



Amateur Beekeepers Australia

The Amateur Beekeeper



From the Editor

Welcome to my second issue of The Amateur Beekeeper. Please bear with me while I get the look and feel under control and settle into the role of editor.

Last month we held our first face-to-face field day since Covid. It was a great turnout and so nice to be able to chat to fellow beekeepers, look at various gadgets on offer at the stalls and hear some excellent presentations. Those sorts of events really are the heart and soul of an organisation like Amateur Beekeepers Australia.

Planning is underway for the next field day – please come along, we would love to see you there.

If you have any story ideas for this publication please email me on editor@beekeepers.asn.au

Varroa Updates

The Varroa emergency response continues in NSW. To keep yourself informed and up to date with the restrictions placed on beekeepers, visit the DPI website:

<https://www.dpi.nsw.gov.au/emergencies/biosecurity/current-situation/varroa-mite-emergency-response>



Probiotics Research underway

Georgina Binns, Research Officer, Macquarie University | E: georgina.binns@hdr.mq.edu.au

Researchers plan to provide bees with immunity-boosting probiotics to increase defence against common infections.

Researchers at Macquarie University are developing an economical and chemical-free probiotic treatment to help boost resistance of honeybees – in the hopes of increasing resistance to common bacterial and fungal hive diseases that are the main causes of global population declines. Infectious diseases, such as European foulbrood and chalkbrood, cause devastating impacts on crops and honey production from the loss of pollination services.

Probiotics are made from beneficial microorganisms that have health benefits when ingested – these are found to naturally occur in products such as yoghurt and other fermented consumables. Probiotics have been found to maintain digestive health and boost the immune system in humans when taken as a dietary supplement. Because these ‘good bacteria’ are naturally occurring, they will not be dangerous to bee health, with the research team specifically targeting bacteria essential to honeybees.

Existing bee probiotics only target one disease at a time, but the team aims to develop a general probiotic that will raise the overall immunity of bee colonies. “Multiple diseases can infect hives simultaneously, and it is challenging to predict which disease might spread across hives. Our team will create a broad-spectrum approach to disease resistance instead of looking at just one singular infection,” said Dr Fleur Ponton, an expert on gut microbial symbionts. Probiotics are chemical-free and cost-effective products for Australian beekeepers and growers that can be easily implemented into their systems.

The Australian Honey Bee Health Survey 2019, commissioned by Plant Health Australia, reported that commercial beekeepers lost an estimated 19% of hives during the previous year due to diseases, pests and other events. This loss translates to significant economical deficiencies for Australian growers of pollination-dependent crops, such as macadamias, almonds and avocados, with 65% of Australian agricultural production relying on pollination by bees. “With climate change and invasive bee pests becoming more present, we need to find solutions to protect our honeybees here in Australia. We can’t solve everything, but a generic probiotic would be an important boost to Australian honeybees’ health,” said Dr Théotime Colin.

The research team, led by Dr Fleur Ponton and including insect and bee experts Associate Professor Ajay Narendra, Dr Théotime Colin and microbe expert Dr Sasha Tetu, will look at a variety of ways to deliver the right probiotic mix to hives. “We are aiming to include probiotics into healthy supplemental feeds for bee colonies. Feeding colonies is a common practice already in place in many countries but that is less developed in Australia,” Dr Ponton said. “Beekeepers in Europe, Africa and North America often feed supplemental food patties containing pollen, vegetable proteins and sugar mixtures to hives. These mixtures do not usually contain probiotics just yet.” Further, this project will assemble a collection of probiotic strains that will be stored in the team’s lab at Macquarie University. In the future, these strains could be tested against new emerging diseases.

Funding Acknowledgement

This project is funded by Hort Innovation using the Hort Frontiers Pollination Fund research and development levy and contributions from the Australian Government, as well as Macquarie University. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

Are you ready for 30 June?

Too busy dealing with bees to get your tax done?

Not sure what deductions you can claim working in the agriculture industry?

Well the good news is the Australian Taxation Office (ATO) have shared some handy tips and resources to help you out this tax time.

Want to learn more? Visit ato.gov.au/agriculture



"How do you keep your smoker lit so long?"

I get asked this question a lot and many people consider the fuel is the problem with a smoker that won't stay lit. But it may be the method of lighting that's letting you down. (For the record I use Pea Straw Mulch because I can buy a big dry bag of it at the hardware store.)

Here's how I do it.

Step 1: Fuel

You need lots of dry fuel for your smoker. It can be mulch as mentioned above, pine needles, she oak needles, hessian bags... lots of things will work, just make sure it's pesticide free so you don't inadvertently gas your bees. It should also be dry and not green.

