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**Autumn, and it's the last  
of the 2008 harvest**

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## Deadline for articles and advertising

**July issue: 5 June**  
**August issue: 3 July**  
(refer to page 24)

**NB: No magazine in January**

All articles/letters/photos to be with the Editor via fax, email or post:

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email: editor@nba.org.nz  
(See page 2 for full details)

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## President's Report

I am writing this report as I travel around the North Island on American Foulbrood National Pest Management Strategy (NPMS) and NBA business, with the editor anxiously waiting for my report to appear in her email box.

With the NPMS service contract with AsureQuality coming up for renewal soon, I needed to go to Hamilton with NPMS manager Rex Baynes to negotiate the contract for the next year. Since I had also asked Biosecurity New Zealand, the New Zealand Food Safety Authority and legal staff at the Ministry of Agriculture and Forestry for a meeting to discuss issues relating to the NPMS, it was felt that it would be an opportune time to visit branches on my travels from Wellington to Hamilton and also allow me to undertake some work for Betta Bees, all at the same time.

On Monday 19 May I attended the Hawke's Bay Branch AGM and after the formal proceedings Rex Baynes and I gave an informal presentation to the members, mainly on NPMS issues. The next night a meeting was arranged with the Poverty Bay Branch, where we basically repeated the NPMS exercise and dealt with NBA issues, especially industry standards relating to honey and the implications for marketing and brand protection. The next day we went to the Tauranga Branch meeting, followed by an open meeting hosted by John and Pauline Bassett at Te Kuiti on Thursday 22 May. On Friday we visited AsureQuality in Hamilton.

After all this activity I will have to spend a few days inspecting brood frames as part of some varroa tolerance work that Betta Bees is currently undertaking. Biosecurity New Zealand wouldn't give a permit to send brood frames to the South Island despite them being in the freezer for quite a few weeks; never mind.

Next week I will go to Christchurch to deal with issues relating to the Varroa

**Movement Control Line changes for the upper South Island.**



## China Free Trade Agreement

For the beekeeping industry, what are the consequences of the Government's free trade agreement with China? Will it ultimately benefit our industry or will it be detrimental? Outwardly it allows access to a very large market for our bee products, with reduced costs such as tariffs. However, it also improves trade access to Chinese products into our country, possibly even honey in due course.

Article 23 raises some concerns. As it is written it seems to allow a process where products produced in one country can be incorporated into products of the other country and the resulting product can be said to have originated from that country. I discussed this with our CEO, Jim Edwards, who did some further investigation and found that it appears to be not quite what it seems to be on face value. However, there is still cause for concern.

Country of origin labelling is always a bit of a hot topic as there can be some financial advantage to try and disguise your product as originating from another country with a better brand image than yours. Consumers of food products expect the product components to actually have been grown in the country or countries stated on the label. Using terms such as 'Produced in' may also be used to disguise country of origin. New Zealand has an excellent brand image in world markets as a result of our well-regulated systems and controls that ensure product integrity. The addition of foreign food products into New Zealand food products without explicitly stating so could have detrimental effects on market perceptions, especially when problems arise, as they inevitably will do.

At present the Government is in the process of negotiating free trade agreements with Japan and South Korea. With the inevitable change in the way we trade with these countries if these agreements are ratified, there should be an improved ability to market honey or other products containing significant amounts of honey into these populous nations. Although providing new opportunities, this changing landscape will also come at the cost of increased brand promotion and protection.

With my deadline for my report running overtime I haven't the opportunity to produce my AFB report. Next month I will spend a bit of time discussing the review of the AFB NPMS, which is due to expire on 30 September this year.

- Frans Laas



## New postal regulations

*Please check your address label on this journal.*

As from 1 July 2008 there are new Government regulations concerning postal addresses.

Incorrectly addressed mail will result in:

- the NBA not receiving bulk mail discounts
- the delivery time from the NBA and other sources will be longer
- delivery can not be guaranteed by New Zealand Post.

All addresses must contain:

- a postcode
- a road and RD; e.g. RD 1 will not be enough—you must include the road name
- town addresses must be correct, e.g. some show Auckland when they come under Manukau City; or Wellington when the true address is Porirua.

You can check your address by logging in at: <http://www.nzpost.co.nz/Cultures/en-NZ/OnlineTools/PostCodeFinder/>

We advise that it is important that you do this for all your mail.

*If your address is incorrect, please supply me with your correct address to guarantee the delivery of your journal.*

For example:

Recipient <b>No + Road</b> RD Town + Postcode	Recipient <b>No + Street</b> Suburb (if applicable) Town + Postcode
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- Pam Edwards  
Executive Secretary



## Bee Products Standards Council gets to work

The council met in Wellington on Tuesday, 13 May. It began with a visit from the Hon. Lianne Dalziel, the Minister for Food Safety, who wanted to learn more about the industry. During discussion with council members, the Minister highlighted the need to ensure that the Council effectively assured the Government and consumers on the safety of bee products.

The council then concentrated on reviewing the information available on the recent tutin toxicity problem. It agreed to form a working group to develop measures to manage the risks before the beginning of the 2008–2009 season.

Mike Clear from the NZFSA reported the results from the 2007–2008 residue monitoring programme, which showed an improvement. It was particularly pleasing that PDB detections were declining, and it was agreed that PDB should not be used in beekeeping because of the risk of residues and the resultant threat to market access.

The Regulated Control Scheme is expected to be signed off soon and will result in a national residue monitoring programme that will apply to all export markets, rather than the previous EU focus.

The development of the monofloral honey standards has progressed following the industry meeting held in April. The council has referred the matter to a working group of technical experts with a request that the scientific validity be assured in readiness for industry consultation during the annual conferences.

The council also agreed to be consulted by the NZFSA during a review of organic certification.

Funding of the Bee Products Standards Council is subject to continuing review. The funding base needs to be extended beyond the current supporting organisations. The council reviewed suggestions of other functions that could be included on behalf of the whole industry.

- Dr Jim Edwards  
Chairman, Bee Products Standards Council



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# INVITATION

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**13 JULY–17 JULY 2008**

**Sunday 13 July**

**Hobby Forum: Everyone welcome**

**AMHA Seminar One 11 am–12 noon**

**Medsafe & claims (Please bring a copy of your website and promotion material)**

**AMHA Seminar Two 1 pm–2 pm (Processing Validation)**

***The AMHA Seminars are open to all members of the beekeeping industry***

**AMHA AGM 2 pm (Closed meeting: AMHA members only)**

**Monday 14 July**

**Specialty Group Meetings**

**Guest Speaker**

**Mix & Mingle in the Evening**

**Tuesday 15 July**

**NBA AGM 8.30 am–3 pm**

**Seminar with various speakers 3.30 pm–5 pm**

**Sponsors' Evening & Presentations**

**Wednesday 16 July**

**AFB NPMS Management Agency AGM 8.30 am–12.15 pm**

**Bus Trips**

**Conference Dinner (Formal dress) & Entertainment (Special Location)**

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**Thursday 17 July**

**Seminar with various speakers 9 am–4.30 pm**

**PLEASE NOTE CHANGE OF TIME FOR THE  
NBA ANNUAL GENERAL MEETING  
ON TUESDAY**

## Are we cutting off our noses?

Manuka is now the honey crop that pays the most—a crop beekeepers used as winter feed 30 years ago.

