



THE AMATEUR BEEKEEPER

OCT-NOV 2024

Can probiotics help defend honeybees from common diseases?

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BEEKEEPERS.ASN.AU

Presidents Report

Vincent Schnyder, ABA President

Dear Members,

Spring has sprung! The cold days are now hopefully over (I can't stand the cold, probably one of the reasons why I call Australia home and no longer Switzerland). With the warmer weather and longer days, the bees will quickly build up and might decide it's a great opportunity to multiply and swarm. Over the last few days we see many enquiries coming through our website where members of the public report swarms.

As responsible beekeepers we should all aim to manage our hives to reduce the risk of swarming to minimise the risk that bees move into your neighbour's wall cavities and what used to be a supportive neighbour can become a threat to your beekeeping hobby.

Swarm Collectors - The ABA maintains a database for swarm collectors on our website www.beekeepers.asn.au/swarms where the public can contact a local beekeeper when a swarm is found. If you would like to be listed in your postcode area (up to 10 postcodes), please have a look at the article later in this newsletter. You can add and remove yourself at any time from the list. Further details can be [found here](#).

Membership Renewal - The membership renewal for the 2024/25 Membership Year closed on 30 September and members who had not renewed by then have been removed from the membership register and will need to re-apply for membership in line with our Constitution.

Please reach out to your club Membership Officer or support@beekeeper.freshdesk.com if you have any difficulties re-joining or have any questions.

ABA Annual General Meeting - Sunday 3 November at Mittagong RSL – As announced in the last issue of the TAB, we will have 4 guest speakers on various beekeeping topics, the AGM, Col. Pulling / Bruce White Shield competition and a Members Forum. Mark the day in your diary and if you need accommodation, consider booking early as the Southern Highlands is a tourist magnet at that time of the year.

Varroa Training - As I mentioned in my last President's Report, it's not an "IF" it's definitely a "WHEN" you will find your first Varroa mite in

your apiary. For me this happened mid-September when I detected two mites in my strongest hive. Although I have seen mites so many times before when I worked on DPI Surveillance Program, I was in complete denial when I saw the first mites in my hive. I tried to find any reason why it's something else, even after putting my reading glasses on. Once I took a picture with my mobile phone and zoomed it up there was no more wishful thinking, this little critter just looked at me. Now I know that I've joined the majority of beekeepers globally who deal with Varroa for years and why I attended the training sessions.

The National Varroa Management Program has now established a new website <https://www.varroa.org.au/> where, in addition to your state DPI/DAFF websites, you can find valuable information. Although the workshops for recreational beekeepers in NSW have now concluded, there are several workshops lined up in Qld, NT and VIC. I strongly recommend that you aim to attend a workshop as soon or later you will find your first mite.

There is also a lot of good information on various websites and social media channels, however, be mindful that there is also a lot of misinformation and things people just made up without any base. If you are not sure, reach out to your **Club Biosecurity Officer** or the **Varroa Development Officers** listed under the "get help" section on [varroa website](#) or discuss your experience and questions at your next club meeting. We are all on a learning curve and as we have Small Hive Beetles before Varroa arrived, there is no experience on how the next few years will evolve till we get to the stable phase.

The ABA, through AHBIC, is currently looking into ways how the training material developed for the workshops can be used on an ongoing basis. We have several members in our organisation who originally delivered the training and thus are well equipped to pass on the knowledge and skills to beekeepers who were not able to attend one of the original workshops and also to new beekeepers. We hope that common sense will prevail over politics and self-interests ■

Happy beekeeping



**Amateur
Beekeepers
Australia**

ABA Conference, AGM and Col Pulling Competition 2024

DATE: Sunday, 3 November 2024
9:00 am – 4:00 pm

VENUE: RSL Mittagong and via Webinar link

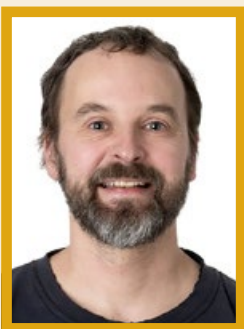
Please keep your diary free for this packed day of beekeeping information and fun.

We start the day with two guest speakers in the morning followed by the AGM of the Association. After lunch we will have two more guest speakers before we hold our annual club Col Pulling/Bruce White Shield Competition and a member's forum to round up the day.

The event will be held at the RSL Mittagong and live-streamed via a webinar link. If you plan to attend in person and need accommodation, please book early as this time of the year is busy in the Southern Highlands.

We hope to see you there.

Guest Speakers



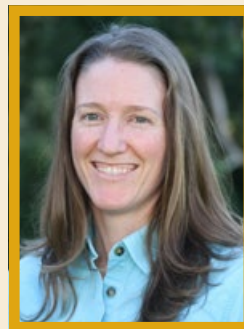
**Prof Sasha (Alexander)
Mikheyev,
Evolutionary genomics**

Australian National
University, Canberra

Topic: Evolution of honey bee viruses

Biography: Sasha Mikheyev is a Russian-American-Australian evolutionary biologist interested in understanding how organisms adapt to rapid ecological changes. One of his two main areas of focus is Biological invasions and host-pathogen evolution. He works with honey bees (*Apis*) as a model of pathogen evolution. Western

honey bees (*Apis mellifera*) are an agricultural mainstay, with 65% of Australian agricultural production relying on their pollination services. Originally native to Europe, West Asia and Africa, these bees have been spread worldwide by humans. Globalisation also facilitated the spread of many bee parasites and diseases caused by bacteria and viruses. As other insects, honey bees evolve rapidly and, given their agricultural relevance, a lot about their pathology is known. His lab focuses on (1) characterising how new pathogens enter a naive host population, (2) ecological and evolutionary dynamics of pathogen spread and (3) responses by the bees and coevolution. Given the recent arrival and spread of Varroa mites in Australia he is particularly interested in collaborations focused on their impact on the Australian ecosystem and what can be done to mitigate it.



**Elizabeth Frost,
Technical Specialist
Honey Bees**

NSW Department of
Primary Industries, Tocal

Topic: Making honey in a Varroa hotspot from a mite-loaded caught swarm

Biography: Elizabeth Frost is the Technical Specialist – Bees with the NSW Dept. of Primary Industries and Regional Development. Frost co-managed Australia's National Honey Bee Genetic Improvement Program (*Plan Bee*) with Dr Nadine Chapman of University of Sydney/ NSW DPIRD, University of New England's Animal Genetics and Breeding Unit, Better Bees WA, the When Bee Foundation and beekeeping and horticulture industry stakeholders. Frost provides technical assistance to the beekeeping industry, government, media and the public and teaches queen bee artificial insemination courses at Registered Training Organisation Tocal Agricultural College. Current work includes the National Varroa Mite Management Program, Bushfire Industry Recovery Program, honey sensory survey work, and the HortInnovation-funded project "Exploration of advanced control and detection methods for Varroa mite."