Step 2: Clean your smoker

To burn properly, your smoker should be open. So make sure it's clean and empty before you start; make sure the air entry point is open and the spout is clear and not bent over. Also check whether the grate is in place. In some smokers the fire grate is loose when you buy it, and can fall out. It's important that it's in place to allow air to get under the smoker fuel.

Step 3: Cheat and use a torch

A really easy way to get your smoker lit is to use a gas torch. I use a large one but a small one helps as well. Just blast away with the torch and get a good fire going in the bottom of the smoker skip (and skip step 3a).

Step 3a matches and paper

If you're not using a gas torch, put some paper in the bottom of the smoker. Drop a match in, and as the paper catches, slowly feed fuel in bit by bit, building up a fire.

Step 4: Build it slowly

You want to slowly add more fuel, the idea being to build up a good fire to keep the smoker lit. Then you need to keep packing in fuel until it's quite tightly packed and full. This keeps the fuel burning and the cold smoke coming.

Step 5: Putting it out

Always have a way of extinguishing your smoker to hand. It can be a bucket of water to tip the contents into, a sealed metal box or a plug to seal the snout and suffocate the fire.

What's the alternative to fire? Currently there is only one smoke-free smoker that I know of on the market. It's the French-made Apisolis which uses a battery and coil, like a vape, but instead of watermelon or berry-flavoured vapour, it's a special blend that acts like smoke. It works on all but the most aggressive bees. (Full disclosure: The Urban Beehive sells this smoker.)

I have heard of people using the liquid smoke flavour in a water spray bottle. The smell is quite strong and I would be concerned it would flavor the honey... although smoked honey is pretty good.

My final point would be to always have your smoker lit when you work your bees. It's your last defence against a colony that's turned defensive for whatever reason and is an important part of your personal protective equipment.

Living with Varroa

Is Varroa really that simple to manage, if you're a small-scale beekeeper?

As you all should know by now, Varroa Destructor is here in NSW and there is a concerted effort to get rid of it which we all should support. Unfortunately, there are many rumours circulating that say it's not a problem and we should just let it go. So I asked a couple of international beekeepers how they manage Varroa.

These are opinions – not instructions – on how to treat Varroa. **As we know, it's currently illegal to treat Varroa in Australia.** And yes we fully support the eradication effort. But these opinions might shed some light on what we face if we fail to eradicate.



First, let's hear from Margaret, co-host of Kiwimana Buzz, a New Zealand-based podcast (check it out kiwimana.co.nz)

I guess it's good to start by looking at the varroa destructor mite (mites) that have come into Australia. If it is one that has come from a country that mostly uses 'synthetic' varroa treatments there maybe "resistance" in its gene's. Resistance is when the varroa develop cell changes because the treatment is not actually killing the varroa so the surviving mites' cells change, which makes them stronger. Other reasons why varroa are becoming resistant, is the fact that beekeepers do not follow application instructions correctly, leaving the synthetic treatments in too long, either due to laziness or ignorance or confusion.

Interesting Point : application instructions are no longer giving definite time – confusingly some have windows of up to 2 weeks variance which was never the case when treatments were first introduced – the treatment period variable is not scientifically explained except for the fact there is resistance caused by the synthetic treatments (hardly reassuring) but hardly helps beekeepers !

My personal view is that ANY synthetic treatment appears to be causing resistance. Sadly when varroa are not getting killed, beekeepers start adding more, plus adding different synthetics so the varroa are getting opportunities to make cell changes which means they are surviving and able to wipe out colonies within 2 weeks whilst also making it very hard on the bees and stress on colonies.

It's Important to Remember that varroa is a parasitic mite, so as it settles into a capped brood cell (a nice and secure, warm and dry incubator effectively) where it procreates and feeds on the larvae. Through the feeding action transfers viruses infecting the developing bee. The bee hatching can then pass on the viruses and viruses can remain in the cell.

Queens used to survive for 7 years before 1990's, our oldest queen in 2012 was four years old, now queens only survive possibly 3 years. It is believed that on-going synthetic use, in itself, is harming the life span of the honey bee.

Note : it is apparent that using synthetics, in the long run, only adds to the power of cell changes in varroa, which effectively means, that using synthetic treatments to eradicate varroa, is impossible. Sadly because of synthetic resistance, there is no "living with varroa" only death to bees.

Organic and Natural Beekeeping methodology.

Initially kiwimana made great endeavours to 'organically' manage varroa and share our methods to our kiwi beekeepers. Varroa has personally caused us a great deal of upset and distress. Initially we did well using oxalic acid vaporisation, but around 2013/14/15 we started to see increased absconding events, colonies leaving due to being overwhelmed by varroa, we'd come back to an empty hive with only sick brood and sick bees. We started to see sac-brood on the increase. Needless to say Varroa has made beekeeping very difficult for us.

