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NATIONAL BEEKEEPERS' ASSOCIATION OF NZ (Inc.) EXECUTIVE

President: Jane Lorimer
Hillcrest Apiaries,
"Kahurangi-o-Papa"
RD 3, Hamilton 2021
Phone: (07) 856-9625 Fax: (07) 856-9241
Mobile (1st) : 0274 969 889
Mobile (2nd): 025 294-6559
Email: hunnybee@wave.co.nz

Vice President: Don Stedman
Catlins Apiaries, Pine Bush,
RD1,
Wyndham
Ph/Fax: (03) 246-9777
Email: dstedman@xtra.co.nz

Executive: Philip Cropp
Nelson Apiaries, Motupiko,
RD 2, Nelson
Phone: (03) 522-4130 (Wk) 03 522 4413
Fax (03) 522-4513
Mobile: 0274 829 143
Email: nectar@ts.co.nz

Executive: Bob Blair
157 Carlisle Rd, Browns Bay
Auckland 1310
Ph/Fax: (09) 479-4354

Executive: Roger Bray
Braesby Farm, RD1
Ashburton
Ph/Fax: (03) 308-4964

Executive: Ian Berry
Arataki Honey
Box 8016
Havelock North 4230
Phone: (06) 877 7300
Fax: (06) 877 4200
Email: ian@aratakihoneyhb.co.nz

Executive Secretary: Pauline Bassett
National Beekeepers
Box 234, Te Kuiti
Ph/Fax: (07) 878-7193
Email: waihon@actrix.co.nz

Hon. Librarian: Chris Taiaroa
43 Princes Street, Waikari Nth Canty 8276
Phone/Fax: (03) 314-4569
Email: chris.tony.taiaroa@clear.net.nz

www.nba.org.nz	**PHONE NUMBER FOR AGRIQUALITY 0508 00 11 22**	**Subscriptions — 11 Issues — NZ $55.00 GST inc Overseas Airmail US $55.00**

BRANCHES: The first named person is the President/Chairperson. The second is the Secretary.

NORTHLAND
Simon Peacey
76 Malone Rd, RD 9
Whangarei 0121
Tel/Fax: (09) 434-6344
Mobile: (025) 270-8922
Email: peacey@paradise.net.nz
Terry Gavin
PDC, Titoki 0250
Tel: (09) 433-1891
Fax (09) 433-1895
Mobile: 021 257 6457
Email: terry.gavin@xtra.co.nz

AUCKLAND
Graham Cammell
133 Walmsley Rd
Mangere
Auckland 1701
Tel: (09) 275-6457
Fax: (09) 275-9097
Chas Reade
PO Box 74 078
Market Rd
Auckland 1130
Tel: Ph (09) 625 5723
Fax: (09) 634 4376

WAIKATO
Lewis Olsen
Ohaupo Apiaries
Great South Road, RD 3, Ohaupo 2452
Tel: (07) 823-6706
Email: lewis.olsen@clear.net.nz
Annette Berry
Arataki Honey, RD 5, Rotorua 3221
Tel: (07) 366-6111
Fax: (07) 366-6999
Email: annette@arataki-honey-rotorua.co.nz

BAY OF PLENTY
Bryce Hooten
832 Old Te Aroha Rd
RD 1, Matamata 2271
Tel: (07) 888 6003
Fax: (07) 888 6004
Email golden.flow@xtra.co.nz
Bruce Stanley
196 Fosters Rd, RD1
Whakatane 3080
Tel/Fax: (07) 312 9028
Email honeybee@clear.net.nz

HAWKE'S BAY
John Berry
46 Arataki Rd,
Havelock North
Ph. (06) 877-6205
Fax: (06) 877-4200
E-mail: kberry@ihug.co.nz

Ron Morison
31 Puketapu Road, Taradale, 4001,
Hawkes Bay
Tel/Fax: (06) 844-9493
Email: rmorison@clear.net.nz

POVERTY BAY
Peter Burt
27 Murphy Road, Wainui, Gisborne 3801
Tel: (06) 868-4771
Email: pwburt@xtra.co.nz
Barry Foster
695 Aberdeen Road, Gisborne 3801
Tel: (06) 867-4591 Fax: (06) 867 4508
Email: bjfoster@xtra.co.nz

SOUTHERN NORTH ISLAND
Allan Richards
P.O. Box 287, Marton 5460
Tel: (06) 327-5039
Fax: (06) 327-5078
Email: allan.serena@xtra.co.nz
Frank Lindsay
26 Cunliffe Street, Johnsonville,
Wellington 6004.
Tel/Fax: (04) 478-3367
Email: lindsays.apiaries@xtra.co.nz

SOUTH ISLAND
NELSON
Glenn Kelly
PO Box 421, Motueka
Tel/Fax (03) 528 8147
Email: glennkelly@xtra.co.nz
Michael Wraight
15 Titoki Place, Motueka 7161
Tel/Fax: (03) 528-6010
Email: wraight@xtra.co.nz

MARLBOROUGH
Will Trollope
RD 3, Blenheim 7321
Tel: (03) 570-5633
Tony Mulligan
Grazengrove
Hammericks Rd
RD 2, Blenheim 7321
Tel: (03) 578-2317

WEST COAST
Lindsay Feary
3 Mawhera Street
Dobson 7852,
Tel/Fax: (03) 762-5691
Email: sceniclandapiaries@maxnet.co.nz
Rod Buchanan
471 Main South Road
Paroa, Westland
Tel: (03) 762 6863
Fax: (03) 762 6864

CANTERBURY
Roger Bray
Braesby Farm
RD1
Ashburton
Tel/Fax: (03) 308 4964
Paul West (Pav)
Box 57, Ahaura
Mobile: 025 748 466
Email: pav@badassbees.com

SOUTH CANTERBURY
Peter Lyttle
NZ Beeswax Ltd RD 22, Geraldine 8751.
Tel: (03) 693-9189 Fax: (03) 693-9780
Email: beeswax@xtra.co.nz
Peter Smyth
Templer Street, RD 22, Geraldine 8751
Tel: (03) 693-9889

OTAGO
Blair Dale
PO Box 23, Middlemarch 9056, Otago
Work Tel/Fax: (03) 464-3796
Home Tel/Fax: (03) 464-3122
Email: blair.dale@clear.net.nz
Peter Sales
"Te Ora", RD1, Port Chalmers
Dunedin 9030
Tel: (03) 472-7220
Email: foxglove@paradise.net.nz

SOUTHLAND
Finlay Abernethy
5 Calder Street, Owaka
Tel/Fax: (03) 415-8235
Email: finlay@ihug.co.nz
Don Stedman, Catlins Apiaries
Pine Bush RD1, Wyndham 9758
Tel/Fax: (03) 246-9777

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Crown Kerr Printing Ltd
48 Stafford Street, P.O. Box 5002, Dunedin.
Advertising: Allan Middlemiss: Telephone: 03-477 8109
Fax: 03-479 0753
Email: ckp@xtra.co.nz

President's Report

I would like to wish each and every one of you a Happy New Year.

I hope that the year has unfolded with lots of promise for a good beekeeping season. I know that the reality is that not everyone will have a prosperous year and for those in drought stricken areas, my thoughts are with you having to face uncertain times ahead.

Already there are several major projects that we will be involved in this year, the first of which will be lodging an application to MAF Sustainable Farming Fund for funding for the bee research team. There is also the MAF Five Year Review of the American Foulbrood Pest Management Strategy that is being conducted. MAF are also in the process of reviewing what is required for exotic bee diseases surveillance. We will be continuing to work with the New Zealand Food Safety Authority on the Risk Management Programme, and also in reviewing export protocols. And this is just the beginning of the year!!

Internally, we continue to work on the review of the National Beekeepers' Association future direction and hope to distribute a report prior to Conference. Recommendations in this report can then be discussed at Conference in Hawkes Bay.

Research Funding

As has been mentioned, we will apply to the Sustainable Farming Fund for funding for the Bee Research team based at Ruakura, Hamilton. The maximum grant SFF will give is $200,000. We will try to ensure that the whole industry supports this initiative and we will seek support from other affected industries e.g. Kiwifruit, other horticulture, farming sector.

Any grant from the SFF must be matched by either a cash input or an 'in kind' contribution e.g. in time, or supply of hives for research purposes.

