

Bay of Plenty Branch

The Bay of Plenty has had a nice spring for bees. The biggest problem was stopping swarming as the hives have strengthened exceptionally well.

Rewarewa has had a good set this year and nice golden honey is pouring into hives that we have within flying range of these trees.

Avocado pollination is in full swing, gold kiwifruit pollination has started, clover is flowering in paddocks, mānuka is flowering—all in all, a great time to be a beekeeper.

I am off now with some more pollination hives to deliver, so talk to you next journal.

- Bruce Lowe

Southern North Island Branch

The weather has warmed up, but after the October flow it has been lean pickings. Now the cabbage trees are flowering well, so there are some forage plants for the bees.

Finally the 'powers that be' have realised that mānuka and mānuka honey could have significant benefits to our region for employment and exports. Some things take a long time to filter through. The increase in beekeepers and hive numbers certainly prove that many new chums are trying to cash in on the supposed cash cow: a bit like the changeover from traditional farming to dairying. We live in interesting times.

Matings have been slow at times with the new queens not being able to get out with the rain and cold; however, there are plenty of swarms around in town and in the country. Once the barberry starts to flower I usually get callouts for swarms around the city. I have passed a large swarm hanging on a tree next to a commercial apiary for six days now. It is slowly getting smaller. I guess the more apiaries one has, the harder it is to keep track of swarm cells in the hives. It certainly is a busy time.

Most beekeepers in our area are gearing up for the start of the honey flow from early December on. Let us hope for another good season.

- Neil Farrer, NBA Life Member

Nelson Branch

The weather over the past five or so weeks has been quite mixed. We have had a lot more wind than normal, which has had an influence on those wanting queens mated. Reports indicate such activity is possibly running a week or so later than previous seasons. Although temperatures generally have been warmer, we still managed a frost in early November. Hopefully the last.

From a pollination point of view, apples had a very short flowering and hence hives tended not to be long in orchards. As I type this, boysenberries are currently all in flower and kiwifruit not far away. There appears to be a great flowering of barberry and hawthorn on the river valleys. So that, combined with the other plants currently in flower, is providing plenty of food for growing beehives.

Most hives are building up well, with quite a bit of swarming happening. While this is not uncommon around this time of year, it has been mentioned that perhaps the addition of Carnolian genetics may have been having some influence on this behaviour also. Varroa numbers appear low, but unfortunately some AFB is being reported. In one case it was from unregistered hives/apiary, which required authorities to act and destroy the infected hives. There are some new bee operations setting up in the region, so hopefully this doesn't cause too much conflict as we move into the honey-gathering season.

Hopefully all will be able to have an enjoyable festive season.

- Jason Smith



My father checking his beehive on the roof in Nelson.

Canterbury Branch

We have had some drizzle showers through October in our area, enough to keep the grass growing. This has been localised and areas further north in Canterbury have missed out.

The continuing dry in Canterbury has provided reasonably settled weather, which has been good for queen matings.

I have had reports of an early honeydew flow along the foothills of mid Canterbury. Yellow flowering crops (brassica) are showing up throughout Canterbury, providing an additional nectar flow in a time of natural dearth.

Dandelions seem to be spreading more and more throughout pasture. Enquiries into this reveal that it could be caused by older pasture, pH imbalance, and potassium deficiency.

The clover root weevil still seems to be having an impact, as clover is not as noticeable in pasture or even on the sides of the road yet.

A reminder when catching swarms from a tree branch: cut the branch off into an open weave bag of some sort. (Some dog biscuits bags such as Tux are good for this purpose.) This will enable all bees to be caught and not leave an annoying few left hanging around afterward.

Put swarms into a nucleus box with a frame of mixed brood and a feeder with sugar syrup and spare frames. This will help prevent the swarm flying off again. Swarms into hives should be monitored for two years to allow time for any AFB spores to show up that may be with them.

By the end of November, and before the main honey flow starts, you should have removed varroa treatments from hives.

Best wishes for a bountiful season and here's hoping for some timely rainfall.

-Noel Trezise

Southland Branch

The Southland spring has been as character building as ever. When it hasn't been raining, it has been blowing with the odd fine day to gather some pollen. Hopefully some queens have managed to find some willing drones and should be laying soon.