Commercial beekeepers now move hives further afield into manuka areas, hoping for a crop. So many in fact, that some areas in the North Island only produce a super of honey, whereas before the local beekeeper's hives produced three supers. One beekeeper told me that there are now 1000 hives within flying distance of his hives on one farm. Nobody is actually winning.

These migratory beekeepers are also pushing out the local beekeepers, by offering payment on a percentage of either the crop or on the activity level of the honey. Farmers think they are onto a new source of income, not knowing that every year isn't always a production year and that activity levels can also vary from year to year.

If beekeepers want to capture an area by paying for apiary sites, I believe farmers should be paid per hive: that way the farmers will secure an income despite the season. It doesn't take much to ruin our (beekeepers') reputation when a farmer finds out that he will only be paid following the good production years.

I don't think there will be too much of this in my area. Manuka flowers a little earlier (about halfway through the kamahi flow) but the bees won't switch to manuka until the kamahi has completely finished flowering, meaning it's often a short season. Also, Wellington's wet and windy weather, when it sometimes rains every fourth day, means that not every season is productive.

I have most of my apiaries on farms fringing the bush, and have developed a good relationship with the farmers. My comings and goings are an extra pair of eyes for them in terms of farm security. A recommendation from a reputable farmer is important when looking for new sites.

If you are facing competition for apiary sites, you should remind your farmers that hives situated permanently on a farm provide a pollination service for clover. Clover regeneration is important if farmers want natural nitrogen fixing. Many have relied on chemical nitrogen fixing but this trend is changing. Rising costs of petroleum-based products are causing farmers to look at new and old ways of sustaining farm production for the next 10 years. Clover weevil, when it arrived, reminded North Island farmers just how important clover is to their production. They now know the value of beehives; one beehive can provide clover pollination equivalent to a hundredweight (1/10 of a ton) of superphosphate. Recent news items on CCD have also heightened this awareness.

If things get any worse, I believe farmers will eventually be paying beekeepers a pollination fee just to stay on their farms.

- Frank Lindsay



## Developing a safe driving policy

### Safe driving saves money as well as lives

Even a small crash can cost you money. Every dent, prang, speeding ticket or collision in a company vehicle will affect your company financially.

It makes sense to make safe driving part of your company policy. Having a safe driving policy can save your organisation money (it's been proven by other New Zealand companies), as well as saving lives and reducing injuries.

No matter what size or type of company or organisation you are, even small safe driving initiatives can count.

It's easy to do—Land Transport NZ, ACC and the Department of Labour have produced a booklet to help organisations write and implement safe driving policies.

### What a safe driving policy means

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- deal with driver tiredness and distraction
- reduce speeding and promote use of safety belts and other features
- provide incentives to ensure safe driving.

Ultimately, it's about protecting your staff and your bottom line.

Refer to <http://www.landtransport.govt.nz/commercial/safe-driving/index.html> for more information.



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Sixteenth Page	32 x 85	\$NZ 50.00

#### Back Cover (not available for April or October issues)

Full Page	265 x 180	\$NZ 480.00
Half Page	130 x 180	\$NZ 300.00

All prices are GST Inclusive.

There is a 20% discount on the above prices if the advert is to be printed for eleven consecutive issues. Full payment required with confirmation.

Other adverts are charged out monthly.

# Control of varroa using organic treatments

## —part 4

Natalie Page-Weir, Heather McBrydie, Harlan Cox, Mark Goodwin, & Lisa Evans

HortResearch, with support from the Sustainable Farming Fund (SFF), the National Beekeepers' Association (NBA), contributions from a number of beekeepers, and Zespri, are working with beekeepers to trial the efficacy of organic varroa control products. The purpose of this trial is to establish effective varroa control using organic treatments. The organic products being trialled are Apilife VAR<sup>®</sup>, Thymovar<sup>®</sup>, Apiguard<sup>®</sup>, and thymol crystals. Each of these products is being applied to both single and double brood box hives. This is the fourth in a series of articles that will be written as a means of sharing the information on use and efficacy of organic varroa control products.

Analysis of the spring (September 2007) varroa levels has indicated that none of the organic products was as effective at controlling varroa as hives treated with either the non-organic products Apistan<sup>®</sup> or Bayvarol<sup>®</sup>, all of which had zero mites in a post-treatment sugar shake. The organic hives had between zero and 21 mites per 300 bees. Apiguard<sup>®</sup> and Thymovar<sup>®</sup> had the same level of effectiveness in both single and double brood box hives, while thymol crystals were significantly more effective in singles and Apilife VAR<sup>®</sup> was significantly more effective in double brood box hives.

Recently the cooperating beekeepers in this trial removed honey and applied the autumn varroa treatments. We asked the beekeepers to record how much honey they removed from their hives, so that we could see if there were any relationships between the varroa treatment that each hive received, how low varroa numbers were after treatment, and how much honey was collected.

The hives that were treated with Apiguard<sup>®</sup> and those treated with thymol crystals collected significantly less honey than those that were treated with either Apistan<sup>®</sup> or Bayvarol<sup>®</sup>. The analysis shows that there was no significant difference in the amount of honey collected from hives that were treated with a synthetic control (Apistan<sup>®</sup> or Bayvarol<sup>®</sup>), Apilife VAR<sup>®</sup>, or with Thymovar<sup>®</sup> (Figure 1).

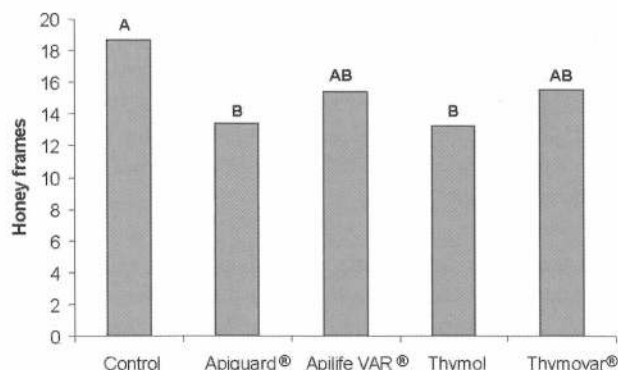


Figure 1: The average number of honey frames collected from 'control' (Apistan<sup>®</sup> or Bayvarol<sup>®</sup>) hives and from hives treated with one of four thymol-based varroa treatments. Shared letters above bars indicate no significant difference between the treatments ( $P \geq 0.05$ ).