As far as a cash contribution is concerned there are probably only two or three avenues for this. One is to gain approval from the Honey Industry Trustees to provide some money from the Trust on an annual basis for the duration of the proposed trials (3 years). Another is a contribution from branches, or individual beekeepers on a voluntary basis. With the permission of NBA members, we may also be able to use some of the NBA savings for this purpose.

How ever the funding is gained for this current application, I believe that it is time that we give some serious consideration as to how we plan to maintain our research capability in the future. With the way that the Foundation for Research Science and Technology are now providing funding for long-term projects in particular areas, it is likely that our Industry will miss out on funding from this source in the future. For example, the 2003 year (when we missed out on funding) was for research projects that involved sustainability. This year (2004) it will be allocated to those who want to do research on innovative foods.

The question is – how do we ensure research funding? Should the NBA members and all other beekeepers be contributing a set amount to research funding on an annual basis? Should we be looking at a way to enhance the Honey Industry Trust Funds, so that they will provide sufficient industry contribution in future years? If we did this, it would still mean that a way would need to be found to grow the Trust Fund coffers.

I would like to see beekeepers contributing to a voluntary fund. I would also like every endeavour made to capture the results of the research thus ensuring money for further research. This approach is now being applied by the Active Manuka Honey Association.

Currently, we estimate we will need a minimum annual contribution of $40,000 in cash over the next three years to gain a Sustainable Farming Fund grant for the Bee Research team.

Exotic Surveillance

A review of the current government funded Exotic Bee Disease Surveillance programme is underway. From initial talks with Dr Roger Poland, it would appear that to maintain a surveillance programme for all the Exotic bee diseases at a level whereby eradication could be attempted once the incursion is discovered, the funding for this programme will need to be significantly increased. He has given us notice that we need to consider how the industry could financially contribute towards this programme.

Dr Poland has assured me that once the technical review has been carried out the report will be circulated to our organisation for our input. Some of the questions we will need to ask are: What level of exotic bee disease surveillance do we want? How much are we prepared to contribute towards this programme? If we are going to have to contribute financially towards this – how are we going to raise the money to do this?

AFB PMS

It is heartening to see that the funds for the AFB Pest Management Strategy are coming in well.

It is our intention to carry out most of the year's programme in the next 5 months. We are currently looking at the applicants for the PMS Managers job. We have received several promising applications that are making selection a difficult task. Once the Manager is appointed there will be a significant amount of PMS Operations committee and NBA Executive time spent with this person to ensure that the programme is carried out.

Monofloral Standards

Elsewhere in this journal, will be published the Monofloral Standards that should have been published in the NZ Beekeeper in 2002. The current Executive has decided that this should be done, so that all beekeepers have access to this information. We will distribute it to as many bee organisations and clubs that we are able. This standard is we believe a starting point to an Industry Standard that should be reviewed annually at conference, to allow for changes to be made when further advances are made in defining mono-floral honey.

National Beekeepers' Association

The Association has come through its first year as a voluntarily funded organisation in very good health – both financially and in membership numbers. I believe we represent the whole spectrum of beekeepers, with a significant portion of commercial beekeepers amongst our ranks.

Once we have the review of the organisation complete, and goals set for the future, we will be the key organisation representing beekeepers. What we do for our members will be determined by the members. The Executive is looking forward to being part of the team that determines our beekeeping future.

- Jane Lorimer

Secretarial Snippets

I have had a very busy start to the 2004 year. This time last year I was confident yet also apprehensive about the future of the NBA. A year down the track and I am very comfortably confident. I have sent out membership renewal forms in the last fortnight and have had an excellent response already. Our organization is in good heart.

The distribution of the NZ Beekeeper continues to grow, albeit with some hiccups. The most notable of these seems to be that a number of Waikato branch members (including yours truly) missed out on the December magazine – I am still trying to establish the reason for this.

The NZ Beekeeper magazine is printed in Dunedin and distributed from there. Throughout 2003 I have enjoyed and appreciated the contact with the Crown Kerr Printing personnel and it was with enormous sadness that I heard of the sudden passing of Bob Bannister. He was someone special who could answer my telephone and email queries and keep me informed about how things should be done. It would have been great to meet Bob in person – he was certainly great to deal with. I am pleased that the Crown Kerr team will carry on.

- Pauline Bassett

The publicatons team, have appreciated all the paitence and assistance that Bob gave to us during this last year, enabling the continuation of the Magazine, for the benefit of members. I will miss the 7.30am morning phone calls, a chance to ask just one more question as to what we could do better in the production of the magazine, this time of the morning - enabling us to keep costs down. – Fiona

CONFERENCE 2004

28 June to 1 July are the earlier dates for Conference in the War Memorial Conference Centre Napier. Accommodation has been reserved at the new Te Pania Hotel right across the road with magnificent views from Mahia Peninsula right around to Cape Kidnappers.

As well as overseas speakers of outstanding ability there will be seminars with various topics of interest to all with ample time for questions or discussions.

Trade displays will be well set out with some new names amongst them.

Ron Morison
Conference Secretary
31 Puketapu Road, Taradale, 4001 Hawkes Bay
Ph/fax 06 8449493 **rmorison@clear.net.nz**

Classifying Honey

The humble honey you have on your toast at breakfast may seem simple enough – it's honey isn't it? "Well, yes, but there's more to it than that".

A range of varietal descriptions such as Manuka and Rewarewa has traditionally been used to describe New Zealand honeys, however, there is as yet no widely accepted benchmark regarding the use of these varietal descriptions. It was not an easy task but after much effort and considerable industry input agreement was reached and the National Beekeepers Association ratified a honey varietal classification system in late 2002. The first step in developing a classification system was to establish which characteristics are relevant. These include aesthetic characteristics, such as colour, taste and smell, as well as technical factors. The second step was to establish an acceptable range for each characteristic within which a honey must fall in order to meet the varietal classification.

A complete honey varietal classification system will underpin ongoing honey research as well as domestic and international marketing. Most important of all however a recognised and accepted honey classification system is essential in developing Industry Standards for the New Zealand honey industry covering such issues as harvesting, labelling and storage. These standards, and a voluntary Trade Mark, will in turn, create the all-important point of difference for New Zealand honey and will provide a base for its international marketing.

It is intended that the classification system will be continually refined through annual review at the National Beekeepers Association's Conference improving definitions and incorporating the use of new technologies to add to the overall growth of the industry's collective knowledge.

This initiative is a major step forward in providing consistency and clarity for the consumer and will be achieved with the leadership of the NBA and collective action from the industry as a whole in a way that no single company can do.

- John Rawcliffe, Consultant

Still evading you ah!

Hive Destruction

I'm sure most beekeepers have had to deal with some form of hive destruction whether it be from disease, animals, storms and floods, or poor management. What we hadn't previously experienced before November 2003 was senseless and wonton destruction by an individual who had nothing better to do.

We had been called by "The Forestry" personnel informing us that there was to be helicopter spraying in the very area of forest where our large apiary was sited. As usual, we had about 5 days notice and it came at a time when moving hives was the last thing we needed in an already overextended schedule of beekeeping! As well as about 20 large bulging hives, the site contained another 60 units each with one new spring queen . These nucs were the backup units that go onto unproductive hives in order to "double queen" them or to boost their population at honey flow time. Prime units, hovering at the gate to be released for their honey flow only one month later.

We were horrified to arrive at the apiary site and find not hives, but piles of boxes and gear and the bees were either hanging off bushes and sides of boxes or lying in piles dead. The only box still standing had enough bees on it to start a new beekeeping business! Any beekeeper can imagine how long it took four of us to sort out the bees and the gear and to regroup the debris into some order. Instead of an apiary where 60 units were consistent, we ended up with about 25 variations of strength on 25 units as well as queens lost, damaged, and in honey supers... The only consolation perhaps was that the culprit WAS tracked down and charged by the police. He even admitted how he had driven up the aisle, tapping each hive with the bumper of his unwarranted and unregistered car.

It was an additional stress to have to come up with figures as to the value of the hives, gear, and bees lost for the court appearance. How does one estimate the anticipated income from such hives and units? What is the point of such an exercise when the "20 year old" vandal already has 400 hours of community work commitment and no hope of paying any reparation?

Perhaps the worst effect for us was that it really demoralised us at a time when we least needed it. It seemed such an unnecessary waste of time and resources. We had a better understanding of the feeling of powerlessness for those who are victimized by crime. With the honey flow well under way as I write this, I am thinking of a comment made to me from a Canadian beekeeper. He said that "any of his bees knocked over by bears or other stock near the honey flow, never ended up bringing in any honey". Can you blame them!