Industry proposal

There are concerns from some members regarding the proposed new industry body. What is being proposed has fairly large funding requirements and there seems to be an expectation that a commodity levy can be put in place to fund PR companies, CEOs, office space and whatever else a modern industry body is supposed to have. I seem to remember that a commodity levy requires majority support from all paying stakeholders, not just a few at a conference, and last time the industry voted, the commodity levy was thrown out.

The industry currently has a gold-rush mentality with ever-increasing prices. Everything that goes up rapidly in price invariably at some stage has a correction, often an over-correction. When this happens, can this new entity be run on a shoestring budget?

The latest proposal is suggesting the end of the established branches, to be replaced by a number of hubs. These hubs would be controlled by the management team, even organising field days, meetings or whatever the management team determines that area needs. The current branch structure of the NBA performs vital functions and must be retained and managed by the local members, for the local area, not by some outsiders.

The group putting this new entity together have only wanted to hear positive comments and have been unwilling to accept that some people have reservations or concerns. Members must have the trust that their

opinions can be voiced and taken seriously or why would they give support to an entity that is supposed to represent them?

Beekeepers, look closely at the latest proposal. It is an expensive, top-heavy structure giving paid staff control of your industry. The draft rules proposed drive the industry from the top down. You as beekeepers will have little say. It is your industry that generates billions of dollars for the New Zealand economy and you should have the opportunity to control your own beekeeping industry and not be told what to do by somebody who knows little about beekeeping. While what we currently have as an industry structure needs some improvement, we are an independent bunch, and won't accept being controlled by paid staff.

Without beekeepers producing bee products, all the other associated businesses have no product to deal with. Producers have the power to control our own industry. The NBA is currently still in existence and it is not yet a done deal that the NBA will cease to exist in favour of this new entity. The members must look very closely at this latest proposal and ask questions.

[Editor's note: Ricki Leahy addresses these concerns in his President's report for the month.]

Field day

The Southland Bee Society (SBS) would like to invite all beekeepers to a field day to be held at the Limehills School, Centre Bush, on 13 February 2016.

For a start time and full programme, see www.southlandbeesociety.nz or phone SBS secretary Sonya on 03 235 8371 for more details.

Registrations close 2 February for catering purposes. A varied and interesting programme has been planned.

- Shaun Lawlor, Branch President



MAY THE FLOW BE WITH YOU

Frank Lindsay, NBA Life Member

The main honey flow should be under way. As I write this, cabbage tree, hawthorn and kamahi are in flower and rewarewa is just about to pop. Clover is just starting to flower and so is mānuka on the very warm northern slopes (inland; it will be much later in our area).

This is what we've been waiting for all year, nursing bees through the build-up period and controlling swarming. Now we have colonies bubbling over with bees, just ready to bring in the nectar.

Will it last in these dry conditions? Perhaps if we get a good shower of rain every week, we could get a prolonged flow; however, it's an El Niño year and production varies during these periods. Some western parts of the country do well while eastern areas tend to dry out quickly. We have had years where apiaries in some eastern areas have produced only nine kilograms per hive.

Sometimes we also get an overlapping of flowering species (like kamahi and rewarewa) that the bees prefer, meaning they collect from these sources rather than collecting high-value mānuka honey. We place our hives and it's up to the bees to decide what they prefer to bring in.

Maximising honey collection

Our aim is to collect as much honey as possible. Bees are stimulated by the amount of empty drawn comb in the hive. Empty comb immediately above the brood nest gets

bees out and working, but undersupering is heavy work for beekeepers and disruptive for the bees. Better to put on two or perhaps three honey supers at once.

Some books state that you don't put on an extra super until you see the bees white waxing in the middle of the top honey super. This can often be too late as to do this, the bees will have had to use their own bodies as storage vessels to hold and process the nectar. Bees need to pack the wet nectar into the hives as it comes in and then process it during the evening. If the hive fills up with honey, the bees stop collecting and are hard to get going again.

The adverse part of oversupering is if there is only a dribble of a honey flow, the bees seem to chimney up, filling only the four centre frames of each super. Even though this creates more work for the beekeeper, the hives will have outproduced those that had insufficient supering.