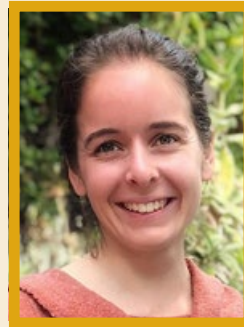
Dr James Dorey,
Lecturer in Biological
Sciences

University of
Wollongong

Topic: Understanding Australian native bee biology and diversity to conserve and make use of their pollination abilities

Biography: Dr James Dorey is an evolutionary biologist that mostly researches wild bees in Australia, Fiji, and on a global scale. He has a particular interest in the drivers behind diversity and how those same drivers might threaten diversity. He is very interested in a diversity of topics ranging from macroevolution, macroecology, conservation, systematics, and organismal biology. He tries to answer questions relating to these topics using diverse methods such as R-coding, phylogenetics, geographical information systems (GIS), field work, morphometrics, statistics, and whatever else he can use to learn about the natural world. He prefers to use an integrative approach and falsify or support hypotheses using diverse methods.

He is also an award-winning macro photographer which he likes to use in combination with his research and for science communication efforts. Author of “Bees of Australia: A Photographic Exploration”.



Dr Madlen Kratz,
Honeybee Industry
Development Officer

NSW Department of
Primary Industries, Tocal

Topic: Honeybee nutrition, health and productivity

Biography: Dr Madlen Kratz works with the Department of Primary Industries in NSW as the Honeybee Industry Development Officer. Her background is in research on honey bee nutrition, foraging behaviour, and pollination, focusing on honey bee health and productivity for the Honey Bee and Pollination Industries. Current areas of work include evaluating supplementary feeding practices for their costs and benefits to beekeepers, assessing alternative pasture species for their value to honey bees, and evaluating the attractiveness of blueberry flowers to bees under crop covers ■

Got more honey than you need?

Rooftop Bees is looking to buy bulk honey from the Sydney metro region. Please contact hello@rooftopbees.com.au with your honey location and quantity available.

ROOFTOP  BEES



Amateur Beekeepers Australia

Better apiculture through knowledge

ABA One Day Conference

Sunday 3rd November 2024, 9:00 am

Attend in person at [Mittagong RSL Club](#), 148-150 Old Hume Hwy, Mittagong NSW 2575 **or online** via webinar link (*ABA members will receive a registration link soon*)

Agenda

Item	Presenter	Time
Registration & Coffee		from 08:30
Welcome	Vincent Schnyder, ABA President	09:00 – 09:15
Evolution of Honey Bee Viruses	Prof Sasha Mikheyev, ANU Bee Lab	09:15 – 10:00
Making Honey in Varroa Hotspot	Elizabeth Frost, DPI NSW	10:00 – 10:45
ABA AGM	For Agenda refer to Notice of AGM	11:00 – 12:00
Lunch break		12:00 – 13:00
Col Pulling Competition Quiz		13:00 – 13:30
Native Bees	Dr James Dorey, University Wollongong	13:30 – 14:15
Bee Nutrition	Dr Madlen Kratz, DPI NSW	14:15 – 15:00
Award of Col Pulling & Bruce White Shield		15:00 – 15:15
End of Live Stream		
Member Forum	ABA Committee 2024/25	15:15 – 15:50
Close	ABA President 2024/25	15:50 – 16:00

Biosecurity Buzz

Mike Allerton ABA Biosecurity Officer



Early Spring Again

As with last year, spring conditions met many of us in August and hive activity has increased. That means spring management with the usual swarm controls and checks for health.

Of course, the front of mind is monitoring varroa. As Doug described elsewhere in this issue, mite counts can go from zero to 60 in a matter of weeks. How long since you did your last wash?

For many, this season will be your first exposure to varroa in your hives. Others may escape for another season but be assured that there is no escape from this deadly pest.

Varroa Workshops Finished for NSW and Starting in QLD and VIC

The NSW Varroa Workshops were well received by those attending with many comments from beekeepers indicating that they feel a lot more confident than they did before the training.



Varroa Workshop

The numbers indicate that the Workshops did not reach anywhere near enough NSW beekeepers and now there are no more scheduled. I hope the other states have better attendance rates.

We have Varroa Development Officers (VDO) available for a limited time, so please use them. They are there to help without judgment. Clubs can invite them to meetings, individuals can also ask for their help. Don't let them go to waste.

What to Expect When Varroa Hits

People in areas yet to see varroa are anxious and with good reason. The experience of those in the heavily infested areas has shown us the devastating effects of heavy mite loads.

Reinfestation rates are extreme. You will likely see mite loads above threshold shortly after treatment. You might think the treatment didn't work, but if you followed the label, it worked. Unfortunately, with feral colonies and unmanaged hives nearby, there is a constant supply of mites waiting for a ride to the next breeding ground, - your hive.

During the unstable phase when mites establish themselves and colonies collapse under the unceasing assault, you'll likely need to treat them back-to-back for years until the varroa population stabilises and becomes more predictable.

I've had many calls this "spring" for two topics in particular. One is absconding colonies and the other is "poisoned" colonies.

Some believed their bees had swarmed, but the hive inspection revealed that all the bees were gone, leaving brood, and honey. Colonies stressed by heavy mite loads in a last-ditch effort to survive, abscond and attempt to start again. They're doomed to fail. With such high mite



Swarm or Abscond?

numbers draining the life from them there's only one way that this sad story ends.

One call I had from a concerned beekeeper described the classic symptoms of poisoning. He found dead bees with tongues extended and dying bees crawling aimlessly. It was a mystery to him how pesticide spraying could have happened over 20km apart at the same time.

His apiaries at different locations suffered identical fates. Extreme varroa infestation killed these hives in less than a year of first detection in the area. That's without the presence of deformed wing virus and in far less time than the original official estimates.

Regular monitoring and treatment as soon as the threshold level is reached would have saved these apiaries.

We must not be complacent. Our bees need our help.

I know there are those who believe that the ticket to varroa resistance is to breed from survivor stock - Darwinian selection. I've read articles by beekeepers bragging about not treating for years since converting to treatment free and breeding from the survivors.

I don't dismiss the possibility of success, but I have not seen a study that defines the parameters that lead to such success. The stories of emerging varroa resistant stock all come from countries in which the varroa levels are stable and predictable. The opposite to our situation. Perhaps when varroa stabilises here, we can succeed with such a program, but for now it seems counterproductive.

