MAY 2016 | VOLUME 24 No. 4

The NEW ZEALAND BeeKeeper

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Front cover: An honest worker with a loaded corbicula *atop an ivy flower. Some of the florets have opened, revealing the central stigma and peripheral filaments. Photo: Paul Burgess. Read more on page 22.*

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PRESIDENT'S REPORT

AN EDDY IN OTHERWISE CALM WATERS

Ricki Leahy, NBA President

We should all be really cranking along and positively working on matters that are critical for our industry and providing information to our membership on many key issues. But in fact, progress is being undermined due to a distraction that threatens to disrupt the very important progress we've made to date. This snag is profoundly disappointing for all of us who have worked so hard to get the groundwork and foundations in place for what will be the most positive step forward our industry has taken for a very long time.

You may have guessed it—there has been a legal challenge to the voting entitlement and to the interpretation of the rules. This challenge questions the integrity of how the voting for the adoption of the ApiNZ constitution was carried out. Many of us feel pretty gutted as this is unnecessary, time-wasting nonsense, and serious expense is being incurred as a result.

Just so it's quite clear: when we were organising the voting entitlement criteria and the actual procedure for the vote, we knew that every care would be needed to adhere to the NBA rules exactly. We knew that the voting outcome was going to be determined by that undemocratic and antiquated NBA weighted voting system. We also knew we had to be careful to determine who would be allowed to participate in the vote and what the criteria were for the members of the Association. But even having been careful in all aspects, and even though we employed highly regarded professionals electionz.com Ltd to independently facilitate the vote, we still find ourselves being challenged.

It seems that the forces that have been around forever and a day are still working against the general desire and will of all stakeholders to move forward as a united industry. Naturally we are working with our association's solicitors, who advise that our position is strong, that our legal interpretation is correct and that the vote was conducted accordingly as per the rules. This challenge against us is all very unfortunate to say the least, but it seems we have no choice but to work through the process when a democratic decision is contested in this way. Let's hope that common sense and our commitment to process supports the outcome and just like at the end of a hard game of rugby, we can walk off the field together.

Regretfully I must inform you that our solicitor's services to defend the democratic outcome of the vote will cost us tens of thousands of industry dollars, which is pretty upsetting when I think of the financial investment and the huge number of voluntary hours that have been donated to the future of our industry. This is all so consuming of our time and energy, and such a distraction from the real jobs we should be doing. This distraction is causing delays for some things to transition smoothly, so please,

Let's hope that common sense and our commitment to process supports the outcome and just like at the end of a hard game of rugby, we can walk off the field together.

I must apologise, and please understand that we are doing the best we can.

Needless to say, I am very disappointed at this turn of events. There continues to be a small network delivering mischievous and false information and who continue in their efforts to undermine the absolutely good intentions of those who see a positive and exciting vision for the future of our industry. For instance, I still hear comments that it's intended to take money from the branches to fund the changes. This is absolute fiddlesticks: there has never been any such intention whatsoever, but has arisen from a malicious rumour generated to undermine the changes from happening within our industry.

I suspect that some of us may have possibly expected our subscriptions to be a lot lower. But in reality, we are working with a similar budget as we had last year and reasoned that keeping a similar level of subscription was prudent.

Future funding options

So let's explore what future funding options may look like, remembering that all industry beneficiaries should pay their way. As an industry, we could in the future raise a commodity levy of some description. Imagine if we could spread the funding over the whole commercial sector of the industry rather than only those who choose to become a member and pay their subscription. This of course, along with that little level of compulsion, would give all eligible levy payers a positive opportunity to contribute. It would also mean that we would have funds to invest in science and research, marketing and education.

It is tough for us during this first transition stage and even though we know that others will continue to benefit by default, we just need to give ourselves time, as an association, to work through the process of re-establishing a levy. Interestingly the commercial membership cost today is less than what was levied under the old levy order of the 1990s, but incomes are substantially higher in comparison. Can we afford it? Yes, of course.

The whole point is that we work together and we work for the future. The boat is big enough for us all, so let's get paddling.

Moving forward

You may be starting to appreciate the directions that we could take and benefit from in the near future. Only a few key industry changes would be required to fairly share the funding burden that would make us a very well-funded and well-functioning primary industry.

Work is continuing on developing operational guidelines for the Regional Hubs. This is to make it easy and straightforward for any Regional Hub to organise their affairs, meet their basic compliance requirements, and operate their particular Hub in the way that suits them. We must appreciate that some regions have struggled in the past to keep their local networks active. If they find other ways and have the freedom to offer a different value perspective that works for them, then that should be encouraged.

Let's remember that change has overwhelmingly been called for at numerous occasions in the past, most noticeably at the Taupo and Wanganui conferences. We needed a stake to be put in the ground to give us a place to start. That was done and a whole process has been worked through, step by step, to get us to where we are now. Surely if there is something that isn't quite right, we can focus on that point and make the appropriate change to the constitution at our AGMs in the future.

Nothing is cemented down forever. A constitution can be adjusted, so why oppose progress towards a better future by stumbling over what could often only be a minor detail. The whole point is that we work together and we work for the future. The boat is big enough for us all, so let's get paddling. Happy beekeeping.

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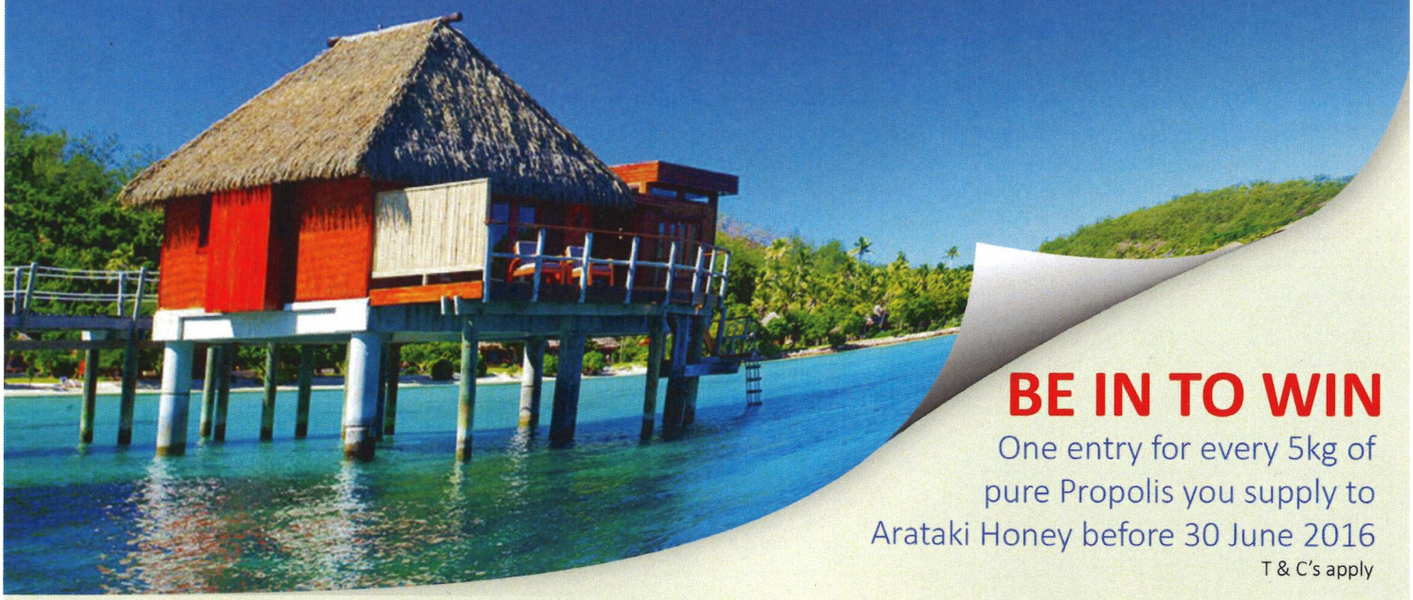

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APICULTURE NEW ZEALAND

ELECTION INFORMATION FOR APICULTURE NZ BOARD

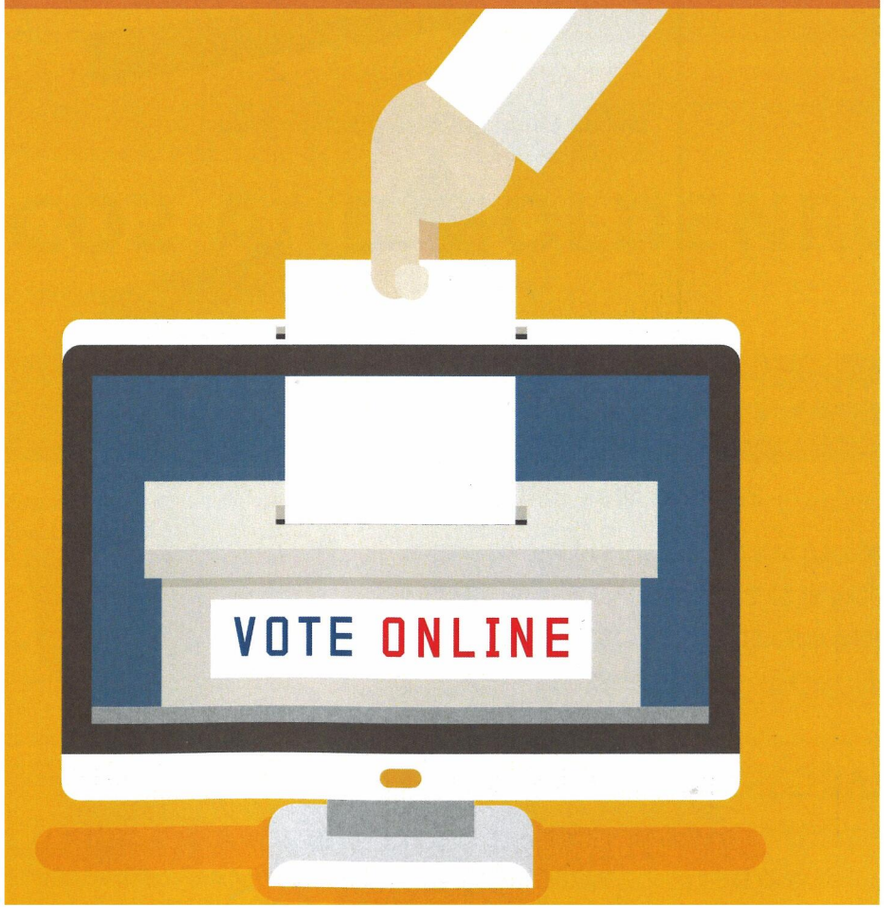
Apiculture New Zealand Management Team

pī·ā·ora BEES GIVING LIFE | APICULTURE NEW ZEALAND

Join now

Apiculture NZ memberships are flowing through the door, and we are pleased with the early success in creating an organisation that embraces the wider industry. Thank you to those who have already shown their support.

If you haven't already joined, now is the time. By becoming a member, you will be able to have your say in who represents you on the Apiculture New Zealand board (see below). For a full list of ongoing member benefits, and to join, visit www.apinz.org.nz.



Apiculture NZ election

We are now holding an election to select NINE representatives to sit on the inaugural Apiculture NZ Board of Directors. We are currently accepting nominations for candidates for the Board positions. This window closes on 9 May so if you want to nominate someone, or be nominated, please act quickly.

All of the information about the election is available at www.apinz.org.nz but here are the key details:

Returning Officer

Apiculture NZ has appointed Warwick Lampp from electionz.com as Returning Officer for the 2016 elections. This means that Warwick will be handling all matters pertaining to the election.

Voting method

The election for Board members is being carried out by Internet. A postal ballot will only be offered to members without a valid email address. The voting process will use the Single Transferable Vote (STV) system, in which voters rank candidates in order of preference. For more information on STV, visit www.electionz.com/STV/stv.html

Candidate eligibility

Of the nine elected representatives to the Apiculture NZ board, ONE will represent the non-commercial beekeeper sector, FOUR will represent the commercial beekeeper sector, and FOUR will represent the market sector.