Only hives treated with Thymovar<sup>®</sup> had a significant difference in honey crop between the single and double brood box hives (Figure 2). Single brood box hives that were treated with Thymovar<sup>®</sup> collected significantly more honey than double brood box Thymovar<sup>®</sup>-treated hives. This difference was not correlated with mite numbers, as

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Thymovar<sup>®</sup> had the same level of effectiveness in both single and double brood box hives.

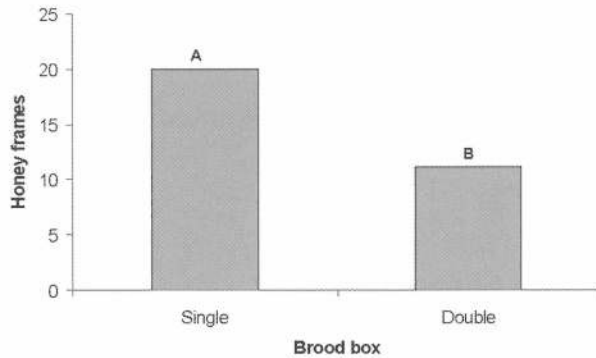


Figure 2: The average number of honey frames collected from single or double brood box hives treated with Thymovar<sup>®</sup>. Shared letters above bars indicate no significant difference between the treatments ( $P \geq 0.05$ ).

As we outlined for the spring treatment (February 2008 edition of *The New Zealand BeeKeeper*), a threshold of 40 mites per 300 bees is being used to decide if hives should be re-treated with an organic product this autumn. Varroa numbers are much higher now than they were in spring: some hives had over 200 mites/300 bees before treatment. Therefore, we recommended that the cooperating beekeepers treat hives with significantly more than 40 mites with a synthetic treatment (e.g. Apistan<sup>®</sup> or Bayvarol<sup>®</sup>), and most beekeepers did this. With the organic products, there is a risk that hives with high levels of varroa might collapse if the treatment does not work sufficiently quickly or effectively.

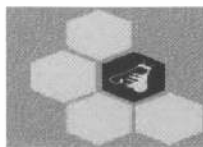
So far, we have received results from three cooperating beekeepers for the autumn varroa treatment. All three of these beekeepers found that mite numbers increased while the organic treatments were in the hives. The number of mites in each hive at least doubled, and in some cases there

were 12 times as many mites as there were before treatment. An example of this is a hive that was treated with thymol crystals. Before treatment there were 8 mites in a sugar shake of 300 bees; after treatment (24 days) there were 102 mites in a sugar shake. Among these three beekeepers, a total of 12 hives died during the autumn treatment period because varroa levels became too high. These were all hives that had fewer than 40 mites per 300 bees before the organic treatments were applied. This suggests that treatment with organic products in autumn did not give effective varroa control.

Because varroa levels were very high after the organic treatment, we recommended that any hives with more than 40 varroa in a sugar shake be treated with a synthetic control. All three beekeepers are now treating their surviving organic hives with synthetic miticides, as mite numbers were too high after the organic treatment and the colonies were beginning to decline.

Because of the rapidly increasing number of mites during autumn, we would suggest that beekeepers who wish to use organic treatments should treat hives early in the season to knock down varroa numbers before they become too high. It is **extremely important** that you monitor your hives after treating with an organic product, as it is likely that the product will not be effective at keeping varroa numbers low enough. If you treat early enough in the season and find that the organic treatment has not worked, you will have a chance to re-treat your hives with a synthetic miticide and reduce the risk of losing your hives to varroa.

Our thanks go to the beekeepers taking part in this trial for their generous use of hives, their time for counting mites and applying treatments. Thanks to Reuben Stanley for providing the Apilife VAR<sup>®</sup>, Stuart Ecroyd of Ecroyd Beekeeping Supplies for providing the Thymovar<sup>®</sup>, and Trevor Cullen of Ceracell Beekeeping Supplies for providing the Apiguard<sup>®</sup> used in this trial.



THE NATIONAL BEEKEEPERS  
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## Notice of 2008 Annual General Meeting

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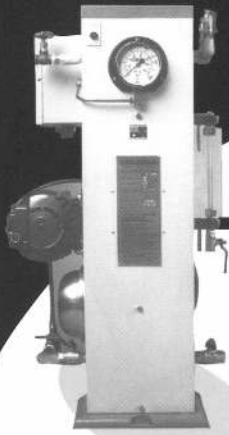
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A Class 1 driver licence (with an F endorsement) covers forklifts with a gross laden weight of up to 18,000 kg.

A Class 2 driver licence (with an F endorsement) covers forklifts with a gross laden weight exceeding 18,000 kg.

If you're not sure whether you need an F endorsement, phone the Driver Licensing Call Centre on 0800 822 422.

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The definition of a **road**, for the application of transport laws, is very broad. It includes not only streets and highways, but also any place the public has access to - including bridges, culverts, beaches, riverbeds, reserve lands, wharves and road shoulders.

If you drive a forklift in any of these areas, the rules relating to registration, licensing and general driver behaviour all apply.

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If you wish to obtain an F endorsement, you must hold a full licence (other than a motorcycle licence).

You'll need to provide evidence that you have successfully completed an **approved course** that teaches specialist knowledge and skills relating to driving a forklift safely on a road.

**Please note:** The course relates to driver licensing requirements only. Your employer may require you to attend OSH (occupational safety and health) courses as well as having the F endorsement on your driver licence.

For more information see <http://www.landtransport.govt.nz/factsheets/10.html>



If you have a small-engine mechanic who fixes your generator or sugar pump, now is a good time to book it in for a check-up.

# From the colonies



## Waikato Branch

Rain at last, although Waikato farmers were worried that the green was only painted on. But the pasture is growing in response to the rain. However, the current weather makes conditions miserable for the beekeepers doing package bees for export. The last of these went out in the second week in May.

Some extractors are still operating. End of season reports are of a smaller crop than first thought—possibly about 30 kilograms per hive. Hives that cropped early in the Waikato could be in danger of starving now. Varroa has got the better of some hives too.

The branch held its AGM on Friday 16 May. By the time this is printed the branch will have a new president, as Lewis Olsen has indicated his wish to stand down.

- Pauline Bassett

## Bay of Plenty Branch

We have shifted our branch meetings to the end of the month so as we can receive the latest updates from the Executive Council, and to avoid the risk of conflict with other commitments for regular participants. The June branch meeting is Tuesday, 24 June at 7.30pm, at Buretta Park in Tauranga.

At the April meeting we had a good discussion around the recent floral standards meeting in Wellington. At the May meeting we plan to put together thoughts and make a submission to the Bee Products Standards Council. We also watched the 'Silence of the Bees' DVD provided by the Executive, which gave us all food for thought. Thank you, Executive, for distributing this DVD.

