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The New Zealand BeeKeeper

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A Breach at the Border
USA Bees make it to NZ!!

We tried to catch them for an interview but they just flew away.

IN THIS ISSUE:

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President's Report

Varroa found on the Great Barrier

At the time of writing, we have just been informed that Varroa is now on Great Barrier Island. I have as yet been unable to get in touch with MAF to get further information on how Varroa was transported there.

It strikes me that an eradication trial should be done to see if it would work on Great Barrier Island. If it will not work on a small Island, then maybe it is very unlikely to work in the South Island. If that is the case then MAF should be looking more closely at the proposed Pest Management Strategy for Varroa to see if the proposal is spending money in the right direction.

Funding for Research

At the time of writing this, we have just had confirmation of funding from the Honey Industry Trust for the Varroa Research programme to be undertaken at Hort Research, by Dr Mark Goodwin and his team. We have also had confirmation that we are through to the second stage of the Sustainable Farming fund selection. We are now preparing the next application that will be in by the 7th May.

We were also notified that the Bee Industry Group of Federated Farmers has also been given $40,000 to investigate future funding options for Research. I understand that one idea that they have put forward is to fund research by way of getting a commodity levy in place.

Because of this initiative, I would like to get some feedback from members as to what your reaction to this would be.

A commodity levy would mean that all beekeepers contributed, but it would also mean that a great deal of the money raised would be used in 'consulting' with the Industry, as has happened in the past.

The last consulting round that was conducted in 2002 cost the industry more than $60,000 to conduct. There are strict criteria that have to be followed during the consultation process, and so the cost of this is high. The result of the last consultation was that the Commodity levy to fund the NBA was thrown out.

What is the best way to ensure funding for future research – not only for Varroa, but also for product research. Should all beekeepers be willing to put their hand in their pocket, and contribute to a voluntary fund? If the majority of major players in the Industry did this, it would be the most effective use of funds.

We could then get together a group of dedicated people to use our 'seed' funds to seek out other funding sources, and help to write the applications to gain this money. For this to work we need extremely dedicated people.

Please give the Executive your feedback. It may be one of the areas that we should have some discussion at Conference.

SFF -Financial and practical Benchmarking

There is still some work continuing on this project, although it appears to be running behind schedule. I have recently been contacted by Tony Rhodes to get some beekeepers in the Waikato and Bay of Plenty to be willing to partake in the benchmarking project. For this to happen Tony requires 10 beekeepers in each of the regions being willing to submit their financial records to him (through answering a sheet of questions). Tony has worked with the Southland beekeepers last year on this project. Through getting information from beekeepers it will then allow others to look at their operation and compare it to the figures from Tony's work - will you be better off than the average, or will you need to look more closely at what you are doing to improve your returns?

Application for Ministerial approval for own use for FGMO

The Executive have just put in an application to the Food Safety Authority to get Food Grade Mineral Oil (FGMO) registered for own use in the treatment of Varroa. We have not yet heard back from them as to what the time line for registration will be, or if we have sufficient information with the application. Our thanks must go to Bob Russell, for the immense hours he must have put in to gather the information required. It is this type of assistance that we require to help the Executive to function as a governing body.

Conference in Hawkes Bay

From all accounts, the planning for Conference is well underway, with a wide variety of speakers indicating willingness to make presentations. This includes three overseas speakers. May we remind you that NBA members will get their seminar costs at a cheaper rate than non-members, but all interested persons are welcome. The conference is as much a time for sharing ideas, socialising and networking as for conducting the necessary business of the organisation.

Spray Damage

The Association has been approached by a person who is involved in the horticultural industry, who has over several years seen much evidence of spray damage. He has spent much time in trying to educate those involved in the Horticultural Industry as to the safe ways to apply sprays so there are no pollinator deaths, but in his opinion this is not working as it should be. He thinks there should be a position created of "Environmental Protection Officer" who will carry out monitoring, liaison and education and become the contact point for enquiries relating to sprays and spray activities. This officer would also collect information of breaches that occur that may lead to some enforcement of the regulations through legal action.

My question is – should we as an organisation become involved in this by way of contributing towards funding to allow this officer to be employed – especially seeing as only a portion of our members are involved in pollination? We look forward to your thoughts.

- Jane Lorimer

Letters to the Editor

Dear Editor

I would appreciate it if you could print the following e-mail from my friend in Bavaria, Germany, Hans Grudner. Hans worked for my company for the season in 1993 so he knows New Zealand and our breed of bee. He owns and runs his own large commercial beekeeping operation very successfully. I visit him every two years in Germany and am very impressed with his bee breed and his beekeeping management skills.

Regards
James Ward
Kintail Honey

Dear James ,

This is my thinking about a carnica-bee in New Zealand.

The natural bee in Germany is the black bee. About 30 - 40 years ago the carnica-bee was going to be more and more popular. Now most of the German Hobby-beekeepers are using the carnica-bee. The reason that the beekeepers have changed to the carnica-bee is: This bee is very quick in spring and you can harvest spring-flower-honey.

This bee has got a short, but high (vehement) develope-period. This is good for the hobby-bee-keepers, who shift no hives.

