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The New Zealand BeeKeeper

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STOPPING MITE REPRODUCTION @ HORTRESEARCH

Pictured above from left to right: Harlan Cox, Michelle Taylor, Oliver McGlone, Liz Bull, Dr Mark Goodwin, Heather McBrydie. *Photo: Jeremy O'Brien.*

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Table of Contents

President's report 3
Biosecurity NZ decides to help fund AP2 training 4
New varroa research support needed 4
NBA Library news 4
Progress towards breeding varroa-tolerant honey bee stock in New Zealand 6
Disappearing bees a mystery 8
Auckland Beekeepers' Club nucleus box construction 9
From the colonies 11
About the Apiary 14
Letters to the Editor 16
Notice of 2007 NBA AGM 16
Are GM crops killing bees? 18
Trees and Shrubs of New Zealand: Taramea/Wild Spaniard 20
Varroa found in Hawaii 20

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NB: No magazine in January

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(See page 2 for full details)

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President's Report

Live bee exports

Like many beekeepers in the Waikato, Bay of Plenty and Auckland regions, we have been busy with collecting bees for shipment to Canada. It has been good to see more orders for bees than last year, but the access requirements imposed on our industry continue to frustrate those involved in this trade.

Of particular concern to the exporters was the requirement for one millimetre mesh to be used to cover the airline pallet of bees, as it was felt that some losses were likely to occur due to insufficient airflow. I know of at least one pallet where there were significant losses of packages, which of course affects the exporter's chance of repeat orders in subsequent years.

It is frustrating to note MAF's perceived slowness or willingness to negotiate workable access requirements. This has been an ongoing saga during my time as President and is one issue that I would like to see resolved in the near future.

Deformed Wing Virus

I had a phone call last week from Richard Norman of MAF, who is heading the response to the confirmed Deformed Wing Virus (DWV) finding.

He rang me to say that a hobby beekeeper in Northland had reported a suspect DWV that had been confirmed. Richard told me this confirmed their belief that DWV has been in New Zealand for some time. He stated that the beekeeper had no known links to the other Northland report, but he could not tell me how far away this hobby site was from other apiaries belonging to the confirmed beekeeper's apiaries. He was going to gather more information, but so far I have not had a further report.

Richard also stated that MAF would not be conducting any surveillance at this time, but would rely on beekeepers reporting suspected cases through their 0800 number (0800 809 966).

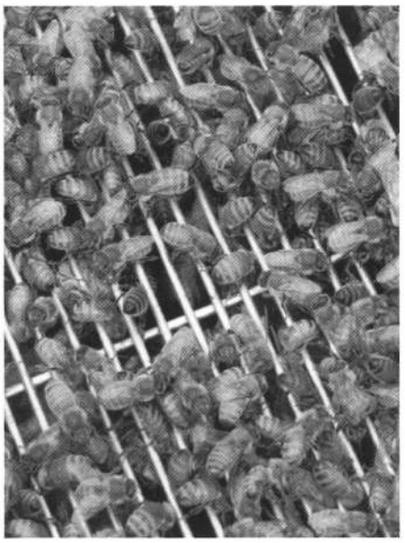
I would like to see some surveillance carried out in the South Island to see if Deformed Wing Virus is present there. If it is, MAF's assumption will be correct that the virus has been present for some time in New Zealand. If it is not present, then some work needs to be undertaken to find out how it has been introduced.

Updated publications

Some of the work that the Executive has undertaken in recent months has been to proofread the updated manual *Elimination of American foulbrood without the use of drugs—a practical manual for beekeepers*, by Dr Mark Goodwin, which has now been reprinted. We are also currently proofing chapters of the updated varroa manual (*Control of Varroa: A guide for New Zealand beekeepers,* MAF), which we hope will be completed over the next couple of months so it can be reprinted by the time of the NBA Conference.

We have had reports that a number of overseas countries are keen to have these manuals translated for their beekeepers, so the Executive is considering taking a stand at Apimondia to promote these books and New Zealand beekeeping.

- Jane Lorimer



Package bees running through the excluder. *Photo: Fiona O'Brien.*

Biosecurity NZ decides to help fund AP2 training

Readers of the April issue of *The New Zealand BeeKeeper* would have been disappointed to read that Biosecurity New Zealand, when first approached in writing, refused to assist financially in the Management Agency's desire to train additional Authorised Persons Level 2 (AP2s).

The Management Agency is pleased to report that following a subsequent meeting involving senior Biosecurity New Zealand staff, Management Agency member Barry Foster, and AFB NPMS Manager Rex Baynes, Biosecurity New Zealand will now be assisting in the funding of the training.

We are especially grateful to Biosecurity New Zealand for being prepared to reconsider our application for funding.

The Management Agency through its endeavours has some 75 people waiting to be trained.

Beekeepers please note: because of circumstances mainly out of the Management Agency's control, it has become necessary to defer the courses as set out in the April issue (page 8).

The new course dates are:

11 July Gisborne
12 July Napier
13 July Palmerston North
17 July Hamilton
24 July Whangarei

Please note there will be no Te Puke course as mentioned earlier.

Those who have been nominated can expect to receive correspondence shortly.

- Rex Baynes
AFB NPMS Manager

1 June 2007
ADR due!

The revised edition of *Elimination of American Foulbrood Disease without the use of Drugs – a Practical Manual for Beekeepers*, by Dr Mark Goodwin, is now available from:

Jim Edwards, World Veterinary Consultants, 10 Nikau Lane, Manakau Heights, RD 1, Otaki 5581

Cost NZ $15 + postage

New varroa research support needed

The NBA is continuing to actively support research on behalf of the whole industry. But to do this, we need your support.

We are currently seeking funding from beekeepers for the major varroa project being undertaken by Mark Goodwin and his team, who are ***developing new technologies to control varroa.*** We are also looking for financial support for the follow-up project, which is to maintain colonies of resistant bees that have been developed during the current project. The intention is to get the benefit of these resistant bees made available to our industry rather than see them lost when the project concludes later this year.

Most of the funding we get comes from the Sustainable Farming Fund, but that requires that we provide a significant proportion of the funding. We can make contributions in kind and that is how my time is recorded when I provide input into these research projects. However, we do need to find real dollars and for that we ask beekeepers to contribute funds in addition to their usual membership subscription.

If you can support this work financially and have not already been asked, can you please contact me? Thank you.

- Jim Edwards
Chief Executive Officer

NBA Library news

The Library now has DVDs of last year's conference held in Hamilton. For years Frank Lindsay has attended conference and set up his video cameras to record the speakers. There is now quite a history of Conference video recordings stored in the library and we thank Frank for his efforts. The videos are available to members for rental and postage.