Winter seems to have arrived, along with a persistent southerly and lingering rain. After months of dry weather I have just about had enough rain but fortunately most of the work is done, so a day or two by the fire is quite a welcome change.

## Field Day

The field day is now organised and will take place on 14 June at the Paengaroa Hall, Old Coach Rd, Paengaroa, from 9.30 am to 4.00 pm. We have a variety of speakers so check the

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NBA website for details, look at your emails or phone me. Entry for members is free *but you must have your card with you to demonstrate current membership*. The day is open to non-members at a price of \$5.00 per person. Lunch will be available to purchase in the form of sausage sizzle. Look forward to seeing you there.

- Barbara Pimm

## Hawke's Bay Branch

Most beekeepers in the area are well into winding down for the season, although those doing package bees have been very busy. There is not much to write about at the moment. As I have said before, wasps are very bad in some areas (one farmer has got 17 nests so far, and Peter and I have found another six on the same property). Actually, I'm going fishing for two weeks and hope to forget all about bees for a while. Getting away from your bees is a damned good idea and remember: pain is in the hand of the beeholder!

- John Berry

## Nelson Branch

I am writing on a rainy day, last day of April. There's not a lot of action with the beehives now, except that it is far too warm in Nelson and there is still too much brood in the hives. Of course, that isn't good for keeping stores of honey adequate or knocking back varroa.

Speaking of varroa, I thought that I would get through one 'From the colonies' column this year without mentioning it. Unfortunately, we now have at least three confirmed incursions of varroa having crossed the main Biosecurity New Zealand control line, with the mite having moved west into the Buller District.

The hives near the Nelson Lakes control line have been found to be heavily infested, picked up by Biosecurity New Zealand's autumn surveillance. The hives in the Gowan River area and at a Murchison honey house have small mite numbers.

Beekeepers are cooperating 100 percent with further surveillance in order to allow Biosecurity New Zealand to make an informed decision about what the next step will be.

So varroa is on the move: are we surprised? Beware, South Island beekeepers—don't be complacent with your surveillance.

- Merle Moffitt

[Editor's note: see page 13 for more information on the latest incursion of varroa in the South Island.]



## Control area for bee mite extended south

The controlled area in the South Island to slow the spread of varroa mites between beehives has been expanded into Westland, Marlborough and Canterbury.

Mites were found at St Arnaud, outside the previous control area, based around Nelson, three weeks ago.

The new South Island controlled area covers the northern part of Westland; Grey, Buller; Tasman; Nelson; Marlborough; and part of north Canterbury.

"This is an interim measure," Biosecurity incursion response manager, Richard Norman said.

The Ministry of Agriculture and Forestry would consult beekeepers and other stakeholders during May and June on the future of controls.

Mr Norman said MAF assessed several alternative movement control lines, but chose the extended southern boundary because varroa could have spread more widely than testing had shown, and because fewer beekeeping operations would be split by the boundary.

In January last year, beekeepers gave up on a million dollar bid to eradicate the varroa mite infestation which had gained a foothold around Nelson.

They moved 30 million managed bees from the Nelson region to apiaries in the North Island, but were not able to poison the remaining bees in the infested area.

The eradication attempt derailed when the manufacturer of the insecticide declined to condone the pesticide's use apparently because of potential for it to be blamed for bee deaths in Europe.

Source: *New Zealand Press Association (NZPA), Wednesday, 14 May 2008.*

### Annual Disease Returns

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## Wax rollers for waxing plastic frames

[Editor's note: now that plastic frames are in common usage, we've been requested to publish details of Chris Valentine's wax roller that won the Roy Paterson Trophy at the 2006 NBA Conference in Dunedin. Following are reports from Chris Valentine and Neil Farrer. Neil advises, "My wax roller is a smaller version and it works perfectly. I had two made and another commercial beekeeper is using the other one." You can find other details about Neil's wax roller in the July 2007 issue of the journal.]

### Chris Valentine's wax roller

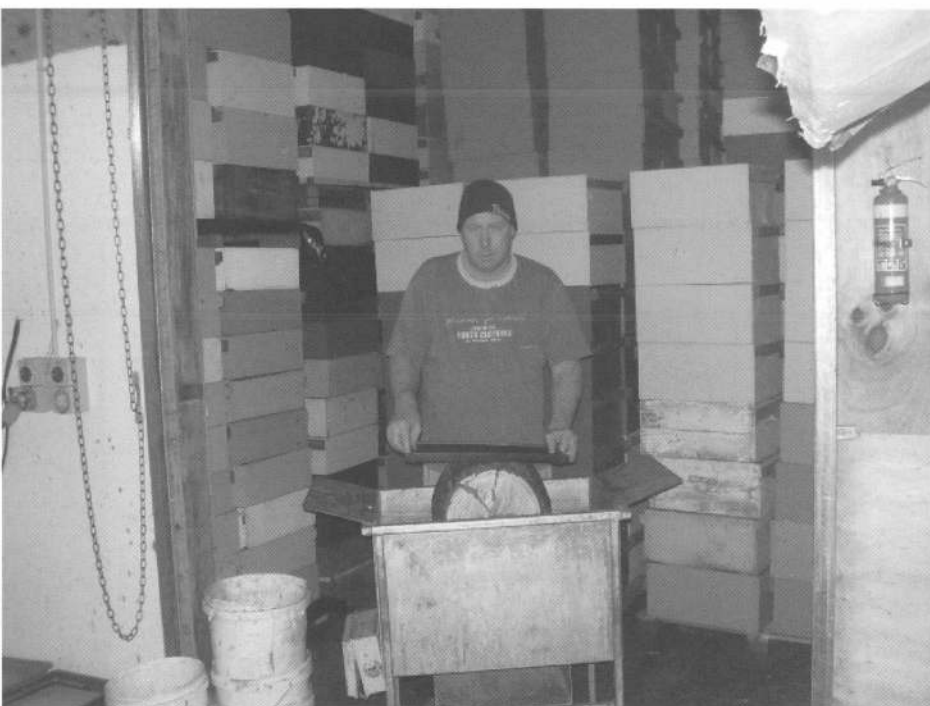
The tub to hold the wax is 700mm long, 450mm wide, 450mm deep and 1000mm (one metre) tall. It has two 2500-watt elements that are controlled by a thermostat.

Whenever we use the wax roller we place a wax melter beside it so we can add hot wax approximately every half hour.

We have two rollers, one for three-quarter-depth frames and one for full-depth frames. I do about 40 three-quarter-depth boxes (with eight frames in each box) in an hour.

The roller is made of stainless steel. It's hard to keep the foam on, so we tie it on. I have used a wooden roller before and it works all right.

After you use the roller once, the second time you have to roll it around to melt the wax that has gone hard overnight. We add water first to cover the elements and bring it to just under the roller (because it was made too deep), then we add hot wax and we're ready to go.