The disadvantage:

- *This bee likes very much to swarm. (Too much honey in the brood-combs and no place for breeding —— swarm)*
- *It's a bee for a short honey-season*
- *If the weather is going to be bad, the bees are stopping the breeding very quick. Then nice weather is coming again and you have got no bees.*
- *The most of the commercial-beekeepers of Germany are not using the carnica-bee. The most of them prefer the buckfast-bee.*
- *The buckfast-bee has got a constant breeding-period.*
- *The reason that I have changed, about 10 years ago, from carnica into buckfast is: The advantage of a constant breeding-period and not much problems with swarming.*

My thinking about a carnica-bee in New Zealand is:

- *The climate of Germany and New Zealand is different and I think this will be a problem.*
- *You have got a bee which fits exactly into your climate and you have got lots of natural-hives and this gives the guarantee of a high genetic multifarios.*

The varroa arrived now in New Zealand and I think, it would be much better to use all power against the varroa and not to look about another bee.

Hans Grudner

Balloons Over Waikato 2004

14 April 2004 dawned another foggy Waikato day. From Innes Common, beside the Hamilton Lake, at least 30 balloons inflated and lifted off from 6.30am onwards.
Joey and Lilly (all the way from the United States and piloted by Brian and Aaron) were up there as being the biggest and in spectacular fashion buzzed off with hot air beneath them.

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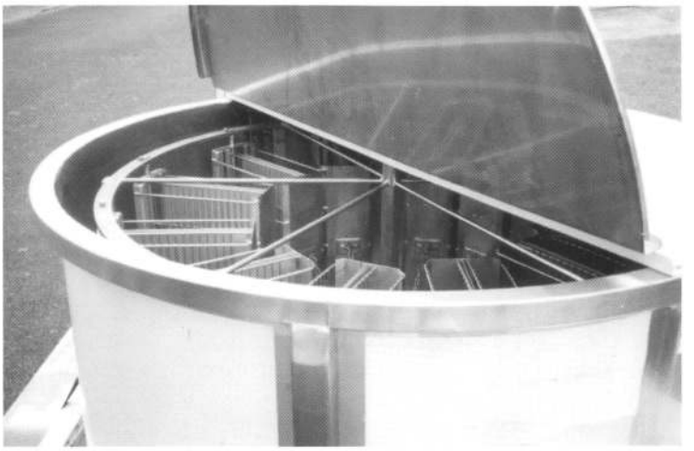

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American Foulbrood Infections

Dr Mark Goodwin

Apicultural Research Unit
HortResearch

Any discussion on American foulbrood (AFB) must also include the issue of when is and isn't a colony diseased. The issue is important for both legal reasons and for reasons of disease control. As far as AFB is concerned a honey bee colony can be uninfected. contaminated, or diseased.

Unaffected hives

Uninfected means that the colony does not contain any AFB diseased larvae or any AFB spores. However, I have heard it suggested that if you looked hard enough you would find AFB spores in all hives This is probably true of outfits with high disease levels. For example, we tested bees from hives belonging to a commercial beekeeper with a 25% AFB incidence 82% of 400 hives with no symptoms of disease tested positive for AFB sores. If we had looked hard enough we would have probably found spores in the remaining 12% of hives However, this case is not typical. No positive results were obtained from samples from 200 hives belong to a beekeeper who had not reported any AFB hives for many years. These hives probably contained few if any spores.

Contaminated hives

Contaminated means that the hive contains AFB spores but not enough to create an infection or there are enough spores but they are in the wrong location to create an infection The contamination may come about for a variety of reasons It may be because the bees have robbed honey from another hive that was contaminated with AFB spores or because of bees drifting from a diseased colony, it may also have had contaminated hive parts added by a beekeeper.

In one trial we added 20 extracted supers from hives with low level AFB infections to 20 uninfected colonies We were very careful that the outside of the supers were clean. We could not see any evidence of robbing or even any bees investigating the outside of the supers we added. However when we tested samples of bees from 20 uninfected hives at the same site that had not received added supers they all tested positive for AFB spores.

Generally the numbers of spores in a hive will decline over time if no further spores are introduced to a hive Contaminated honey is consumed and contaminated bees defecate outside or die and are removed. While it is possible that enough spores will find their way to a larva to create an infection this will become less and less likely with time as the number of spores reduces.

Although lab tests can identify contaminated colonies the presence of spores, their presence does not legally require the hive to be destroyed. However, the presence of Spores suggests that the colony is at risk of developing AFB and that there may be a diseased hive nearby.

Diseased hives

Technically a colony is diseased if it contains one or more diseased larvae (Figure 1) irrespective of whether diseased larvae are visible to the beekeeper or not For every diseased larvae seen in a hive there may be many more diseased larvae that cannot be seen.

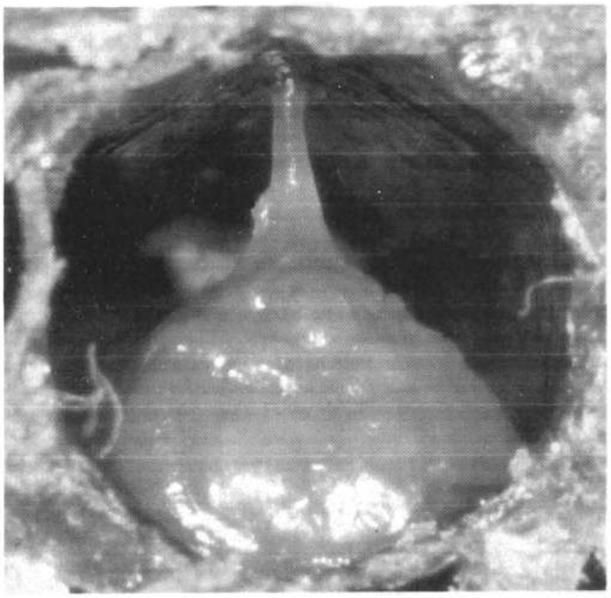

Fig 1 A larva with AFB

If the infection is very recent the diseased larvae may be hidden by cell cappings that have none of the symptoms we usually associate with AFB (e.g darkened, sunken or chewed cappings). The bees themselves can also affect the clinical expression of the disease. Bees with good hygienic behaviour can recognise and remove diseased larvae before they exhibit disease symptoms that might be recognised by a beekeeper Others do not chew cappings but either leave the cells untouched or remove the cell cappings and the diseased larvae completely. One hive we inspected had no sunken or chewed capping but did have a very spotty brood pattern suggesting there was something wrong with the colony As AFB is always a possibility with a spotty brood pattern we started uncapping ceils and found more than 70% of them to be infected.