A candidate will represent the sector in which they are Apiculture NZ members. If a candidate holds multiple memberships under different sectors, they may stand for election to represent members in each of those sectors; however, they may only be elected to represent one sector.

Candidates who are standing in more than one sector are required to state on their

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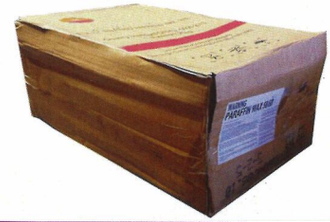
5kg (at $4.50 per kg)	$22.50 + GST



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nomination form which sector they will choose to represent if they happen to win a seat in each sector. In this case, the seat in the winning candidate's 'second choice' sector will be granted to the candidate with the next greatest number of votes under the STV voting system.

To be eligible to be selected as a candidate, you must have paid your full and proper subscription to Apiculture NZ by Monday, 9 May. To be eligible to nominate a candidate, or vote in this election you must have paid your full and proper subscription to Apiculture NZ by Monday, 9 May.

Given the nomination period is 20 April–9 May, candidates and nominators do not need to be financial members at the time of nomination—but they must have paid by 9 May. On 10 May, Apiculture NZ will check that all nominators and candidates are financial members. If one or both of the nominator/candidate pair are not financial members, that candidate will be deemed ineligible, and removed as a candidate.

It is your responsibility to ensure that cheques and Internet banking payments are received in the mail, or in the Apiculture NZ bank account, by close of business Monday, 9 May. To join and pay online, visit www.apinz.org.nz/shop.

Members may only vote for the candidates standing in their membership sector. Those who have memberships in more than one sector may vote in each of those sectors.

Election results

The election results for Board members will be calculated and checked and then advised to Apiculture NZ on Wednesday, 8 June, 2016. The Returning Officer will then personally advise all candidates by phone or email on the same day.

Key dates for your diary are:

Nominations open	Wednesday, 20 April, 2016
Nominations close	12 noon, Monday, 9 May, 2016
Voting opens	Friday, 20 May, 2016
Voting closes	12 noon, Wednesday, 8 June, 2016

Contact: Any questions regarding the Apiculture NZ Board Election should be directed to Electionz.com: 0800 666 041.

CO2 AND GOLDENROD POLLEN

Abridged media release from Purdue University, USA

Rising levels of atmospheric carbon dioxide have reduced protein in goldenrod pollen, a key late-season food source for North American bees, a Purdue University study shows.

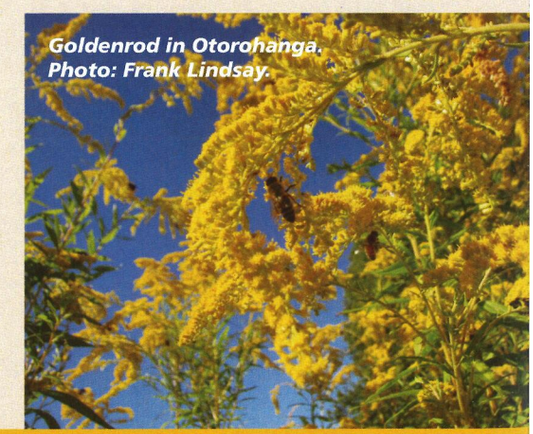
Researchers found that the overall protein concentration of goldenrod pollen fell about one-third from the onset of the Industrial Revolution to the beginning of the 21st century.

Previous studies have shown that increases in carbon dioxide can lower the nutritional value of plants such as wheat and rice but this study is the first to examine the effects of rising CO_2 on the diet of bees.

"Bee food is less nutritious than it used to be," said Jeffrey Dukes, study co-author and professor of forestry and natural resources and biological sciences. "Our findings also suggest that the quality of pollen will continue to decline into the future. That's not great news for bees."

The study was published in *Proceedings of the Royal Society B* on Wednesday (April 13) and is available to journal subscribers at http://dx.doi.org/10.1098/rspb.2016.0414.

Researchers from Williams College, the Smithsonian Institution and the University of Maryland also co-authored the study. The work was funded by the USDA-ARS.



Goldenrod in Otorohanga. Photo: Frank Lindsay.

Source

Media release from Purdue University. Rising CO2 levels reduce protein in crucial pollen source for bees.

APICULTURE NEW ZEALAND NATIONAL CONFERENCE

BRINGING STUDENTS STUDYING APICULTURE TO CONFERENCE: AN INNOVATIVE APPROACH

Christine Byrch, Research Focus Group member

Congratulations to students Roseanna Spiers and Seo Hyun (Sally) Kim, each of whom has been awarded a Student Travel Grant of $500 to help fund their attendance at the ApiNZ conference in Rotorua.

Although Sally and Roseanna will present research carried out as part of their respective master's degrees, they are both now studying towards PhD degrees: Roseanna at the School of Environment at the University of Auckland, and Sally at the Zoology Department of the University of Otago. Both research projects are very interesting, but very different.

Sally's research

Sally's undergraduate studies were in zoology and ecology—the biological sciences. Her fascination with bees arose through an interest in the work of Professor Alison Mercer, who subsequently supervised Sally's Master of Science research and is now her PhD supervisor. Fanny Mondet, who recently completed her own PhD with Professor Mercer investigating the *Varroa* mite, is an advisor to Sally.

At conference, Sally will present results of her Master of Science research project, investigating what it is that encourages honey bees to uncap brood sheltering *Varroa* mites. In practice, her research involved using tweezers to pick honeybee larvae from frames of brood, gathering and analyzing larvae from both uncapped and intact infested cells, and non-infested cells, plus two layers of surrounding cells.

What encourages honeybees to uncap brood is a key question in understanding *Varroa* Sensitive Hygiene (VSH): the behaviour whereby honey bees detect and remove brood within cells that are infested with the *Varroa* mite, enabling honeybees to resist the effects of this mite. The cues remain unclear, and this limits the use of the VSH trait in breeding programmes. Sally's research, providing a better understanding of the VSH trait, is therefore very important to honeybee breeding programmes.

pī·ā·ora BEES GIVING LIFE | APICULTURE NEW ZEALAND

***Sally Kim. Photo courtesy of* Otago Daily Times.**

Together with four other students, Sally works in the 'bee lab group'. These five students are all supervised by Professor Alison Mercer, with three studying *Varroa* and two studying 'bee learning'. The students manage five hives located on the roof of the Zoology building. These bees have a hard life as *Varroa* treatments are delayed while the students study the *Varroa*-infested hive, working hard to collect samples before the hives collapse. Sally has just finished collecting more samples so that she can carry on with her PhD research, extending her successful Master of Science project. These samples are now safely preserved and ready for analysis. We look forward to more results as Sally completes her PhD at the end of March 2017.

Roseanna M. Spiers

Roseanna's research

Roseanna's association with bees began through working with her beekeeper father. Both beekeeping and her academic work, a Bachelor of Science and a Master of Arts in Geography, are aligned with her interest in plants, animals and landscapes. It was while studying 'sustainable' and 'resilient' food production and consumption that Roseanna linked the two more closely, applying her academic knowledge to question beekeeping, and vice versa.

This led to Roseanna's Master of Arts degree, the underlying premise of which is that we 'make' New Zealand apiculture, and the ensuing argument that recognising that we 'make' New Zealand apiculture puts us in a better position to identify and intervene in moments of economy and industry making. Roseanna's research practice was very diverse, and included accompanying beekeepers as they carried out their everyday work, learning and asking questions along the way; working with historical documents and texts including archived newspaper articles and early New Zealand beekeeping texts; and depictions of beekeeping in popular media.

For example, by building hive components with beekeepers, Roseanna was able to 'unpack' the internal logics and rationales of the Langstroth hive and how this impacts on understandings of a 'good' bee, a 'good' hive and a 'good' beekeeper. Tracing the development of the Langstroth hive more generally, led Roseanna to the New Zealand International Exhibition and model apiary in the early 1900s, and what turned out to be a pivotal moment in shaping the beekeeping industry and honey market in New Zealand, and how beekeeping fits within broader political projects of colonial 'improvement'. And there is evidence of this today in the structure and technology of the Langstroth hive, the types of honeybees in New Zealand, and the everyday practices of beekeepers.

Roseanna has found that working with bees leads to interesting questions including those around land use decisions, the politics of food and economy, New Zealand's colonial history, technology and science, as well as being a useful opening to conversation. She works amidst an interesting group of geographers, geologists, and environmental scientists, and is supervised by Dr Francis Collins and Dr Nick Lewis, whose own research can very broadly be described as being about people, place and politics. *[Editor's note: some of Roseanna's research findings have been published in the October 2015 and February 2016 journals.]*

Sally will speak at the conference on Tuesday 21 June at 11.45 am. Roseanna will present her work as a poster, and will be available to answer questions during the poster sessions.

The Student Travel Grants are funded by this year's conference committee, and the recipients were selected by the ApiNZ Research Focus Group. It is fantastic both to have students presenting at the conference, and to have a conference committee that supports students' attendance. How lucky we beekeepers are to have students doing apicultural research.

SUSPECTED BEE POISONINGS IN NORTHLAND

Publications Focus Group, paraphrased from Stuff.co.nz

Many of you will have seen reports that Northland queen bee breeder David Yanke of Daykel Apiaries has incurred damages estimated at $100,000 from a suspected poisoning of his hives in late April. Gerald Hutching of Stuff.co.nz is one of the journalists who has been reporting on this incident. He spoke with David Yanke and his reports are paraphrased below.

David Yanke surmises that the culprit would not have been aware that he was an importer and breeder of Carniolan queens. He has been importing Carniolans since 2004, and has been involved in beekeeping since the early 1980s, focusing on improving bee genetics.

David operates a closed population, including a population of production queens that he sells to beekeepers. Almost half of those production queens had been destroyed. Most of David's income comes from selling queens to beekeepers, and other beekeepers have offered him new queens to help him recover his business.

The Ministry for Primary Industries (MPI) is investigating bee samples that David has provided to them to test the presence of an exotic pest or disease. MPI has excluded an exotic organism as the cause of the bee deaths and has ruled out some 'common potential poisons'. MPI has asked David to supply further specimens to check for the presence of "other potential poisoning agents".

MPI had not yet finished analysing the results before the May journal went to press.

References

Hutching, G. (2016, April 14 and 16). Retrieved April 16, 2016, from http://www.stuff.co.nz/business/farming/78932716/top-bee-breeder-loses-thousands-in-suspected-poisoning and http://www.stuff.co.nz/business/farming/78973711/breeder-faces-wait-before-he-knows-why-his-bees-died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OBITUARY

FAREWELL TO **PAT CLINCH**

Complied by the Publications Committee

NBA Life Member Geoffrey Clinch, better known as Pat, died on 23 February 2016 at Masterton, aged 86.

Pat was a former research scientist at Wallaceville Research Centre, and was well acquainted with many beekeepers during his working life. He was made a Life Member of the NBA in 1986 prior to his retirement.

The following was published in the journal as part of coverage of the 1986 conference (*New Zealand Beekeeper,* Spring 1986).

Scientist Pat Clinch began his professional career in Britain researching the pros and cons of pesticides, but since he arrived in New Zealand in 1964 to work with the MAF at Wallaceville, he has had a great deal to do with bees.

Not only has he applied his original bent of pesticides expert to discovering how the various chemicals affect bees, but he has been in the front line of bee disease and pollinisation research, much of the time involved in original and exploratory work.

[Which is why], of course, on his imminent retirement, the NBA has made him a life member.

Not that he will be entirely eschewing the birds and the bees in his retirement. A keen gardener, he plans to do much with flowers, to the extent that his wife Anne is left with the vegetables.

Pat is also a member of the Model Railway Society, and will be working on the restoration of the Fell locomotive at Featherston. The Fell, or "H" class of locomotives hauled trains over the Rimutaka incline before the tunnel was opened in 1955. Pat will also shortly become Publicity Officer for the Community Gallery next to the Civic Centre, Upper Hutt: a role that will surely prevent time from hanging on his hands.