What are the effects of allowing colonies to die, so you can breed from the possible survivors?

Other than the thought that your bees suffered a lingering, miserable end; mite bombs! Your dead and dying colonies provide mite breeding stock for your neighbours to deal with. Not so neighbourly! Also, without being more selective, you may boost undesirable traits such as extreme defensiveness, a propensity to swarm or abscond and low productivity.

We have breeders in Australia already engaged in breeding programs for mite resistance, but it will take time. The goal is to never or rarely have to treat varroa because our bees had developed the tools to control them.

Small Hive Beetle populations have exploded in heavily varroa infested areas. Initially, it seemed that the SHB explosions were caused by the eradication and baiting program providing massive numbers of collapsing hives in which beetles could thrive.



SHB – Another side effect of varroa

Unfortunately, the population expansion is happening outside those baiting zones as well. This is another example of how Australia's varroa experience is different to other countries. SHB came after varroa had stabilised elsewhere, but for us the opposite is true.

SHB is an opportunist that takes advantage of a colony not strong enough to defend the hive. With varroa draining the life out of a colony, there comes a point of diminished bee health and fitness when the beetles can overpower the bees. Slime out!

This is yet another symptom of varroa infestation of which to be aware.

Registration of treatment chemicals

Unfortunately, there are no registration updates since the last issue of *The Amateur Beekeeper*.

“Own Use Exemption” Update

Things are moving along slowly, but steadily.

Matt Peterson from the executive of fellow AHBIC member body, the Crop Pollinators Association of Australia (CPAA) reached out to me in support of our cause.

The CPAA had initiated a survey of its members to determine the level of support for an exemption clause prior to the AHBIC AGM. When our motion at the AGM for AHBIC support for our cause was accepted, the CPAA offered to extend the survey to the members of other AHBIC member bodies and to share the data with us to use as we can.

I emailed the survey link to our members and many completed the survey. The results are overwhelmingly in support of our cause from both commercial beekeepers and recreational. This confirms to me that it is well worth pursuing.

I met with several treatment suppliers to gauge their thoughts on the "Own Use Exemption" clause. I suspected that they would condemn it because it might affect their business. It turns out that with the New Zealand experience to draw from, there will always be a need for registered treatments. Many people will choose to only use commercially available registered products while others will use alternatives. Also, the clause only applies to non-synthetic treatments and when mite loads are very high the synthetic option may be necessary to knock levels down.

Some NSW beekeepers are already using unregistered products. The clause will allow them to do so legally and allow the ABA to offer training in their safe and effective use. Therefore, it seems that there is no or little effect on the bottom line of the registered product suppliers.

Research scientist from Southern Cross University, Dr. Cooper Schouten has offered to provide scientific support to the cause. Cooper has offered to present evidence of safe, efficacious applications of non-synthetic treatment options to overcome concerns of safety and contamination issues.

I've opened a Facebook Group, Own Use Exemption Clause for Aussie Beekeepers, to populate with information and to reach out to the broader beekeeping community. Feel free to join the group, share your comments and encourage others to join.

AFB Minimisation Program

I've sent AFB honey testing kits to more clubs and the samples have started to roll in. I'll be dropping off another load to the lab as soon as I get a few more returns.

Club Visits/Presentations

I had the pleasure of speaking at the Eurobodalla club recently. Although varroa hasn't touched them yet, they're proactively preparing for the battle. Some made it to the Varroa Workshops which was quite a distance for them to travel.

Most of the night was Q&A and discussion around varroa. The information hungry crowd was fully engaged and optimistic that they will be ready. One member is making various pieces of equipment with his laser cutting machine including a queen frame excluder. I look forward to seeing how well his devices work.

I briefly spoke about my passion, Slovenian AŽ hives and to my delight one of the members knows about them and is keen to change her hives over to the back friendly design. I hope to fully convert my own apiary this summer.

I'll be attending the Southern Highlands Apiarists AGM representing the ABA, assisting with the formalities and talking about the ABA's role representing our members in Australian apiculture at government and industry levels.

As always, let me know if you'd like a presentation at one of your club meetings. Does your membership have questions for the ABA? I'll come to your meeting to answer all I can or bring them back to the committee to follow through.

I popped into the Canberra Regional Beekeepers club meeting 18 September held at the Harmonie German Club. This is one of the newest clubs to join the ABA family. I enjoyed a pre-meeting traditional German meal and beer with some of the committee. This is a vibrant club with membership and committee from all walks of life.

Varroa hasn't been detected in Canberra yet, so the samples in resin I presented to them will help members to identify mites in their washes or on their trays.

While I was in Canberra, I visited the Slovenian Embassy and looked over their traditional AŽ hives. These are featured in Cormac Farrell's book reviewed elsewhere in this issue of TAB. Cormac is an active member of Canberra Regional Beekeepers.

Until next time ■

Mike Allerton ~ biosecurity@beekeepers.asn.au



Can probiotics help defend honeybees from common diseases?

Project Update August 2024

Dr Georgina Binns, Research Officer,
Eco-Immunology Lab, Macquarie University

Researchers are assessing the effects of probiotic treatments on honeybees to increase brood survival against common brood diseases.

Honeybees have been victims of their success as pollinators with pathogens and parasites colonising hives. Exposure to climate change, pesticides and pollutants has weakened bees' health. Now, more than ever before, crop-pollinating honeybees need extra support to survive common pathogens. Our team at Macquarie University have been working on designing economical and naturally chemical-free probiotics to help boost disease-resistance in honeybees, particularly targeting brood pathogens such as chalkbrood and American and European foulbrood. These prevalent diseases infect colonies

and reduce brood survival throughout the year, reducing bee numbers and negatively effecting pollination services.

The Honeybee Probiotics team, which includes myself, Post-doctoral Fellow Dr Darsh Rathnayake, PhD candidate Casey Forster, and that is led by Associate Professor Fleur Ponton, have recently completed a set of preliminary trials, where we grafted hatched larvae from our campus hives and hand-raise them in a specialised 'insectary' laboratory to adulthood.

We have focused on two probiotic treatments. The first is a set of honeybee gut microbes that we isolated from bee guts. These 'native' species of bacteria include members from the core-gut microbes found in all bees throughout the year, such as several *Lactobacillus* species, *Bifidobacterium asteroides*, *Snodgrassella alvi* and



Honeybee larvae are reared inside a special research 'insectary' laboratory and raised to adulthood in simulated brood cells. Image by Georgina Binns

Gillamella apicola. We predicted that reinforcing the natural gut bacteria would create a thriving beneficial community within the brood gut, and therefore aid in safeguarding the gut from potential infections as well as supporting overall health.