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**Neil Farrer's wax roller**

**M**y machine is a stainless steel vat approximately 600mm x 350mm x 300mm deep. It can sit on a table, or stand on legs to a working height.

The wooden roller is the width of a three-quarter-depth or full-depth frame: in my case a three-quarter-depth frame. The roller is approximately 250mm in diameter, with a 20mm piece of foam glued to the roller. The foam will last at least one season—in one case I was able to wax 10,000 frames before replacing the foam on the roller.

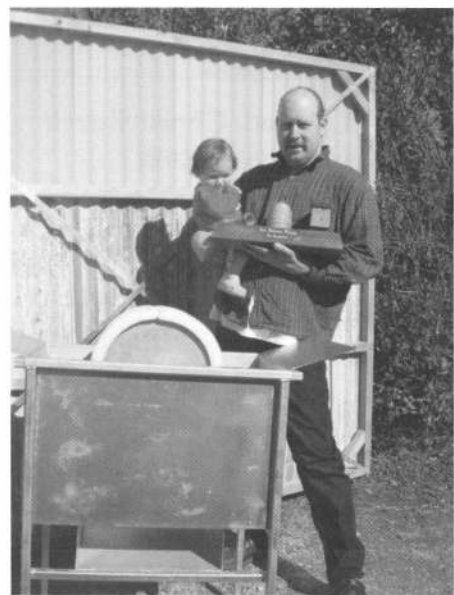
Heating is accomplished by gas underneath from a normal barbecue burner.

Put in enough water to cover the bottom by 20 to 40 millimetres, then add sufficient wax to ensure that the roller will pick up molten wax. Apply heat and when the wax is molten, start rolling. One pass will usually be sufficient to coat the plastic frame.

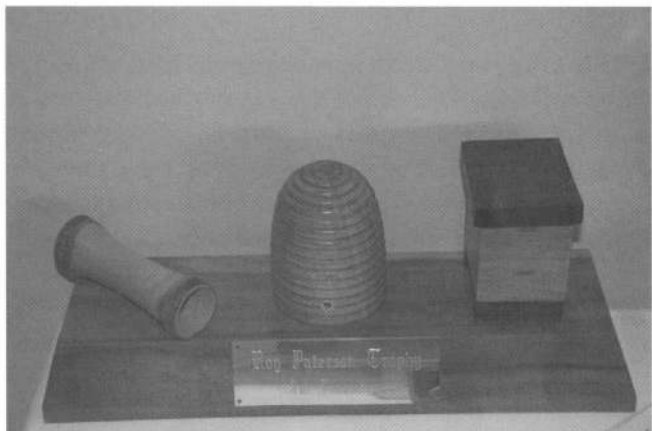
When you have finished waxing, it is best to squeeze off as much hot wax as possible and leave the roller to drain. When wishing to start again, it takes a little while for the hot water and wax to penetrate the foam on the roller. So keep turning it slowly, and you are off waxing again.



Take a few minutes to check over your truck tie-downs for wear and replacement.



Chris Valentine with daughter Nicole and his winning entry for the Roy Paterson Trophy, 2006. *Photo: Neil Farrer.*



The Roy Paterson Trophy. *Photo: Nicol Finnie.*

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BK396

# *Apis mellifera scutellata* and its hybrids

**Marco Gonzalez**  
**Apicultural Officer**  
**AsureQuality Limited, Christchurch**  
**gonzalezm@asurequality.com**

*Apis mellifera scutellata* is the honey bee native to vast areas of Eastern Africa from South Africa to the Sudan. There is also an area of hybridisation with *capensis* in the East Cape region. Referring to the map below, note that the sub-species *monticola* is limited only to the higher altitudes of the eastern volcanic mountains; the lower altitudes are occupied by *A.m. scutellata* exclusively.

In the 1950s the beekeeping industry in Brazil was well behind other beekeeping countries in the American continent, even though Brazil has more variety and abundance of nectariferous vegetation.

The reason behind this was the poor performance of European races of honey bee under tropical conditions.

In 1956 Brazilian scientists imported several fertilised African queen bees from South Africa because they saw that *Apis. m. scutellata* was more adapted to produce honey under tropical conditions than the European bees. They were aiming to breed in captivity an improved hybrid that could surpass their European stocks in production and adaptability, then release these into the country.

However, in 1957, 26 swarms escaped from the research station. These bees multiplied in the wild and hybridised with European Honey Bees (EHB), originating what we know as the Africanised Honey Bee (AHB).

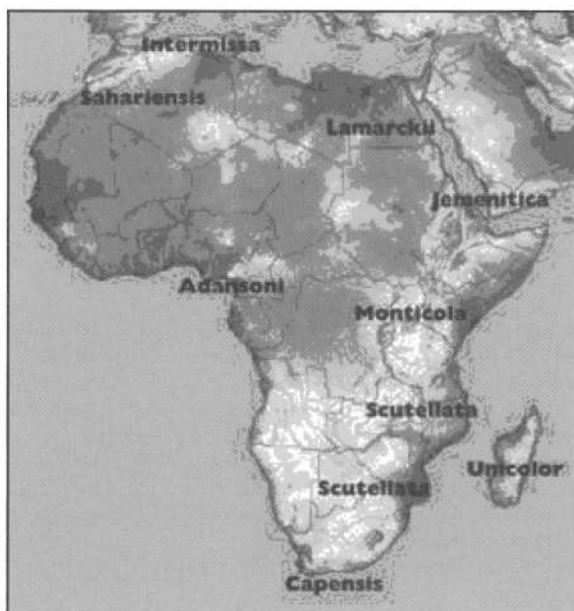


Figure 1: Distribution of different races of *Apis mellifera* native to the African continent. Source: Osterlund, E. 1999.

AHBs are poly-hybrids that resulted from crossings between the African bee *Apis mellifera scutellata*, and the European races of honey bees, *Apis mellifera mellifera*, *Apis mellifera ligustica*, *Apis mellifera carnica* and *Apis mellifera caucasica*, that were introduced into the Americas before the arrival of the African bees in 1956. The Africanised bees show morphological and behavioural characteristics that are typical of the original strains of African honey bees.

Africanised bees are better adapted to the tropical and subtropical conditions of South, Central and North America than the European honey bees. These conditions include intermittent nectar flows, high temperatures, high air humidity and the presence of bee predators, such as predatory ants, mammals, birds, reptiles and amphibians.

Better honey and propolis production, as well as higher disease and parasite resistance, provide these hybrids with advantages under most conditions in tropical and sub-tropical America.

In the 1950s Brazil was 28th in the world ranking of honey-producing countries, with an annual honey crop of about 5,000 tonnes of honey. However, by 1995 it was in fifth position, with an estimated production of 40,000 tonnes of honey per year.