Wife Anne, apart from keeping the vegetables flowing, is a Home help with the Wellington Hospital Board. Currently she is Provincial Commissioner for the Pencarrow Province of the Girl Guides.

Recollections from Frank Lindsay

Frank Lindsay knew Pat for many years, and recalls meeting him at Wallaceville:

During the 1980s I put the PABX telephone exchange into the new Wallaceville

continued...

Pat Clinch at Wallaceville, 1986.
Photograph used with permission from Recollect Heritage Collections, Upper Hutt City Library.

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Cheers Stu Ferguson (The Hive Doctor)

Research: Recent research suggests polysaccharides in Seaweed could be used to prevent or control Bee nosemosis. (Roussel 2015)

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Sodium 1701.83	Iron 0.703	Copper 0.064
Manganese 0.041	Iodine 454.50	Molybdenum 0.01
Selenium 0.01	Zinc 0.360	Boron 6.060
Cobalt 0.010		

Vitamins Vitamin A, Vitamin C, Vitamin E, Vitamins B1, B2, B3, B5, B12, Fucoxanthin, Choline, Folic Acid

Amino Acid (mg/100gm)

Aspartic Acid 7.17	Threonine 1.72	Serine 1.91
Glutamic Acid 19.19	Prolin 0.90	Glycine 2.62
Alanine 8.64	Valine 1.90	Isoleucine 0.87
Leucine 1.71	Tyrosine 1.41	Phenylalanine 1.31
Lysine 1.85	Histidine 0.68	
Arginine 1.50	Cystine 2.05	
Methionine 0.47	Tryptophan 0.21	

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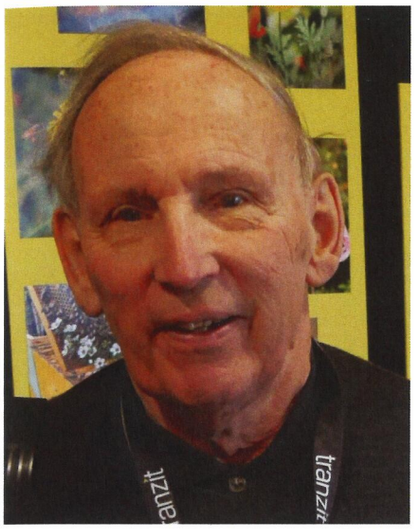


Administration building and spent about four months during the summer on site.

I spent lunchtimes talking to Pat and the other staff about bees. Behind the new building was a grassed quadrangle where staff would sit on the grass and eat their lunch. In the middle was a large square made out of eight-foot-high roofing iron with a locked gate. It all looked out of place, but inside were about 15 beehives that staff used for research. Hives would be worked during the day, yet the staff sitting outside on the lawn were never bothered by the bees. At that time my bees wouldn't have let you in the yard.

Further back into the area were three or four 15-foot-square cages on rails that could be slid back and forth. These were used to field test agricultural sprays to see it they were safe. A hive would be put on the ground amongst clover flowers, the cages rolled over it and the tests undertaken.

I had an enjoyable stay out there, learnt a lot from Pat and we stayed friends. He and Anne were on a bus trip that called into Wairakei Resort Taupo during the 2015 conference and we had time to catch up. He is fondly remembered.

We extend our sympathies and warmest wishes to his widow, Anne, and his family.

Reference(s)

New National Life Members. *New Zealand Beekeeper*. Spring 1986, 191, 15.

Upper Hutt City Library Recollect heritage collections. *Wallaceville Animal research; Pat Clinch awarded life membership of the National Beekeeping Association.* [Photograph from 1986]. Retrieved March 14, 2016 from http://uhcl.recollect.co.nz/nodes/view/22457. Reprinted with permission.

pī·ā·ora
BEES GIVING LIFE

APICULTURE NEW ZEALAND

NOTICE OF THE 2016 AGM
of Apiculture New Zealand to be held at the Sudima Hotel Rotorua

Wednesday 22 June 2016

The AGM will commence at 9.00am

This AGM marks an important milestone in that it will be the first AGM for Apiculture New Zealand, and will be an opportunity for all members to meet the organisation's newly elected board and to learn more about the Association's intentions.

Daniel Paul
Chief Executive Officer

Advance Notice to Regional Hub Secretaries

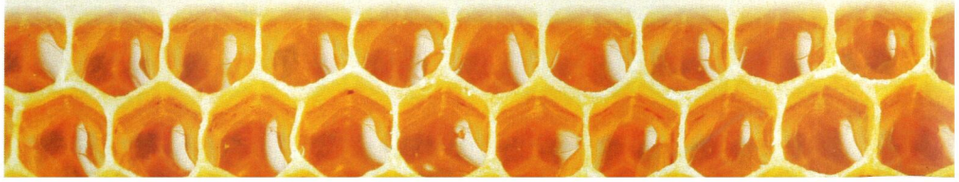
2016 Annual General Meeting Deadlines

APINZ Regional Hub AGMs should be held by 23 May 2016

2016 ANNUAL GENERAL MEETING	TO INCLUDE	TIMING PRIOR TO AGM	TO BE COMPLETED BY
Notices of Motions	**To CEO**	**50 days**	**Tuesday 3 May**
Proposals to alter Rules – These will be tabled but not actioned until the new Board is in place	**To CEO**	**50 days**	**Tuesday 3 May**
Regional Hubs' Financial Reports —to reflect an opening financial position as at 1 April	**To CEO**	**30 days**	**Tuesday 3 May**

Secretary: info@apinz.org.nz and CEO: ceo@apinz.org.nz

PHONE: 04 471 6254



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OBITUARY

MALCOLM DAVID HAINES

7 November 1940–11 November 2015

Terry Gavin

Malcolm, and his father before him, pioneered commercial beekeeping in the Far North from the early 1940s, a difficult undertaking indeed. Huge effort was required, on top of the difficulties encountered in beekeeping in the rest of the country.

Malcolm pioneered the successful transporting of package bees. This technology became invaluable when the export of package bees began in the mid 1970s, and this trade continues today.

Malcolm was machinery minded and experimented with loaders and trucks to speed up the shifting hives with less effort. He also experimented with migratory beekeeping as the Northland Peninsula offered scope for this work. Malcolm also served on the NBA Executive from 1972 to 1974. The effort required to fulfil these duties was considerable.

Malcolm was an accomplished yachtsman and enjoyed many years cruising on the Northland coast. After he had sold his beekeeping operation he travelled internationally, no doubt having a good look at how other countries worked bees.

Malcolm was a good and trusted friend and will be missed badly. He is survived by his wife, Pat, his two daughters, grandchildren and great-granchildren.

The beekeeping industry will be poorer with the passing of Malcolm David Haines.

Pat and Malcolm Haines at Orange, New South Wales, Australia, 2005. Photo: Frank Lindsay.

REMINISCENCES FROM FRANK LINDSAY

I first met Malcolm in 1974 at the Taupo Beekeepers' Seminar. Malcolm (Kaitaia), Peter Pegram (Wairoa) and Grahame Walton (Palmerston North Apicultural Advisory Officer) each presented on how they handled mānuka and ling heather honey. This was a groundbreaking seminar that put beekeeping in New Zealand on a firmer financial footing. It was here that beekeepers were introduced to the idea of honey pricking machines.

Malcolm also introduced Perico plastic frames to beekeepers in New Zealand and Australia. These were slightly shallower than our standard three-quarter-depth frames (meaning we needed to cut half an inch off the bottom of our honey supers) but they worked well. The cost and the size difference soon saw the beekeeping industry here manufacturing plastic frames so that now they have become universally accepted.

After Malcolm retired from beekeeping, Mary-Ann and I would meet him and Pat in Australia at the New South Wales conference field days. Malcolm, like a number of New Zealand beekeepers, purchased a ute and would travel around Australia visiting friends, seeing the country and attending conferences.

Malcolm invited us to go fishing when we were up in Paihia at a conference but it seemed the weather during July was always against us, so we missed that pleasure.

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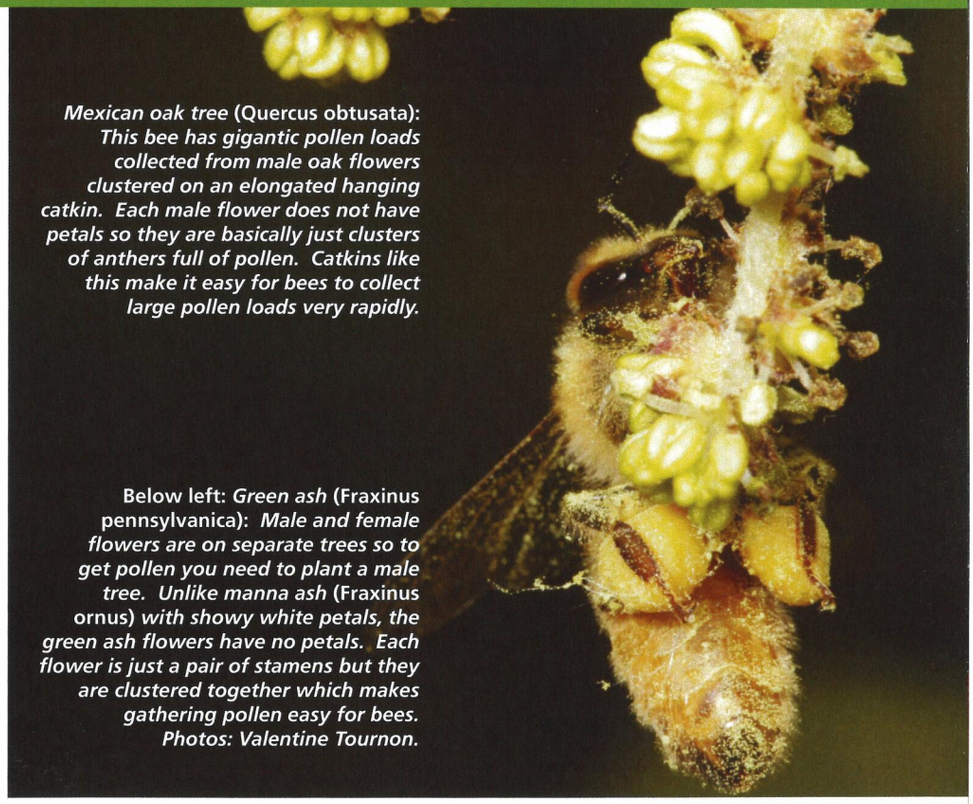
TREES FOR BEES CORNER

BIG TREES TO PLANT FOR SPRING NUTRITION

Dr Linda Newstrom-Lloyd and Dr Angus McPherson

Knowing what to plant for spring bee feed is an important part of raising strong colonies for summer pollination and achieving big honey harvests. High-performance colonies come from a strong queen, robust foragers and healthy nurse bees, as well as brood cycles that are not interrupted by pollen dearth. If pollen is scarce, nurse bees will cannibalise larvae for protein in order to keep the colony going.

In 2010, when we started Trees for Bees field research in Canterbury, beekeepers there told us that it was easy to get a good start in spring with abundant gorse and willows blooming but hard to avoid going backwards with population crashes in late spring, usually around October. There just isn't much around after gorse and willows finish until the clover flowers. In spring 2012, Barry Foster invited Trees for Bees to work in the New Zealand National Eastwoodhill Arboretum in Gisborne because of the great diversity of trees. Barry put an apiary in the arboretum and for two spring seasons we collected prolific pollen in October. We found no pollen dearth in surrounding farms because Mr Cook, the founder of the arboretum, had distributed tree seedlings to his neighbours. Further away, farm biodiversity was low and pollen dearth was common.



Mexican oak tree* (Quercus obtusata): *This bee has gigantic pollen loads collected from male oak flowers clustered on an elongated hanging catkin. Each male flower does not have petals so they are basically just clusters of anthers full of pollen. Catkins like this make it easy for bees to collect large pollen loads very rapidly.