- Merle Moffitt, Nelson

(Magazine front cover showing destruction)

New Zealand Honey Profiles Monofloral Varieties

Key Characteristics / Variety	Appearance		Pollen		Organoleptic		Notes
	Colour	PFND	Frequency	Count Range	Aroma	Flavour	
Clover	Light pale gold	0 –60mm	45%	100 000 stdev 90 000	Herbal dry grass.	Clean mild, sweet, delicate	
Honeydew (Beech)	Medium dark amber	87.2 mm std 10.5			Musky	Complex, treacly,	Average 12.6 mS/cm Std 2.5 Micro-sooty moulds
Kamahi	Light to pale yellow	42 average std 11.5	45%	185 000 Ave 66 834 Stdev	Intense, musky, Quite complex .Dominate aroma	Very clean rich and sweet distinctive aftertaste, Buttery texture	Dominant aroma
Manuka/ Kanuka	Dark cream to dark brown	84 mm 11.8mm std	70%	517 000 ave 280 000 stdev	Damp earth, heather, aromatic	Mineral, slightly bitter,	Thixotropic in liquid state
Nodding Thistle	Colourless to pale lemon			Low pollen count	Perfumed floral blossom, intense.	Intense floral flavour,	Dominance of fructose, Slow natural granulation.
Pohutakawa	Off- white	Pure 0 –5 Blends 5 – 30	10 –15%		Musky, damp leaves, salty (almost seaweed) but pleasant)	Clean earthy sweet butterscotch	Very rapid granulation, days in comb, hours in tank
Rata	Colourless to Pale cream	16.4mm 8.6	45%	123 000 35 937 stdev	Heady aromatic	Sweet, distinctive, mildly salty	
Rewarewa	Amber to red	92.9mm std 9.2mm	Bird pollinated plant	112 800 ave 101 867 stdev	Light aroma mild mixed fruit	Clean sweet smoky malty	
Tawari	Light	23 mm std 8.8		Low pollen count	Rich perfumed musk/incense/sandal wood orange peel/liquorice	Clean musty rosehip syrup, very sweet golden syrup	High in moisture Doesn't fully Granulate
Thyme	Amber	105 mm	More than 20%	3000 –8000 per 10g Total thyme pollen grains	Pervasive very aromatic,	Resinous aromatic herbal, very strong	Very unique, dominant aroma
Vipers Bugloss	Light Pinkish Brown	21.7 mm st 9	45%	72 155 ave 38 699 stdev	Initial floral, bouquet when fresh	Clean tasting mildly herbal	Texture oily texture

Viper Bugloss same as Blue Borage

From the colonies

South Canterbury

The optimism produced by a good Spring build-up with reasonable to good Willow flows, and an exceptional Dandelion flow, have now evaporated along with most of the moisture in the area. I cannot remember when the last decent rain fell in South Canterbury!

September saw hives building up fast and creating some worries about the amount of feeding that would be required, but a late flowering of the Willows coinciding with a record Dandelion flowering saw some areas producing a FD box of Dandelion honey. This alleviated the feed worries but created quite a swarming problem for some. From then on, crystal clear days and record high temperatures have shrivelled any chance of a reasonable crop for most. Some hives on irrigated land have performed well but overall production will be well down.

The dry weather has also bought a serious fire risk. Diesel vehicles should have spark arrestors fitted to their exhausts and extreme care should be taken when driving vehicles over long dry grass, as a hot exhaust can start a fire. Smokers are also extremely dangerous, which I know from experience, having started a fire with one once (make sure that your public liability insurance is up to date!). Liquid smoke is a good alternative. It is simply concentrated brown smokey smelling liquid which is diluted with water and sprayed onto the bees using a hand held spray bottle. Beekeepers using it say it works well.

Speaking of smoke, Susan and I were driving up to the Marlborough Sounds just before Christmas. Just South of Kaikoura, while passing a farmer mowing the last outside round of a dry hay paddock, we noticed what looked like a puff of smoke come from the mower. On checking in the rear vision mirror we could see smoke, so we did a quick U turn and pulled up beside a quickly developing fire, while the farmer carried on down the paddock, oblivious to the impending peril! I quickly jumped the fence and just managed to stomp the fire out with my feet. The cause, a large freshly broken rock was lying close by. With the paddock being long, and us running late, we didn't bother waiting for the farmer to come back around. I got back into the truck to continue our journey to be greeted with "that man deserves a DB!"

- Peter Lyttle

Hawkes Bay

On 20 January a South Easterly storm brought some much needed rain so we are hoping that pastures will green up and the clover will flower again. Until recent dry weather, there has been enough moisture about for most hives to be showing promise of a good honey crop.

The mites are quietly spreading, with infestation in the south of the Mohaka River west of the Napier/Taupo Road. There are also increasing reports of spread around Havelock North. So we are all looking seriously at methods and frequency of treatment. Our thanks go out to those who are already coping for the generous way they have passed on their experiences whether good or bad so that we appreciate that we have the NBA to link us together.

A small committee is beavering away quietly to organise a Conference that will be remembered for many good reasons. Thank you to those who have already offered helpful thoughts and may we get more ideas of what you want. Again we remind you that 28 June to 1 July is early than normal because we wanted to obtain the best venue available.

- Ron Morison

Southern North Island

As most would expect with rain in the West and drought in the East honey conditions vary from region to region.

In Taranaki they are waiting for it to stop raining - cold and wet. Hives are strong, (very little mite showing up) bees are only able to work when conditions are dry and warm. Still it's early days for them.

The lower coast and sand country is green. The showers keep coming and the clover is growing everywhere. Manuka is patchy but Kanuka is flowering well. Beekeepers are scrambling to put on more boxes and have started extracting. Some inland areas are patchy where they haven't received as much rain.

Horowhenua continues to get rain. 7 to 10 mils every few days and everything is go. Farmers are cutting hay and bailage and clover is everywhere. Mites are spreading fast and building in hives to quite high levels. Those not treated in the spring will need treatment before the end of summer.

The Wairarapa had a short sharp flow of about a week's duration between the end of December and the beginning of January but has dried to a crisp with hot winds and 34 degrees days. Like most of the East Coast, they haven't had meaningful rain since the beginning of December. Basically it's a normal Wairarapa summer.

Wellington. A warm spring with lots of early swarming. The Rewarewa and Kamahi flows were delayed by cold southerly winds and wet weather through November and December. Everything warmed the week before Christmas and flowered at once. Hives contain a mixture of honeys but are producing well. Pohutukawa put on growth instead of flowers and consequently production is down slightly.

The inland high country looks good. Sufficient rain, warm muggy days, Clover and Manuka flowering everywhere. Beekeepers are busy, putting all their supers are on the hives.

The branch hasn't had a meeting since October but we are planning to assist Hobby Clubs with diseaseathon's in the autumn and planning is underway to stage "Camp Rangi" in August - a live-in weekend for new and not so new beekeepers.

- Frank Lindsay

Waikato

Since the last report in September, hives took off with incredible pace, so much so that many split themselves after nucing was done! After talking with beekeepers it appears that this may have been more of a national trend than locally. Beekeepers getting ready for pollination know that balancing act, however even beekeepers solely in honey production, report that bees departed at three high.

Pollination, once again the huge operation begins to truck hives into and around the Bay of Plenty, Auckland, and of course locally through the Waikato. The far biggest being into the Bay of Plenty. One Pollination brokers comment to me this year, was that we had near perfect conditions with the intermittent rain and bee activity, the like he had never seen before. So much so he felt that the Bay of Plenty pollination was almost pollinated in one particular day when the season was at its peak. The highlight of the night work, is to see beekeepers on mass; an opportunity to see the latest turbo truck, as it passes you on the Kaimai's (knowing that they will be home asleep before you have crested the top) and of course all the different loaders in operation.

Honey houses are starting to crank over and the hives are being moved to late crops. Good flows are reported on the early Rewarewa and later on the Tawari. Australian beekeepers are apparently getting good prices with good demand for their honey. On the New Zealand front I had someone ring me when they spotted an ad in one of the regional papers wanting to buy bulk honey for cash at $4.75kg. Sounds like a good start for the season.

- Jeremy O'Brien

We're off to find a new picnic spot!

About the Apiary

February is the month when we see the culmination of the year's efforts in the hives. With luck and good rain once a week, your hives will have at least filled three 3/4 honey supers and stored enough in the second super to winter over on.