The second treatment contains the same bacteria as the first, but with the addition of several 'non-native' species of bacteria that are commonly found in commercial probiotics for both humans and animals, such as *Lactobacillus plantarum* and *L. rhamnosus*. These species are found to grow quickly and prolifically. They may exclude and prevent other potentially harming species of bacteria and fungi (such as those that cause chalkbrood and foulbrood disease) from taking hold of the individual bee. As the larvae will shed all of their gut microbes prior to pupation, we felt that including these non-native species could give a short-term benefit to the individual, without negatively affecting the adult bee it will eventually become. Further, it gives an opportunity to test the efficiency of probiotic bacteria that are already on the market.

Our preliminary trials are showing that the non-native probiotic mix decreases brood to adulthood survival. The native mix, however, promoted brood survival and adult emergence. The next step of our experiments is to inoculate bee larvae with pathogens and test the effect of the mixes on their resistance. We predict that non-native probiotic bacteria will exclude pathogens from the gut, however we do not know how it will affect bee survival.

How many times should the treatment be given to be efficient is another important question. We investigated the frequency of probiotic treatments on bee survival. Previous studies have fed probiotics to larvae for five days consecutively during rearing. However, we believe that a treatment that can easily be used by professional and amateur beekeepers should be delivered

in one or two doses. We ran two trials, where one set of brood were fed the probiotics only once, and the other set were treated five times. Interestingly, this preliminary trial found that dosing the brood with probiotic treatments five times significantly increased mortality. This suggests that repeated doses of beneficial bacteria can become detrimental to the individual over time.

Our next step is to test the efficacy of the probiotic treatments against the three bacterial and fungal pathogens we have stored in our laboratory, which we hope to start when the weather warms up. Keep up to date with our research by visiting our website: <https://sites.google.com/view/aussiepollinatorhealth/home>

Funding Acknowledgement

Probiotics in honey bees to fight bacterial and fungal diseases (PH21003) is funded through Frontiers developed by Hort Innovation, with co-investments from Macquarie University and contributions from the Australian Government ■

Beekeeping in the Varroa age

Doug Purdie Vice President

They say nothing changes if nothing changes... Boy, has beekeeping changed in Australia with the arrival of Spring and Varroa. Why do I say this? Let me tell you a tale of how quickly Varroa can change the path of a beehive.

I was minding the Sydney Bee Club bees while they were relocating their apiary, so the club bees were having a holiday in Botany. I did an alcohol wash in August and there were no mites in the wash. A month later, I had to get them ready for the move to their new home so I did a brood inspection, looking for queen cells - it's been a pretty mild winter here in Sydney and swarming is happening. While looking at the brood, I thought, hmm, that's a bit patchy... is that AFB? While I was pondering that and looking for a stick to do the rope test, I saw a Varroa mite on a bee.

Now you don't usually see Varroa – it's buried deep in the joints of the bee where the body meets the neck (*called the sclerites*) and not so visible. So if you do see it, you have a serious problem, and the more bees I looked at the more Varroa I saw. The alcohol wash showed 60 mites: we had a serious problem. If I did nothing the hive would either abscond or collapse and this would happen quickly.

So I was asking myself: what do I treat with, what's my plan? Despite all the training, I didn't have a plan for this hive as I wasn't expecting to find so much Varroa – it doesn't usually breed that quickly.

Why treatment planning is so critical

The key to successful treatment long term is to keep switching things up so the Varroa can't build resistance to a particular chemical. In other parts of the world some treatments just don't work anymore, and we don't want that situation here. To do this you need to understand mode of action (MOA), the method that a particular treatment uses to kill the mites. It's important to mix up the MOA so that each time you treat you're using a treatment with a different MOA. That keeps the Varroa on its toes... or whatever Varroa feet pads are called.

To manage MOA you need a table like the one AHBIC has released – here at <https://honeybee.org.au/ahbic-varroa-treatment-table/>.

[org.au/ahbic-varroa-treatment-table/](https://honeybee.org.au/ahbic-varroa-treatment-table/). If you look at the table you'll see it's colour coded so you can easily see each MOA.

The next consideration is which treatments can be used with supers on or off, and which will contaminate honey and wax - there is a bit to weigh up.

The plan I came up with

Because the flow had not started yet, I decided to treat with supers off. So my Spring treatment is an Amitraz treatment (*Apivar or Apitraz*), which means that should I need to treat again in Summer I can use Bayvarol with my supers on and in Autumn when the temperatures are within range, Formic Pro. Well at least that's the plan at time of writing.

There are a few other adjustments I will probably make. The first is changing to Ideal sized honey supers. My reasoning here is that it will be impossible to confuse contaminated brood box frames with honey frames, so I can't accidentally extract treatment contaminated honey. The second is making sure this club hive has its own record book so the next person can see what was done and what was used.

So back to those mites

How did so many mites get into the club hive in under a month? It seems there are a lot of hives collapsing in my area, both feral and managed. As each hive weakens, the foragers leaving the hive have a stack of hitchhiker Varroa that seem to sense the impending collapse. This is called a mite bomb and just like a bomb going off, lots of collateral damage is done to the surrounding hives.

Mite bombs are likely to be the new normal for us for the next few years, until we reach the equilibrium the rest of the world has attained, where the Varroa numbers are stable.

What can you do to help?

- Catching swarms is the first step - this will reduce the numbers of feral colonies.
- Second, test your hives every month for Varroa while the numbers are so erratic.
- The ABA has a swarm collectors list - sign up to it, to help us all.
- When you find Varroa in suitable numbers (*in my case that was four mites*), treat your hives with a known effective treatment.

■ Be aware of the symptoms of heavily infected hives. A failed hive can look like poisoning with some dead bees, usually brood and honey left behind and sometimes they even the queen. A heavily Varroa infected hive can look like AFB. The condition is called varroosis or PMS - keep an eye out for these symptoms, there is a good article here: [https://beeinformed.org/2013/10/15/parasitic-mite-](https://beeinformed.org/2013/10/15/parasitic-mite-syndrome-pms/)

[syndrome-pms/](https://beeinformed.org/2013/10/15/parasitic-mite-syndrome-pms/). If you have a hive that looks like it has AFB but the cells don't rope out, it may well be PMS.

One final note from Albert Einstein, who said: "We cannot solve our problems with the same thinking we used when we created them."