AHBs have spread throughout tropical and subtropical America, advancing 150 to 300 kilometres per year. In 1986 they arrived in Mexico, in Texas in 1990, California in 1994 and by 2005 they were established in Florida. In California the AHB is spreading at a rate of about 50 kilometres per year, but at a much slower rate in the eastern states.

The natural southern limit of the distribution of AHB in South America is northern Argentina and Uruguay (latitude 33°S) and in the west the Andean highlands, where AHB only appears up to 3,600 metres of altitude. The Andes are preventing the AHB from naturally spreading into Chile.

Even though Africanised bees are more productive than European bees under tropical conditions, they are also much more defensive than European bees, which gave them the reputation of “killer bees”.

Africanised bees have also being identified as a threat to native fauna and flora in the Americas as they compete with native bees, mammals, birds and insects for nesting sites and food. For example, researchers have found a dramatic change in the native animal and plant population in some areas of South America and they blame it directly on the Africanised bees. For instance, many native plants of South America evolved for millions of years without *Apis mellifera* and rely on other native bee species for pollination. Therefore, for many native plant species *Apis mellifera* bees are too large to be good pollinators.

As Africanised bees occupy many places traditionally occupied by native bees there are fewer pollinators available for these native plants, and their population has continuously decreased since the arrival of the Africanised bees.



The negative environmental effects of Africanised bees are more noticeable in open land. On the other hand native bees, other insects, birds and bats are still the main pollinators in thick and tall rainforests such as the Amazon (De Oliveira, M. L. and Cunha, J.A., 2005).

The Africanised bees differ from European bees in that they:

1. are slightly smaller than European bees
2. fly faster (23 kilometres/hour versus 16 kilometres/hour) and fly more hours per day than European bees
3. swarm more readily
4. rob more readily
5. are more defensive and can chase intruders for up to a kilometre
6. most members of the colony abandon the hive to attack an intruder
7. after being disturbed remain aggressive for more than 24 hours
8. are more adapted to tropical conditions
9. collect more propolis than European bees
10. are more disease resistant or resilient to different diseases and parasites
11. abscond more readily if annoyed continuously or in situations of food scarcity
12. migrate and follow nectar flows.

Because of its strong defensive behaviour, managing Africanised bees commercially represented a steep learning curve for beekeepers in the tropics and subtropics of the Americas.

Through both beekeeper trial and error over the last 50 years and formal research over the last 30 years, especially in Brazil, management techniques and bee genetics have improved dramatically. Nowadays, in most parts of Brazil commercial beekeeping is done exclusively with Africanised Honey Bees (Gonçalves L. S., 2001).

In Venezuela, a comparison in a research apiary between unimproved AHB and an improved queen imported from Brazil has shown for the last two years that the improved queen produced twice the amount of honey (90 kilograms versus 45 kilograms) under the same environmental and managerial conditions than unimproved local stock (R. Thimann, personal communication September 2008).



Figure 2: Local beekeeper in apiary in Portuguesa, Venezuela. Source: Mr. Rafael Thimann, 2008.



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BK356

Some general principles for managing Africanised Honey Bees include:

- apiaries should be located at least 100m from populated areas, livestock or public roads; hives must be kept on individual hive stands one metre high from the ground and at least two metres apart from each other. AHB are especially aggressive to horses and reports of horses being killed by Africanised bees in the Americas are not unusual
- the hives must be located so they are protected from the main winds and in a shady location. Ideal locations include places under deciduous trees with open canopy, and facing the east with direct sunlight in the morning. The use of plant hedges around the apiaries to force a high flying pattern is recommended
- protective clothing must be white or light coloured. The clothing and general protective materials must be smooth textured. Veils used by beekeepers should be painted in white or a clear colour on the outside to make it less attractive to the attack of bees. The inside of the veils still needs to be black to see out more easily. Researchers have found in Brazil that dark veils are 10 times more likely to be attacked (De Jong, D., Gonçalves L. S. and Franco, T. M., 2007)
- smokers must be of a special large size (30 centimetres x 15 centimetres) and with strong bellows
- bait hives located strategically close to nectar sources are likely to produce a crop of honey as soon as three months after bees enter the hives
- destroy bees with high defensiveness. In Brazil continuous selection for less defensiveness has shown promising results, with some bees showing EHB-comparable defensiveness levels but still keeping other AHB-desirable characteristics.

### AHB life cycle

The life cycle of the AHB is very similar to that of other honey bees. However, the AHB egg-laying rate is usually twice the rate of EHB queens. Between 1,500–3,000 eggs per day is common for AHB queens.

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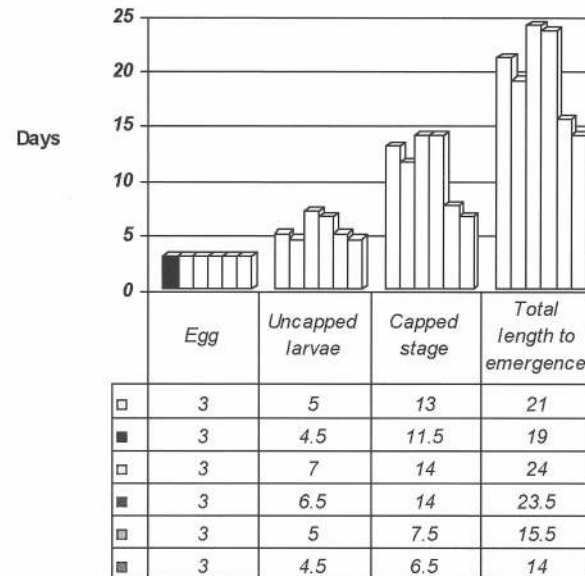
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BK69

The average development stages for AHB are longer than that of *A. m. scutellata*, but shorter than the EHB (Nunes-Silva et al., 2006). On average, AHB worker larvae have a life cycle that is one day shorter than European Honey Bees.

Table 1: Comparison between the life cycle of different castes of bees between EHB and *A. m. scutellata*.



Evolution of this honey bee in the difficult environments of tropical and sub-tropical East Africa has fixed into their genes some traits that provide them with competitive advantage under these conditions when compared to European bees.

Some of these traits are:

- defensive behaviour
- increased swarming ability, where part of the colony leaves the hive
- absconding behaviour, where the whole colony leaves the hive
- ability to utilise marginal nesting sites
- ability to exploit small or intermittent nectar flows
- shorter brood cycles
- high brood to honey ratios
- increased drone production
- superior metabolism
- high hygienic behaviour
- higher resiliency to pests and diseases.

The AHB is the master of exploiting its environment, and one of its strengths is its ability to exploit nectar flows and then move on to a new area. Unlike EHBs, Africanised colonies abscond, a behavioural trait that evolved in Africa. The AHBs migrate after the nectar flows, which follow the seasonal rain patterns. They can also abscond if predators such as ants, armadillos or humans attack the colony and so remove themselves from the threat. This behaviour also leaves many pests and diseases behind in the old brood nest.