Our response was to develop and advocate for beekeepers to use organic plant based concentrates for treatments – thyme oil and/or oxalic acid and also modifying our beekeeping methods using Organic plant based treatments..

Application method with oxalic acid is with a vaporiser – referred to as Oxalic Acid Vaporisation (OAV). Thyme is by way of impregnating wafers with thyme oil or adding the thyme oil to sugar-syrup. Monitoring became more of a priority to let us see mite levels. We Introduced less harmful sugar shakes instead of killing bees with alcohol washing to check mite levels. in addition we utilised.

Meshboards and insertable/removable inspection trays which are oiled to trap falling mites.
Brood breaks (where the queen is caged to prevent laying and removing capped brood so the varroa don't have cells to replicate within)
Drone management frames (frames that allow more drones to be laid which is then removed and destroyed killing the varroa within)

Breeding stronger genetics...

Breeding to help bees develop/improve instinctual behavioural response to varroa such as grooming and cell cleaning – strengthening genetics by enabling the bees to adapt their response to varroa using these 'natural' bee behaviours.

For kiwimana ?

– we do this by keeping our Winter surviving queens as breeding colonies and splitting them (pre-emptive before temperatures rise to cause swarming).

The methodology we use is natural bee queen emergency response... simplistically put, from a two brood box colony we split the OLD queen away from original-position, leaving the remaining colony to raise their own, new-season queen the old queen is moved away she who will carry on as if she/the colony had swarmed. The aim is that by enabling the bees to strengthen bee behaviours through breeding surviving genetics, rather than killing queens seasonally thereby prohibiting genetic development stunting the ability of the honey bee to adapt to fighting varroa itself.

As resistant-varroas' threat increases, beekeepers who choose organic methods will need to understand that it will take regular monitoring, regular brood cell inspections every 14 days, regular treatments (OAV every 14 days 1/4 teaspoon oxalic acid into vaporiser per hive box not brood box but each box. Thyme oil wafers need to be applied once a week x 8 weeks on top of brood frames). It is understood that organic treatments do not cause any resistance even after use since 2001 OAV.

Opportunity for Australian Beekeepers ?

Organically treating varroa is the best hope for healthy and strong bees in the long run. Australian beekeepers do have the ability to deal with varroa organically but with it, understanding they need to invest time and undertake a methodical and united approach.

Final thought...

Best chance our Aussie beekeeping mates have in dealing with the Varroa Destructor parasitic mite (VDM) is to adapt their beekeeping methods to help their bees without poisoning them so instead helping them survive by giving them the ability to adapt their bee behaviours through strong genetics the honey bee has been adapting to survive for over 25million years...

New Zealand end of bee season 2022...

As we head into winter, we have 5 colonies and of course continue to keep bees despite the challenges we and the bees' face...and... as we have the sun peeking through grey clouds we see the bees start to go out, it makes me smile and feel hopeful.

Next up is Fiona Fernie, one of the ABA committee members who managed beehives in Scotland before emigrating to Australia. She's talking about her experience of living with Varroa.

We all know how much time is devoted to managing a full production colony of honey bees. Preventing swarming, raising new queens, taking honey off and carrying out health and biosecurity checks are the basis of beekeeping. Preparing new equipment, finding new apiary sites and re-cycling frames and boxes to reduce disease spread, are all the stock in trade of the hobby beekeeper.

If you then factor Varroa Destructor into the equation you have to almost treble your management time. Additional equipment is required, along with the expense of buying a wide range of chemicals with which to treat the hives. No longer will your honey and wax be free from chemical residues.

Monitoring to estimate the population of mites in the hive, which is different from monitoring to see if you have a Varroa infestation, is time consuming. Most of the mites are reproducing in the brood cells, with a preference for drone brood. Most UK beekeepers are on open mesh floors and this allows the phoretic varroa to fall through the mesh floor on to a corflute board, smeared with Vaseline. Based on the number of days the board has been in will indicate the Daily Mite Drop.

The National Bee Unit produces a large number of books and leaflets – these are very useful and free to download. From the Daily Mite Drop there is a multiplication factor for each month of the year, to estimate the Varroa mite population actually in the hive. It is the estimated mite population that guides a beekeepers' treatment plan.

Then comes the decision "What treatment?" Different treatments for different temperatures or when honey supers are on. Integrated Pest Management where the treatments are changed so that mites do not become resistant to any one chemical. Read the instructions carefully and if strips are specified to remain in the box for 7 days, then no more or no less. This means that a lethal dose is delivered to Varroa mites – leaving strips in for longer leads to non-lethal medication and mite resistance. All treatments have conditions attached.

Some treatments are delivered during a broodless period. Oxalic Acid sublimation is a very good treatment but you require an organic acid respirator, the sublimation equipment and a car battery. This all takes between 10 and 15 minutes per hive. It is very effective but costly and time consuming. Oxalic acid damages brood so it has to be carried out during a broodless period – either on swarms or during Winter.