While we didn't directly create the Varroa problem, if we don't change our beekeeping, we'll have a whole lot more problems to deal with ■



RECIPE HONEY BRUSSELS SPROUTS

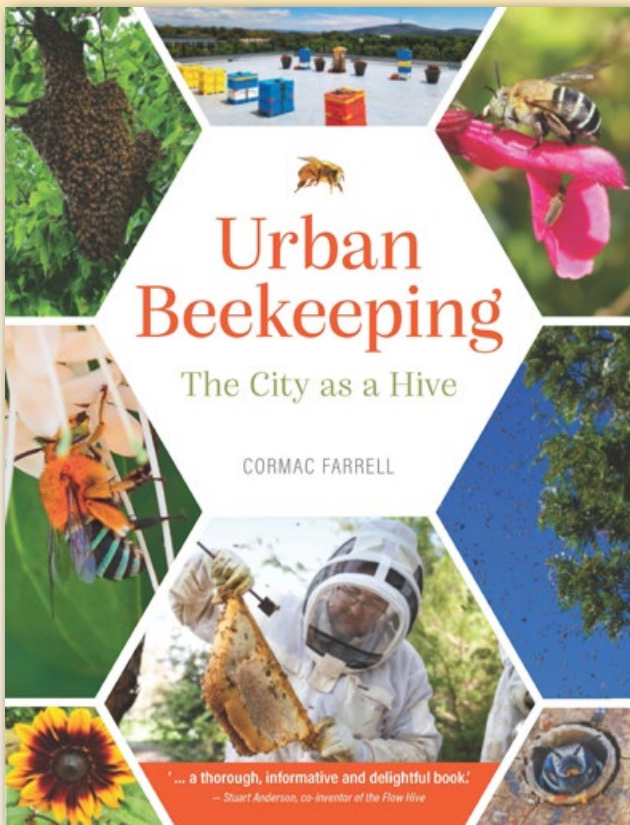
This transforms the much hated sprout into a yummy delight that will get even the most fervent haters munching on them...

INGREDIENTS

- 1KG brussels sprouts washed and cut in half.
- Zest of ½ lemon
- 100ml honey
- 10ml Pomegranate molasses
- 80 ml balsamic vinegar
- Tbsp. Dijon mustard
- 2 cloves garlic, minced
- 1 tsp. chili flakes
- 3 Tbsp. butter, unsalted

DIRECTIONS

1. Trim the ends of the Brussels sprouts and then cut in half. Place in a large mixing bowl.
2. Toss Brussels sprouts with olive oil and season with a generous amount of salt and pepper.
3. Arrange Brussels sprouts, cut side down, on a baking sheet and roast in oven at 200c for about 20 minutes or until Brussels sprouts are tender and slightly charred.
4. Meanwhile make the honey sauce. Heat honey in a saucepan until it begins to bubble. Remove from heat and add in balsamic vinegar, chili flakes, Dijon mustard, garlic, butter and a pinch more salt. Return to heat and cook until combined.
5. Spoon glaze over roasted sprouts in a serving dish and toss well to coat ■



Book review: Urban Beekeeping The City as a Hive

Cormac Farrell

Book Review by Mike Allerton

Release date: Hardcover 2nd October 2024 \$55

A new Australian beekeeping book has hit the shelves! The author is an expert beekeeper and member of one of the latest clubs to join Amateur Beekeepers Australia, the thriving Canberra Region Beekeepers.

Cormac Farrell is an environmental scientist and best known as the Head Beekeeper for the Australian Parliament. He also manages several apiaries and orchards throughout Canberra, creating unique food experiences that educate and inspire.

He's been a key figure in establishing a thriving urban beekeeping movement in Canberra and shares his knowledge and experience, giving you the tools to create your own slice of urban beekeeping heaven.

Urban Beekeeping is an easy read filled with beautiful photographs, entertaining stories and clear how-to information, making this an instruction manual to adapt your urban surrounds to a haven for native bees, honey bees and other pollinators.



Although the theme is about keeping bees in towns and cities, the detailed information contained within its pages apply to beekeepers in all domiciles from apartment building to homestead.

Cormac gives us the know how to create a bee friendly yard, community garden, office block or hotel building. He covers everything from work health and safety considerations, through best choices of plants for various types of bee and other pollinators.

His chapter on hive types is extensive including a couple of pages dedicated to my favourite, the Slovenian AŽ Hive. Cormac manages the Slovenian Embassy's beautifully decorated, tiny two hive beehouse in Canberra. All the other



hive designs that hobby beekeepers use are well described too, including the value of gadgets such as in-hive monitors to keep track of temperature, weight, humidity and location.

As biosecurity officer, I am always on the lookout for the quality of chapters in books about hive management. Cormac emphasizes the importance of being an observant, thoughtful and organised beekeeper that cares about the welfare of the bees, not just the honey crop. His attention to the importance of biosecurity and swarm management is commendable, offering a range of techniques the beginner or a more experienced beekeeper can use.

The “What the hell is that?” chapter thoroughly covers pests, diseases, pesticides, bushfires and the impact of honey bees on native bees. The sections on varroa were written before the transition to management, with an implied hope that eradication would succeed. Cormac’s coverage of monitoring for, treatment of and breeding for varroa resistance is very good with one exception. His description of sugar shaking as the non-lethal

option for monitoring has more recently been proved incorrect and that bees are in fact injured and killed with this method.

“Swarm catching for fun and profit” describes the why’s, how’s and when’s of swarming and some methods to catch swarms and to remove bees from structures. Swarms are a great source of bees to expand your apiary or to sell.

The final chapter, “It’s not about the honey – Creating visitor experiences and more” finishes up this entertaining and informative book beautifully. This chapter is about connecting people with nature through our connection with bees. We as beekeepers have an opportunity to share our enthusiasm for bees and other pollinators with those less fortunate in the community, not only with the beautiful local food and mead, but with art, photographs, displays, tours, citizen science projects and the big one - social media.

I think Urban Beekeeping – The City as a Hive by Cormac Farrell belongs in every beekeeper’s library and the information put to good use ■

Swarms and how to treat them for varroa mites

As spring arrives most areas will be seeing swarming bees. Some of the earliest locations to get swarming were the old red zone areas from Sydney up to Kempsey, which are also highly infested with varroa mites. It’s safe to assume that nearly every swarm caught in those areas will already have a lot of mites on them, but don’t worry about that affecting their value to you. No matter where you are within NSW, best practice is that once the captured colony has settled (*perhaps after 1-4 days in the box*), do varroa monitoring (*alcohol wash, soapy water wash or sugar shake*) to determine what, if any mite loading is on those bees. Then you can determine what may need to be done to them.