Legally a colony is classed as having AFB if it contains, or has contained, a diseased larva. Colonies with only a few cells exhibiting disease symptoms may at times eliminate the disease symptoms either with or without eliminating the actual disease. Many beekeepers have reported being unable to find any sign of AFB when they have checked a hive a week after an inspector had diagnosed AFB in a hive. Even though a colony may no longer contain larvae with AFB symptoms, once it has been diagnosed with AFB it must be destroyed as specified in legislation.

Apart from the legislative requirements beekeepers are sometimes tempted to keep colonies in which AFB appears to have been cleared up. There are large risks in doing this The hive may still be diseased although it shows no sign of it. There is therefore a risk of it infecting other colonies even up to a year later.

You will be "out of it" if you don't get "in to it" - the Art Deco theme for Wednesday's Conference Dine and Dance.

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New Hive Health Technology Has Beekeepers Buzzing

Xenacom, a provider of agricultural software solutions and professional services, launched last month its latest technology innovation Xen-APIARY™ — a revolutionary hive management system for beekeepers. Xen-APIARY™ is taking hive management to a new level

Richard and Moira Haddrell of Cambridge Bee Products have worked closely with Xenacom over the last 2 years in the development of Xen-APIARY™. What the Haddrells like is that its a fantastic system that meets a critical need of beekeepers worldwide, helping in the fight to combat and track disease effectively and reduce our losses. The system is simple and has an intuitive web-based application that helps beekeepers manage their operation more efficiently.

It brings together the best practices of the beekeeping industry and the innovation of database and mobile technologies into one powerful solution, recording and tracking information about hive and super movements, disease, and the productivity of hive and queen lines. It also supports data entry while in the field using a handheld computer, which updates to a secure central web system.

With handheld technology, which can include a bar code scanner facility, beekeepers can record hive information instantly, locate hives more efficiently, and save time on paperwork and data entry.

Another fine day in Prairiedise.

(Part two – from Beekeeping in Manitoba, Canada – February 2004 Edition)

It's going to be a hot one too. Later in the season some of the hot days will be preceded by a fog dense enough to reduce every landmark to a dark smudge, if they're visible at all, and make finding the turn-off to the honeyhouse a feat of navigation. Thunderheads will also develop in the late afternoon and treat us to some spectacular shows of forked lightening.

What's it going to be like inside the honey house come midday? All that metal cladding on the outside is surely going to raise the temperature inside the building until it's like a furnace. But there's a chance of a last minute reprieve. Terry might have changed his mind and decided to harvest for another day. We've been warned to bring our coveralls each day in case of a last minute plan change. But, no change today. There wouldn't be enough empty boxes to put back on the hives if we headed out to the beeyards.

Terry hands us aprons and baseball caps. He explains that we're preparing food and they're a necessary hygiene measure. The threat of a food inspector descending on the honey house to carry out a snap inspection is treated as ever present although none ever turns up. Watches too are removed. No point in collecting honey under watch-straps. I'm wearing shorts and a T-shirt against the heat, and Alvaro and I have stuck to our boots whereas the others are wearing sneakers. Bradon, a local lad, has been added to our team for extracting. He's to be our pallet washer and helps out with top bar scraping. Whenever he's got a spare moment, he waters down the cement floor and scrapes the wax and debris into a pail.

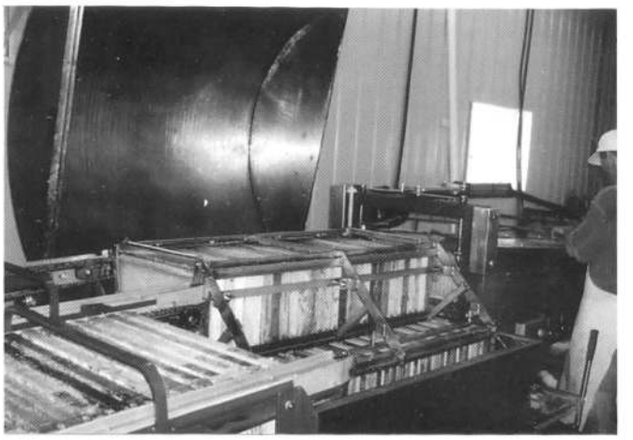
The extractor is located in an area off the body of the honeyhouse where all the honey drums and empty honey boxes are warehoused. The extraction area is open to the body of the main building and resembles a church nave. There's more natural light here than in any other part of the building as there's windows in the two outer walls. Set into the windows are mesh cones that allow the bees that fly around the extraction room to escape – at least the ones that don't sting us.

From my post, I can see outside a small beeyard where Terry monitors the weight of one of the hives as a guide to how the bees are doing this season. It's also a place to transfer the bees that, despite all our efforts to leave them behind in the beeyards, have managed to make it into the honey house as stowaways.