Another alternative is to take off the completed (nine-tenths capped) honey as it's produced and return the wets to the hive again to refill, *but remember we should always do a full brood inspection for disease before removing any honey.*

Walk outside in the evening, and listen to the hum and smell the fragrance of the nectar as the bees expel moisture from the honey. Some beekeepers used to talk of 'hundred dollar days' during the warm, still days of early

summer. With today's honey prices, it could be a little more. Those who have a hive on their scales will see the flow progressing. The weight gains can be surprising to those who haven't seen this before and now we can do this electronically from a distance, making trips out supering worthwhile rather than just working on instinct.

For the hobby beekeeper, it's easy to remove one or two capped frames and process it without any equipment. Newly built-out frames are easy to extract. Use a kitchen fork to break down the wax cappings, then use the side of the fork to take the wax off to the midrib of the wax foundation. Do this gently so you don't break the wax midrib. Uncap into a large pan as honey drips everywhere.

Use plenty of newspaper under everything, as it's easier to clean up. Pour the honey in a muslin bag or nylon stocking and allow it to drain naturally, which will strain out most of the wax.

Return the wet frames to the hive in the evening after the bees have finished flying, as wet honey stimulates the bees to get out and search for this new nectar source. By morning the bees will have cleaned up the frames and will have started drawing them out again.

When putting on extra honey supers, draw the bees up into the new super by lifting an outside frame from the super below in which the bees have already begun storing nectar.

continued...

Production hives and swarm control

In January I will be putting protected queen cells from a few selected production hives in all the nucs I have made. Hopefully most would produce enough to feed themselves through winter.

If I want to have more production hives, I could combine two of the now five-frame nucs together (remove one of the queens with a frame of brood and restart the nucs off again). Bees can be combined without fighting when the honey flow is on, as there's lots of nectar coming into the hive.

I have managed to control the majority of swarming by taking four-frame nucs from populous hives every couple of weeks, which hasn't affected the hive's overall development. I also have made nucs from any hives that started queen cells by using one for the nuc and removing all others from the hive. If I allow the nuc 'swarm cell queens' to go through to next season, they may have a propensity to produce a bee that likes to swarm, so I replace these with a known breed of bees that produces well, winters well and hopefully doesn't swarm.

Boosting honey production

All beekeepers look forward to gathering and eating their own honey. Honey is really only produced from populous hives; i.e., two or three supers of bees. Some hives may not have achieved this type of build-up.

There are ways to get a small (single super) hive to produce honey by restricting brood production. In my early beekeeping days, I often used to accompany the late Eltham beekeeper Trevor Rowe on his rounds when my wife was visiting her family. Trevor would pinch out the queen on his small hives as the clover honey flow started and allow the bees to raise their own new queen. By the time the new queen started laying, the majority of the brood had emerged and this new field force of bees was out working and had collected a box or more of honey. Very few bees are needed in the hives when all the brood has emerged. If you want to keep the queen, put her in a queen shipping cage and an AZ-BZ



Ralph Mitchell collecting a swarm. Photo: Jody Mitchell.

introduction cage. However, you will have to check in five days and destroy any queen cells the bees have produced. Otherwise, you will end up with another queen or perhaps the hive will try to swarm, seeing there would be two queens in the hive.

Trevor's method still could work today; in fact, some commercial beekeepers use a modified version when they requeen their hives with cells during the flow. If the honey came off within 20 days, an early varroa treatment would catch most of the mites on the bees, making it easier to clean them up. It's a good idea to requeen early, as drone fecundity drops off towards the end of the season due to poorer pollens and the reduced desire of the bees to produce drones.

In those days (1980s), Taranaki farmers had hedges to protect dairy cattle from the winds that can rip through the region. Farmers relied on hay production for winter feed,

so beekeepers benefited in a number of ways. They got three supers of barberry and boxthorn in the spring, up to three of clover off hay paddocks and another couple in the autumn when boxthorn flowered again. Some hedges were up to 20 feet wide at that time.

Things started changing when hedge cutters came into prominence with their huge rotating blades, and changed even more when rotational grazing came along, helped by the development of electric fencing. Now, beekeepers in the region need to have a lovely settled season to produce an above-average crop (the average is 35 kilograms) from pasture land.