Unfortunately for some, this will not have happened; either too much rain and wind or not enough and pastures went into drought or hives excessively swarmed. Others have produced far more where conditions have been ideal.

Whatever the situation, the honey should be removed as soon as its fully capped, (as some honeys granulate quickly e.g. Pohutukawa), extracted while it's still warm and return the wet supers to the hive/s (in the evening after flight activity has ceased). Those in the towns and cities can expect more honey to be stored from "watered" urban gardens but for those in the drier areas of the country, it's unlikely that the hives will produce more but there are exceptions. Some have experienced late honey flows in the past after heavy rain as late as March so don't completely winter hives down too soon.

When and how much honey can be removed from the hives is a judgment call the beekeeper has to make. A single story hive requires 6 full frames of honey to over winter on (going into winter – May to September). A two-story hive has a larger population and therefore requires a full super of honey to comfortable winter over on.

One of the problems beekeepers face after removing the honey crop is that the bees continue to be stimulated by a trickle of nectar and pollen coming into the hives and therefore the bees continue to produce brood. Often they consume part of the honey stores and hives will need topping up with sugar syrup before autumn to give them sufficient stores to carry them through the winter.

When removing honey what should you do? Firstly in an urban area its important not to disturb the neighbours so you have to use the least intrusive method for removing the honey. One of the best methods is to use escape boards but the bees don't always clear the supers completely, (there's always a few that do not leave within 24 hours).

Problems encountered where bees won't leave honey supers can be:

1. Not enough room below the escape board for the bees to cluster - solution add a new super below the bee escape board.
2. Drone brood or the queen in the honey supers. Bees will not leave brood – solution remove the brood – cut out or scrape down to the midriff, find and move the queen down.
3. Porter bee escape springs too narrow. Adjust these slightly by tweaking at the root of the spring so that it's just a tiny bit smaller than the width a bee's head.
4. Springs too heavy. Adjust the springs at the root of the spring or straighten the springs slightly to reduce the tension.
5. Escapes propolised up from being on the hives too long last year. – Soak them in Methylated Spirits to clean before use.
6. Bee escapes blocked by wax - break supers a day or two before-hand, before putting on the board or add more escapes to your board.
7. Not working, turn the boards the right way up, exit holes downwards - wax blocking the escape exits on the frames below – scrape the top bar of the frames below to allow a clear exit.

Basically the day before you want to remove the honey, strip the hive down to the bottom supper by placing all the other supers on the upturned roof in front of the hive. Inspect the brood frames for AFB (*Paenibacillus larvae larvae*). If your not sure what to look for, study the bee books but also get a fellow beekeeper to assist you with the inspection. Apart from inspecting the hive, which is important in that you are not permitted to remove honey from a diseased hive, (*Biosecurity Act 1993*), breaking the supers apart allows the bees to clean up any honey stored in the brace comb between the supers. This stops honey supers dripping honey when they are removed. If you just cracked the supers and insert the escape board, they are also likely to become blocked by bits of wax from the broken brace comb.

While you have the hive apart check for varroa mites. Most areas in the North Island now have mites and when numbers increase, they can be easily seen on the drone brood after the brood supers are split apart. Once you have mites, it's important to treat them before the mite threshold is reached, (page 39 of the MAF Varroa Manual). Failure to treat in a timely manner will affect the survivability of the hive during winter.

A few of my apiaries weren't treated in the spring (I thought varroa hadn't reached that far) and now I have the odd hive with a natural fall of 20 mites in 24 hours. This is very high and they will need treating within a month.

For those without mesh floorboards or mesh inserts use the sugar shake method (using bees of the brood frames) or just put the prescribed number of strips to frames of bees in the hive after the honey has been removed. Insert some sort of sticky board on to the bottom board to calculate the initial 24-hour drop and leave the strips in the hive for the prescribed time; (6 weeks Bayvarol and 8 weeks Apistan. If you used either of these strips in the spring consider using an alternative to prevent mite resistance.

Re-assemble the hive putting in the escape board (open side up) below the supers of honey to be removed.

Some of us are beginning to learn to live with mites. Essentially its important to monitor your hives monthly for mite fall. I'm in the process of putting new mesh bottom boards on my hives. When not monitoring the hives, the plastic coreboard slide is removed and stored under the roof.

Another important point to understand is that re-invasion after treatment can quickly cripple your hives. A recent report on "Alternative Strategy in Central Europe for the Control of Varroa destructor in Honey Bee Colonies", (www.beekeeping.com - articles and reports). Showed that between 1989 and 1994, reinvasion varied from 398 and 4250 a day in the "acute phase" down to 213 a day in the following

years from the apiaries surrounding the test apiary. You may not experience such high numbers if all beekeepers co-ordinate their treatments but a collapsing feral hive can cause re-invasion in your hives necessitating further treatments in the autumn. Hence it most important to continue to check mite fall monthly and treat when numbers indicate it.

For those using alternatives such as formic acid, I suggest downloading the treatment brochure from the MiteGone web site (www.mitegone.com).

Some beekeepers have not had a great deal of success using formic acid but a lot has been learnt over the last couple of years and the information from this website is most applicable, whatever treatment method you use. One thing that I noted was that it's important to form of a pool of fumes on the bottom board by placing a triangular board across the entrance of the hive. (A quick check was to tip a bucket of water on to the bottomboard and provided it stayed longer than 2 minutes, the design of the board was sufficient to hold a pool of fumes). If you haven't got a computer go to the library and down load these documents.

FEBRUARY is also one of the best months to requeen your hives. Because of the calm settled weather, queens are well mated, and while there is a flow on, the bees will accept a new queen more readily.

If you still have your honey on your hives consider making nucs and requeen your hives once the new queens are established and laying, or you can carry the nucs over for spring replacements.

For the commercial beekeeper, a quick and reliable method to replace queens is to use 10-day old queen cells. The queen cells are protected from being torn down by wrapping insulation tape or foil around the centre of the cell, (while leaving the bottom of the cell free for the queen to emerge). A protected cell is then placed in the centre of the third super of each hive, (no need to find the existing queen). On average you can expect about 80% of hives to successfully requeen themselves but also expect to find a few queenless hives where things haven't quite gone right. Most beekeepers make up extra nucs to cover these losses. John Dobson wrote about this method in the latest Bee Buzz (Nov 2003).

Things to Do this Month

Extract honey, remove comb honey, rear autumn queens, introduce purchased queens, produce nuclei, check for AFB, check mite fall and check for wasps.

Wasps are about to start producing queens and require sucrose to produce them. Hence they attack ripe fruit and bee hives. Reduce hive entrances and tape over crack to help prevent robbing.

- Frank Lindsay

Destroying American Foulbrood Colonies

Dr Mark Goodwin
Apicultural Research Unit, HortResearch

Under New Zealand legislation there are very clear requirements for dealing with colonies infected with American Foulbrood (AFB). Any colony with AFB, that has one or more larvae or pupae showing AFB disease symptoms, must be destroyed along with any equipment or bee products from the hive. This must be carried out within seven days of the disease being found. Hives that have had a sample of bees or honey, which have tested positive for American Foulbrood spores, are not classed as having AFB. Only those with visual symptoms of the disease are classed as having American Foulbrood. However, any hive that tests positive for AFB spores should be treated with caution, and watched carefully as it may develop disease symptoms at a later stage. AgriQuality must also be notified of the finding of an AFB hive within seven days.

The best way of destroying a hive is to block the entrance of the diseased hive and pour half a litre (1 litre for 3 and 4 super hives) of petrol across the top bars. This should be done in the morning or evening when the bees are not flying to reduce the chance of the returning bees drifting into other hives. However, despite the legislation, many AFB hives are not destroyed for weeks and sometimes months after they have been found because the beekeeper has not been able to find the time to come back to the hive in the evening. When inspecting hives belonging to commercial beekeepers we write AFB and the date on any AFB hives we find. I can think of at least two separate occasions with different beekeepers where we recorded that the hive still had AFB when we carried out a further AFB inspection a year later. However, if you are unlikely to be able to destroy an AFB hive at night/or morning within 7 days, it is better to destroy it when found even if there are still bees flying rather than leaving it for a long period of time during which it may be robbed out. As part of a research project we placed an AFB hive next to an uninfected hive. In the middle of the day when the maximum number of bees were foraging we removed the AFB hive so all the foraging bees flew into the uninfected colony. We repeated this with 25 hives without spreading the infection. It is always best to kill hives when the bees are not flying but if there is no other option they can be killed when bees are flying with minimal risk of spreading AFB.