It is always best practice to take young nurse bees when doing mite monitoring, so if the colony has not yet started laying eggs when you do check then look for a central frame within the box, or possibly the one with the queen on it (*if you had not smoked or driven her off another one to an outside frame*), remove her and shake off some of

those bees to sample. It should always be $\frac{1}{2}$ cup (*approximately 300 bees*) for a good sample, as sampling less bees than that is less accurate.

Because newly collected swarms can sometimes be flighty and temperamental it is always good to ensure that they have fully decided to stay before undertaking this somewhat disturbing procedure of shaking bees off a frame, so if you prefer to wait a little bit longer until they are laying eggs nicely then that’s fine. But, don’t wait too long until they have advanced larvae before doing your mite sampling, as varroa may have already moved off the bees and into these brood cells, which will make it harder finding them when you sample and give you an incorrect (*lower than actual*) mite reading.

Brood-less colonies (*new swarms, absconding colonies or packages from a supplier*) are very easily treated for varroa, as all the mites are fully exposed and vulnerable on the adult bees until the colony has advanced well fed larvae that are about to be capped (*this often happens from around day 8-9 after the swarm is captured*). Unless the swarm looks extremely unhealthy then you should not consider euthanising them. Instead,

you can add some synthetic flumethrin (*Bayvarol is currently the only flumethrin product legally available in Australia*) miticide strips and watch those mites fall off and the bee colony turn into a beautiful hive of bees.

The reasons we suggest using Bayvarol strips in this situation instead of other synthetic strips or organics are;

1. Bayvarol will provide the colony with 6-8 weeks of protection from re-invasion (*field bees bringing new mites back into the hive*), which is likely high if your swarm and the apiary area already has varroa present. Check the DPI Heatmap for updated
2. Bayvarol can be used when bees are producing honey, which most strong swarm colonies will quickly produce in that first eight weeks after their arrival. The other synthetic products cannot be used when honey is being produced, so they would only be used instead of Bayvarol if you captured a small swarm that will take 6+ weeks to fill the brood box.
3. The organics may repel a caught swarm before it is fully established, causing its loss ■

information on reported mites in your area – www.dpi.nsw.gov.au/varroa

Stop Press

This is a brief but important message to all of our clubs. Following on from the Varroa Training Workshops, more education and training is available through the network of Varroa Development Officers.

All that is required is that the clubs reach out and invite your local Varroa Development Officer to attend club meetings. Education is wide ranging but as the Varroa levels build in your colonies, treatment options are clearly and concisely explained. In order to minimise the possibility of Varroa becoming immune to any one chemical group, a sequence of chemicals should be used. This is the concept of Integrated Pest Management.

A very handy table of treatments is available on the AHBIC website. But, for a more comprehensive presentation, please ask your Varroa Development Officer to attend your club and give a full explanation of ALL the treatment options.

During this unstable phase of the Varroa infestation, the build-up can be rapid and severe. It may take you by surprise and become overwhelming. Please do not delay, invite your Varroa Development Officer to come to your club and to help you to work through Integrated Pest Management – you will hear this term frequently. Make good use of this resource – the Varroa Development Officer is here to help!

ONLINE DOCUMENTARY TIME-LAPSE: BEES HATCHING



Witness the eerily beautiful growth of larvae into bees in this mesmerizing time-lapse video from photographer Anand Varma. Varma said the six-month project supported by National Geographic. He built a beehive in his workshop and through this process, gave him a new respect for the meticulous job of beekeeping ■

USE THE LINK BELOW:

<https://youtu.be/f6mJ7e5YmnE?si=QCab64dJsLYo5Etu>



Figure 4. Accurate records of queen pedigree and trait measurements make selection for genetic improvement possible.

Integrated Pest Management for Varroa: cultural controls

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Beekeepers in NSW either have Varroa in their hives now, or are likely to at some point in the 2024-2025 season. Beekeepers across the Eastern states should look to NSW for what may unfold in their state and territory sooner or later. Hopefully NSW beekeepers have had the chance to attend a Varroa Workshop delivered by the NSW Varroa Mite Management Program team or had a one on one with a Varroa Development Officer by now. If not, register for a workshop or organise a Varroa Officer catchup through Coordinator Dave Fairhall quick smart:

- Upcoming Varroa Workshops: www.varroa.org.au/training
- Varroa Development Officer Coordinator: dave.fairhall@dpi.nsw.gov.au

The Varroa workshops and Varroa Officers provide critical Varroa monitoring and management training for a limited time. NSW's Varroa Development Officer program finishes up

in Autumn 2025, so take advantage while you can.

A major focus of the program is Integrated Pest Management (IPM) for Varroa. The practice of IPM is the key in beekeeping successfully with Varroa. Agricultural industries practicing IPM ideally employ cultural controls, including using selected stock that is tolerant or resistant to the pest of concern. This practice reduces pest reproduction and hopefully also reduces chemical control inputs. Unfortunately, when an exotic pest becomes established in Australia, access to resistant breeding stock isn't instant and selection in domestic stock is a medium-term outlook.

Access to IPM cultural controls for Australia, tolerant or resistant bee stocks for purchase, isn't available currently, however, the tools for selection and breeding are. IPM cultural control for Varroa includes a range of traits (*Figure 1*). Some traits are easier to measure than others, that is measurement methods are simple and quick such as alcohol or soapy water washing for adult bee infestation and mite population growth, something you're already across. Others are harder to measure, such as various Varroa Sensitive Hygiene (VSH), Suppressed Mite Reproduction (SMR) or Mite Non-Reproduction (MNR) traits, where capped worker brood cells are individually uncapped and

Trait/parameter	Complexity of evaluation	Note
Natural mite fall	Low	
Adult bees' infestation	Low	Commonly used in many honey bee breeding programs
Hygienic behavior	Medium to high	
Grooming behavior	Medium to high	Limited use in breeding programs
REC - recapping	Medium to high	
Post-capping stage duration	High	
VSH – varroa sensitive hygiene	High	Limited use due to the dependence on laboratory/institute support
SMR – suppressed mite reproduction	High	

Figure 1. A list of some Varroa related traits ranked by estimated complexity for evaluation (Uzunov et al., 2022)

examined under magnification and Varroa counted in frames of known mite infestation or cells that have had mites purposely introduced into them.

The AgriFutures' report 'Resilient beekeeping in the face of Varroa' provides a current, thorough review of the international state of Varroa tolerance and resistant traits, what they are, how to select for them and insights from international breeders' experience. For any Aussie beekeeper itching to breed for Varroa resistance or tolerance, it's strongly recommend reading. If you're looking into selection for Varroa control traits, get into the breeding section of the report (pages 59-80) before swarming season (Figure 2).