Below left: *Green ash* (Fraxinus pennsylvanica): *Male and female flowers are on separate trees so to get pollen you need to plant a male tree. Unlike manna ash* (Fraxinus ornus) *with showy white petals, the green ash flowers have no petals. Each flower is just a pair of stamens but they are clustered together which makes gathering pollen easy for bees. Photos: Valentine Tournon.*

At Eastwoodhill, we found many northern hemisphere temperate trees famous for their spectacular spring flowering. For example, maple trees have abundant pollen and nectar (pollen protein 22% to 26%; e.g., *Acer*

tartaricum, A. buergerianum, A. negundo, A. platanoides, and most floriferous, *A. coriaecifolius)*. Oak trees deliver quantities of pollen (pollen protein 18% to 22%; e.g., *Quercus candicans, Q. salicina, Q. robur, and Q. palustris)*. Ash trees produce ample pollen and nectar; e.g., *Fraxinus ornus* (pollen protein 21%). Late varieties of edible or ornamental apples, crab apples and pears flower profusely with plentiful nectar and pollen (high-pollen protein 23% to 28%).

A key advantage of planting large-grade big trees is that, while they cost more per plant, they establish quickly and flower much sooner than smaller-grade trees—often in the first spring after planting. If you don't need a large number of trees for your planting project, then paying more for a small number of trees will pay off in the long term. A further advantage of big trees is that as they mature and grow taller, the quantity of flowers per area of land planted increases dramatically.

You can plant large trees as individual specimens, or for avenues along driveways or stock laneways. They also make great paddock shade and shelter, and can also be used as shelter around stockyards and apiary sites.

Beekeepers can save significant amounts of money by planting some big trees near their apiaries to cope with pollen dearth in October. Artificial bee feed is a great stopgap, but a big tree producing copious, free pollen year after year is less expensive and less work.

continued...

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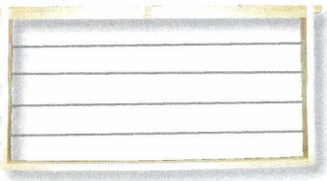

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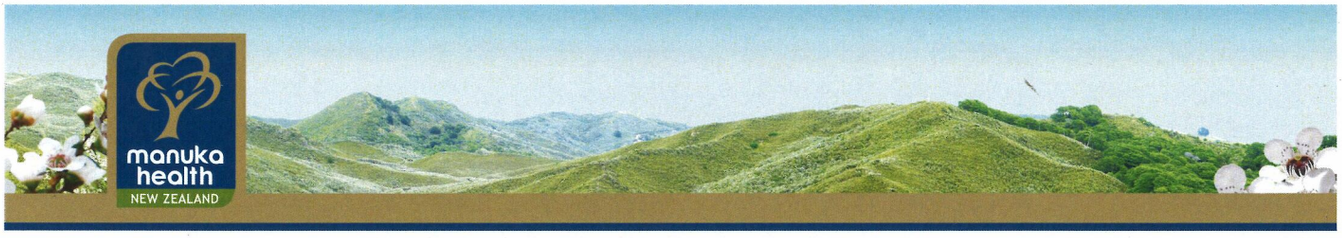

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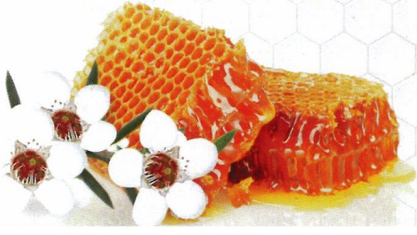


TREES FOR BEES NEEDS YOUR HELP!

We have just been awarded an opportunity to continue our work after the end of this current grant in June 2016. To win this next MPI Sustainable Farming Fund grant, we have to raise sufficient matching funds. Then we will produce an online catalogue of great bee feed trees, shrubs and herbs with nutritional results, plus an apiary nutrition assessment tool and a key to identifying willows. We will deliver workshops on how to design plantations to meet your goals. Our aim is to ensure that every apiary has plentiful superior nutrition available. Farmers and regional councils are happy to help and we appreciate your kind support over the last six years.

If you can support us for this next grant period with cash donations or in-kind support, please e-mail Dr Linda Newstrom-Lloyd at newstrom.lloyd@gmail.com or text your email address and phone number to Linda's mobile: 021 385 953.

Shantung Maple* (Acer truncatum)*: The greenish yellow petals of maple flowers are not showy so you might not notice them.* TOP: *In the flower, you can see the glistening nectar at the base of each stamen. The stamens form a ring around the centre of the flower and bear anthers full of pollen at the end of a stalk (filament).* BELOW RIGHT: *Bee with big pollen loads gathering pollen from the maple flower.* BELOW LEFT: *Honey bee sipping nectar. Photos: Jules Boileau.

MORE HIVE THEFTS

Eighty nucleus hives and the pallets they were on were stolen from Koatanui Road, Kai Iwi, north of Wanganui in early April.

The hives consisted of Langstroth boxes divided by a tin spacer and wooden five-frame nuc boxes.

Hive thefts are particularly prominent around the Wanganui area. Report all hive movements in the early evening or through the night to the police.

Four coreflute nucs were stolen from the same apiary last year.

SEND US YOUR BURNING QUESTIONS!

Do you have a burning question about beekeeping? Are you worried about your beeswax? Mystified about moths moving in? Need help dealing with varroa and other pests? Well fear not, help is at hand.

Every keen beekeeper has a list of questions they'd love to know the answers to. Luckily, the NBA has local beekeeping brainboxes on hand to answer any beekeeping-related queries, from giving your hives a helping hand to sussing out your swarms. Whatever your question, simply email it to editor@apinz.org.nz and we will post the answers in a future issue of *The New Zealand BeeKeeper.*

BURNING QUESTIONS

LATE SUMMER FORAGING OF IVY

Paul Burgess

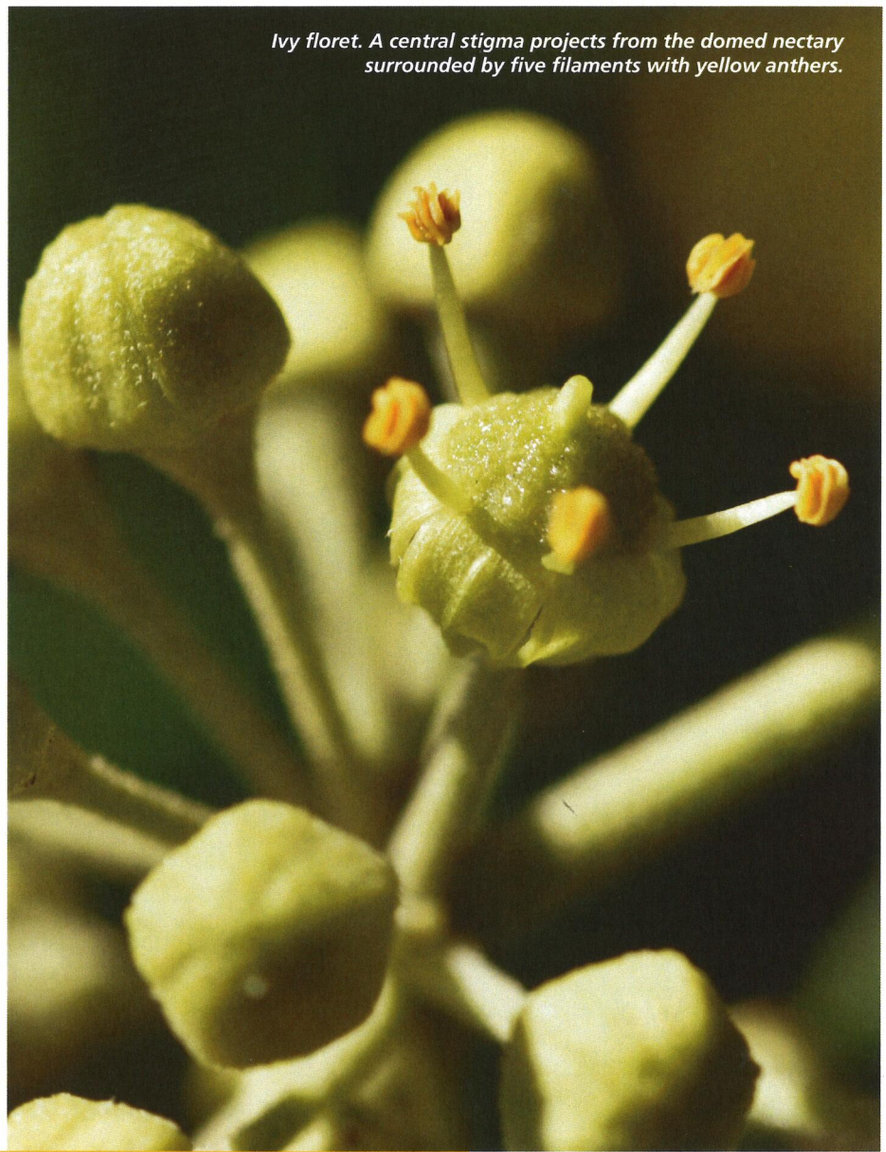
Urban beekeepers might note the enthusiasm with which common ivy (species *Hedera helix*; family Araliaceae) is foraged during late summer.

Older vines produce flowers that are arranged as spherical clusters two to three centimetres in diameter, comprising of small (four millimetres), green to pale yellow florets presented as umbels.

While the bloom itself may demand little visual attention, the nectary is readily accessible, the five anthers are freely available, there is a distinctive proteinaceous scent and the flowers enjoy a relatively long season.

It transpires the nectar is of high quality and a significant late-season supply. In a report published in the *Journal of Insect Conservation and Diversity*, Garbuzov & Ratnieks, 2014), Mihail Garbuzov and Francis L. W. Ratnieks tabled findings from a study in Brighton and rural Sussex.

Here they found that during an observation period, 89% of pollen gathered by trial colonies was from ivy and that 80% of the bees that were foraging ivy were collecting nectar. The researchers concluded ivy to be "an underappreciated resource". Could we extrapolate these findings to our own area?



Ivy floret. A central stigma projects from the domed nectary surrounded by five filaments with yellow anthers.

COMMENTARY FROM FRANK LINDSAY

Ivy is a major source of late nectar in the United Kingdom and Ireland. The only problem is that the honey granulates during harsh winters. The bees can't bring it back a liquid from crystals and some hives starve.

When ivy nectar is only a small proportion of the honey stored, it's OK. But when bees store this honey exclusively, as they do some years, I believe beekeepers extract it and feed back sugar; otherwise, the bees starve even though the hives are full of honey.

Here in New Zealand, ivy is a minor source that wasps and bees work while it's in flower. The only area where I have seen it growing as it does in Ireland is around Wairakei, where it grows up the pine trees. There may be other areas where it's more prolific.

I have some ivy growing on some small bushes in my garden: as of mid-March it was just budding up to flower. (Ivy only flowers when it's mature and growing vertically.)

Reference

Garbuzov, M., & Ratnieks, F. L. W. (2014, January). Ivy: an underappreciated key resource to flower-visiting insects in autumn. *Insect Conservation and Diversity 7*, 91–102. Retrieved March 12, 2016 from http://onlinelibrary.wiley.com/doi/10.1111/icad.12033/abstract

Article first published online: 26 Apr 2013
DOI:10.1111/icad.12033

Foraging worker poised upon mature florets: pondering the flight home?

What started out as an attempt to illustrate my letter has morphed somewhat into a study of the minutiae of a foraging worker and the 'coal face' where pollen and nectar are harvested. Perhaps those beekeepers involved in pollination are conscious of the components of the reproductive apparatus of a flower. However I, like many, am content identifying the products as they accumulate in the hive, having long forgotten introductory botany and the intricacies of plant fertilisation. The photos all feature the flower of the common ivy (*Hedera helix*) and were taken at a residential address in suburban Nelson in March 2016.

Foraging worker negotiating the 'coal face' —a glistening nectary secretion beckons.

Full-frontal view of a worker bee, with her proboscis extended onto the nectary of an ivy floret.