We are also fortunate to have been presented with a book written by Dr David Woodward entitled *Queen Bee Biology, Rearing and Breeding*. Thank you, David. This book is out on loan and we will include a review when this has been completed. We expect this will be a popular book as it has been written to suit all New Zealand beekeepers.

- Roger and Linda Bray
Librarians

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Progress towards breeding varroa-tolerant honey bee stock in New Zealand

Michelle Taylor and Harlan Cox
HortResearch

Over the past three years HortResearch has been breeding honey bee stock that are resistant to varroa. The project is part of the *Development of Technologies for the Control of Varroa* programme funded by the Sustainable Farming Fund, with contributions from the National Beekeepers' Association and HortResearch. The aim of the breeding programme is to select stock that display a trait called delayed suppressed mite reproduction (SMRD) and then increase the presence of this trait through selective breeding. SMRD is the percentage of varroa in cells that do not reproduce or only produce offspring that do not survive, such as males or eggs that do not reach full maturity by the time the honey bee emerges from its brood cell.

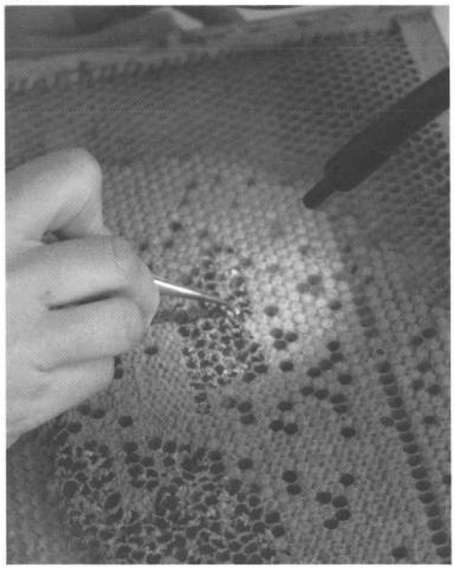


Figure 1. Assessing honey bee cells for the trait Delayed Suppressed Mite Reproduction.

The initial honey bee stock was bought from or donated by beekeepers throughout the North and South islands. The stock was assessed for their ability to reduce varroa reproduction and the best ten queens were selected. Assessing SMRD for one queen can take up to four hours (Figure 1). Each successive year the 10 queen lines (although not technically correct, we will call each queen a genetic line for ease of discussion) were inbred to increase this percentage. This was done using a closed mating population, where virgin queens were artificially inseminated with semen from drones produced by their mother (Figure 2). In the first year, only single drone inseminations were conducted to reduce the gene pool. For the following two years, we have inseminated the virgin queens with semen from two or three drones from their line to ensure the queens would lay eggs for longer. During this past year, we have also inseminated some virgins with semen from other resistant lines.

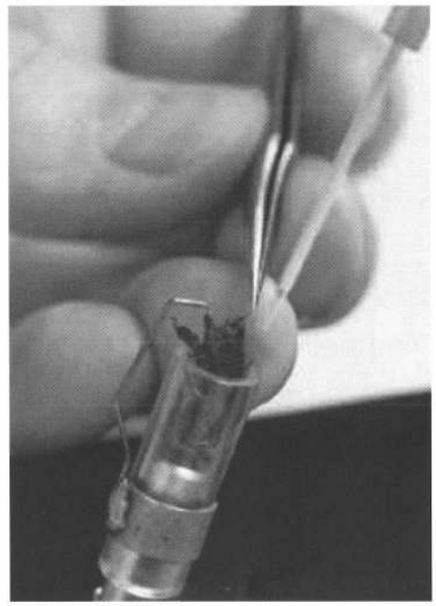


Figure 2. Artificial insemination of a virgin queen bee.

Each year an increase in percentage of suppressed mite reproduction has been observed (Table 1), with the latest results revealing that 80% of varroa in one of the lines do not reproduce. This is an exciting step forward. However, we have only been selecting for a trait, not for a honey bee, so although we have culled any lines that have not bred well, been overly aggressive or have had high levels of disease, we do not know how these bees will perform in relation to honey, propolis or pollen production. Until these issues are dealt with, the lines will not be released to the beekeeping industry.

Table 1. Highest percentage of delayed suppressed mite reproduction (SMRD) found each year in the honey bee breeding programme.

Year	Percentage of SMRD
1	19%
2	65%
3	80%

As funding from the Sustainable Farming Fund is coming to an end in June 2007, we have been searching for a place to maintain the stock as a closed population with minimal management. This requires an area where the bees will be isolated from all other managed and feral colonies to ensure that the lines maintain their resistance to varroa. We have

just been granted approval by the owners of Great Mercury Island (thank you to Michael Fay and David Richwhite) to establish and maintain the stock on this island, until the stock is worth releasing to the beekeeping industry.

Since 2000, we have seen varroa spread down the North Island and across to the Nelson region. This South Island incursion is a timely reminder for us to focus on the issues that we need to deal with as we adapt to life with varroa. One of the major issues is the development of mites that are resistant to the varroa control methods that we currently use. Taking an integrated approach to controlling varroa is the only way to reduce the impact of resistant mites. The production of honey bees that are resistant to varroa is one of numerous tools that may soon be available to reduce the impact of varroa resistant to chemicals.

Clockwise from top left:
Mark your queen in spring and all season long you will find her.

April and a shake still coming in.

Oh why didn't I mark this one? or an elusive unmarked queen.

Back to back – the smoke(r) and the gun.

Photos by Fiona O'Brien

Disappearing bees a mystery

Out of 21 semitrailer-loads of bees Montana beekeeper Lance Sundberg hauled to California for pollination five truckloads have died this season. With approximately 5600 hives of his own and 2000 leased from beekeepers in Washington and Nebraska, every October he packs his bees, loads them onto trucks and ships them to California where, from February to spring they pollinate almond and fruit crops. For five or six months out of the year Lance lives on the road "like gypsies" traveling from California's Central Valley almond orchards north to Washington's apple orchards.

Across America millions of honeybees are abandoning their hives and flying off to die. In at least 24 states beekeepers have lost more than 80 percent of their colonies already this year, the bees simply disappearing from hives without a trace. What researchers are calling Colony Collapse Disorder (CCD), is seriously affecting beekeepers' livelihoods, and could have serious impacts on the production of the country's fruit and nut crops.

In each case, the bees have up and left the boxes without leaving any trace. The unusual thing about the phenomenon is that you don't know where the bees went. You know they were there last week and you go and look the next week and they've just disappeared.