Figure 2. AgriFutures' 'Resilient beekeeping in the face of Varroa report'

At the NSW Apiarists' Association Conference in Wagga Wagga and around the traps, I've been hearing from queen breeders who are keen to have a go at selecting for Varroa tolerance in their bees once Varroa is established in their apiaries. At the conference, I stressed in my talk the essentials to set a queen breeder up for success before they get into testing for Varroa tolerance and resistance traits. Many beekeepers who are operating some level of barrier system for AFB prevention and traceability are already across the first two elements: unique hive identification (Figure 3) and accurate records (Figure 4).

Excuse the paint job on the cleats, I'm told by Casey and Carl Cooper's employees Dusty and Joel that the Green Load has had a facelift.



Figure 3. Uniquely identified hives make recording and selection efficient, trackable, and repeatable.

Unique hive and honey super identification paired with the addition of scales in their extraction line was an eye opener for the Horners' trait selection for honey production. An improvement in accuracy of measuring honey production was clear to them as they transitioned from rough visual scores of honey production in the field, to weighing honey supers in the extracting room. Their honey records are trackable from the hive



Figure 5. Control of mating by artificial insemination (shown here), isolated mating, or drone flooding speeds up genetic improvement.

in the field to individually, accurately weighed supers, the most direct way of selecting for honey production. The most direct way to select for any trait, whether honey or Varroa resistance, is the most accurate and targeted way to find variation in performance for that trait across your hives. Repeated measurements for traits through the season will increase your accuracy further. Multiple trait measurements, paired with accurate pedigree and control of mating (Figure 5) will have you really cooking with gas.

Additional complexities to figure out include: which traits you will select for and how to balance these, so as not to inadvertently decrease those that make you money (e.g. honey) or scare off employees (e.g. temperament); when in the season you'll measure each trait you are trying to improve; and, how you'll control mating.

Varroa must be present at detectable levels before you can measure Varroa traits, so you'll need to take your measurements some time after treatment removal so you have enough mites to count for adult bee infestation/mite population growth traits or enough mites to introduce and count if you're looking at VSH, or MNR traits.

If you're in an environment with high Varroa reinfestation, you won't have to wait long after treatment before having sufficient Varroa numbers to measure your target traits.

There's plenty of reading material out there for queen breeders to learn about Varroa trait definitions and how to measure them. One more I'll point you to is the North American 'Guide to Varroa mite controls for commercial beekeeping operations' (Figure. 6) from the Honey Bee Health Coalition. I point out this guide in particular, not because of my American heritage, but because, globally, it's the North American industry that's the most similar to the Australian industry: large-scale migratory operations, historically focused on honey production, with the most-pollinated crops being almonds and canola.



Figure 6. Honey Bee Health Coalition Guide to Varroa mite controls for commercial beekeeping operations.

This is a no-nonsense guide with a few key case studies on US commercial beekeepers trialling VSH stock. See George Hansen and Andy Card's management case studies on pages 13-16.

The short story is that, for now, in migratory, commercial beekeeping businesses in the US which are mixed pollination/honey producers, VSH stock can reduce chemical control inputs, but hasn't eliminated miticide use completely and isn't widely available for purchase. The good news for Australia is that we've got six APVMA-approved chemical control tools, known selection methods for Varroa resistance and tolerance traits and a genetically diverse honey bee population to start from ■

Further reading:

Uzunov, A., Brascamp, E. W., Du, M., & Büchler, R. (2022). Initiation and Implementation of Honey Bee Breeding Programs. *Bee World*, 99(2), 50–55. <https://doi.org/10.1080/0005772X.2022.2031545>

Will You Raise Good Bees?

Fiona Fernie

Photo Courtesy of Animal and Plant Agency (APHA) Crown Copyright

The skill of queen marking is practice! We learn the skill by marking our queens every year, to make it easier to find the queen in a full production colony and to tell us how old the queen is.

The photo shows the queen marked yellow on the thorax.

The queen is marked only on the thorax – just a dab of colour. You are not painting her, you are placing a dot on the thorax, just to find her amongst 60,000 workers.

There is a convention to relate a colour and a year.

Phrase	Colour	Year Ending
Will	○ White	1 or 6
You	● Yellow	2 or 7
Raise	● Red	3 or 8
Good	● Green	4 or 9
Bees	● Blue	5 or 0

This convention works well for the northern hemisphere where the beekeeping year and the calendar year are one and the same. But, what about us in the southern hemisphere – what should we do?

If you look at your ABA Membership card for 2023/2024 it is coloured red – so we could follow

that convention, which is, the colour represents a year starting in 2023. Therefore all queens born in 2023/2024 are marked red. All queens born in 2024/2025 are marked green and so on.

With what do you mark your queen? A non-toxic water based permanent marking pen or paint. The POSCA pens are excellent and widely available.

If you have red/green colour blindness then the conventional system will not work for you. One solution is to mark your queens white regardless of the year of their birth. Another idea is to take a bright colour and purchase that one POSCA pen – fluorescent pink or orange for example – then your queen will be easily spotted.

Most importantly, be consistent. If you keep good notes then you will be able to check on the age of your queen. Varroa means that we all have to improve our record keeping and that includes the age of the queen.

The importance of knowing the age of your queen enables you to assess the amount of brood-laying and the possibility that a queen may have to be replaced, to keep a young fertile queen in your production colony. Often a young queen may not be as liable to swarm – but other factors may contribute to the swarming instinct ■

The Sweet Heart of Africa



Oroma village workshop, Terego district West Nile region, Uganda

I first met Giulio eight years ago when I gave a presentation to the ABA Inner West branch. Since then, we've stayed in touch, and recently he came to visit us in Uganda for a beekeeping tour around the country.

We started the journey at Entebbe Airport, which has recently undergone significant upgrades thanks to China. From there, we travelled up to Kampala and visited the Malaika Honey factory, where Giulio got a full tour of our main office, the beehive carpentry division producing Kenyan Top Bar (KTB) hives, beesuit tailoring, and honey and hive product processing units. Our skilled staff

take pride in raising the standards of Ugandan beekeeping through our quality equipment and honey products.

Although Uganda is a relatively small country, it is strategically located for cross-border trade. Kampala is closer to many regional centers than their own national capitals, allowing us to source diverse honey varieties from dark amber wild bee honey in the Congo forest, mango honey from South Sudan to light acacia honey from the large Tanzanian savannah. With outreach centres across the country, we connect farmers to a broader market.