RESEARCH

MODELLING CONVERSION RATES OF DIHYDROXYACETONE TO METHYLGLYOXAL IN MATURING MĀNUKA HONEY

Merilyn Manley-Harris, School of Science, University of Waikato

We have recently published three papers (Grainger, Manley-Harris, Lane, & Field, 2016) describing our investigation of the rates of transformation of dihydroxyacetone (DHA) to methylglyoxal (MG) during storage of New Zealand mānuka honey; our findings are summarised here.

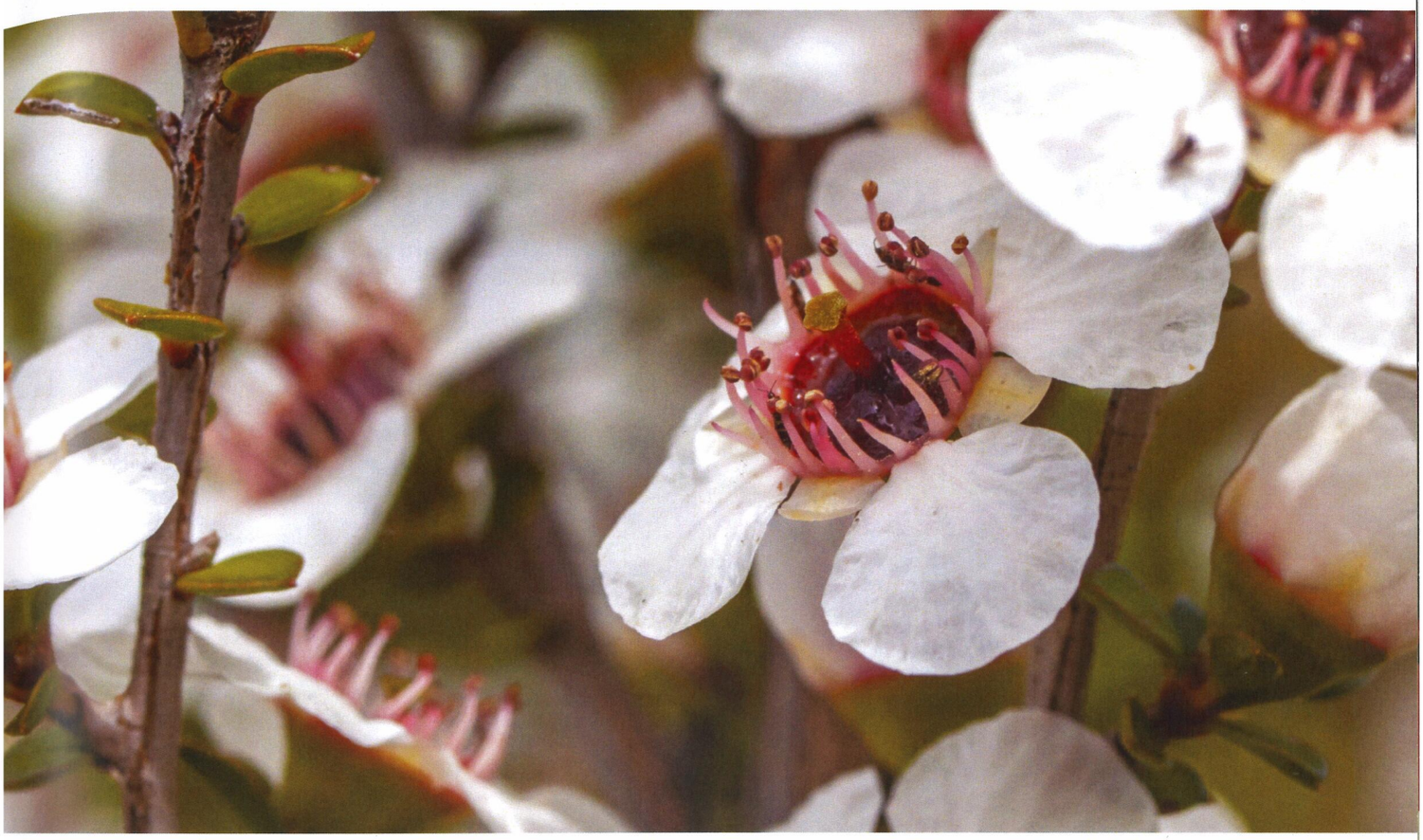
MG is the major antibacterial component in mānuka honey and is derived by chemical transformation of DHA, which itself derives from the floral nectar of the mānuka tree (*Leptospermum scoparium*). Honey is strongly dehydrating: this is in strong contrast to the usual matrix in which to study these kinds of reaction which is water; as a result of this, there is little information in the scientific literature to provide a precedent for this study.

In Part 1 of this study, the rates of conversion of DHA to MG were investigated in mānuka honeys and in clover honeys that had been artificially doped with DHA; these were stored at temperatures between 4°C and 37°C.

DHA converts to MG but is also consumed by side reactions with other compounds naturally present in the honey. MG once formed is also consumed by side reactions with other compounds. Compounds naturally present in honey may react directly with DHA and/or MG or may accelerate their reaction with other compounds.

At 4°C, no loss of DHA or formation of MG was observed over a period of one year. Higher storage temperatures accelerated the rate of DHA loss and the initial rate of formation of MG, but better conversion efficiency was observed at relatively lower temperatures (20-27°C). Conversion efficiency, which indicates the proportion of DHA that becomes MG (1:1 being ideal), was better in DHA-doped clover honey than in mānuka honey; this indicates that compounds are present in mānuka honey that ultimately lead to loss of MG. This difference between the two honeys was most marked at higher temperatures; at 37°C and at extended times, there was a marked loss of MG from mānuka honey that was not observed in DHA-doped clover honey. This is clearly demonstrated by observation of the MG concentration of any maturing mānuka honey which, upon storage, initially increases, then levels off at a point when the rate of formation of MG just compensates the loss of MG and after another interval begins to decline as the rate of loss exceeds the rate of formation. The position of the level part of the graph and its extent depends upon temperature of storage. *[Editor's note: graphs are not available but appear in the three papers listed in the References section.]*

Because this transformation is a chemical reaction, it does not cease when the honey is packaged in the jar and will continue at varying rates depending upon the temperature; longer storage times



and periods of elevated temperature will accelerate the process. If it is desirable to preserve the activity of the honey, it should be stored at the lowest temperature commensurate with prevention of crystallisation; this should be considered when transporting, storing or displaying packaged honey.

Thirty seven New Zealand mānuka honeys and four clover honeys were analysed for various chemical and physical parameters; comparison of the rates of transformation and these parameters identified some positive correlations indicating that particular compounds or physical properties may play a role in the transformation.

In Part II of the study, compounds that are naturally found in mānuka honey, and that might affect the rate of transformation, were added individually to an artificial honey system composed of sugar, water and gluconic acid and the rates of transformation were observed. A 1:1 conversion of DHA to MG was not observed in any system studied, including the control system with no extra compounds added. Proline, a secondary amino acid, is found in all honeys at levels that can exceed 800 mg per kg; addition of proline to the artificial honey increased consumption of DHA but did not produce any more MG than the control sample. Alanine, which represented primary amino acids that are found to a lesser extent than proline in all honeys, enhanced the conversion of DHA to MG and had the best efficiency of conversion of DHA to MG of any of the amino acids studied. To confirm the old idea that iron affected the activity of mānuka honey, an iron salt was added to the artificial honey and this enhanced the efficiency of conversion of DHA to MG, even in the presence of proline; the very low levels of iron salts naturally present in honey mean that adulteration with iron salts can be readily detected . This study confirmed that compounds naturally present in the honey may either improve or degrade the conversion efficiency for the transformation of DHA to MG; these compounds achieve this by reacting directly with or by accelerating the reaction of other compounds with either DHA or MG or both.

In part III of this study, a sequence of chemical reactions were proposed that might contribute to the overall conversion reaction from DHA to MG; more than 22 different reactions contributed to this sequence. A computer model was then set up that would allow prediction of MG content in matured honey based upon starting conditions in the immature honey; this model was trialled at three different temperatures and fitted the data well. The computer simulation is licensed by the University of Waikato to Hill Laboratories, which is currently stress testing the model to ensure that predictions are of a suitable standard for commercial use.

References

Grainger, M. N. C.; Manley-Harris, M.; Lane, J. R., & Field, R. J. (2016). Kinetics of conversion of dihydroxyacetone to methylglyoxal in New Zealand mānuka honey: Part I - Honey systems. *Food Chemistry, 202*, 484–491.

Grainger, M. N. C.; Manley-Harris, M.; Lane, J. R., & Field, R. J. (2016). Kinetics of conversion of dihydroxyacetone to methylglyoxal in New Zealand mānuka honey: Part II - Model systems. *Food Chemistry, 202*, 492–499.

Grainger, M. N. C.; Manley-Harris, M.; Lane, J. R., & Field, R. J. (2016). Kinetics of conversion of dihydroxyacetone to methylglyoxal in New Zealand mānuka honey: Part III – A model to simulate the conversion. *Food Chemistry, 202*, 500–506.

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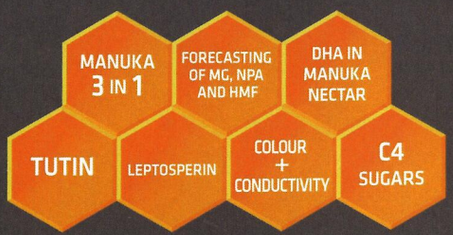

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POLLINATION

POLLINATION TAKES CENTRE STAGE

Provided by the Department of Conservation (DOC), 15 March 2016

DOC Chief Scientist Geoff Hicks headed the New Zealand delegation at IPBES 2016 in February, where the first global thematic assessment of pollinators (including bees, birds, bats, reptiles and mammals) was approved.

Established in 2012, IPBES stands for the Intergovernmental Platform on Biodiversity and Ecosystem Services. The fourth session of its Plenary (IPBES-4) was held in Kuala Lumpur, Malaysia from 22–28 February.

Over 77 subject experts from around the world were involved in developing the newly approved *'Thematic assessment on pollinators, pollination and food production'.* This assessment pulls together the findings of more than 3,000 scientific papers to identify implications for management of all pollinators (honey bees, wild bees, birds, bats, reptiles and mammals etc).

It is the first full global assessment of its kind that combines all available knowledge; i.e. from western science as well as indigenous and local knowledge systems.

What the assessment finds

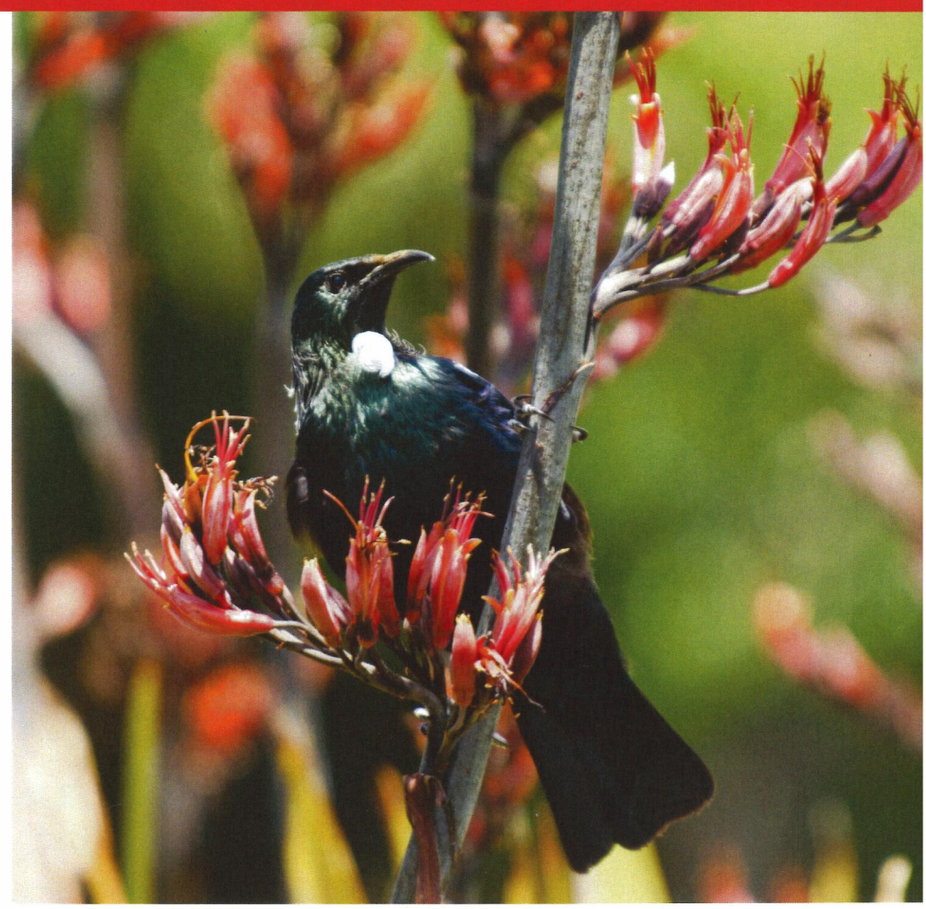
A growing number of pollinator species worldwide are being driven toward extinction by diverse pressures, many of them human-made, threatening millions of livelihoods and hundreds of billions worth of food supplies.