Once the hive has been killed it should be sealed to prevent it being robbed out by other bees before it is burnt. To burn a hive, a hole of 1m diameter and at least 300 mm deep should be dug to collect any unburnt honey. Full instructions on how to burn hives can be found in the American Foulbrood Elimination Manual, 1999.

As petrol is being used, a good deal of care needs to be taken when burning hives. There have been a number of cases where people have burnt more than the intended hives. In one case, some hives were placed in a pit and the fire lit. More hives were then taken off the back of the truck to put in the hole and when the beekeeper turned to take the next group of hives off the truck he found they were already burning.

In another case where a large number of hives had to be burnt, a deep hole was dug and filled with petrol soaked hives. The level of the petrol fumes had just about reached the lip of the hole when the lighted taper was thrown in. The resulting explosion rattled the windows for kilometers around. The beekeeper, minus his eyebrows, had to then pick up all the burning AFB frames that had been blasted out of the hole.

In some cases it is not possible to burn hives within the seven days specified by legislation because of fire bans. In this case permission can be sought from the Management Agency to store dead infected hives in such a way that other honey bees are prevented from gaining access to them. The material can then be burnt when the fire ban is lifted.

Care does however need to be taken when storing infected hives. One beekeeper had ten AFB hives stored in his shed when one of his workers thought they would tidy up. The worker separated the floors and lids and added these to the appropriate stacks. He then added the AFB supers to the stacks of uninfected honey supers. It took two years of burning new AFB hives to sort that mistake out.

Beekeepers with a Disease Elimination Conformity Agreement negotiated with the Management Agency can, if their agreement specifies it, salvage and sterilize some hive parts. They can only be sterilized by a method approved by the Management Agency. Currently there are only three approved methods. These are:

1. Paraffin wax dipping
2. Irradiation
3. Dipping in sodium hypochlorite,

The use of these will be discussed in the next article.

Plate 1. Burning AFB infected equipment

Avocado flowering and pollination – the role of the tree and bees in setting a commercial crop

Dr Jonathan Dixon, Scientist, Avocado Industry Council Ltd

I recently gave a talk on the basics of avocado flowering to a meeting of the National Beekeepers Association in Tauranga. The following article is based on that talk and describes avocado flowering, pollination and the role that bees play in setting a commercial avocado crop. Avocado trees have a very unusual flowering habit that strongly influences pollination and fruit set. The success or failure in setting large numbers of fruit determines the commercial success of avocado orchards. Bees play a very important role in the pollination of avocado trees but our knowledge of how to manage the avocado tree for best bee activity and how to make avocado orchards as bee friendly as possible is not well developed. The avocado industry would like to work more closely with beekeepers to improve avocado fruit set but also to improve avocado growers understanding of how they should work with the bees in their orchards.

Avocado trees flower in spring in the Bay of Plenty, chiefly in October and November but flowering can start in mid-September and last until mid-December. The harvest season also coincides with flowering lasting from August through to March. The flowers seen in spring are initiated in late autumn or early winter depending on temperature conditions at the end of the summer shoot flush. It is only the shoots on the outside of the tree that produce flowers on new shoot growth. For this reason avocado trees continuously increase in size and eventually become very large trees of over 10m in height and spread. Such large trees produce very large numbers of flowers ranging in number from thousands to millions on large trees. The strongest shoot growth in the past season flowers the best but the number of flowers a tree produces depends on whether the tree is in an alternate bearing cycle where flowering is very heavy following a light crop.

The flowering biology of avocado trees is very complex as the flowers on the tree while having male and female parts open and close in each sex phase in an order determined by the temperature conditions just before flower opening. The flowers shed pollen and are receptive to pollination and fertilisation depending on the sex phase they are in. In addition, different avocado cultivars flowers open and close in two different patterns. Accordingly avocado cultivars have been divided into two types: 'A' and 'B' (see Table 1). The 'A' types open as female in the morning of the first day, close and then open as male in the afternoon of the second day before closing again. The 'B' types have the opposite pattern of opening as male in the morning of the first day, close and then open as female in the afternoon of the second day before closing. Nectar is secreted by both sex phases. If the flowers are not pollinated after having opened once in each sex phase they fall off within the couple of days. Finally there are two types of flowering shoots, indeterminate (Figure 1) where a new shoot grows out of the flowering structure and determinate (Figure 2) where the shoot ends in flowers and develops no further. The newly growing shoot competes strongly with the flowers and newly set fruit for nutrients and often all of the fruit set on an indeterminate flowering shoot can fall off.

Table 1. Avocado flower opening and cultivar types.

Type	Morning	Afternoon
"A"	Female	Male
"B"	Male	Female

"A" types	"B" types
Hass	Bacon
Lamb Hass	Fuerte
Reed	Zutano

Figure 1. Indeterminate flowering shoot

Figure 2. Determinate flowering shoot

Avocado flowers are small typically only up to 1cm in size, green with yellow flower parts (Figures 3 and 4). The pollen when shed is wet and sticky but remains viable for a couple of days after shedding. There are considered to be three types of pollination for avocados: cross pollination where pollen

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Figure 3. Flower in male sex phase

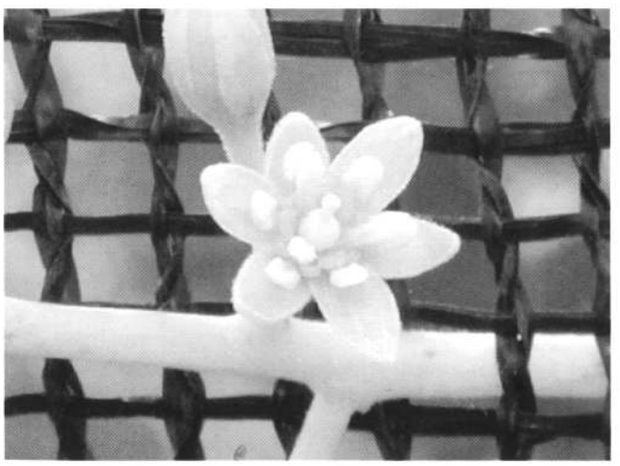

Figure 4. Flower in female sex phase

comes from another cultivar, close pollination where the pollen comes from a different flower from the same cultivar and self pollination where the pollen comes from the same flower. The best or strongest fruit (those least likely to fall off) are considered to come from cross pollinated flowers and the weakest fruit from the self pollinated flowers. A mixture of cultivars planted as pollinator trees are considered to be an important factor in setting a large crop of vigorous new fruit. Experiments have shown that flowers in the female phase are the ones that set fruit, male phase flowers very rarely set fruit. The timing of the opening of sex phases depends on temperature with the warmer temperatures (daily averages of over 20°C) having regular 'clockwork-like' opening of the sex phases. In the cooler temperatures experienced in New Zealand the opening of the sex phases become much less regular. The daily overlap of the sex phases on the same tree and between trees of different cultivars is about 1-3 hours at temperatures of 16 to 19°C. Typically this overlap occurs in the afternoon. As temperatures get cooler this overlap decreases to less than 1 hour. The opportunity for pollination is therefore limited to only a few hours in any one day.

The temperature conditions also determine whether avocado pollen germinates and how quickly it grows down to the ovary. The pollen germinates at temperatures above 10°C and grows quickly to the ovary taking as little as 6 hours at 17°C. Fertilisation takes longer and proceeds at a rate dependent on temperature taking about 2 weeks before the new fruitlet can be seen. Orchard temperatures during October and November in the Bay of Plenty have historically been considered to be low compared to temperature conditions in other countries. However, this is not the case as avocados often flower in winter in places like Australia and California where temperatures are similar to that in New Zealand in spring or while warm during the day are much cooler at night (Table 2). Modelling of pollen tube growth and fertilisation in relation to temperature using data from New Zealand orchards would suggest that once pollinated there is enough time and the right conditions for fruit set to occur.

Table 2. Monthly daily average minimum and maximum temperatures for New Zealand, Australia and California.

	NZ warm		NZ cool		
Month	Max	Min	Max	Min	Month
October	17.7	8.8	16.6	7.5	October
November	19.5	10.7	18.3	9.4	November
	Maleny (Australia)	Camarillo (California)			
July	18.1	8.9	24.8	5.9	April
August	19.8	8.9	26.7	9.1	May

At present the avocado industry is grappling with a very difficult problem of lifting average yields and to even out yields from year to year. While it is not well understood what limits fruit set three factors have been identified that contribute to poor fruit set in avocado orchards. The factors are: tree nutrition (boron levels, nitrogen supply and tree carbohydrate levels), bee activity (number of bees working the trees and activity in the cold), and tree stresses (water stress, competition with new shoots). To improve tree and flower nutrition, avocado growers often apply a foliar spray of boron and nitrogen just prior to flower opening and then may apply another foliar spray during flowering.