Because AHBs follow nectar flows there is no survival benefit in storing excess honey, and most honey is used for rearing new brood. Therefore African and AHB have a higher brood

to honey ratio than EHBs. This trait in *A. m. scutellata* and its hybrids might pose a disadvantage in areas with long cold winters and nectar dearth periods.

Also, when establishing a new colony EHBs usually select a place with a 40-litre volume on average, whereas AHBs still choose places with volumes ranging from 12–24 litres in volume. However, research has shown that if given the option of cavities with 10, 20, 40 and 80 litres, AHB will always choose cavities with 80 litres. This must be related to the higher potential that these cavities provide for colony growth compared to EHB.

EHB swarms are likely to settle within a 400-metre radius of the hive of origin. In contrast, AHB swarms can fly up to 40 kilometres before establishing their new hive. If AHB do not find a suitable cavity they will build an exposed hive initially, and later these combs will be protected with a cover made with a mix of wax and propolis. This feature is not seen in EHB.

AHB drones will drift into EHB hives and inhibit production of EHB drones but the opposite does not happen. AHB will reject EHB drones coming to their hives (Gonçalves L. S. and Stort, A. C. 1994).

AHB queens emerge earlier than EHB queens, and kill all other potential competitors.

AHB swarms can invade an EHB colony, kill the European queen, and become established with their Africanised queen. (Gonçalves L. S. and Stort, A. C., 1994).

A queen mated with a mix of 50% EHB and 50% AHB semen will produce a mixed population (50% of each) at the beginning of her productive life. However, this is only for a short period of time and after a few months the population will have more genes from AHB than EHB. The reason for this is still not fully understood.

AHB traits have been dominant all throughout South, Central and North America, with DNA samples from AHB hybrids captured in the United States resembling the pure African bee from East Africa.

### Likely impact on the New Zealand beekeeping industry

In the event of an incursion of African or AHB into New Zealand, the immediate effect will be a psychological one, with the public overreacting to the event and a decline of public support to the beekeeping industry. This will be especially evident near populated areas and may take some time to recover.

It is likely that if AHB or *A.m. scutellata* arrives to New Zealand detection will be made early enough to attempt eradication. Previous eradication attempts have been successful in Uruguay.

Also, in the southern areas of South America there is no natural or artificial barrier to stop the spread of AHB to the south, except for the colder and longer winters at higher latitudes. As New Zealand is fully located higher than 33° latitude south,

it is likely that AHB might find it more difficult to become established here.

## Diagnosis

Visual inspection of combs or bees does not provide a definite diagnosis.

Only morphometric and PCR analysis can be used to positively identify the African honey bee or the Africanised Honey Bee. If you have concerns about any beehive that suddenly has become extremely aggressive, do not hesitate to contact the MAF Hotline (0800 889 966) or your nearest Apiculture Officer (0508 00 11 22), who can arrange an identification test.

The author would like to thank the following people for sharing their knowledge and experiences of the African Honey Bee and their contributions with updated references for the production of this article:

- Mr. Ernesto Thimann Ramirez, UNELLEZ Portuguesa, Venezuela
- Professor Lionel Segui Gonçalves FFCLRP, University of São Paulo, Brazil, for providing the latest references on the topic.

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Attend your NBA branch notice of motion voting meeting.

## NIWA's climate outlook: May to July 2008

Average atmospheric pressures are expected to be higher than normal to the south of the South Island and lower than normal to the northwest of New Zealand, with more winds from the northeast than normal over the country.

Air temperatures are very likely to be above average in many regions. Despite this overall temperature expectation, cold outbreaks typical of late autumn and winter will occur from time to time. Rainfall is expected to be normal or above normal in the north and east of the North Island, normal or below in the southwest South Island, and near normal elsewhere. Soil moisture levels and stream flows are likely to be above normal in the northern North Island, near normal in the eastern North Island and northern South Island, and normal or below normal in the southwest of the North Island and the west, south, and east of the South Island.

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# About the Apiary

It's June and winter is really here. Not much flight activity from the beehive in my garden. Inside the hives older queens would have stopped laying a month ago, while young queens (introduced a few months ago) will still have a patch of brood the size of your fist in the centre of the cluster. In warmer coastal districts, bees will be flying for a few hours during the middle of bright, sunny days, bringing in pollen from gorse and tree lucerne. Down south, it's a lot colder and the bees will have no brood, which will make varroa treatment a lot easier for them (when it arrives).

June is a planning month. Analyse what went right and what went wrong during the season. I have a few changes I want to make next season:

## 1. Combat swarming

My district has an early kamahi/bush flow and I want hives strong in early October that respond to this flow and bring in a lot of honey. After this we get a dribble of nectar off farmland until December when we might get a clover flow, as it is predominately dairy country, or a manuka flow in the bush areas.

To reduce swarming I intend to split hives in October to keep bee numbers in check. I plan to reduce hive strength to 1.5 supers of bees (five to six frames of brood) and let them build for the summer flow, then unite them to make strong hives. The five to six frames of brood is only a guess at the moment. I'll have to play with it to see what works out best for my district.

It will mean timing my queen breeding programme so that I have new queens ready to mate during the first two weeks of October, and forgoing the early bush flow in the hope of getting a better summer flow.

I have already begun to combat swarming by adding frames of foundation to the outside of the brood nest in the spring. I still use wax foundation, as the bees seem to build this better unless the hive has been changed completely to plastic foundation. When the bees have a choice, they prefer wax sheets.

This fits in with my aim to replace brood nest frames over a three-year cycle. Replacing brood frames cleans out the residues of nosema, chalkbrood, sacbrood and even low levels of AFB spores that are normally sealed in old dark frames when the larva spins a cocoon before pupation. It also helps with varroa, removing excess drone comb.

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I know of an organic commercial beekeeper in Australia who paints all the top bars of the frames made that year in the queen marking colour code. In the spring his staff go out and remove red-painted frames (those that have been in the hive three years) whether they have brood in them or not, and replaces them with foundation. It's an easy method to keep track of frames and relatively untrained staff can do this.

## 2. Drone comb-mite trapping

I'm tossing up whether to add a three-quarter-depth frame to full-depth brood supers to encourage the bees to make drone comb. The drone comb built beneath the frames has to be removed every 18 days in the spring after my spring queens have mated. By painting the top bar a different colour it's easy to identify this frame in the hive.

I'm still considering this option because I'm not sure whether I can get around all my hives in the spring every 18 days. It takes me quite a while to get around my hives doing full brood inspections in the spring.