Of Montana's 250,000 bee colonies, 104,000 were shipped to California last year. California's Central Valley, which runs in an 80-mile-wide band from Bakersfield to Chico, produces nearly 100 percent of the almonds consumed in the USA and approximately 80 percent of the almonds consumed worldwide. It's a $2.2 billion industry and in California 580,000 acres of almond orchards rely entirely on honeybees. That one crop draws more than half the nation's bee colonies, some 1.2 million, during the February to March pollination season. The high demand for bees, coupled with increased death-loss ratios of colonies due to parasitic mites, hive beetles, wax moths, and now the mysterious CCD has led to skyrocketing costs to rent pollinating bee colonies. In 2004 that value was about $53.00 per colony and the last two years the price has been closer to $140.00 per colony.

Not wanting to miss out on lucrative almond pollination contracts, some beekeepers are buying imported bees or subleasing from other beekeepers; many are also not reporting collapsed colonies for fear of losing contracts. This not only makes it more difficult for researchers to ascertain just how widespread the problem is, it's also allowing others to ignore the problem entirely. The Almond Board of California isn't even convinced CCD exits. The first they knew about it was through the media.

Although the recent widespread collapse of honey bee colonies wasn't brought to researchers' attention until late last fall, some scientists suspect the disorder may have been around longer than originally thought. In fact, it's possible scientists are only now recognising a malady that's been popping up for years, and a group of Montana researchers are leading the way in finding a solution. "My belief is that what's going on right now has been seen before, but we've never really gotten a handle on it," says Jerry Bromenshenk, a University of Montana entomologist and CEO of the Missoula-based company Bee Alert Technology. Bromenshenk is now part of a national consortium of scientists and researchers working to solve the current mystery of disappearing bees. They are asking for beekeepers' assistance in reporting instances of CCD by identifying management practices and environmental factors that might be common to the losses, using www.beesurvey.com. Armed with this information the team are hoping to narrow CCD's possible causes.

One thing researchers already seem to agree on is that CCD has been around longer than previously thought. For at least two years beekeepers have been experiencing unexplained colony collapse. Jerry Bromenshenk says similar outbreaks can be traced back to published reports in the late 1800's, but more recently in the 1960's it was more simply known as "disappearing disease". With newer technology available now than in the 1960's researchers hope they can find the answer; however, just trying to identify a common thread is difficult. Explanations that one day seem to make sense are often refuted the next as more beekeepers report losses.

Pennsylvania beekeeper David Hackenberg was the first to bring CCD to researchers' attention last fall. He was shocked by what he found while checking a load of bees in a Florida orange grove. "When I pulled in to look at them (bees) there was nothing there, there were no dead bees on the ground and none in the boxes, but there was still honey in them." That's significant because Florida beehives are plagued with wax moth; there was also no sign of robbing. "There were millions and millions of bees in those hives and there wasn't enough dead bees to fill four boxes, much less 400." So he loaded the deadouts, and the handful of bees he found that were still alive and delivered them to researchers at Penn State, where one of the world's foremost apiary disease research labs is located. Preliminary work has identified several likely factors that could be causing or contributing to CCD. Among them are mites and associated diseases, some unknown pathogenic disease and pesticide contamination or poisoning. Initial studies of dying colonies revealed a large number of disease organism present in the bees, with no one disease being identified as the culprit.

Jerry Bromenshenk worries beekeepers will combine the remnants of hives hit by CCD with healthy colonies, which might spread the malady further. Since no one knows the cause of CCD, it's possible that infected bee boxes, frames and combs could infect the new colonies.

Adapted from the article "Bee-fuddling" by John S Adams, Missoula Independent Newspaper, *Vol.18 No.10, March 8–March 15, 2007.*

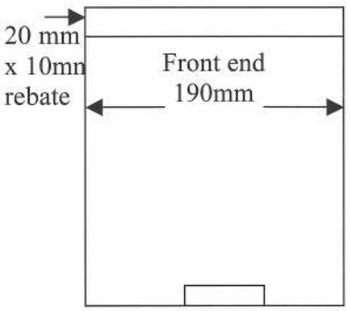
Auckland Beekeepers' Club nucleus box construction

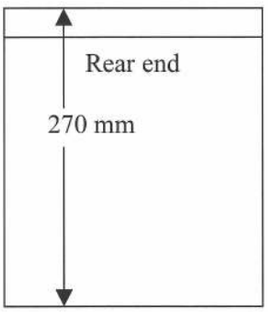
The nucleus box described below was designed by Auckland Beekeepers' Club member Paul Brown (paul@ww.co.nz).

Real-estate (coreflute) signs are often thrown out after the sale of a property. Some agencies prefer to give them away to get rid of them. Here's a project to turn these unwanted signs into something useful. Every beekeeper should have five-frame nuc boxes on hand for swarms, introducing queens, to use as a work box and for emergencies.

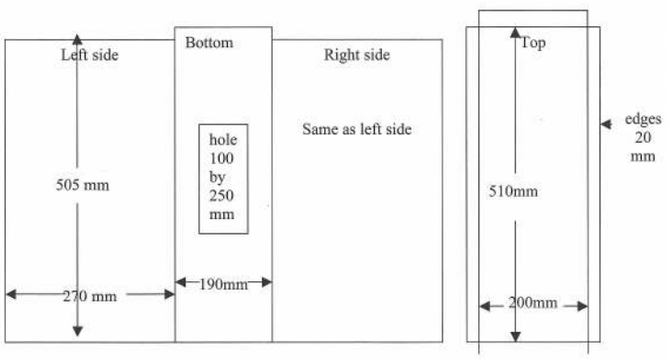
All that is required are two pieces of coreflute, two wooden ends, cloth tape, mesh and a stapler. The coreflute wraps right around the two wooden ends and is stapled to them.

The wooden ends





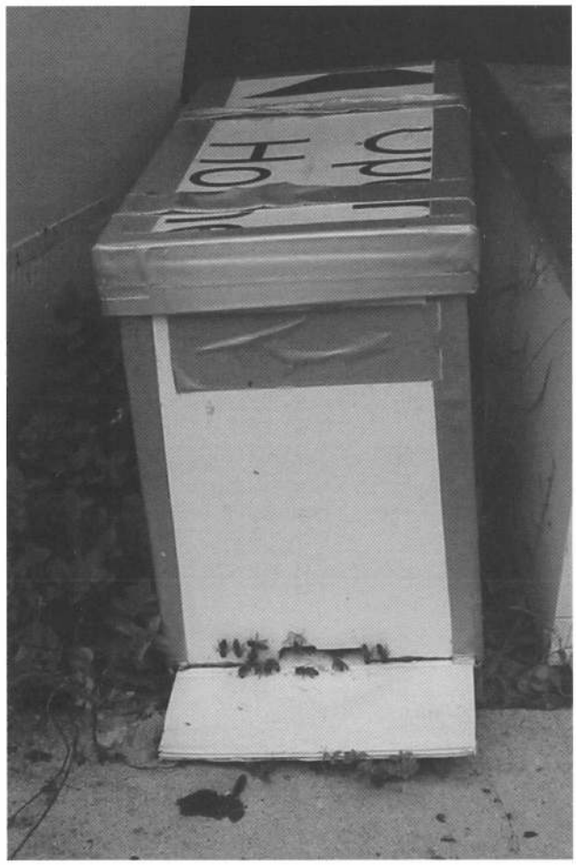
The left side, bottom & right side. The top & its edges [Don't cut right through the folds inside lines]