Extraction Room

I soon learn my role. Nothing too complicated for a novice with nectar still behind the ears. I'm to scrape the burr comb and propolis off the top bars of the frames as they emerge onto the conveyer from the decapper and scratch any cappings that survive intact. Early in the season, the comb is well drawn out but later on the comb is not drawn out so fully and we become busier with the scratchers, sometimes having to halt the conveyor to deal with several frames at once.

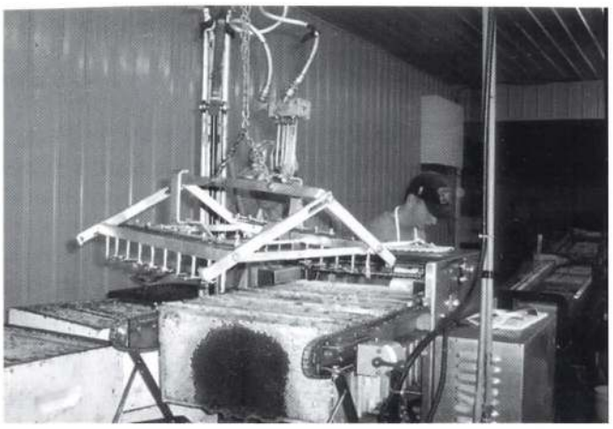
It's a magnificent beast, the extractor, a mechanical dinosaur



Inside of the Extractor

in stainless steel armour, and stretching in a crouch almost the length of the room. It's a product of Cowan Manufacturing. At the head of the machine are the decapper and the 'frame lifter'. The latter, like a set of false teeth, rotates on a post beside the decapper and through a system of hydraulics is manipulated up and down so that it can pick up all nine frames in a single bite from each of boxes in the four stacks grouped next to the decapper and drop them onto the abbreviated conveyor in the bottom jaw. Terry tells me the 'frame lifter' is a prototype developed by a beekeeping mechanic – a man, he assures me, who is a mechanical genius and I'm inclined to endorse his opinion when I watch his invention in action. The prototype has since been modified and is now marketed by Cowan Manufacturing which is proof if you need it of the man's genius.

I'm positioned behind the head of this beast on the nape of its long neck, that is, alongside the conveyor. As the frames drop down the back of the decapper's throat, they're drawn between a pair of vibrating heated blades that slice the caps off the cells. Cam Unrau's the master of the frame-lifter and decapper. In between feeding frames into the mouth of the decapper, he scrapes the empty boxes free of comb and propolis, and deposits them on a low conveyer that runs along the inner wall of the room and carries them to the tail of the extractor where Alvaro is working. Scraping the empty boxes is done with a hive tool. A moment's inattention can lead to cut knuckles from the metal spacers that are fixed to all the honey supers.



Frame Lifter

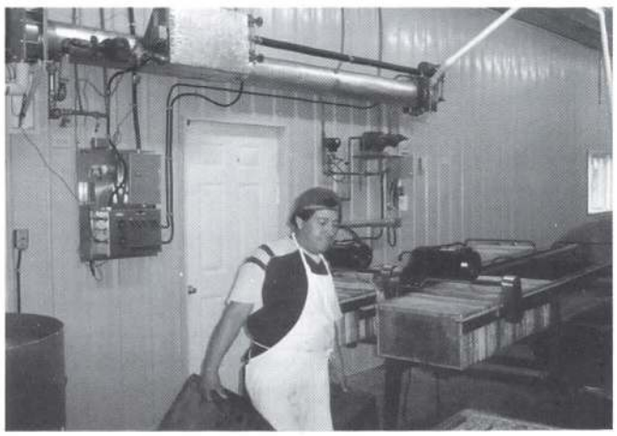
By 8.30 am we are underway and except for water and toilet stops – there's no official morning or afternoon teas – we work through until 12.15 pm. All the moving mechanical parts make a considerable racket. It's not so loud that you need to wear earmuffs, but it's loud enough to make prolonged conversation a strain on the voicebox. Anyway, I'm too busy inspecting the frames passing under my eyes to have much time for conversation as frames emerge from the decapper about every 6 seconds. They ooze a marvellous, golden honey, a liquid sunlight. No wonder honey was once thought to have been 'Mana from Heaven'. At this time of the summer, the honey is mostly canola with a little alfalfa, dandelion, sweet clover and other floral sources mixed in. Towards the end of the season, the honey will be primarily buckwheat, a honey not unlike manuka but less popular in this part of the world because it's dark and bitter. Buckwheat is grown for flour and 90% is exported to Japan where it's used to manufacture noodles. Terry tests the honey with a refractometer twice a day to ensure that the moisture content is not too high. He claims that he can also tell whether the honey is ripe by eye.

I notice that as some of the frames emerge from the decapper, the comb detaches itself from the foundation and begin a slow cascade into the sump. This seems to happen mostly when the wooden frames contain plastic foundation. The bond doesn't seem as strong as "wax on wax". Terry agrees with my opinion that the damage to the comb must make more work for the bees when the frames are placed back on the hives as the bees have more renovation to do to reconstruct the comb. Terry tells me that it's getting harder to buy wax foundation, and one third of his frames now contain plastic foundation. He's also trialling black plastic frames but he remarks that the bees are slow to draw out comb on them.

Scaping Topbars

Occasionally, there's a stoppage. From time to time a frame jams in the decapper, and has to be extricated. A thorough search for any pieces that break from frames is always conducted after one of these salvage operations. Any errant piece of a frame or plastic foundation could have disastrous consequences if it ends up becoming lodged in the heat exchanger or pump or some part of the labyrinth of tubing that runs from the extractor to the storage tanks up in the ceiling of the honeyhouse above the drying room. Once the broken pieces are retrieved, no matter how small, they're scraped over the sump before being discarded. All those driblets of honey added together over a season could represent a significant amount of honey!