## 3. Put out swarm boxes again

During the past five years varroa cleaned out the majority of the feral hives. Before varroa arrived, a swarm would hang around an apiary and go into bait supers nearby, but after varroa there were so many empty feral colonies that the swarms were up and off immediately. It has taken five years but some areas have been repopulated with feral hives; however, the swarms coming out of these hives are a lot smaller. This means I'm seeing swarms again in my apiaries.

I use an old super and fill it with three old combs and the rest foundation frames. The swarm box will have a 25 mm entrance, similar to that of a tree knothole. I place these bait supers on a shed or tall hive, near or in an apiary. The bees are drawn to the bait hives by the smell of the frames.

## 4. Concentrate on wasp control

I have lost too many hives to overwintering wasp nests during the last two autumns, and NIWA is predicting yet another warm winter. Hence I intend to start baiting wasps with fish-based cat food from December onwards. I'll partly open a small tin and place it under a hive in each apiary in which I have previously had trouble. That way only insects can access the tin and when I see wasps feeding well, I'll change the tin with one laced with insecticide powder. Hopefully this will knock down wasp numbers to a mere nuisance next autumn.

## 5. Timing of varroa treatments

I have to get my timings right. Generally I treat hives in the spring before I start queen rearing and don't treat again until

February. This is too long as mite numbers can build up to PMS levels before the end of the last honey flow.

I'm going to start taking honey off earlier, between flows and give the hives a quick treatment while the supers are off being extracted. It might be only for a couple of days but a quick knockdown might be beneficial.

I've been corresponding with Eric McArthur in Scotland. Eric now treats in spring, during the June gap and twice in the late autumn. Like a lot of European beekeepers he winters using a single brood nest and uses organic treatments: formic acid in the spring and oxalic fumigation in the autumn, with constant monitoring. If there are more than 1.5 mites dropping naturally per day after the last treatment in the autumn, he treats again to get the mite numbers below 50 mites per hive.

Oxalic fumigation is not registered for use in New Zealand but hopefully it will be in the future. If so, it will give organic beekeepers living in the warmer regions of New Zealand a non-intrusive treatment that can be done during winter.

I lost 50 hives the first winter after varroa hit because my bees robbed feral hives. My bees maintain brood rearing all the way through the winter, and with up to 200 mites coming into the hives each day from my bees robbing collapsing feral hives, it didn't take them long to succumb to mites also. Now I have to monitor the slides beneath the mesh floors during the winter so I don't lose any more hives, especially following a bad swarming season.

Constant brood rearing has its good and bad features. Good, as the bees will build again during winter if you are late putting in strips and get PMS. Bad, because it's difficult to treat hives with organic treatments. The material can't come in contact with all the varroa as some mites are always in the brood, so treatments must be repeated.

When varroa reaches the deep South, I believe the beekeepers down there will have an easier time with varroa due to their long, cold winters. That is, provided they treat early and hives don't get PMS. If hives get PMS the bees won't be able to recover, as they need two generations of healthy bees free from mite predation to winter over.

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## Reading during the winter

Obtain and read the revised copy of *Control of Varroa: A guide for New Zealand beekeepers* by Dr Mark Goodwin and Michelle Taylor (published by MAF, 2007). The revised edition has much more information, including case studies. You can pick up a copy at the conference in July.

## Hobby Forum at July conference

It has been said that the National Beekeepers' Association doesn't really cater for hobbyists at conference. When I was a hobbyist beekeeper, I took time off work to attend NBA branch meetings and conferences just for the information you get at the seminars and talking to other beekeepers. They have usually tried everything and can give an explanation why something works or doesn't work. Every beekeeper likes to experiment but hobbyists have more time, and new developments often come from them.

So this year the Southern North Island branch has organised a forum that will cover the basics in beekeeping and a little more. If you have the opportunity, come along.

## Things to do this month

Render down cappings and old combs. Make up new equipment for the coming season. Check the effectiveness of your mite treatments.

- Frank Lindsay



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## Specialty Group Meetings At Conference

### Monday 14 July

10 am–12 noon

New Zealand Queen Bee Producers Association  
General Meeting followed by AGM

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1pm–3pm

New Zealand Honey Packers & Exporters Association AGM

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3.15–5pm

New Zealand Honey Bee Pollination Association  
General Meeting followed by AGM



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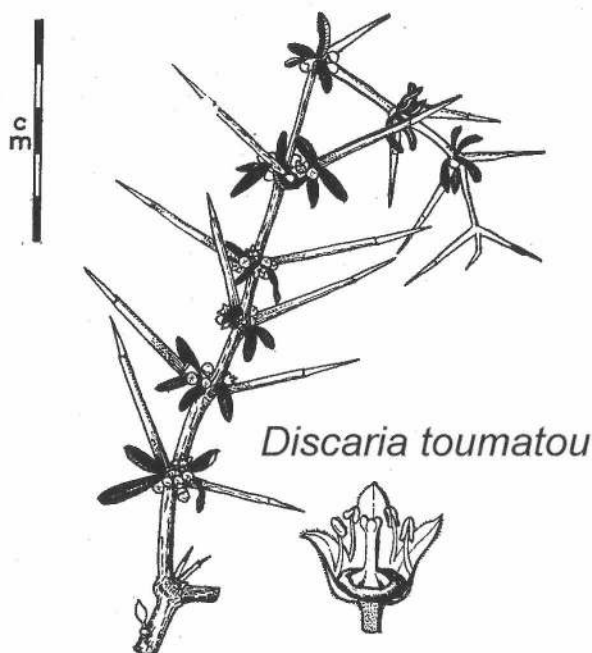
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## Trees and Shrubs of New Zealand



*Discaria toumatou*

**Maori name: Matagouri**

**Common name: Wild Irishman**

The Matagouri is a thorny shrub growing up to six metres high.

This spiny bush has few leaves, although if found growing in a very moist environment it has more leaves than thorns. The thorns carry chlorophyll when green, but lose the chlorophyll when they turn brown and hard.

The flowers are small, white and plentiful blooming from November to January, producing both nectar and pollen. The honey is a medium-amber and mild flavoured.

The Maori used to wear leggings of flax leaves when they came across large tracts of Matagouri so they weren't hindered in their passage.

The spines of the Matagouri were often used by the Maori as the needle during tattooing.

- Tony Lorimer



Articles published in *The New Zealand BeeKeeper* are subject to scrutiny by the National Beekeepers' Association publications committee. The content of articles does not necessarily reflect the views of the association or the publisher.

## From the Publications Committee

We are endeavouring to change the time you receive your copy of *The New Zealand BeeKeeper* to the beginning of each month.

Hence the deadline for articles and advertising will be gradually brought forward over the course of the year. The deadlines for the next four issues are as follows:

ISSUE	DEADLINE FOR ARTICLES AND ADVERTISING
July	5 June
August	3 July
September	31 July
October	28 August

Keep an eye on page 3 each month for deadline details as the year progresses.

- Frank Lindsay  
Chair, Publications Committee

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