Steps

1. Find one or two pieces of real estate sign and tape them together so they measure more than 555 mm by 970 mm.
2. Using a marker pen and long ruler, mark out the plan as shown. Note that the bottom is 190 x 525 mm and the top is 200 mm wide (240) and 510 mm long with 20 mm edgings (550).
3. Cut all the outer lines, not the folds (a retractable blade knife is best).
4. Don't cut out the hole in the middle of the bottom yet (to take some screen mesh for bee ventilation) until you have creased all the folds.
5. Set the retractable knife blade at about 2 mm and cut halfway through all the inner lines.
6. Depending on the size of the screen available, set the knife at say, 5 mm, and carefully cut the edges around the hole so the piece of screen mesh can be fitted into the hole.

Note: it is best to use the 3 mm coreflute as it gives greater strength. Double coreflute is even better but you need to add on the thickness to the outer coreflute layer. Coreflute also breaks down in sunlight so should be painted to prevent UV damage.



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From the colonies

Auckland Branch

The decent spell of sunny weather over Easter ensured the last of our virgin queens got mated (we hope). Some hives were taking three weeks or longer to get mated, which was a bit of a worry. All hives have been checked for matings—anything that wasn't queenright was marked up and had another cell put in. We put out the last of the cells during the long weekend, so anything not right from now on will be dealt with by other means.

We've taken all the honey off apart from one last site, which has been put on the back burner as we're busily collecting bees for bulk bees. For those of you who don't know, some commercial beekeepers sell bees to be exported to Canada. Bees are smoked up through the excluder then blown out of the honey supers into stacks of boxes, with frames spaced and screwed into place. Pheromone strips are suspended inside the stacks to hold the bees in and keep them settled. The bees are then taken to a cool site where they can fly freely from these stacks while we spend a couple of days gathering up the rest of them. We strap up the stacks in the evening and take them to the exporter. From there they are re-packed into 1.1 kg mini nucs along with a queen, and sent over to Canada for the start of their season.

- James Harrison

Bay of Plenty Branch

Most of the honey is now off with variable results. Some good, some bad made for a slightly below average year for many. The early autumn has meant an end to the late flows; however, as the last few weeks have seen sunny days, requeening has been successful, miticides applied and live bee exports have been carried out with little interruption from the weather.

Our focus now turns to completing the branch diseaseathon by the end of April and our annual field day in June.

The program for the Field Day has yet to be finalised, but put Saturday 16 June aside on your calendar for an interesting day at the Paengaroa Hall between 10 am and 3 pm. Topics include updates from Zespri, Avocado Council, HortResearch, Agri Quality Limited and discussion on EFB, residues, and wax moth. Check the NBA website for details closer to the date. We look forward to seeing you there.

- Barbara Pimm

Waikato Branch

By now all RMP audits will have been completed. As to the signing off of the audits, that may take a little longer as the results will have a range of outcomes. If it's acceptable, then the auditor will see you in another year, albeit the next visit will be a surprise. If it's unacceptable, then it's off to fix the deficiencies or prepare a written corrective action management plan.

Around the branch, package bees are being taken off hives ready for export. I love the chance to spot queens in the fastest possible time, but sometimes she just doesn't want to be found and leads you on a merry dance. The bees intrigue me with their various colours (golden to black), their markings and noise level, and some want to fly more than others. I'm generally fine with their increased level of activity in the yard for this task until my husband tells me that he would love to take a photo showing just how many bees are on the back of me!

There are still good brood patterns in the hives and a honey flow on in the middle of April. Some areas have had a good dandelion flow, with plenty of flower in paddocks with the fairies now appearing.

- Fiona O'Brien

Hawke's Bay Branch

As I write this many areas of the Bay are still very dry and we have a total fire ban. Most beekeepers are winding down for the year and although February was very disappointing due to inclement weather, many hives got at least their winter stores in March with day after day of perfect weather and temperatures over 30°C in some cases.

Worrying about the lack of genetic diversity in New Zealand bees may be a bit premature. I recently helped a friend requeen 18 hives that he had brought to Hawkes Bay from Taranaki. They were some of the purest black bees *(mellifera)* I've seen in over 20 years, with very good defensive responses coupled with an absolutely amazing inability to produce a crop of honey. I'm glad somebody is still working to maintain a wide genetic base for New Zealand beekeeping (my friend took the honey off as we requeened them and it was raining as well but Peter and I managed to find 16 out of 18 queens, which wasn't too bad).

The keeping of carniolan bees is becoming a contentious issue. If they become more widespread it will become almost impossible to breed pure Italian bees. This may not be too big a problem for commercial beekeepers but will be a nightmare for any queen breeder. Personally, having spent the last 35-plus years breeding quiet disease-resistant productive bees, I am very reluctant to take on bees from the other side of the

world and a completely different climate. We once got a lot of queens from north of Auckland, these were beautiful bees and the only problem with them was that the following autumn wasps killed almost 100% of them. Having said that, it would be interesting to run a few yards half and half and compare their production for a couple of seasons.

- John Berry

Nelson Branch

As the sun gets lower in the sky and we prepare for the first frost on our pumpkins, we feel fortunate that we have had such a settled and lovely Indian summer. Of course the bees have been out flying a lot more and have probably burned up more of their hard-earned savings than usual, but the hive stores are good and probably heavier in pollen than I have ever seen at this time of the year. Beekeepers are harvesting the last of the honey and preparing the hives for the winter ahead. The mice have started looking for warm hive homes very early this year.

I can't help but wonder where the varroa have moved to by now and where we will find them in the spring. Biosecurity New Zealand has started to send out the surveillance packs, as there will be varroa testing within the control area this month to give us a better idea of how far the mite has spread.

On 2 March Biosecurity New Zealand, in consultation with Marlborough beekeepers, imposed a new Marlborough control line (within the control area). So there will be no movement of medium-risk or high-risk bee goods over the Pelorus Bridge in the east, and none over the Wash Bridge in the Wairau Valley in the west.