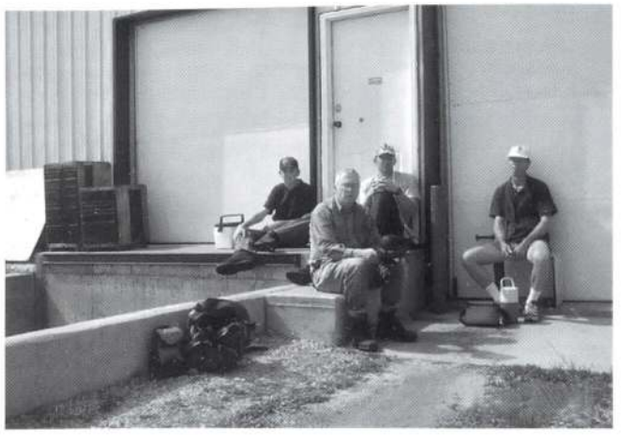
Terry roves around the extractor's belly loading and unloading frames into it, a task made easier by a system of hydraulics. This is a mature item of equipment and Terry treats it tenderly. But even more sensitive is the 'separator' where pure honey and debris part company inside the rapidly spinning bowl. The honey passes to it from the extractor through a heat exchanger to make it flow better. Equipment breakdowns during harvest could be catastrophic as machinery parts or service facilities for this kind of equipment is not readily available in a small rural town like Gladstone, although it's surprising what services can be found. Amongst his many jobs, Terry keeps replenishing Cam's stacks of honey boxes whenever they get low. He wheels them out of the hot room next door on a hand-truck.



Alvaro at tail of the extractor

At the tail end of the extractor Alvaro has his post. He's a busy man is Alvaro. When the extractor is emptied of frames, they are carried down one of the two parallel conveyor belts to him and he deposits them into the empty boxes. When he's assembled a stack, he wheels enough of them onto the hired van and Terry's semi in readiness for next day's harvest. Any boxes not required for the harvest are stacked in the body of the warehouse.

The lunch break is 30 minutes and we shed our aprons and take ourselves outside and sit in the shade of the van parked in the loading bay to eat our lunch. There's a faint odour of rotting meat in the air from the pheromone attractant inside the fly trap positioned not to far away, but it's not strong enough to spoil anyone's appetite. The conversation is generally about beekeeping but sometimes it turns to sports and hunting.



The Extraction team

Terry is an avid follower of the Blue Jays, a Winnipeg semi-pro baseball team, and takes his son to games when they're in Winnipeg about 140 kms South of Gladstone. Cam is keen on hunting with both bow and rifle, and has a bear's head amongst his trophies. I struggle to explain rugby to my fellow workers. Of course, they're mystified. Terry who has watched a game compares it a kind of brutal grid-iron without the common-sense protection of padding and helmets. By the time I leave Canada, I've become a supporter of the Winnipeg Blue Bombers, a gridiron team, although I'm as mystified by the rules of the game as they are by those of Rugby Union. Sometimes, the conversation is about farming practices. There's a perception that NZ farmers, because the landmass is so small compared to the vastness of Canada, are all smallholders. Yet in Canada where prairie land seems ridiculously cheap, a big rancher might only run a couple of hundred head of cattle. Smaller ranchers can run as few as 80 head, yet still make a living. The Mad-Cow disease and the ban on exports of beef crops up too from time to time in conversation.

12.45pm comes round and we tie our aprons back on and resume our posts around the extractor. The rest of the afternoon passes in much the same way as the morning. Around 4.30 Terry signals that the day's extraction is complete. We've extracted the honey from around 500 boxes. By now feet are aching from the long period of standing.

Everyone, including Terry I suspect, is relieved that this part of the days work is over. Cleaning the extractor, the clear

Stored boxes

spaces in the drying room and the floor around the extractor is now begun. Once more the floors are hosed down, scrubbed with a yard broom and squeegeed dry. There's a good underfloor drainage system. All this cleaning takes around 20 minutes. When we're finished cleaning, we help Alvaro bring the big empty honey drums from the stack at the bottom of the honey house up to an area below the storage tanks. Usually twenty-five to thirty at a time are needed. Terry will arrive the following morning before us and fill the drums to make room in the storage tanks for the next lot of extracted honey. By now it's five pm or thereabouts. We sign off the time book and head off back to Gladstone, licking our lips in anticipation of long cool drink.

Extracting is not as tiring as harvesting, but is somewhat

Gladstone Main Street

tedious by comparison when carried out on this scale. None the less, it's a part of beekeeping that you accept in the knowledge that there are always tasks in any occupation that you may find less appealing than others. And you take consolation too from knowing that even in a long season, extraction will be carried out no more than seventeen times. There isn't any heavy lifting involved and you don't work up much of a sweat. The honey house turns out surprisingly – perhaps because it's so large - to be relatively cool inside. Extracting is not without its satisfactions, either. You are invariably left marvelling at the huge volume of beautiful honey that these small insects with their highly developed social system are capable of producing. Then there are your work comrades. It's gratifying to be a member of such a friendly bunch.

- Richard Wickens
Wellington
wickensfamily@paradise.net.nz

From the colonies

Southern North Island

At the AGM last month, Neil Farrer was elected the President of the branch with most of the committee being re-elected.