The next day, we headed north to our outreach branch in Arua, where we spent a few days working with the team, training refugees and host communities at the Rhino Camp refugee settlement in beekeeping for livelihood development. Rhino Camp is one of Uganda's largest refugee settlements, hosting over 200,000 refugees, primarily from bordering South Sudan. Uganda itself shelters over 1.5 million refugees - the highest in Africa, placing immense pressure on resources and infrastructure across these settlements. While Uganda's refugee policies are progressive, allowing freedom of movement



Malaika Honey beesuit tailoring



Safe bee handling workshop on Malaika Farm

through Gulu, a vibrant town with a large regional market where we stocked up on black beans, sim sim and shea nut oil. We then moved on to Murchison Falls National Park for a few days' rest. It was a refreshing break, exploring wildlife beyond bees - huge African elephants, giraffes, warthogs, and the occasional lion. We took a boat ride up the Nile River to Murchison Falls, where the river squeezes through a narrow gorge, creating an immensely powerful and dramatic cascade.

and work, refugees still face significant challenges, such as food insecurity, limited job opportunities, and strained social services.

De-forestation is a major issue here, as timber and charcoal are the primary fuel sources.

We have expanded our training program to include tree planting. We stress the need to plant trees for nectar source amongst other things. In beekeeping, we emphasize safe bee handling as people are commonly afraid of bees.

Despite the challenges, the groups are always good spirited and we remain hopeful to improve the conditions for the refugees with effective training, equipment and strong links to market. Giulio was impressed with their skill levels of good farming practises. They may live remotely and hardly leave their farms so having this interaction with each other is a good chance for everyone to meet up and share knowledge.

From West Nile, we journeyed along the northern border, eventually circling down

On our return, we stopped by our farm, an hour north of Kampala, where we conduct regular training workshops and research different equipment and techniques adapted to the unique Ugandan context. Beekeeping here is vastly different from what it is in Australia. The African bee (*Apis Mellifera Scutellata*) has its own temperament and behavior, necessitating transitional techniques that we are developing using Kenyan Top Bar hives.

A few years ago, Bruce White visited us and offered invaluable insights for our queen-rearing. I'd learnt from listening to an interview of him on a podcast that his first beehive his Mum let him keep in his bedroom and as a young boy, he used to listen to the hum of bees ripening honey at night. We installed a beehive in one of our huts for his stay on the farm, which has become a unique feature of our workshops. We even encourage guests to sleep with the bees - Am not sure it helps improve your skills but Bruce turned out pretty good so you never know.



Tree planting exercises



Smoke baiting hives to attract swarms

Over the years, we have succeeded to improve techniques in safe bee handling, propagating secondary beehive products (propolis, bee venom and recently pollen - adjusting traps to African bee size). We have also introduced natural pest control measures, designed and make a KTB hive tool and have written a guidebook documenting practical techniques for the Ugandan farmer.

When we returned to Kampala, Giulio had a few days to explore the city. We visited local markets, picked out colorful Kitenge fabrics, and, of course, stocked up on honey to take back to Australia.

Having Giulio here was more than just a visit; it was a reminder of the power of shared knowledge and collaboration. The association with the ABA has been invaluable. Australia has some of the world's finest beekeepers, and it is deeply meaningful to have this connection. After 18 years of work here, we continue striving to improve conditions for some of the poorest communities in the world. It fills our hearts with hope when we see beekeeping bringing livelihood, sustainability, and a sense of purpose to so many. Giulio's visit reaffirms that our work here is not only necessary but truly impactful ■

s.turner@malakahoney.com



Promoting beekeeping on refugee settlements



The Nile river running through Murchison Falls

Free
event

45TH ANNUAL

Tocal Beekeepers' Field Day

Saturday 19 October at Tocal College

Program

	Speakers	Topics (sessions include Q&A)
9.00am	Kelly Lees (NSW DPIRD Education Officer Honey Bees)	Welcome and Acknowledgment of Country
9.10am	Elizabeth Frost (NSW DPIRD Technical Specialist Honey Bees)	Varroa resistance - How to find out if my bees have it
9.40am	Garry Worth (ANBA Hunter Branch Development Officer)	Native bees
10.05am	Rod Bourke (NSW DPIRD Bee Biosecurity Officer)	The brood box, managing the engine room
10.30am	MORNING TEA	
11.00am	Sam Giggins (NSW DPIRD Bee Biosecurity Officer)	Beezeebo demonstration: Hive inspection/ monitoring for pest and disease
11.30am	Michael Syme (North Shore Beekeepers Assoc)	Drone trapping mite control
12.00pm	Dr. Madlen Kratz (NSW DPIRD Honey Bee Industry Development Officer)	Varroa and Honey bee nutrition
12.25pm	LUNCH	
1.10pm	Elizabeth Frost (NSW DPIRD Technical Specialist Honey Bees)	Beezeebo demonstration: Hive inspection and the inner workings
1.40pm	Frewoini Baume	Overseas with the bees
2.05pm	Emily Noordyke (NSW Varroa Development Officer)	How Varroa is impacting beekeepers around NSW
2.20pm	Slavi Nenov (NSW Varroa Development Officer)	Swarm management/brood breaks
2.40pm	Kelly Lees (NSW DPIRD Education Officer Honey Bees)	Varroa management decision tool
3.00pm	Close	

+ Suppliers and association stalls

This event is supported by:





Are you interested in bees or beekeeping?

The *Tamworth Branch* of the NSW Apirists Association warmly invite you to attend their annual beekeeping field day.

Everyone is Welcome!

Guest Speakers

Madlen Kratz – DPI Honeybee Development Officer – Bee Nutrition

Slavi Nenov – DPI Varroa Development Officer – Varroa Management Practices

Sam Lockwood – Beekeeper – Woodwork Preservation, Varroa Control
Experience in the Commercial Apiary

Jamie Baggs – Quirindi Queen Breeder – The Queen Rearing Process

Carolyn Sonter – UNE Researcher – Bee Health in the Pollination Environment & the Impacts of PFAS (synthetic chemicals)

Ray Hull & Norm Maher – Beekeepers with 80+ years of experience – Q&A

When

Saturday 9th November 9am-3.30pm

Where

DPI Training Centre, 4 Marsden Park Road, Calala

Cost

\$5 entry, kids under 16 are free

Morning tea & coffee, barbecue lunch & cold drinks will be available to purchase

Beekeeping Equipment Supplies Stalls

Lockwood Beekeeping Supplies – Lyson – Coffs Beekeeping Supplies

Ecrotek – Pender Beekeeping Supplies