On a personal note, our own beekeeping business is probably the most affected by this line that separates our beekeeping operation. Because all our hives are on the other side of the line (Marlborough), they won't be able to be moved back to their usual warm winter and spring management sites here in Wakefield (Nelson). Spring will bring its own challenges as our queen operation is on the opposite side of the line to our hives!

Most beekeepers in our region will be winding down now and perhaps planning a well-deserved break, including taking advantage of the conference being held in Dunedin.

- Merle Moffitt

Canterbury Branch

Another month has passed us by, with unusually warm weather for this time of year. The mild conditions have enabled the bees to get in considerable flying hours in each day. This has allowed queens to mate very successfully and bees to pack in considerable amounts of late stores and more importantly, an excess of pollen. One hopes the bees will not need all of these stores in spring or else it is looking to be long and cold.

I am hoping that this autumn is going to continue to be warm as it will allow wintering to proceed and be completed in record time. The only problem is that it's hard to believe winter is but a few weeks away.

This winter is going to be a soul searching time for most South Island beekeepers, as we will be forced to consider the ramifications of varroa to our futures once again, this time knowing we are on a pretty well defined timetable. I wish beekeepers the best of luck in the task ahead. Remember there will be life after varroa for the guys and girls who position themselves now for the opportunities that will be available in the future. Crisis always brings great opportunities for the brave.

The Canterbury Branch is hosting a varroa workshop at the Hornby Workingmen's Club, Christchurch on **Saturday 26 May,** from 9.30 am to 4 pm. Guest speakers will be Brian Alexander and John Berry on the topic **"Practical help with varroa, what to look for, what to do next, steps to survival."** ALL beekeepers are invited to attend: enquiries phone Maggie 03 324 4482 or Linda 03 308 4964.

- Brian Lancaster

Otago Branch

There is a bit of snow about on the tops and the frosts are starting but colonies are in good shape for the winter ahead. I have just spent a lovely autumn day wintering down hives, finding almost all are heavy enough to get through winter. I blame the thistles! Some good matings this last month or two have given me some nice top supers to overwinter as well. The settled autumn has favoured the wasps too and they are now a threat to hives in some sites. Entrance blocks or guards are needed with wasps harassing hives. When nests are too numerous or can't be found I have found the easiest solution is to move the hives to an unaffected area. Often without the hives to feed off the nests soon die out and the hives can be returned. With bee work winding down it is time to think of winter projects again. For me it will be more replacement gear and more mesh floorboard conversions.

Conference Information

For a few of us it is conference planning too. For those of you planning to come down to Dunedin in July and not too familiar with the town, I will give a little detail of the venues etc. The 'Dunedin Centre' is the conference and function unit situated in the Dunedin Town Hall building on the Octagon.

The Kingsgate Hotel is just a minute's walk behind the Town Hall on Smith Street. If it's snowing it could be less. We start off the conference there on Monday 2 July with the specialty group meetings and NZFSA E-cert Seminar and training session and with the Meet and Greet in the bar that evening.

On the Tuesday and Wednesday, the seminar days, we will be in the Fullwood Room on the third floor of the Dunedin Centre. The adjacent Maldon Foyer will house the trade displays, and the conference dinner will be in the Glenroy Auditorium on the ground floor. The AGM on Thursday will be at the Kingsgate Hotel.

With the venues in the heart of the city there is plenty close by to entertain those not participating in all of conference. Dunedin is a very walkable city and apart from the shopping, bars and cafes, within a few blocks you could visit a dozen different galleries and other attractions from "Cadbury World" or the Sports Hall of Fame in the old Railway Station to the Speight's brewery tours. The i-site information office is also in the building, but for a preview of local attractions you could visit www.cityofdunedin.com. Even those quite close to town should consider staying at the hotel. With such a reasonable rate on offer it will be cheaper than driving and parking and you won't need a sober driver!

If we get a proper winter soon enough there is a chance the ski fields will be open and an excursion can be made to Central Otago following conference. A van load or two could do a day trip or an overnighter for two days skiing. Those interested should let me know at foxglove@paradise.net.nz and if the numbers are there we will break a leg or two, so to speak.

And in no time at all it will be early spring checks again, legs permitting, so come and have a well-earned winter break Aaagh*@#!! with us in the south while you can.

See page 9 for more information about conference registration.

- Peter Sales

GOING TO CONFERENCE IN JULY?

The Otago Branch is looking forward to seeing you in Dunedin for the Conference and AGM from 2–5 July 2007.

The registration form is in the April issue of *The New Zealand BeeKeeper.*

Don't forget to register before 15 June to avoid paying extra fees.

(See Peter Sales' Otago Branch report in 'From the colonies' above for more info on social events and other attractions in Dunedin and Otago.)

About the Apiary

Autumn is really here. Twenty-five millimetres of rain in one night (thankfully received) and a couple of cold southern fronts were more than a gentle reminder. Hopefully this will finally stop the bees from robbing, and the bees' temperament might get a little better when inspecting hives.

German wasps are making a comeback

As with last year, German wasps (*Vespula germanica*) are becoming a nuisance. Close the hive entrances right down so the bees have a better chance of defending the hive. Weak hives or nucs should be reduced to one or two bee widths.

Generally the nest is in a bank or old tree stump within 500 metres of the apiary, but are quite hard to find. If you have lots of time, catch a few wasps in a jar and coat them with flour. Release them one at a time and after each cleans its wings of flour, it will fly slowly back to its nest (the flour makes them easier to see). Otherwise, your only opportunity of locating them is by watching them fly home in the early evening after bee flight activity has ceased. This is still a hit and miss method of locating a nest. If you think you are close but can see the entrance, jump up and down a few times. Vibration really upsets wasps and if you are close, the wasps will find you within 30 seconds.

The late Ted Roberts used to pay the local children 50 cents for each wasp nest located within a mile of his honey factory, but those were the days when 50 cents meant something. He had to spray his honey house before he could start work each morning. The wasps were very clever at finding different ways in—often going metres inside a wall, then into the ceiling, before coming out of a light fitting.

I prefer to put jam baits under hives that are being harried and give the wasps time to establish a feeding pattern. I usually put out some more jam the next day and add an insecticide powder in a ring around the jam. The wasps walk through the powder, picking up some on their bodies and taking it home. After cleaning themselves they die and the poison is then passed through the nest. Adding powder to the jam often changes the smell and makes the jam unattractive for a time, but if they are hungry, they'll take it home.

If you find a nest and want to put insecticide powder down the entrance, slowly walk on tiptoes to the side of the entrance as this will not disturb the wasps. Put a couple of tablespoons into the entrance. As mentioned above, the wasps will take the powder into the nest on their bodies, provided the ground surrounding the entrance is dry. If the wasps are not disturbing your hives, they could be the Common Wasp and therefore should be left alone. I have found that these wasps just do not attack beehives.