A diseaseathon was held on the 17th April. Three teams lead by AP2's and supported by members from the Manawatu hobby club covered mostly hobbyist's hives from Foxton to Rongotea.

23 apiaries visited, 239 hives inspected with 6 AFB hives being found around Kopane and Rongotea. Unfortunately two of these hives had been robbed out so there is likely to be further reports of AFB in this area within the next 18 months. Beekeepers please keep a close eye on your hives!

The team members also commented that quite a few of the hives were heavily infested with varroa mites and weren't likely to see out the winter. They also noted that some beekeepers were putting strips in the outer frames, which were now not covered by bees. The strips would have to be moved inward to be effective.

We are also getting reports of dead hives in areas where there are high numbers of feral hives along with the odd report of several very late swarms, attributed to bees absconding I believe. Seems we are in for a fairly torrid time in this district until most of the ferals are dead.

The donated sugar after the Southern North Island flooding has been distributed and most beekeepers have produced a few late nucs, which have mated well thanks to a prolonged warm spell. A lot of beekeepers are feeding hives to bring their winter stores up to normal. It has now started raining, temperatures are falling as we approach winter.

- Frank Lindsay

Canterbury Branch

The season in Canterbury can be best summed up as variable in the extreme. Some Beekeepers report that they will have a similar income to last season, while others have found this year to be very disappointing. Note that beekeepers are starting to refer to income and not crop as in past years. On questioning these Beekeepers, I consider this is a reflection on how different Beekeepers derive an income from their bees and are not as reliant on bulk honey as they have been in the past.

With such a mild autumn here, wintering has been a drawn out affair. It has been an effort to get hives up to weight as any introduced feed has been turned into brood instead of stores. While this increases the cost of wintering, the upside of this is that autumn matings should have been very successful and the hives should be going into winter strong, healthy and with lots of younger bees.

- Brian Lancaster

Hawkes Bay

Yes, 19 April was our Branch AGM. To make sure everybody knew that our meeting night was changed from the second Monday due to Easter, we did a ring around. Included in this we emphasised that John Berry would show and tell about the need and methods for treating for Varroa. The little darlings are now widespread in this part of the country.

We had to drag in extra chairs and even had some people standing, but there was a downside. The branch has maintained a policy of making all beekeepers welcome whether NBA members or not and the chairman of the BIG usually attends. The problem was to know who were members with the right to vote on any motions!

John Berry was re-elected President with Ron Morison as Secretary/Treasurer. Although we lost some committee members we were happy to welcome some new enthusiasts.

One of these new members suggested that we move forward and post out our newsletters by email. About half those present indicated this would suit them. Our editor is agreeable, it is practical and we will save on postage.

Beekeepers who want this will be invited to send in their addresses while others will continue to receive their copies by conventional mail.

Elsewhere you will read that Conference is coming together, with a full programme including three overseas expert speakers. There are still one or two details to finalise so we are not able to give an exact programme. Watch for next month's Beekeeper.

- Ron Morison

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Essential Oils May Work - Chalkbrood Control Studies

(from Bee Culture March 2004)

Researchers seeking ways to control chalkbrood investigated the antifungal effectiveness of more than 50 natural products and found a number of essential oils particularly effective at controlling the growth of *Ascosphaera apis* in the lab.

The researchers have proposed a field test system to assess the most active antifungal agents.

Chalkbrood is a highly contagious disease of the honey bee Apis *mellifera* caused by the heterothallic fungus *Ascosphaera apis.*

Researchers Craig Davis and Wendy Ward said while a broad range of chemicals have been used either in hives or in the laboratory to control chalkbrood, no chemicals for the treatment of chalkbrood have been registered for use.

Despite the broad range of experimental work that has been carried out to develop chalkbrood control strategies, there is no specific strategy that has been universally adopted or accepted by beekeepers around the world.

In a report for the Rural Industries Research and Development Corp., in Australia the researchers said a compound for control of chalkbrood should have three characteristics:

- First, it must completely control the disease, or more realistically, keep it below the natural infection rate.
- Second, the control must be convenient to use, since practices such as applying chemicals and cleaning the bottom boards of colonies every week are not practical for commercial beekeepers with large numbers of colonies.
- Third, the control must not be more expensive than the natural loss due to the disease.

The report said the investigation of the more than 50 natural products found citral containing oils were the most active, with growth inhibition at 250 parts per million.

"These findings need to be progressed to field studies to evaluate product efficacy in the hive and to determine whether residues are a problem with this form of disease control," the report said.

The most active antifungal test agents in the study were Nepalese Lemon Grass oil, Lemon Scented Eucalyptus *(Eucalyptus citrodora)* oil, Lemon Scented Tea Tree *(Leptospermum petersonii)* oil and a particular fraction of a New Zealand Manuka *(Leptospermum scoparium)* oil.

The report said the effective control of chalkbrood would probably require a combination of control strategies. "The fact that *A. apis* is so widespread makes the possibility of its eradication unlikely," it said.

Book Review

Clan Apis by Jay Hosler

This is a 154-page comic book about Nyuka's adventures. Starting from the "Big Bloom" theory where larva is told of their world and what to expect during metamorphosis in the Transition. Other chapters cover different facets of bee life in The Swarm, Hide and Seek, Homefront and The Plan. This book is an enjoyable read for eight years olds upwards and imparts a factual knowledge of bees, the hive and the environment in a light hearted and enjoyable way.