Pollinator decline is primarily due to changes in land use such as intensification, pesticide use, alien invasive species, diseases and pests and climate change.

However, the assessment also highlights a number of ways to effectively safeguard pollinator populations, such as encouraging greater pollinator habitat diversity, increasing habitat patchiness, decreasing exposure to pesticides, improving bee husbandry and better use of available knowledge.

Developing the assessment

During its development, the assessment underwent two rounds of peer review by experts and governments. Dr Brad Howlett from Plant and Food Research has been



New Zealand's expert contributor focusing in particular on the fate of indigenous pollinators. *[Editor's note: see sidebar on page 29.]*

DOC Chief Scientist Geoff Hicks says the report is of prime importance to IPBES as it provides the evidence base to support policy actions to curb the global decline of pollinating insects.

Further assessments

At the Malaysian meeting IPBES also approved another assessment, a dedicated review of the methodologies associated with scenarios and models, used in data and information management.

Scenarios are essentially conversations that search for options out of a series of plausible futures and help decision makers identify pathways to action and the shape of end states. The Intergovernmental Panel on Climate Change use scenarios regularly to help explain the likely impacts of temperature and sea level rise. Future IPBES assessments will take a scenarios approach in their development.

About IPBES

IPBES was established in 2012. It was designed to emulate the influential Intergovernmental Panel on Climate Change (IPCC).

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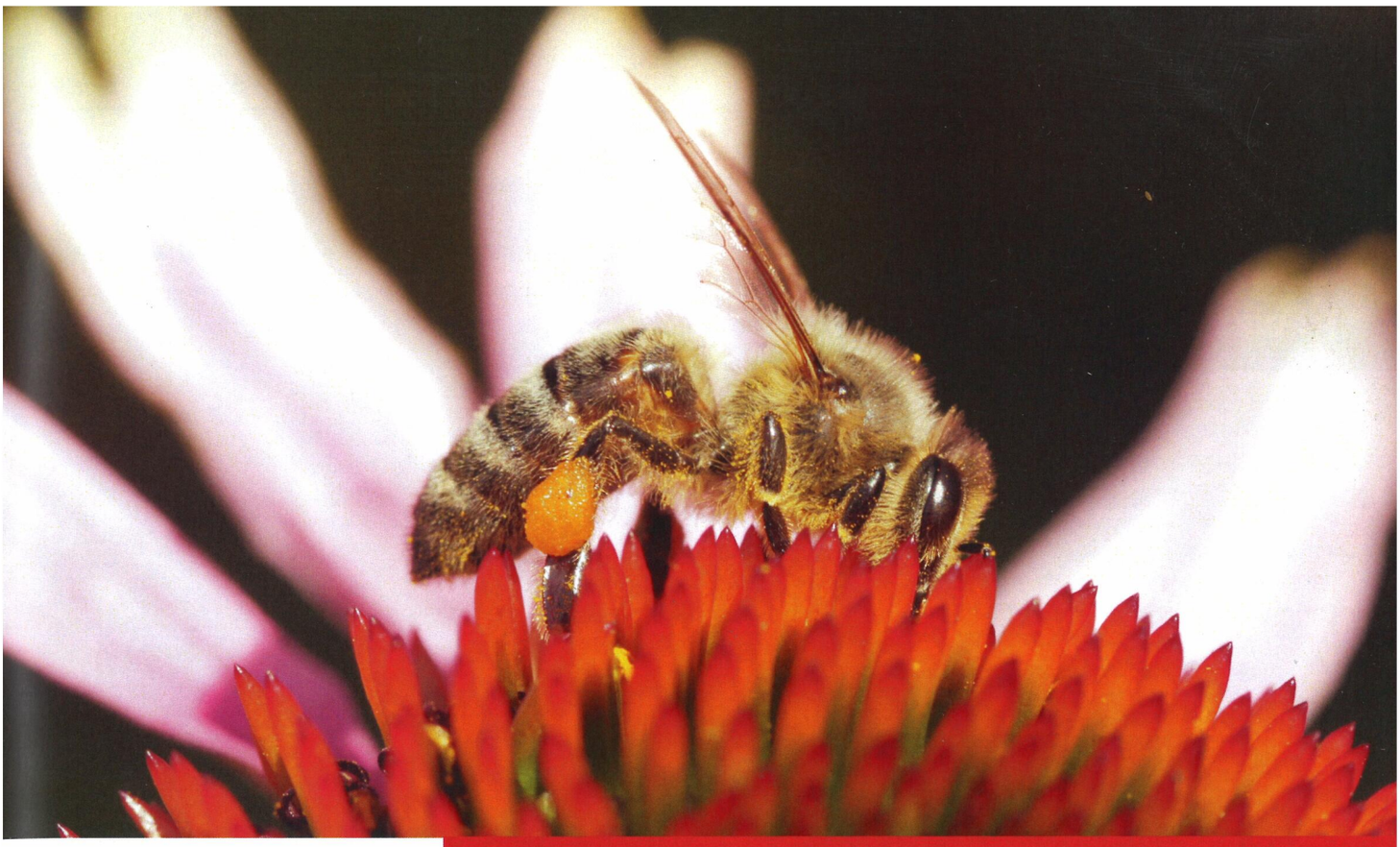


The purpose of IPBES is to undertake thematic, methodological and regional/global assessments on the status and trends of biodiversity and ecosystem services with a work programme stretching out to 2019. It has 124 member nations.

New Zealand is a signatory to IPBES and DOC is the government lead on its activities.

"IPBES forms a crucial intersection between international scientific understanding and public policy making," Geoff said.

Further reading

http://www.ipbes.net/work-programme/pollination

http://www.ipbes.net/article/press-release-pollinators-vital-our-food-supply-under-threat

This media release from Plant and Food Research provides further information about Dr Brad Howlett's work.

Pollination & apiculture scientist Dr Brad Howlett from New Zealand's Plant & Food Research and an international team of 58 fellow researchers have recently discovered new insights into the value of wild pollinators to crop production.

The study, one of the largest on bee pollination to date, was published in the prestigious nature communications, and examined data from 90 studies and nearly 1400 crop fields across 5 continents. The findings show that the economic impact of wild pollinators is significant, contributing around $3,000 per hectare.

About two-thirds of the world's most important crops benefit from bee pollination. Yet surprisingly few bee species are responsible for pollinating the world's crops. The study suggests just 2%, or 785 of the roughly 20,000 known bee species, pollinate up to 80% of the bee-pollinated crops worldwide.

"Understanding wild pollination is increasingly important, particularly with the threats faced by honey bee colonies" says Dr Howlett.

"What we've found gives a strong economic case for conserving wild bees, with the value of wild bees shown to be similar to that of managed hives".

In addition to quantifying the economic benefit of wild bees, the research team also examined the role of bee biodiversity.

While most of the pollination work is done by a small number of common species, researchers say conservation efforts should be aimed at a wide number of species in order to maintain biodiversity and ensure future food security.

While dominant crop pollinators appear to be resilient and easily enhanced by simple conservation measures, cost-effective management strategies are encouraged to promote threatened bee species.

Dr Howlett says a key goal of current and future pollination research in New Zealand is to develop strategies that boost pollinator biodiversity across land uses; doing so is expected to result in increased economic returns to crop growers as well as enhance New Zealand's biological heritage.

Source

Plant and Food Research (2015, June 19). Global research team uncover new insights into wild pollinators. (Media release.) Retrieved April 8, 2016 from http://www.plantandfood.co.nz/page/news/media-release/story/global-research-team-uncover-new-insights-into-wild-pollinators/

REGIONAL HUB REPORTS

FROM THE COLONIES

HAWKE'S BAY

Testing has always shown up the odd bit of tutin (that's the purpose of testing). However, more samples than normal are coming back positive this year and we all need to be extra vigilant, especially people processing small amounts at home. The odd person still is doing gate sales of untested honey: these people put the whole industry (and innocent customers) at risk and should be reported to MPI *[contact details on page 3]*.

Wasp numbers are increasing rapidly, mainly on willow honeydew. When this source finishes, beehives are going to have one of the worst attacks we have seen for many years, going by the wasp numbers around as of early April.

- John Berry, regional hub president

Giant Willow Aphid infestation on willow stems at Whakatane willow nursery. Photo: Steve Pawson, SCION Research.

NELSON

The last couple of weeks have definitely seen a change in temperature. Combined with the reduction in daylight hours, winter clearly is not far away.

Most hives appear to be doing OK. Varroa strips are in and things are beginning to slow down from an egg-and-brood point of view. Wasps are present around some sites, and seem to be bit more aggressive; more poisoning is needed for sure. Honey in several hives is beginning to crystallise, possibly from that annoying willow aphid—at least their numbers seem to be fewer this year than last.

There has been a bit of tension over the honey season with new people moving into areas traditionally used by existing beekeepers. This is especially inconsiderate when they are within 500 metres of existing apiaries. As I have mentioned before, I wonder whether some form of code of practice or guidance would be useful to establish for the industry.

Overall the honey season was patchy, with some hives doing well and others only 10% of last season's crop. Some thought they had positioned hives for good mānuka/kānuka crops, only to find the girls had other ideas and went and gathered other natives. I guess there's always next year.

- Jason Smith

CANTERBURY

As of mid to late autumn, good new pasture growth is evident, with winter crops doing well due to some easterly rain showers. These showers, along with previous rain, brought out nectar-bearing plants such as borage, dandelion, catsear and clover, giving a late flow in some areas.