Storing honey supers

Wax moth and their treatments have been mentioned in the last couple of issues. Unfortunately, we no longer have PDB as a tool to use against them due to residue problems. Generally, wax moth is not an issue for us. Frames are stored in sheds that are weatherproof but have full air movement. As most New Zealanders know, Wellington has full air movement most of the time: it isn't called 'Windy Wellington' for nothing.

Thirty years ago greater wax moth (*Galleria mellonella*) in our area was unheard of, but year by year they have gradually spread south and now they are just part of our environment.

During honey removal and inspections you will often see a wax moth sitting on the side of a hive, close to an entrance or just near the hive lid (roof). They wait until the cool of evening when the bees are not guarding the entrance so intently, then move into the hive and lay eggs in the pollen frames. If disturbed on a hive, they freefall a couple of feet before flying off and hiding somewhere else.

If a hive dies out and the supers are not attended to immediately, wax moths will get in and their larvae will start to destroy the wax and frames (the larvae have the ability to chew through wood to get to a safe spot to pupate). I have only seen one abandoned apiary where the combs were all intact—they were full of tiny Argentine ants and I can understand why no self-respecting wax moth would want to enter these hives. As soon as you touched the hives, the ants were out running around with their abdomens in the air, covering all surfaces.

The greater wax moth is quite successful in getting into our hives and laying their eggs. However, the bees are very

effective in controlling wax moth, so you will only occasionally come across a larvae tunnelling under the cappings on a frame of brood. It's not until you have stored honey supers for more than 10 days at 33 degrees Celsius in a hot room that you get an idea of just how good the bees are at removing wax moth larvae. Frames with a little pollen in them will have dozens of tiny larvae on them and if left for another couple of weeks, the larvae will start to damage the frames and spin silk tunnels lined with faecal pellets. Generally these frames should be returned to the hive to be cleaned up.

As part of my spring management, I normally hold supers of honey and pollen over the winter and use them as emergency food for hives that run short in the spring, or use them to boost nucs. This season I didn't use many, so they sat there and of course wax moths eventually found them. One or two moths were appearing on the ceiling in the evening so I thought I had better investigate. Inside the stack of supers I found five or six frames that were well infested, and cocoons were spread throughout the supers.

I don't use any chemicals to control wax moth so decided the bees could take care of this problem, but thought I'd assist them by removing most of the larvae and their silk tunnels. I inspected all the frames and removed all the cocoons and silk I could see, but when it came to the larva-infested frames, I observed that they tend to ball together where they were feeding. This made them fairly easy to remove, as a lump of wax and silk about the size of my palm would come out together. I further scraped the frame around the edges of the hole to remove any larvae that had burrowed into the wax and honey. On removing these masses of larva, I noticed that they were warm (about 30°C), so looked at the honey in the frames around them and found it was all runny. I hadn't expected this as most of the honey in the frames had granulated. Therefore the larva must be capable of producing heat to such an extent that it can turn granulated honey back into runny honey again. Quite surprising!

I can see now that once greater wax moth gets established in stored frames, a drop in temperature during the winter will not stop their development. Hence control must start from the moment you move frames to your storage area.

My method of storage is fairly simple. I place pallets on the floor and cover them with steel queen excluders. I stack the supers and put more excluders on top, then cover the stack with a light wind cloth. The excluders prevent rodents getting at the frames, and the cloth will stop any contamination getting into the frames if they run across the top of supers. (I also put out a lot of rat bait in tunnel feeders.)

Before piling up the supers into stacks 8–10 high, I check each of the frames for colour and condition. Any dark frames, those with excessive drone cells, or ones with broken lugs are put in the pile for rendering down (or in our case, for the winter fire. I no longer put a nail in the end of a frame to replace the lug as a nail fell out during extracting and cost me a new honey pump). I then move the remaining frames in the super to the centre, and replace the discarded frames with last year's newly drawn frames or foundation frames that were not drawn out. The idea behind this method is that if a wax moth lays eggs in the cracks between the supers, the young larva moving into the super will meet foundation wax that is of no nutritional value. Quite often they will die of starvation. This method also means that the integrity of my super marking system (apiary designation and hive number) for those beekeepers with the odd AFB hive is not compromised. Supers can be found and removed should another case of AFB show up during the spring inspection.

I store supers with residues of pollen in the frames together in a place where they can be easily inspected until the really cold winter weather sets in. I tend to put a sheet of newspaper between each super to hinder wax moth by sealing the cracks, but if I find after a while that the pollen grains are flaking out of the frames (because pollen mites are eating the pollen), I remove all the newspaper so the pollen mites can fall down through the stack and gradually clean all the pollen out the stored frames. (In spring I hose down these frames to remove any remain dried pellets of pollen.)

Last year's foundation frames that I don't use as replacements (as above) are stored together at the front of the stacks so I can use them during the spring inspection to replace any old frames still in the hives. I also store honey frames that are a little darker in one area, as I reuse these mainly in the Manuka hives. (These frames darken due to brood being reared in them. I do not use queen excluders and the queens will often come up during a slow flow and lay in patches of drone comb.)

It doesn't take very long before most of your stored combs are light and fairly new if you have a three-year or four-year frame replacement programme for both brood chamber and honey storage frames. Constant replacement of frames also helps to remove pathogens like nosema out of the hives and also helps to keep your honey light: old dark brood frames tend to darken honey over time and are much heavier in weight.

The moral of the story: if you live in a warm area, half your investment is in stored honey frames and you will have to protect them from wax moth. More commercial beekeepers are now putting their honey supers into coolstores where they are frozen for a week to kill any wax moth eggs that are on the combs. They can then be stored in an airy environment that will inhibit wax moth from re-establishing in them. If you do not live near a coolstore, perhaps you can look at injecting carbon dioxide into a freezer container (with a good door seal) full of stored frames.

For the hobbyist beekeeper, get an old freezer and put in a couple of supers at a time for 48 hours. If there is honey in the frames, freeze for a little longer as honey and wax take a while to get down to 0°C.

Continued on page 16

Continued from page 15

Those with medium-sized beekeeping operations may have to think about investing in a second-hand refrigeration container with a chiller unit attached. This will at least keep the supers cool (2°C), which should prevent wax moth eggs hatching, or experiment with CO_2.

For those who live down south, smile, as you do not have this problem.

Things to do this month

Collect your records and count your hives so you can get your Annual Disease Return (ADR) in on time (1 June). Don't forget to amend addresses and the name of the property owner if it has changed hands. Winter down hives, dispose of your honey crop, grade and sort combs into brood, extracting or damaged. Check for wasps and control growth around hives. Plan a short excursion to Dunedin for Conference in July and perhaps another quick trip to Apimondia in September.