Avocado pollination requires pollen to be physically transferred from the flower in male phase to a flower in female phase. Furthermore about 20 grains of pollen are required to ensure a flower will set a strong fruit (4-5 pollen grains are the more typical number deposited onto the stigma). This suggests that bees are essential for avocados to set a heavy

crop. Other insects, such as flies, have been considered as potential pollinators of avocado flowers but studies in Mexico, where avocado trees evolved, have shown that even with a population of stingless bees specialised for avocados most pollination is carried out by honey bees. Research in Israel also indicates that to set a good crop there needs to be at least 5-10 active bees per tree visiting a large number of flowers in each sex phase. What this indicates is that it is the nectar foraging bees that are responsible for pollinating avocado flowers as observations on pollen gathering bees have shown these bees never visit flowers in the female phase. What this further suggests is that hives set up for kiwifruit pollination are not ideal for avocado pollination and hive management techniques used for kiwifruit should be not be used for avocado pollination. I know there are some beekeepers in the Bay of Plenty who manage their hives differently for avocado pollination than they do for kiwifruit pollination. But there are many who treat hives in avocado orchards the same as they do in kiwifruit orchards.

To achieve a good bee density on avocado trees the current recommendation is between four and eight hives per hectare. In general, the more bees the better. Avocado trees also flower over a 5-8 week period and bees are required for the entire flowering period. However, avocado flowers are generally not greatly desired by bees and they will quickly abandon avocados if flowering citrus trees are nearby. For this reason it is suggested that the hives are changed at sometime during the flowering to ensure bees are always available for avocado pollination. Placement of hives within an orchard is also important to ensure that all trees are visited by bees.

In conclusion I have suggested that honey bee activity in cool weather is more limiting to avocado pollination than the growth of avocado pollen into the ovary of the flower and the fertilisation process. It is well known that honey bee activity is limited by the weather and that the bee activity is low in the rain, at temperatures below 13°C and the bees generally don't show good activity until the temperature rises above 17°C. Provided the trees are well managed and adequately nourished and given the cool conditions that can occur in spring in the Bay of Plenty what limits avocado pollination appears to be cool daytime temperatures reducing bee activity.

The avocado industry – an overview of a rapidly expanding fruit crop

The avocado tree is a large evergreen tree that evolved in the sub-tropical rain forest of Central America. There has been a significant commercial avocado industry in New Zealand since the 1980's but it has only been since the mid-1990's that there has been a large expansion in plantings. About 95% of avocados planted are of the Hass variety with the remainder as pollinator trees. The planted area is about 4,000 hectares with about half less than 5 years old. Total production in 2002 was over 13,000 tonnes. Average yields are about 7 tonnes/hectare and 50% of production is exported to two main export markets, Australia and the USA. The industry operates under the HEA act and is a multiple exporter business. This industry structure is very different to that of the kiwifruit industry. The Avocado Growers Association owns a horticultural management company the Avocado Industry Council Ltd (AIC) that is the recognised product group. The AIC role is to meet the industry legal compliance, to manage exporting of avocados (but not market avocados) and to provide grower support and research and development services.

Currently about 70% of avocado orchards are located in the Bay of Plenty, 18% in Whangarei and 10% in the Far North. Over the past 4 years there has been over 350 hectares of avocado planted each year. With forward orders for trees from avocado nurseries full for the next two years this planting trend is expected to continue for some time yet. Industry estimates are that acreage may grow to be close to 10,000 hectares by 2015. Along with increased acreage there will be a requirement for increased number of beehives to service the pollination requirements of avocado orchards. At a conservative four hives per hectare the current industry acreage of 4,000 hectares requires about 16,000 hives. This could potentially increase to 40,000 hives by 2015. These hives we consider would be for avocado pollination as a separate business from kiwifruit pollination as we believe that the hive set-up for kiwifruit pollination is not suitable for avocado pollination. Along with a pollination business serving avocados and a large area of avocado blossom providing avocado nectar is there a potential avocado honey business waiting to be developed?

There is a lot that is not understood about avocado pollination and bee activity in avocado orchards. The avocado industry is keen to work with beekeepers to improve fruit set in avocado orchards but also to improve avocado growers understanding of the requirements of bees and their management while in their orchards. One possible mechanism to this is to start to develop pollination standards for avocados and to begin the process of writing a pollination manual for avocados. I look forward to having more interaction with beekeepers in the future.

Library News

The Beekeepers' Technical Library was instituted in 1962. Mr Chris Dawson was appointed Honorary Librarian, and was assisted by committee members Harry Cloake and Lon Lyttle. Forty-three foundation members paid five guineas each for lifetime membership. A fuller account of the setting up of the library can be read in The New Zealand Beekeeper magazine of April, 1996 (Vol 3. No. 3). Mr. Dawson was librarian for fifteen years and then handed over to Mr. John Heineman who managed and expanded the library over the next twenty-one years.

Books were donated by beekeepers over the years and gradually the library grew. In 1999 John compiled a comprehensive catalogue which listed not only books and videos available but a treasure trove of pamphlets and clippings also. Many hours must have gone into collating the material and making the lists and the catalogue had small lists of suggested reading in particular subject areas as well. During this time the NBA executive began giving some financial support to the library, and the operation of the library evolved to meet the needs of the members. A selection of books was made available to Telford Rural Polytechnic on long term loan to assist those enrolled in the beekeeping courses.

At the end of 1999 Chris Taiaroa agreed to take over as librarian and was able to talk with John about his approach to the library. Usage had dwindled over the years, something he put down to increased postage costs and the availability of the internet.

In July, 2000 nearly all of the library's stock was transported to Waikari, North Canterbury. It comprised many cartons of books and magazines and some slides of field days and courses. John and Harry Brown had arranged for many overseas beekeeping magazines to be sent to the library, and these had a limited circulation before becoming part of the library stock. There were a number of foreign-language magazines but many in English.

As a result of the evaluation process it was decided that perhaps the library could meets the needs of beekeepers by making the magazines/journals more widely available, partly, but not only, because they were cheaper to post, but also because the articles in them contained up-to-date information. With the arrival of the varroa mite in New Zealand having access to recent writings became even more important. The list of recipients for the magazines grew to reach its optimum number and consideration has been given to subscribing to duplicate copies of the magazines so that two lists could operate and the magazines would still be current by the time all members have read them.

The borrowing statistics were printed in the library report to conference (2003) and show an ever increasing use of the library. The NBA executive initially provided an operating grant for the library, which built up the fund and enabled the purchase of some more recently published books. The limited readership of technical books such as those the library buys means that not a lot are available, and they are expensive also. Since last year the library has been run on a self-funding basis with loan fees covering library stationery and postage costs being mostly reimbursed; sometimes very generously.

Items that had been considered to be an education kit were no longer in the library, but requests for such material were occasionally received. In March, 2003 posters were purchased, and slides donated by Stuart Ecroyd, so that talks to school children about beekeeping could be supplemented by visual aids.

Today, the library can be used by members of the NBA, and by others who pay an annual membership fee. There are small loan fees on most items borrowed, and overdue fees apply. Material borrowed for DECA courses, and for branch and hobbyist meetings do not have loan fees, nor do the books and videos about the varroa mite which were donated by MAF and Trevor Čullen.

At the conferences in Queenstown, Auckland and Nelson there was a library display of a selection of books, videos and posters. In June, 2003 a stocktake of the library was carried out which showed that many items had gone missing over the years and it was not worth making more copies of the catalogue. Currently the cost of putting the new catalogue on to a database that could be linked to the NBA website is being investigated.