Snippets on the net: www.jayhosler.com/clanapis.html
Price $US15 ISBN 0-9677255-0-X

Dysoxylum spectabile

Maori Mame: Kohekohe

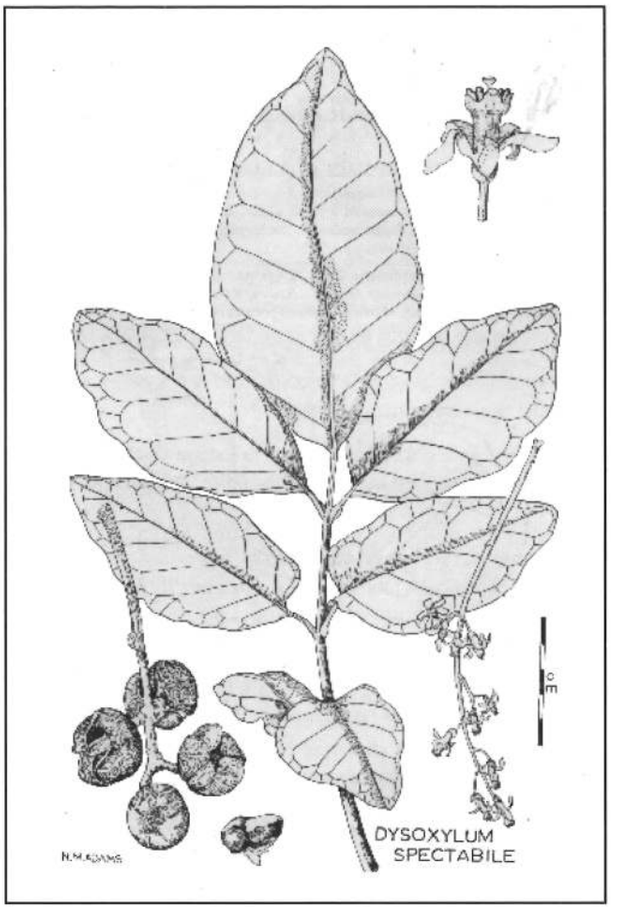
Native Cedar

A large tree 17m related to the Mahogany family. This tree has shinny green leaves and is of tropical origin. It is found in the North Island and in the Nelson/Marlborough sounds area.

The tree flowers between May and July and is unusual in that the flower stalks come straight out of the bare trunk or branches of the tree. The flowers look like lily of the Valley flowers and are waxy in appearance. The honey is water white but is unlikely to be extracted.

The leaves and bark of the Kohekohe were used as a substitute for quinine. The leaves were used to alleviate Asthma symptoms, and also as a substitute for hops when making beer and bread.

Also strong tasting sea birds were cooked with Kohekohe leaves to disguise the strong taste and impart a flavour of garlic.



About the Apiary

As extracting winds down and hives are bedded down for the winter, beekeeper activity slows.

Honey supers in storage should be checked to see that they are not infested with wax moth. Generally commercial beekeepers place their spare honey supers on stands in open sheds, well off the ground so that there is a good circulation of air through the supers. Wax moth and rodents like a dark, warm environment so will not get established in airy supers. Provide these conditions and you will not have a problem in the spring.

While supers are being put into storage, quickly sort the frames. Dark or heavy or damaged frames should be put aside for recycling. It's also a good idea to keep honey and brood frames separate because once brood frames have had a few years of treatment with strips its not a good idea to recycle the wax. Use them as fire starters. When sorting the frames in the supers, position the lighter coloured wax frames to the outside and the darker ones are in the middle. If a wax moth lays eggs on the outside of a stack of supers, the young grubs moving into the supers have nothing to feeds on and perish.

During this clean-up phase a lot of beekeepers scrape off the propolis. Even small amounts can be sold. This more than pays for your time. When scrapping try and keep propolis and burr comb wax separate.

The long warm autumn has stimulated some hives into brood production again. There are a few autumn trees flowering and these are providing this stimulus. Consequently some hives have used quite a lot of their winter stores and will need supplementary feeding. This is quite easy but a lot of hobbyists are not equipped with feeders. You can make a cheap trough feeder by cutting the side out of a plastic container. Place an empty super on top of the hive, roll back the hive mat slightly to expose the frames and place the feeder close to the bees. Put in a piece of windbreak cloth to prevent the bees drowning in the liquid and then fill it with a sugar solution, two parts sugar to one part water and dribbling a little over the frames to form a trail to the feeder. Most strong hives will clean up five litres within a few days. If you are feeding your hives in a suburban setting, feed late into the evening so that the bees are not stimulated into flying - searching for this new source of food.

If you find it confusing to work out the sugar/water mix to get a 60% solution, a quick guide is to fill a container 7/8 full with white sugar and then fill the container to the top with boiling water. (Don't use brown sugar, as it tends to ferment). Stir until the sugar has dissolved and when it's at body heat, feed it to the bees. An alternative is to full a container half full with hot water, stir and gradually adding in the sugar until no more will dissolve. Feed the bees until you have about a super of stores. There is a cost to late autumn feeding. The young over-wintering bees' lifespan could be shortened, as they have to use stored body fats to invert the sugar syrup into honey.

Some beekeepers anticipate this problem and store a few frames of honey to cover such contingencies. If not used during the winter these frames can be added to the hives in the spring or used as food for a nuc.

Most commercial beekeepers take a winter holiday to somewhere where it's tropical or if they can't afford this, head off to where it's a little warmer. I like hot pools.