References

(Wasps: http://www.envbop.govt.nz/land/media/pdf/Fact_Sheet_PA03.pdf)

(Wax moth control: Dadant & Sons. *The Hive and the Honey Bee*, Control Methods for Greater Wax Moth, p. 1132. Revised edition July 1992.

- Frank Lindsay

Letters to the Editor

Argentine biologist with experience in *Varroa destructor* seeking work

Hi, my name is Andres Villegas, from Argentina. I finished my MSc in Biology Science in the National University of Mar del Plata. The matter of my Thesis is about varroa's distribution in hives' brood cells. In this research I tested diagnosis in hives' brood cells in order to identify parasite load, being a registered beekeeper.

I arrived to Auckland seven months ago. I have been improving my English, working in different items and as well three months in the Auckland Museum as a volunteer in the Entomology area with director John Early, and afterwards collecting insects in the North Island for the collection of the museum. Obviously me and my girlfriend fell in love with the environment and would like to stay longer in NZ.

Nowadays, I'm returning to the papers, translating my thesis and reading books. I'm ready now to start working again.

It would be very kind of you if you could inform me about the present available jobs like beekeeper, researcher or any help that I can offer.

Thanks a lot for your time.

Andres Villegas
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Notice of 2007 Annual General Meeting

THE NATIONAL BEEKEEPERS ASSOCIATION OF NEW ZEALAND

Notice of 2007 Annual General Meeting

The AGM will be held on Thursday 5 July in the Kingsgate Hotel, Dunedin.

Pursuant to the Rules of the Association, **notices of motion** and any **proposals to alter Rules** must be received by the Chief Executive Officer no later than 5.00pm on Monday 21 May, 2007.

Nominations for Ward representatives must be received by the Chief Executive Officer no later than 5.00pm on Thursday 28 June, 2007. Elections for 2007 **Ward representatives** are required in the Waikato, East Coast, Upper South Island, Southern South Island, Canterbury Branches.

Jim Edwards
Chief Executive Officer

Hobbyist beekeeper seeks work

I am Christopher S Baltazar, married, and presently residing in the Philippines. I'm a government employee and a hobbyist beekeeper. I learned beekeeping from a friend who's a hobbyist beekeeper. Likewise, I also received advice from other beekeepers through constant consultations and exchange of experiences. I read many information materials and watched videos about bee culture. I also attended non-formal and formal beekeeping seminars. I have been in this field for almost four years and my wife is my partner in the management of our apiary.

We love bees because it provides happiness and is an alternative income of my family. Specifically, I am familiar in all aspects of proper beekeeping such as queen rearing, medications, honey harvesting and extraction, pollen trapping, dividing of colonies, feeding, wax melting and foundation, carpentry, driving, etc.

In this light, I would like to apply as beekeeper. With my knowledge and skills in beekeeping, I know that I can be beneficial to your company.

Christopher S Baltazar
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Bee behaviour genetics research

I'm a researcher engaged in molecular biology and I'm organising a coordinated project in bee behaviour genetics, together with many beekeepers and behaviour biologists. This would contribute to a better understanding of bees for the beekeepers and even yield new products.

I want to contact New Zealand beekeepers, honey production facilities or honey importers, who would be interested in taking part.

Sincerely,
Robert Heinrich
E-mail: Robert_Heinrich@t-online.de

[Editor's note: Please contact Robert Heinrich if you would like to participate in his research.]

Questionnaire to assist apiculture in New Zealand

Dear Beekeeper

I am a teacher and beekeeper who has been granted a NZ Sciences, Mathematics and Technology Teacher Fellowship to do research regarding varroa.

My objectives are:

- To determine the reliability and effectiveness of existing varroa treatment schemes through research with Landcare Research, HortResearch and by speaking to and visiting apiarists.
- To determine new possible ways of dealing with the varroa mite problem in conjunction with researchers.
- To note concerns of beekeepers regarding varroa.
- To be able to publish this information which, hopefully, will be of use to beekeepers etc in dealing with varroa.

I have done my best to make this questionnaire as beekeeper friendly as possible and would be grateful if you would send your answers to my e-mail address ASAP.

Thank you

Neil Furness
Beekeeper
Teacher
NZ Sciences, Mathematics and Technology Teacher Fellow
Tamaki Campus
Auckland University
E-mail: nvfurness@xtra.co.nz

[Editor's note: Please contact Neil Furness if you would like to participate in his research, which entails completing a short questionnaire. The questionnaire is available on the NBA website under: http://www.nba.org.nz/docs/

Are GM Crops Killing Bees?

By Gunther Latsch

A mysterious decimation of bee populations has German beekeepers worried, while a similar phenomenon in the United States is gradually assuming catastrophic proportions. The consequences for agriculture and the economy could be enormous.

Is the mysterious decimation of bee populations in the US and Germany a result of GM crops?

Walter Haefeker is a man who is used to painting grim scenarios. He sits on the board of directors of the German Beekeepers' Association (DBIB) and is vice president of the European Professional Beekeepers' Association. And because griping is part of a lobbyist's trade, it is practically his professional duty to warn that "the very existence of beekeeping is at stake".

The problem, says Haefeker, has a number of causes, one being the varroa mite, introduced from Asia, and another is the widespread practice in agriculture of spraying wildflowers with herbicides and practicing monoculture. Another possible cause, according to Haefeker, is the controversial and growing use of genetic engineering in agriculture.

As far back as 2005, Haefeker ended an article he contributed to the journal *Der Kritischer Agrarbericht* (Critical Agricultural Report) with an Albert Einstein quote: "If the bee disappeared off the surface of the globe then man would only have four years of life left. No more bees, no more pollination, no more plants, no more animals, no more man".

Mysterious events in recent months have suddenly made Einstein's apocalyptic vision seem all the more topical. For unknown reasons, bee populations throughout Germany are disappearing—something that is so far only harming beekeepers. But the situation is different in the United States, where bees are dying in such dramatic numbers that the economic consequences could soon be dire. No one knows what is causing the bees to perish, but some experts believe that the large-scale use of genetically modified plants in the US could be a factor.

Felix Kriechbaum, an official with a regional beekeepers' association in Bavaria, recently reported a decline of almost 12 percent in local bee populations. When "bee populations disappear without a trace," says Kriechbaum, it is difficult to investigate the causes, because "most bees don't die in the beehive". There are many diseases that can cause bees to lose their sense of orientation so they can no longer find their way back to their hives.

Manfred Hederer, the president of the German Beekeepers Association, almost simultaneously reported a 25 percent drop in bee populations throughout Germany. In isolated cases, says Hederer, declines of up to 80 percent have been reported. He speculates that "a particular toxin, some agent with which we are not familiar," is killing the bees.