The present library committee members are: Chris & Tony Taiaroa, and Trevor Corbett

Beekeeping in Manitoba, Canada

9.00 am. The sun's shining. God must have used his hive tool to scrape the sky clean because there isn't a single burr cloud in sight. No wind either. A perfect day for starting my career as an assistant beekeeper. In front of me in an arc formed by a poplar wood are 38 hives arranged in groups of four on pallets. Makes my two hives in Normandale seem pathetic. Most of the hives are seven full depth boxes high. A stretch even for someone a sliver under 1.8 metres tall. More than a stretch for my stocky Mexican workmate, Alvaro, who is almost a head shorter than me. The bees are already busy flying back and forth to the yellow fields of Canola that are flowering nearby. I'm kitted out in an unfamiliar bee veil and coveralls. The bee veil and safety helmet don't feel comfortable despite my many adjustments in the cab of the van as we journeyed to the beeyard, a half-hour's drive from the honey house. This is the moment of the truth. This is what I came half way round the world to Canada to do. But there's no time for nerves. I begin to unload the fume boards from the bosses' truck and carry them with a firm step into the beeyard and spread them underside up so the boss can trickle Bee-Go (Butyric Anhydride) onto them, before they're placed on top of the hives to drive the bees out of the supers.

Around me my three co-workers, one of whom is the boss, Terry Fehr of Meadowlark Honey Ltd, are busy going about their allotted tasks. Cam, 31, tall, lean and athletic, is unloading stacks of pallets and empty supers from the van that's been hired for the duration of the harvest. Alvaro and Terry, the boss, are lighting the smokers that each of them will use. Once the smokers are lit, Terry dribbles Bee-Go onto the fumeboards from a plastic container. In the meantime, I'm distributing the unloaded pallets around the beeyard to stack the supers on as they're taken off the hives and every now and then rushing back to the truck to steady stacks of boxes being lowered to the ground on the hoist at the rear.

When I've finished distributing the pallets, it's time to start putting the fume boards on the hives. The smell of Bee-Go makes my eyes smart as I hand fume boards to Terry, who takes off the telescopic hive lids, smokes the bees crawling around on the top box, and scrapes the gluey propolis off with his hive tool. We talk beekeeping as we go from hive to hive. The fume boards are placed askew on the hives as in this heat the Bee-Go can drug the bees and cause them to become sluggish. More smoke is puffed under the raised corner of the lid and then the Bee-Go is left to do its work. Elsewhere in the beeyard, Alvaro is doing the same as us. Soon all 28 fume boards are in place. Already, from the hive entrances of some of the hives, there's a tongue of bees, refugees from Bee-Go, starting to lick the bottom edge of the second box. Soon there'll be a million of them in the air, whirling about us like hot cinders. We'll all get our fair share of stings, although I think today mine might be a little unfairer than everyone else's.

I take out my hive tool and insert into the corner where the top two boxes meet and crack the boxes apart. Awkwardly I lever the topmost box forward until I can get the back of my palm under the edge and raise it up a few inches until I can see if there are any bees loitering on the bottom of the frames. This one is mostly clear of bees. Now for the tough bit. The bottom of this box is about level with my eyebrows and is heavy with honey. I walk the box further out until it's a little over half way off then I tip it forward until I can slide the front of the box onto the upper end of my sternum. Taking a good grip on the rear corners of the box with both my hands, I slide the box completely off the hive and lower it, resisting the weight of the box to slow its descent, while I step back and swing round like I'm twirling a reluctant dance partner and deposit the box on the pallet that I'd earlier lain on the ground behind me. Man, what a gut-buster! No wonder Alvaro and Cam are wearing weight-lifting belts! Then I take the fume board off the box on the pallet and place it on the next box down on the hive.

Around me the others are doing the same. Already I'm sweating profusely. The stacks of boxes on the pallets grow quickly. Mostly, they're five high but sometimes we place an extra box on a stack rather than create half stacks that would take up too much room on the truck. On this round of the beeyards we take four boxes off each hive and put three empties back on in their place so they're left six boxes high. On the next round, we'll take off three, and put back two. On the third and last round in four week's time, we'll take off the same number and put none back on, leaving them two high for wintering. In one beeyard, later in the day, the boss points out some hives that have Russian Queens, little czarevna. I can't see any difference between their offspring and those in other colonies. Perhaps, if you have a sharp enough ear you can hear them buzzing in Russian, and perhaps they have a tot or two of vodka in their sugar syrup to get them through winter after all in this part of Canada the temperature can drop down to a very Siberian minus 30 celcius.

Forget all you've read about how much capped honey there should be in a frame before taking the honey off. Boxes are harvested regardless of how much capped honey there is in them. Only very light boxes are put back on the hives. No queen excluders are used on established hives and boxes with brood are also taken off along with the honey and ripening nectar unless worker brood is detected and then frames are switched with empty ones in one of the boxes on a hive that's been harvested. Inevitably a great number of bees and brood are still taken back to the honey house at the end of the day.

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Once we've finished harvesting some of the hives, the spare fume boards are placed on the rest of the unharvested hives and Alvaro and I continue to take off full boxes of honey. Meanwhile, Cam and Terry are starting to load the stacks of harvested boxes into the van. Terry handles the power truck himself as it's a temperamental beast and he knows its moods best. Cam is up on the deck, using a hand truck, to organise the stacks so that the load is tight. The full boxes are in stacks five high and arranged down one side of the deck and the empties down the other. Loading is still going on when Alvaro and I finish harvesting the remaining honey. While the loading is being completed, Alvaro and I collect up the fume boards and stow them in the carrying boxes on the back of Terry's truck, and fasten them in place. By now it's at least 30 degrees Celsius and I'm basting in my own juices. Thankfully, I thought to wear a sweat-band!

In 90 minutes we've completed harvesting the yard, loaded up the trucks and I'm riding up front with Cam in the cab of the van. The air-con's cranked up full-bore, despite the warning of the boss who is worried we'll catch colds. The radio's blasting out rock 'n roll from the seventies, and we're singing a ragged accompaniment. I've long since taken off my hat and veil, and am fiddling with it again, as all through that first beeyard it kept slipping forward off my head whenever I bent over – something it does throughout the entire season, frustrating every effort I make to stabilize it. I've already gulped down a litre of water to replace what I've lost through sweating. I'll drink 4 litres by the end of the day and sweat so much I won't need to take a single toilet stop which is fortunate for around beeyards exposing oneself can be a hazardous experience, and not just from bees – there's poison ivy and stinging nettle to be feared as well. My hands are lumpy from stings but the pain's gone and I'm feeling pretty good, and the frustrations of my desk job in NZ are too far away to spoil my mood.

Cam and I career down one of the many long, narrow, dusty, shingle roads that are common on the prairies with the needle of the speedometer touching 90 kph. Cam drives with one eye on the road and one hand on the wheel to introduce an element of difficulty like doing an extra somersault in a diving event to gain maximum points. All the while I'm doing enough worrying for both of us and mentally revising my last will and testament. Up ahead, the open deck truck carrying Terry and Alvaro is sending up a long plume of choking dust high into the air. In between singing and slaking our thirsts, Cam and I talk about beekeeping, ourselves and our respective countries. He's good company is Cam, already a father of four girls, with another on the way. He's a Mennonite, which is a religious sect, one of the two, the other being the Hutterite sect, which is more reclusive and its members live in communes.

On this first day we harvest four beeyards, with only a stop midway through for 30 minutes to eat lunch in the warm shade of a tree. Conversation over lunch is about beekeeping, largely initiated by me, as I'm the one with all the questions, the nosy Kiwi. Terry is a mine of information and enjoys sharing his knowledge of beekeeping, and I later discover he's the author of a couple of articles on raising nucs that have appeared this year in the ***American Bee Culture*** **magazine.**

After lunch we harvest another two beeyards. The van is left at an intersection as it's full and Cam and I ride in the open air on the back of Terry's truck. By now I'm into the swing of things. And to my relief, I'm not suffering from any aches or pains. All the months of training I did back in NZ have paid off.

We arrive back at the honey house, a large building containing 6,800 cubic feet of floor space, around 4.00 pm, and straight away we begin unloading the two vehicles, using the hand-trucks to wheel the stacks of boxes into the drying room. We've shucked our bee veils although the van and unloading bay is filled with hundreds of agitated bees. I get my 20th and last bee sting for the day. This time I'm stung in the neck but there's no serious reaction.