There are perhaps more skilful ways to achieve bigger honey crops, but it also requires more gear. One way is to Demaree a hive; i.e., place the queen and the frame she is on into a super of foundation frames (on the bottom board) below a queen excluder. Apart from the requirement of additional frames, a second visit is required in five days' time to remove any queen cells begun by the bees in the brood super above the queen excluder due to the absence of the queen (which is now below the excluder).

The plus side of the Demaree method is that the new brood is healthier, being produced on all new wax. This considerably reduces their exposure to varroacides already in the old frame wax.

Trevor Rowe had another trick to determine whether a hive needed another honey super without looking in the hive. Trevor didn't use hive mats so when the bees moved up into the top super, they sealed the roof on with propolis. Any hive where a roof was hard to remove needed an extra honey super.

Time was of the essence and Trevor had a thousand hives to look after. All frames were hand-uncapped, and many were simplicity frames. He used to tape his wrist and cut off the cappings in one action, like using a sword. You get very skilful when there are thousands of supers to extract. Now we just push them into a machine uncapper and the job is done for us.

Sugar feeding

Many new beekeepers are experiencing their first season, having just acquired a hive or nuc. These are small units with perhaps only a couple of thousand bees flying. There aren't enough bees to sustain the nuc and build up quickly, so we feed them a one-to-one ratio of sugar water by weight (i.e., one kilogram of sugar to one litre of hot water to dissolve). Feeding continues until the bees have drawn out all of the frames and you have a full super of bees.

You can stop feeding as soon as you see bees working clover and storing more nectar than you are feeding them. It's really surprising how quickly the nectar is brought in. We say it literally pours in, but bees are out there visiting millions of flowers a day in a five-kilometre radius of the hive. Each bee tends to work a two-metre-square patch, marking flowers as they go, so they don't waste effort visiting the same flowers that have recently

It's really surprising how quickly the nectar is brought in.

been visited. This scent wears off when the plants refill with nectar. Some flowers do this within a few hours; others take a day to produce more nectar from their nectaries.

Some plants, like clover, are made up of many small florets. As each floret is pollinated it turns down, starts developing seeds and dries up. Nectar in these small plants don't last long under the heat of the day. Clover dries out by about 11 am on hot, sunny days but will keep secreting when the days are dull, warm and humid. When one source dries up, bees switch to a different source until that finishes. Trees like pohutukawa drip nectar nearly all day, and there are so many flowers on each mature tree it's like having 100 square metres of ground.

Those with top-bar hives should keep pushing the main brood area back a little from the entrance to get one or two new bars drawn down. Take out the fully capped frames to create more space in the rear. Otherwise, the hive is likely to fill, which could lead to swarming. Store these bars in a sealed container, as you will need at least 10 bars full of honey for winter stores.

In some years, swarms continue right into January but hopefully not this year. We also have colder years when the flow doesn't start until the end of December. In these years, beekeepers keep feeding hives in anticipation that the flow will start shortly. Here's hoping by the time you receive this, the flow will be under way.

Bees in the city do far better than those in the countryside. Strong hives in a good area can produce up to 100 kilograms per hive when everything goes well.

THINGS TO DO THIS MONTH

Check feed. Strong hives need a minimum of three frames of honey to take them through a week of inclement weather.

Check for failing queens. Brood goes patchy (spotty) and bees will start a few queen cells, usually on the edge of the brood area. Remove the old queen and introduce a new queen by uniting with a nucleus to the failing hive using two sheets of newsprint: this method is safer for the new queen.

Super hives: get them on early in the month before the bees need them. Swarm control measures finish with the start of the flow, but do a final quick check along the bottom bars of the top super with brood in it. This is much harder to do if the queen is restricted to a single brood nest and you have the hive already supered.

This is the best time to get queens mated for those making their own replacements.

Combine weak hives to make full-strength units for honey production, or divide up the weak hives to make nucs for autumn or next spring's replacements. This is the best time to get queens mated for those making their own replacements.

Hives can be requeened with cells during the honey flow, preparing them for the winter with a new queen. Simply put a protected cell in the middle of a honey super that's crowded with bees. This should give you the possibility of an 80% replacement and creates a brood break, freeing up more bees to gather nectar. Extra nucs have to be made to replace those that requeen successfully.