Politicians, until now, have shown little concern for such warnings or the woes of beekeepers. Although apiarists have been given a chance to make their case—for example in the run-up to the German cabinet's approval of a genetic engineering policy document by Minister of Agriculture Horst Seehofer in February—their complaints are still largely ignored.

Even when beekeepers actually go to court, as they recently did in a joint effort with the German chapter of the organic farming organisation Demeter International and other groups to oppose the use of genetically modified corn plants, they can only dream of the sort of media attention environmental organizations like Greenpeace attract with their protests at test sites.

But that could soon change. Since last November, the US has seen a decline in bee populations so dramatic that it eclipses all previous incidences of mass mortality. Beekeepers on the east coast of the United States complain that they have lost more than 70 percent of their stock since late last year, while the west coast has seen a decline of up to 60 percent.

In an article in its business section in late February, the *New York Times* calculated the damage US agriculture would suffer

if bees died out. Experts at Cornell University in upstate New York have estimated the value bees generate—by pollinating fruit and vegetable plants, almond trees and animal feed like clover—at more than $14 billion.

Scientists call the mysterious phenomenon "Colony Collapse Disorder" (CCD), and it is fast turning into a national catastrophe of sorts. A number of universities and government agencies have formed a "CCD Working Group" to search for the causes of the calamity, but have so far come up empty-handed. But, like Dennis vanEngelsdorp, an apiarist with the Pennsylvania Department of Agriculture, they are already referring to the problem as a potential "AIDS for the bee industry."

One thing is certain: millions of bees have simply vanished. In most cases, all that's left in the hives are the doomed offspring. But dead bees are nowhere to be found—neither in nor anywhere close to the hives. Diana Cox-Foster, a member of the CCD Working Group, told *The Independent* that researchers were "extremely alarmed," adding that the crisis "has the potential to devastate the US beekeeping industry".

It is particularly worrisome, she said, that the bees' death is accompanied by a set of symptoms "which does not seem to match anything in the literature".

In many cases, scientists have found evidence of almost all known bee viruses in the few surviving bees found in the hives after most have disappeared. Some had five or six infections at the same time and were infested with fungi—a sign, experts say, that the insects' immune system may have collapsed.

The scientists are also surprised that bees and other insects usually leave the abandoned hives untouched. Nearby bee populations or parasites would normally raid the honey and pollen stores of colonies that have died for other reasons, such as excessive winter cold. "This suggests that there is something toxic in the colony itself which is repelling them," says Cox-Foster.

Walter Haefeker, the German beekeeping official, speculates that "besides a number of other factors," the fact that genetically modified, insect-resistant plants are now used in 40 percent of cornfields in the United States could be playing a role. The figure is much lower in Germany—only 0.06 percent—and most of that occurs in the eastern states of Mecklenburg-Western Pomerania and Brandenburg. Haefeker recently sent a researcher at the CCD Working Group some data from a bee study that he has long felt shows a possible connection between genetic engineering and diseases in bees.

The study in question is a small research project conducted at the University of Jena from 2001 to 2004. The researchers examined the effects of pollen from a genetically modified maize variant called "Bt corn" on bees. A gene from a soil bacterium had been inserted into the corn that enabled the plant to produce an agent that is toxic to insect pests. The study concluded that there was no evidence of a "toxic effect of Bt corn on healthy honeybee populations." But when, by sheer chance, the bees used in the experiments were infested with a parasite, something eerie happened. According to the Jena study, a "significantly stronger decline in the number of bees" occurred among the insects that had been fed a highly concentrated Bt poison feed.

According to Hans-Hinrich Kaatz, a professor at the University of Halle in eastern Germany and the director of the study, the bacterial toxin in the genetically modified corn may have "altered the surface of the bee's intestines, sufficiently weakening the bees to allow the parasites to gain entry—or perhaps it was the other way around. We don't know".

Of course, the concentration of the toxin was ten times higher in the experiments than in normal Bt corn pollen. In addition, the bee feed was administered over a relatively lengthy six-week period. Kaatz would have preferred to continue studying the phenomenon but lacked the necessary funding. "Those who have the money are not interested in this sort of research," says the professor, "and those who are interested don't have the money."

Translated from the German by Christopher Sultan

Source: Der Spiegel, *22 March 2007, http://www.spiegel.de/international/world/0,1518,473166,00.html. Thanks to Ro & Joanna for passing on this article.*

Contest entries and early bird registration for Apimondia close 15 May 2007. Register at www.apimondia2007.com <http://www.apimondia2007.com> to avoid late registration fees.

Trees and Shrubs of New Zealand

Aciphylla colensoi

Maori name: Taramea

Common name: Wild Spaniard

The wild Spaniard is an erect perennial with long sword-like leaves forming a dense tuft up to 60cm in height. It is found in the Volcanic Plateau to the centre of the South Island. The flower stalk reaches a height of up to 2.5 metres. It is greenish yellow in colour and covered in spikes.

Flowering from November to December, its nectar is heavily scented, water white and can be shaken from the flowers.

Although the plant has hard and sharp pointed leaves when young, the leaves are soft and readily eaten by sheep and rabbits: hence it has disappeared from a lot of areas in which it was once abundant.

The Maori collected a semi-transparent sweet smelling gum from the leaves—collection was always carried out in the early morning. This scent was put onto clothing or carried in a satchel around the neck.

Any skin burns were bathed with Taramea water. The gum was also chewed for bad breath. The stems and roots were cooked and eaten and tasted like turnips.

- Tony Lorimer

Varroa found in Hawaii

On 6 April, the Hawaii Department of Agriculture was asked to identify mites found in hives in Manoa, on the island of Oahu, Hawaii. Using alcohol shake techniques, they have provisionally identified *Varroa destructor.*

Approximately seven years ago some hives had been abandoned and the detection of varroa came as a result of the movement of some of these hives. Three of the four colonies were moved on 5 April 2007. The remaining colony was not moved; however, the hive was disturbed and honey combs removed. On 7 April, that hive was sampled for varroa, with mites being found also.

A significant sampling for varroa has been undertaken in feral colonies approximately 20 miles (33 kilometres) away from the site in Makiki, with varying low levels of varroa mite being detected. Samples have also been taken from two queen importing companies in Kona, on the Big Island (Hawaii).

At the time of writing, the Hawaii Department of Agriculture was preparing news releases and was planning to institute an interisland quarantine to stop the movement of bee and bee rearing materials interisland, in addition to continuing their surveys.

Source: adapted and abridged from an email from Darcy E. Oishi, Entomologist, Hawaii Department of Agriculture, 9 April 2007.