The hand trucks make unloading easier, but, with five boxes of honey balanced on them, each load is in the region of 200 kgs, and from time one will try to break away and head off in some direction other than the one you're propelling it in. The drying room is kept in semi darkness to quieten the bees we've brought back with us, and those that are already resident from a harvest the day before. Believe me, it takes some deft manoeuvring and agile footwork in the gloom to park a stack in its allotted space, and the administration of a steel-capped boot is sometimes needed to align a box with its neighbours. My first attempts are none too flash, but if I can master driving on the right side of the road in Canada, I can surely manage with a little practice to drive a hand truck around the floor of a honey house. Of course, we're oozing sweat once more, as the drying room is maintained at a constant 29 degrees celcius – almost as hot as the air outside the honey house. Within 30 minutes we've unloaded around 400 boxes of honey and walked a kilometre in the process. During the second and most productive round, we'll take off around 500 boxes and harvest 5 – 7 beeyards each day, although a couple may be nuc yards that yield comparatively few boxes. Time to go home? Not yet. There's still one final, important job to be done. Cleaning.

Honey production is part of the Food Industry and the boss is constantly expecting some Government Official to turn up and review the standard of hygiene being practised by us. There's another, no less important reason too for the emphasis on cleanliness around the honey house: honey has a high acid content and pits the cement floor if it's left. So we hose and sweep and squeegee until everything's as clean as we can get it. By now it's gone five o'clock and we sign off and make our tired ways home, Alvaro and I together. We're housemates.

We're the odd couple. It's something of a blessing that Alvaro speaks no English and I speak no Spanish as we're both too tired for conversation.

Tomorrow, we'll be extracting. We need the empty boxes to replace those we'll take off some more beeyards the day after tomorrow.

Crazy?

Well, perhaps it was a form of madness that possessed this middle-aged man to travel half-way round the world to work as an assistant beekeeper. Still, madness is not necessarily an unhappy state for the afflicted, and I can only describe my experience as having been truly wonderful. On reflection, make that a doubly wonderful experience.

You might be tempted to say, that as the weeks have passed since I arrived home, I have allowed memory to romanticise the experience. And you could be justified in thinking that. Hauling off hundreds of supers under a searing sun, or scraping burr comb off a seemingly endless stream of top bars in an airless, bee-infested honey house, could be viewed as a penance, not a pleasure. I will admit that many days I did sneak looks at my watch in the hope of discovering lunch or knock-off time was only minutes away, or delight in crushing the odd bee that had come within range of my hive tool in revenge for the stings that I'd received. But to focus on these aspects of the experience is take them out of context for I had embarked on this adventure with few illusions about how hard or mundane some of the work would prove. My hopes had been twofold; firstly, that I would learn in a season many of the lessons that it would take a hobby beekeeper nearly a lifetime to learn, and, secondly, that I would gain an insight into Canadian culture that only living amongst Canadians for a sufficient length of time could yield.

But let me go back to the beginning and start this story in the proper place. Tucked away in a bottom corner of an edition of the National Beekeeper last year, I happened to see a small advertisement inviting an adventurous spirit to spend a couple of months harvesting honey in Gladstone, Manitoba, during the Canadian Summer. It was an advertisement that I has also seen the previous year and decided I was too old, too inexperienced, too unadventurous, and too a lot of other things as well to even think of applying for the job. But, while I dissuaded myself from applying then, I found myself twelve months later, when the same advertisement reappeared, examining a map of Canada to discover exactly where Manitoba and Gladstone were located and wondering what it might be like to go and work there. Inevitably, the same reasons for not applying for the job cropped up in my mind as had done the previous year. This time, however, my curiosity was stronger and my confidence greater, and the obstacles seemed less daunting. Encouragement came from several quarters, and suddenly I stopped vacillating. I was going to do it. I was going there to work as a beekeeper. I was going to go Canada. And, if I was going to go half way round the world, I was going to make sure that I saw as much of Canada as I possibly could and experience as much of the culture as I possibly could.

- Richard Wickens, Wellington

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Fiona O'Brien
364 Wharepuhunga Road, RD 3, Te Awamutu.
Phone 07 871 1500 Fax 07 871 1800
Beeline-apiaries@xtra.co.nz

Trees and Shrubs of New Zealand - Ngaio

A small costal tree of up to 8m in height. The Ngaio branches from the base giving it a bushy appearance with no trunk.

It has bright shiny leaves 5 to 10cm long that grow singly from alternate sides along the stem. The leaves have numerous oil glands which appear as spots on the leaves. The small flowers grow in clumps of 2 to 6 from the leaf axils, are white but can sometimes be spotted with lilac. Ngaio flowers from September to February. Berries are red to purple.

The tree and fruits are poisonous.

The Ngaio yields both nectar and pollen, the honey being medium amber of good flavour. A surplus can be gathered in some seasons. The pollen is a muddy white. The black buds of the tree are protected by a gummy secretion collected by the bees as propolis.

Ngaio is found in the North Island and in the South Island to Otago and also on the Chatham Islands.

The Maori used the leaves as an insecticide rubbing them over the skin to keep away sandflies. Years ago when it was legal to have New Years Eve bonfires on the beach, we used to throw a branch of Ngaio onto the fire to keep sandflies and mosquitos away – it also kept humans away if down wind! The Maori also chewed the leaf buds when suffering from mussel poisoning.

The bruised and warmed leaves, (to releases the oil) were used as a pack for septic wounds, having good drawing power. Early veterinarians used this pack on horses legs to cure sores if nothing else was available. Early farmers are also reported to have used Ngaio as a sheep dip to protect them from flies.

- Tony Lorimer

Myoporum laetum: **Common Name: Ngaio**

Branch and Club Contacts

NORTH CANTERBURY BEEKEEPERS CLUB
Meets the second Monday of April, June,
August and October
Contact: Mrs Hobson Phone: (03) 312-7587

AUCKLAND BEEKEEPERS CLUB INC
Meets 1st Saturday monthly at Unitec,
Pt Chevalier, Auckland.
President: Ian Anderson
Phone: 09 480 8327
PO Box 214, Waimauku

AUCKLAND BRANCH - NBA
Held: 24 Andromeda Cres, East Tamaki

CANTERBURY BRANCH
Meets the last Tuesday of every month,
February to October
Contact: Roger Bray Phone: (03) 308-4964

SOUTH CANTERBURY BRANCH
Peter Lyttle Phone: (03)693-9189

CHRISTCHURCH HOBBYIST CLUB
Meets on the first Saturday of each month,
August to May, except in January for which it is
the second Saturday. The site is at 681 Cashmere Road,
Commencing at 1.30pm
Contact: Jeff Robinson, 64 Cobra Street Christchurch 3.
Phone: (03) 322-5392

TARANAKI AMATEUR BEEKEEPING CLUB
Phone: Stephen Black (06) 752-6860
685 Uruti Road RD 48, Urenui

HAWKES BAY BRANCH
meets on the second Monday of the month at 7.30pm,
Arataki cottage, Havelock North
Phone: Ron (06) 844-9493

NZ QUEEN PRODUCERS ASSN
Phone: Mary-Anne (06) 855-8038

DUNEDIN BEEKEEPERS CLUB
Meets on the first Saturday in the month
September - April, (Except January) at 1.30pm.
The venue is at our club hive in Roslyn, Dunedin.
Enquiries welcome to club secretary,
Margaret, Phone: (03) 415-7256
Email: flour-mill@xtra.co.nz

WAIRARAPA HOBBYIST BEEKEEPERS CLUB
Meet 3rd Sunday each month (except January)
at Norfolk Road, Masterton at 1.30 pm.
Phone Convenor: Arnold Esler (06) 379-8648

SOUTHLAND BRANCH - NBA
Phone/Fax: Don Steadman (03) 246-9777

WANGANUI BEEKEEPERS CLUB
Meets on the second Wednesday of the month.
Phone Secretary: Neil Farrer (06)343-6248

MANAWATU BEEKEEPERS CLUB
Meets every 4th Thursday in the month at Newbury
Hall, SH3, Palmerston North
Contact: Joan Leckie, Makahika Road, RD 1, Levin
Phone: (06) 368-1277

POVERTY BAY BRANCH - NBA
Phone: Barry (06) 867-4591

WELLINGTON BEEKEEPERS ASSN
Meets every second Monday of the month (except
January) in Johnsonville. All welcome.
Phone: John Burnet 21 Kiwi Cres,
Tawa, Wellington 6006
Phone: (04) 232-7863 Email: johnburnet@xtra.co.nz

NELSON BEEKEEPERS CLUB
Contact: Kevin Phone: (03) 545-0122

FRANKLIN BEEKEEPERS CLUB
Meets second Sunday of each month at 10.00 am for
a cuppa and discussion. 10.30am open hives.
Secretary - Peter Biland
Phone: (09) 294-8365
President - Stuart Ward
Phone: (09) 238-1441

Is your group or Branch missing from here?

Please contact the Secretary