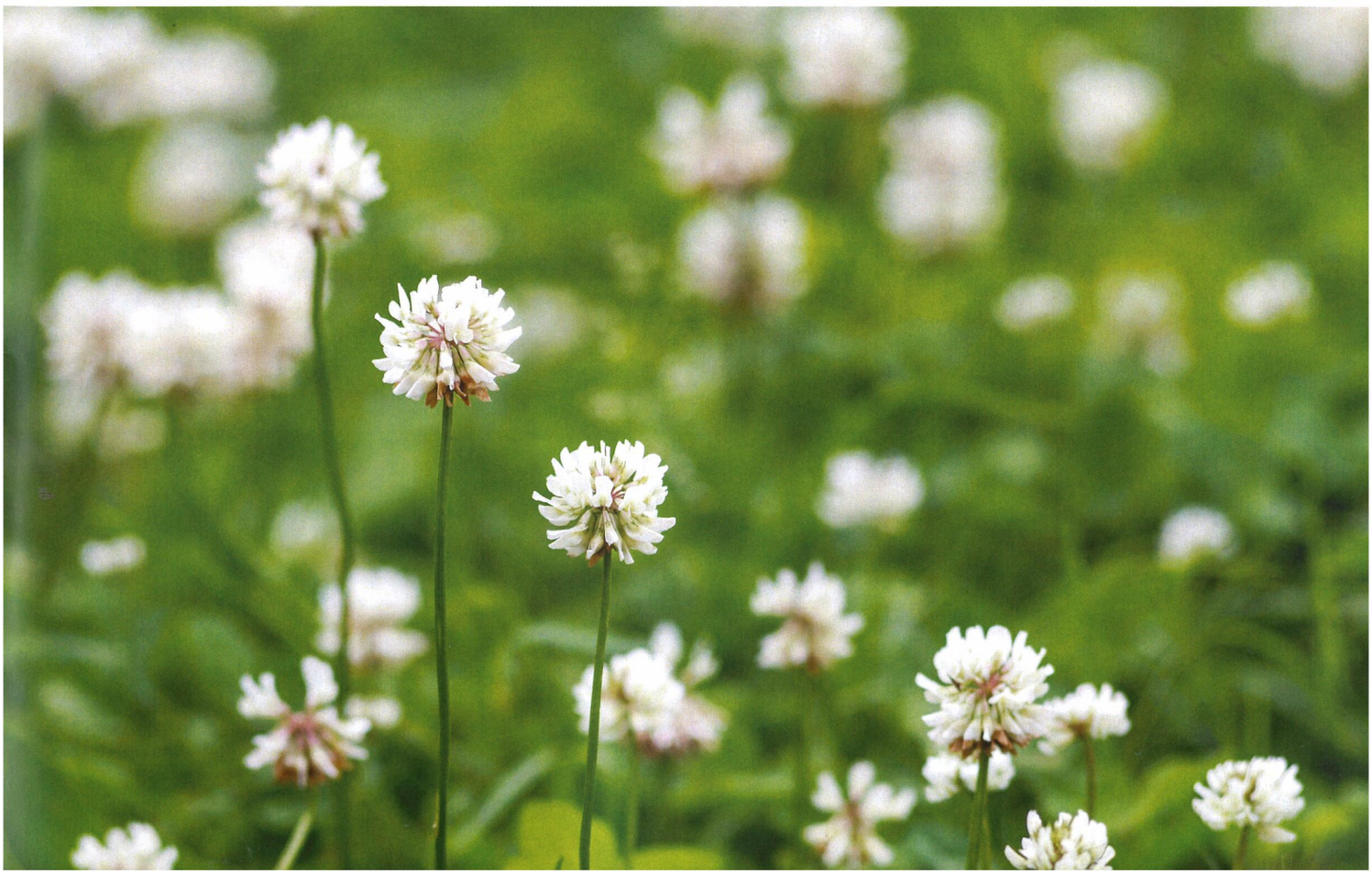
Most beekeepers are now finishing extracting and treating for varroa. Getting inside the brood boxes provides an opportunity for AFB inspection. This can show up quite well in the autumn. Any hive affected can be dealt with before it weakens, gets robbed out and causes further spread.

Be vigilant when inspecting your hives. If you see any brood abnormality you are not sure of, discuss it with another beekeeper or report it to MPI *[contact details on page 3]*.

The Canterbury branch of the NBA met for a meal and social time at the Chateau on the Park in Christchurch for the March meeting. Some branch and industry matters were discussed. A pleasant time of catching up on the summer season was had by all.

Reflecting on this past season, it was interesting that reasonable crops were produced despite drought conditions prevailing and the failure of the main clover crop.

- Noel Trezise

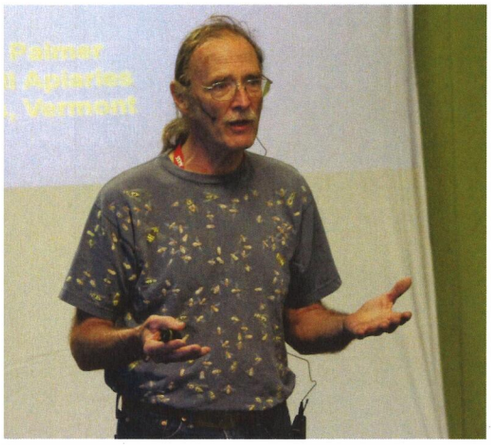


EDUCATION

CAMP RANGI: A SOUTHERN NORTH ISLAND EDUCATIONAL WEEKEND

Neil Farrer, Life Member

Camp Rangi 2016 was held at the end of February at the Totara Reserve Regional Park, Pohangina Valley. The weekend was sponsored by Ceracell Beekeeping Supplies. Manuka Health sponsored a hive for the raffle and products. Judi Ferris donated a mosaic tile for a raffle.



Vermont beekeeper Mike Palmer was the guest speaker.

The aim of the weekend was to inform and educate beekeepers who have had two or more years' experience and was particularly aimed at smaller commercial units. The theme was 'Queen of the Hive'; thus, all seminars and practical sessions pertained to queens—grafting, raising queens, splitting hives, nutrition and more.

The format was similar to previous Camp Rangi retreats. There was no cellphone coverage and attendees bunked into the camp from Friday evening to Sunday afternoon, although some brought their campervans and a few hardy souls camped in tents. Over 110 attended the event.

Friday evening started with a splendid barbecue meal put on by the Manawatu Beekeeping Club, followed by a programme outline, a movie, and games.

Saturday's programme

Saturday commenced with breakfast at 7.30 am. Each bunkhouse room was assigned to assist, in turn, with kitchen duties at mealtimes so that the load was spread, with Camp Mother Mary-Ann Lindsay keeping a watchful eye on food preparation and clean-ups.

Mike Palmer from Vermont, USA was our guest speaker from overseas. Mike spoke at length on his beekeeping business and his queen-raising methods. His talk on wintering hives in New England, where snow more than covers the hives, was a real eye opener to most of us. Fancy walking into a paddock using snowshoes and a long pole to probe down through the snow to find hives in an apiary. Hives are not just covered for a few days but for several months: totally different from our experience in New Zealand.

During the day, time was allowed for all attendees to investigate hives, check for brood and queen health, make up splits, and later to learn all about grafting techniques. One course was on artificial insemination with microscope etc, as per a laboratory setup, all produced on a screen for everyone to be able to see how and what was done.

Following is a brief recap of some of Saturday's presentations.

Basic bee biology: Bees, queens and drones, then the history of queen rearing with different methods. We were shown samples of tools that can be used, as well as learning about swarm boxes and creating nucs.

Different ways of requeening hives, what to look for in a breeder: Most beekeepers will have a hive that performs better than others or know of another beekeeper with great hives as a source of breeding stock. The bees you have in your own area that are quiet on the comb and produce great crops are usually the best breeders for your future requirements.

Southern North Island Branch president Allan Richards addressing Camp Rangi participants.

Allan Richards talking to the group. Photos: Paul Jenkin.

Nutrition: John McLean outlined his research on feeding hives and providing the best food for hive health and raising queens. Also discussed was the benefits of using pollen patties, with samples on hand from Feedbee and MegaBee.

Bee boxes: there were great discussions on the comparison between wooden boxes and polystyrene boxes and the difference in temperatures inside a hive between the two types. Bees, like us, prefer a comfortable home with a temperature that is easy to maintain depending on the weather outside.

Diseases: There were discussions on varroa (control and problems), and about the two types of *Nosema*.

By the end of Saturday most were suffering from information overload, but a splendid spit roast meal and social time enabled everyone to relax and talk more about beekeeping.

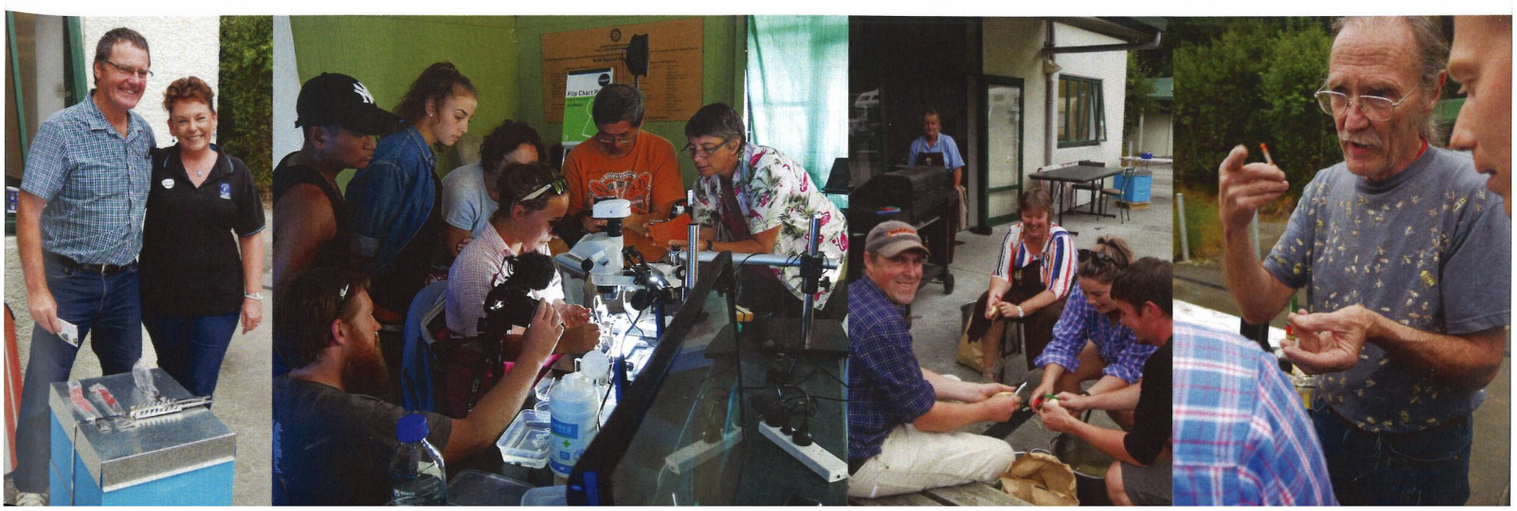
Sunday's programme

In the morning we learnt more from Mike Palmer. Mike uses four-frame nuc boxes that are stacked so that the top one is a super for the split, thus becoming an easy eight-frame hive in the spring. Later, we discussed the overwintering of hives in New Zealand conditions and the preparations in autumn.

John McLean gave another talk on Giant Willow Aphids. A lot of research is continuing on the problems with the honey dew produced and, of course, the associated wasp problems to hives nearby.

After lunch on Sunday every attendee received a memory stick with a huge amount (two megabytes) of additional information covering the subjects that had been presented and additional ideas and books to read. Thank you to Ceracell for sponsoring the memory sticks.

Photos below left to right:
Winner of the hive raffle with Brenda Cameron Manuka Health; Jess demonstrating queen bee instrumental insemination; The spud gang; Mike explaining how to use a Chinese grafting tool: wet the goose quill tip of the tool until it becomes pliable and follows the curve of the bottom of the cell, lifting the young larvae and royal jelly in one action. Photos: Frank Lindsay.



ABOUT THE APIARY

WINTERING DOWN AND PREPARING FOR SPRING

Frank Lindsay, Life Member

The last of the autumn sources have just about finished and now we are seeing early wintering sources budding up on the warmer section on the coastal strips. The bees are bringing in the last of the pollen as the days get shorter and colder. Some are working willow aphid honey dew, which is not totally digestible on its own in the hive. Hopefully there will be a number of frames of real pasture or bush honey to support the bees. The drones are being pushed out of the hives, which signals the end of the season.

Going into winter we have new queens in our hives and hopefully they are full of young, mite-free bees. What we need now is heavy hives. Two full-depth or three three-quarter-depth boxes should be a struggle to lift off the ground using one handhold, while standing to the side of the hive. This method of testing a hive's weight is called 'hefting'. If you want a more accurate measurement, use scales (I recommend Fischer's Nectar Detector® scales: nectar-detector.com).

What we need now is heavy hives.

An escape board with the escape removed is used to feed a nuc.

Feeding a mini nuc.