When MAQS were first introduced the dosage was for a Langstroth Hive – most of the UK is on National, Smith and WBC. After a few killed queens the number of strips was reduced. Formic acid kills Varroa reproducing in the cells with the brood, but the brood is unharmed.

Sometimes the temperatures (in the UK) do not get hot enough to use your chosen treatment. MAQS should not be used above 29.5 degrees C. The initial dose above that temperature is too strong a concentration of formic acid. Although you do not require an organic acid respirator for placing strips in the hive, it is a good idea as the formic acid will affect your throat. You definitely need an organic acid respirator for oxalic sublimation. These are dangerous chemicals.

Queen trapping is used as a non-chemical remedy, but you then lose your honey crop. Apiguard and thymol sponges are effective but they taint the honey – honey supers have to be removed – and as they only work in higher temperatures, this is in the height of the honey season.

All in all, careful planning for the year is needed. Preparing the equipment is essential so that treatment can proceed timeously. Time spent monitoring Varroa levels pays dividends, but you have to be on alert as the infestation levels suddenly increase. The whole year is spent "Managing" Varroa, along with colony management. Gone are the carefree days of enjoying beekeeping when all you have to worry about is replacing queens and harvesting honey.

Happy Varroa free beekeeping!

Want to know more about what's being done here in NSW? The recent AHBIC briefing covered the eradication plan in detail.

If you haven't viewed it yet, have a look – it's well worth it.

<https://honeybee.org.au/ahbic-industry-briefing-webinar-11-may-2023/>



Did you know you need permission to move hives in NSW?

Under the rules operating in NSW, you must have permission to move any hives or swarms and must be able to produce the relevant paperwork if asked.

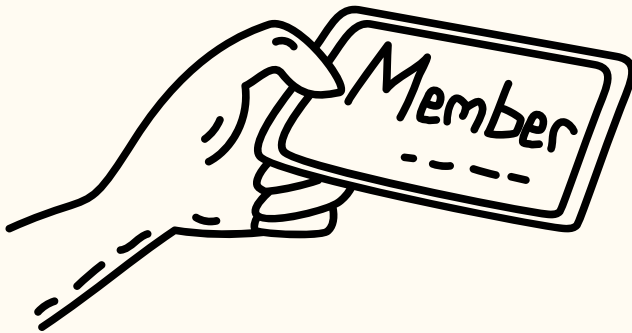
If you are moving hives from Blue Zone to Blue Zone you need to complete a Hive Movement Declaration, and that for any other movement you must apply to the DPI for a permit. These permits are only issued after a risk assessment has been conducted.

NSW Police can issue a \$2000 on-the-spot fine if you cannot produce your permit

when asked. Moving hives is one way Varroa is spread. if you see someone moving hives and you think it's suspicious report it.

For further information the DPI website has the details.

<https://www.dpi.nsw.gov.au/emergencies/biosecurity/current-situation/varroa-mite-emergency-response/movement-of-bees>



Membership renewals

We are approaching the end of our 2022/23 membership year and you will soon receive an email to renew your affiliated club and ABA memberships.

Clubs have set their fees individually and you will be charged the fees of your local club plus the ABA fee which will be the same as last year \$25 for the 23/24 membership year.

The optional Public Liability Insurance premium for the next year will be \$20, The renewal email will be sent in the next few weeks so keep an eye out for it.

Correction

In the last issue of The Amateur Beekeeper, I ran a story about Varroa treatments that was taken mostly from an AHBIC email. At the end of the article were two paragraphs that were incorrectly attributed to AHBIC, under the heading "Isn't treatment routine?" Apologies for any confusion caused.



Honey and lime syrup cake

Let's end on a sweet note!

This simple cake is my go-to for a quick dessert and my friends always love it.

Ingredients

Cake:

2 x 60g eggs

The weight of the unshelled eggs in unsalted butter, self-raising flour and castor sugar. (So approximately 120g of each.)

Grated zest of 1 lime

3 tbsp lime juice

Syrup:

Juice of 1 lime

5 tbsp honey

Method:

Pre-heat oven to 200c

Cream the butter, sugar and lime zest until light and fluffy. Add the eggs and flour bit by bit, starting with one egg and incorporating well after each addition. Add enough lime juice to make a batter of dropping consistency.

Spoon the batter into a greased and lined 20cm tin. Bake for approx 35 minutes until the edge of the cake is pulling away from the tin.

Make a syrup by bringing the lime juice and honey to almost boiling. As soon as the cake is removed from the oven, prick its surface with a skewer and pour the hot syrup over the top. Leave the cake in the tin for 30 minutes or so to allow all the syrup to soak in.

Enjoy with thick creme or yoghurt.