Beekeeping is a business and like all business it runs best if you know where you are going and have goals that are ticked off as they are reached. On a cold wet day take time out to analyse this year's activities and plan your next year's activities. The best planning is down well away from the physical working environment and should include members of your family. Have them set their priorities and then work your priorities into the mix. Beekeeping has become more intensive and with mites, it has turned into a year round activity. It's so easy to work seven days a week when its full on as we only have such a short time to earn a whole years income, but family time must be put into the equation. You have your children for such a short time, and the fun and the learning they have with you in the early years sets them up for life. If they see beekeeping as all work and no play, they are hardly going to choose this as an occupation yet it can give a good living or at least a very comfortable life style.

Put all that useful tax information to good use and work out your cost of production. Identify the apiaries that give you your best return but most importantly identify and find out why some apiaries aren't making a profit. This last season would be one of the best to work from as most have produced an average or below average income. Because beekeeping, like all types of farming is weather dependant, you have to put something away in the good years to cover contingencies when crops aren't so good.

You have to be frugal some years. When farming gets tight, the first things that is reduced is the amount of fertiliser put on their paddocks. (This incidentally works into beekeepers hands, as there tends to be a greater number of flowers when pastures aren't so lush).

Beekeepers face the same problems and can run a year or two with little input but there are essential items that must take priority.

Keep your livestock in good condition. Feeding and requeening come to mind straight away but we should also put replacement frames in the essential "to do" list. Without a constant turn over of brood frames, diseases spores build up and things like Nosema are usually overlooked.

Nosema spores are in all hives and levels change during the year but build quickly in the bees when they are under stress in the spring. To really identify this malaise, you need to sample bees and look at their stomach contents through a microscope, however there are a few external signs like dead bees in the grass in front of the hives and slow build-up in the spring. Do not overlook this problem. The difference between a heavily infected hive and a clean one is an extra super of honey at the end of the season.

With mites now in most of the North Island, frame replacement has become essential to reduce drone brood to two frames for easy control and to remove the viruses that mites transfer to pupa. Maintaining bee health is now number one.

Replacing supers is a little further down the list and usually comes in cycles about five to ten years apart. If you move hives into pollination, then you have to have good woodware but if hives are left on permanent sites, a few rotted corners in supers can easily be plugged with the odd bit of foam plastic to reduce the extra entrances.

Order replacement woodware well ahead of time and if it comes already treated, it has time to dry out before being assembled.

Breeding for Mite Resistance

There have been some interesting articles on breeding varroa resistant bees lately. One that especially interested me was the Yorkshire trial reported in the latest "Beekeepers Quarterly" by John E Drew using Mellifera, Mellifera - the black bee.

I have always had a soft spot for these bees and there is quite a history behind them even in New Zealand. Pure bred they were very gently but swarmed constantly and this trait was used as the main method of hive reproduction. Some of these gently bees still survive today in our bush areas where they were introduced by "William Charles Cotton" in the 1840's. However when crossed with the yellow Italian bee, in temperament, they become a close cousin to the African bee.

Some years ago I was given a swarm of black bees, huge queen, good laying pattern, very gently and easy to work but they ran as soon as you smoked them. I kept them next to our house for a year and was surprised by their traits and their productivity so bred from them. It was impossible to maintain them as gently dark bees but after crossing them many times, I got a bee that suits this area and one I can handled but I still needs protective gear. Some of their good points:

- They protect my apiary sites from intruders - something that is essential when hives are placed on road reserves and along railway lines.
- They fly at low temperatures and in our often-windy conditions.
- They tend to close down earlier than yellow bees.
- They always produced a honey crop or at least enough to survive the winter.
- They have a high supersedure rate at the end of the season.
- They often have two queens - mother and daughter.

Unfortunately I have lost most of these bees through out breeding as I concentrated on breeding a bee that produced well, wintered with a large population yet was frugal on stores.

So it was with interest that I read the Yorkshire Beekeepers were using their local bee to breed resistant bees. The hives used were fitted with mesh floorboards, daily mite fall was counted and when hives started collapsing at the end of the season, they were treated with thymol or lactic acid. They noticed that some hives were more susceptable to mites that others. Some showed hygienic behaviour but during the mite counting, it was also noticed that the bees in some hives were damaging the mites. They bred from the four hives with a consistently low mite drop using AI and then bred from the best of these. By September they found hives with 31 - 47 % damaged mites. Note that these beekeepers in this trial were using "soft" treatments.

What is more interesting is that when new queens for this group were tested in hives in another area (that had been treated with strips), they failed to produce resistant bees, (4% of mites damaged only). John Dews reasoning is that the bees that are good general house cleaners eventually devise a technique for catching and gripping the mites when the mite population was such that they frequently "see" them, recognise them as foreign bodies and try and remove them from the hive. If a powerful chemical is then used to reduce the population to near zero, by the time the mite populations build again to a level recognised by the bees, all the bees that have this adopted behaviour will be dead and the new generation of bees will have to devise the technique all over again.

Anna Maurizo, a respected bee scientist has been quoted as saying, "80% of bee behaviour is learned, 20% inherited".

Conclusions for us: Actively start looking for hygienic behaviour in our bees. Prick a number of cells and see if they are all cleaned out within 48 hours (the best do this in under 24 hours). During the spring look for those hives with clean bottom boards and for those using mesh bottom boards, examine the mites on the inserts more closely for damaged mites. Mark these hive, monitor them and consider using the best for drone mothers.

Start to introduce softer chemical for mite control and integrated pest management techniques into your businesses that control but do not eliminated all mites from your hives.

All this of course can only be attempted after the initial acute phase is well and truly over - three years after the initial mite invasion.

- Frank Lindsay

Manawatu Diseaseathon

Photos by Joan Lechie