Prepare the honey house equipment. Check how your honey extracting room stacks up against the provisions in the RMP (risk management programme) documents on the MPI website. (The new Food Act is coming into effect soon, so prepare early.)

Undertake the first honey extraction in some areas. Do a full brood frame check for AFB before removing any honey or combining hives. Get the honey off before 1 January to eliminate the need to have your honey tested for tutin. All honey after 1 January must be tutin tested in the tutin/passion vine hopper (*Scolypopa australis*) areas (all of the North Island and the top quarter of the South Island).

Fit foundation into comb honey supers. Put the super of cut-comb foundation frames on top of a three-quarter-depth honey super to prevent the bees storing pollen in the comb super frames if there's a break in the weather. Bees collecting pollen cause travel stains on the newly capped honey frames, which

detracts from their new white appearance. El Niño means it's going to be dry in some regions, so check tutu for *Scolypopa* before considering comb honey production. Of course, there are some massive farming areas where tutu has long been cleaned out by farmers. It should be safe to proceed, but test to verify when it's produced.

Check hives for varroa mites. Randy Oliver recommended we do a quick knock down in the middle of the season rather than wait until the end of the season; i.e., at the beginning of December before the flow is ideal. Keep those mite numbers low. If you are requeen hives using cells, isolate the honey supers and give the hives a quick treatment with an acid before the new queen's larva is capped (23 days). If there are strips still in the hives when the flow starts, get them out quickly.

The book *Some Important Operations in Bee Management* by T.S.K. and M.P. Johansson would make a good Christmas present for new commercial beekeepers. The book is available from The Book Depository (www.bookdepository.com)

All the best for Christmas and I hope the New Year goes well for you all. Take time off to be with your family because beekeeping soon will be full on again.



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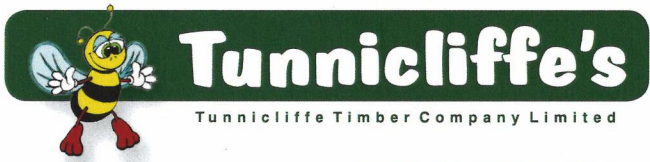


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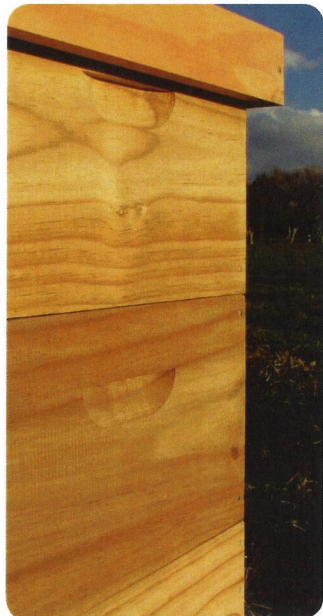
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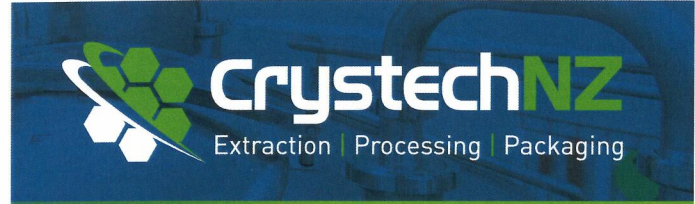
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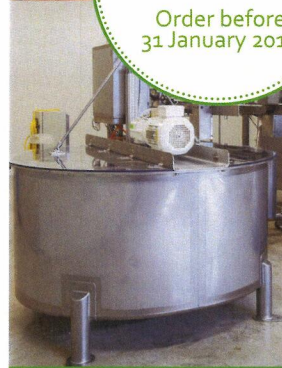
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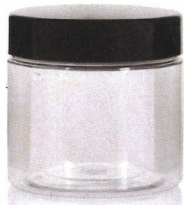
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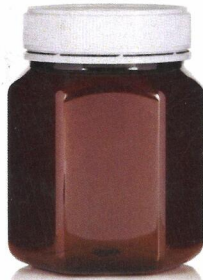
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* Our stock jar colours are amber & clear. Stock closure colours are white, blue, gold, green & black. For your own custom coloured closures, a minimum order of 5000 units will apply.

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