Feeding light hives

For those who took off the honey in February, leaving a full box of honey, you may be in for a surprise as the hives could be light. The bees could have gradually used all the stores because there have been minor flows: not enough for the bees to store anything, but these have stimulated brood rearing. Young queens tend to continue to lay longer than old queens. They have a burst of laying activity initially, which then tapers off when pollen and nectar become scarce. However, in some cases young queens will continue rearing a bit of brood all winter. Brood rearing uses a lot of food; hence the need to check the weight of hives periodically through the winter and especially in early spring (August).

The solution to boost a light hive is to feed a 1:1 ratio by weight of sugar to water, or fill a pot seven-eighths full of sugar, add boiling water to the top, and stir until all is dissolved. Feed while the syrup is still warm: five litres at a time in the late afternoon when most of the bees have ceased flying to prevent robbing. A strong hive will take this down in a couple of days and may need to be fed four or five times until the bees have stored a super of honey.

You will need to take several considerations into account if hives need a lot of feeding:

- the bees will use body fats to convert the sugar into honey, which will shorten their lives.
- there is a chance that uncapped honey could ferment during the winter, so add 1% acetic acid. Some books mention tartaric acid.
- the initial feeding will stimulate brood rearing but if fed in volume and constantly until the desired amount is achieved, it may be advantageous as the hives will produce another generation of winter bees.

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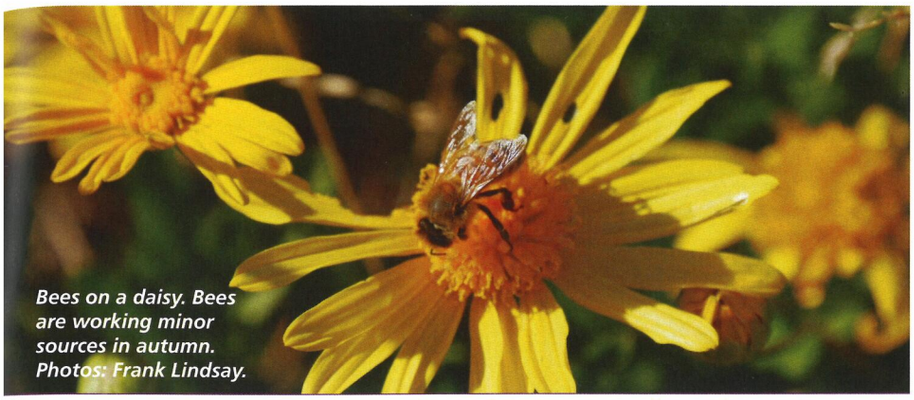

Bees on a daisy. Bees are working minor sources in autumn. Photos: Frank Lindsay.

Points to note when inspecting hives

Another important thing to do this month is to measure the number of mites in the hives, either using mite fall or using a bee wash. We all have to know that the hives have been treated successfully and that mite numbers are now low; i.e., less than one percent.

As a general rule, after robbing has finished we should also inspect the strongest and weakest hives for disease. The strongest may have robbed another hive; the weakest could be suffering from disease.

Close down the entrance to 100 mm by six mm (or even half this if there's been robbing), and to just a couple of bee widths for nucs if they don't have robbing screens installed. The idea is to exclude strong winds and mice wanting a nice warm winter home full of food.

Make sure that the hives are sloping slightly forward (maybe 20 mm) by lifting the back of the hive with a piece of timber. This will allow any rain to run off and out of the hive. It also makes it easier for the bees to remove any older bees that die off during the winter.

I prefer to put some insulation under the roof of the hives, as most of the heat generated by the bees goes upwards and out. Water vapour given off by the bees can accumulate under the crown board/split board and if there is sufficient moisture, it can rain down on the frames and bees, causing the frames to go mouldy and forcing the bees to consume more winter stores. I use the split board entrance to ventilate moist air.

The same effect can be produced by placing a drawing pin or a matchstick between the top super and the crown board, which provides a little ventilation. If there's too much ventilation, the bees will seal it off with propolis.

Now we are set for winter and the coming spring. Observation is the most important attribute you can use in your beekeeping. We don't want to needlessly disturb the hives but would like to know what's going on inside. By reading the book At the hive entrance (Storch, 1985), we can get an idea of what's going on inside the hive by observing the bees at the entrance. For those who can't get hold of this book, there's a free PDF that can be downloaded.

Preparing for spring

With most of the outside work done, our thoughts turn to the spring and the requirements for the coming season. Some new beekeepers will have had a successful first season. The bees will have built up and produced enough to winter over on (12 frames of honey and three to four frames of honey and pollen), plus one or two frames as a surplus for your table.

In the next season you will start with a full-sized hive raring to go in the spring. Another three supers for honey will be required for each hive. The bees are going to use some of next season's honey to get them fully drawn and ready for the bees to use, so full production is only obtained when all your frames are built out.

Make a plan detailing everything you need down to nails, and give yourself a timeline to have everything finished by early spring. Any time lost during winter can't be made up during spring, if you are a commercial operator, as you just don't have the time. Order your new equipment now so you have it on hand when you want it.

Make a plan detailing everything you need down to nails, and give yourself a timeline to have everything finished by early spring.

Things to do this month

Winter down, check mite kill, dispose of honey (prices have increased again this season, probably as a result of our dry summer). Grade and sort combs into brood, extracting and damaged. In fact, all frames these days should be as white as possible.

Control wax moth and get on to it quickly. Queen failure nucs left for just a month are now full of wax moth larvae. (It was interesting to see the number of wax moth hanging around hive entrances while applying formic acid to some hives after dark.) A few beekeepers are shrink-wrapping pallets and freezing them for a few weeks in the local coolstore.

Check for wasps. They are building up on willow aphid dew and have robbed out a few on my weaker hives. Control the growth around hives, including some of the branches that may have grown over the hives during summer. Hives do best during the winter in all-day sun.

Pine needles have been falling for the last month. Collect a sack full and allow them to dry over the winter in a shed, ready to use in the spring as smoker fuel.

Start planning for the coming season. Drone production should start 50 days before they are required for mating. Order plastic frames well ahead of time to give them time to air. The thicker the wax, the quicker they are drawn. This will also give our suppliers something to do during the winter.

Register all your apiaries. The legislation requires unregistered apiaries to be burnt if not registered within 30 days.

Register for conferences: here in New Zealand, and/or any of the five in Australia and several in the USA. Also, plan to register for Apimondia in Turkey 2017 and Montreal in 2019. It's worth the investment. The returns are in networking, learning and it could be a valuable marketing opportunity. Also it may be tax deductible. It just takes one idea that could pay dividends over the next decade to make this sort of investment worthwhile.

Reference

Storch, H. (1985). *At the hive entrance: Observation handbook.* European Apiculture Editions.

BUSINESS

MAKE HASTE SLOWLY

Frank Lindsay, Life Member

Some may find beekeeping is relatively easy and think that maybe you'll get more hives. You can, but keep this in mind: it takes five years to learn beekeeping, and bees put into new gear are relatively disease free for the first season (I'm referring to *Nosema*, chalkbrood and sacbrood).

In my thirties I was enthusiastic and wanted to become a commercial beekeeper. Graeme Walton (who was then an Apiary Advisory Officer, now residing in the Philippines) dissuaded me from doing this and he was right.

I recently came across Frank C. Pellett's book *A living from bees* (Pellett, 1946). (Frank was the State Apiarist of Iowa and editor of the American Beekeeping Journal). Frank's book offers the same advice that Grahame gave me. Had I not taken Graeme's good counsel I would have been bankrupted, as the next two years were drought years—not good for building numbers and paying back loans.

The following is an extract from the chapter 'Don't plunge', from Frank Pellett's book *A living from bees*, © copyrighted by http://chestofbooks.com/. (This book also is available from Amazon: A living from bees.)

The significant fact is that the bees furnished their own capital and built up a substantial business from a very modest beginning. Nearly every successful beekeeper started with a small outlay and built up with the earnings of the bees. Not every one is adapted to beekeeping and there are many failures among those who fail to grasp the fact that beekeeping requires careful attention to details. That one can begin with a very small outlay and build up slowly gives a special opportunity to determine one's fitness and interest in the business with little risk.

It would seem that an enterprise which can furnish its own capital as it builds up slowly should very promptly repay borrowed capital which would permit of much more rapid growth. Strange as it may seem, it seldom has worked out that way. Those who have been content with the small start and the slow growth have learned their lessons as they progressed. Mistakes have not been serious because there was little at stake. Those who have plunged into beekeeping on borrowed capital without previous experience have nearly always met some disaster which proved their undoing.

Another very important reason appears to be the fact that when a business grows up naturally, it stops its expansion when it reaches the limit of its owner's capacity for management. Not long since a large scale honey producer remarked that many beekeepers are successful with small apiaries and yet fail dismally when they expand to the point where they must depend upon hired help and divided responsibility. Large scale honey production is a business in which comparatively few can succeed, yet uncounted thousands find pleasure and profit with small apiaries kept as a hobby or as a sideline source of income.

The man who manages a small apiary in his spare time finds a net addition to his income. The one who has a large scale business and depends upon hired help, has many expenses and the overhead cost of operation gets him into the same difficulties felt by nearly every other line of business.

Forty years ago beekeeping was a hobby with a large number of business and professional people. The bee magazines were filled with animated discussions written by men and women of this type. Of late the industry has suffered for the lack of enthusiasm offered by the hobbyist. It has tended more and more to become a commercial enterprise followed by those whose only interest was in the big crops of honey which could be converted into substantial showing at the bank. Now we see signs of returning interest on the part of the class who find as much interest in the bees as in their honey. This is a healthful sign, for the individual, for the industry and for the nation. It is to be hoped that those who see signs of another boom ahead are mistaken. For every action there is a corresponding reaction and booms are followed by depressions. It is far more comfortable to move along slowly and sanely with time for our gardens, our bees and our neighbours.

I see the same thing today with new beekeepers seeing an opportunity with manuka and plunging in. Beekeeping seems easy but you are dealing with a colony of living animals. As with all farming where there's live stock, there's dead stock, and with high numbers of hives succumbing to varroa and perhaps *Nosema ceranae*, there's a chance you could lose your shirt if you can't keep healthy hive numbers up.

All industries experience boom and bust cycles. I have seen a couple in my 40-odd years, especially in years of global overproduction where honey prices halved. When the next downturn comes, you have to be able to live on half your estimated income, so make haste slowly.

Read old bee books produced before 1950, as these often give the reasons why you can't do things instead of just offering 'this is how I do it' information. These books offer the old ways of doing things. Compare them to how we do it today and see if the ideas fit your environment and ability.

Seasons and climate change, and generally beekeepers work towards a good average, but you can double your production with careful attention to detail and good recordkeeping (something I do not do well: I just write on lids).

Reference

Pellett, F. C. (1943). *A living from bees.* Orange Judd Publishing Company, Inc. Retrieved April 13, 2016 from http://chestofbooks.com/. Derivative materials appearing on this site are © Copyrighted by http://chestofbooks.com/ Reprinted with permission of chestofbooks.com.

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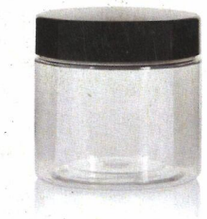
Interim JEC and Regional Hubs officeholder contacts are current as of March 2016.

IF YOUR DETAILS **HAVE CHANGED...**
...please email editor@apinz.org.nz and info@apinz.org.nz so that we can update your details in the journal and on the ApiNZ website www.apinz.org.nz.



360ml Round Pot

500gm Round Jar

340gm Round Jar
(coming soon)

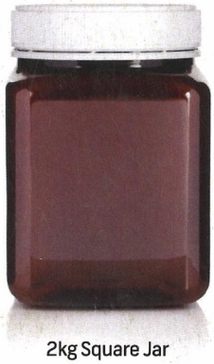
250gm Round Jar

2kg Hex Jar

1kg Hex Jar

500gm Hex Jar

250gm Hex Jar



2kg Square Jar

1kg Square Jar

500gm Square Jar

250gm Square Jar

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