# AUSTRALIA'S HONEYBEE NEWS

"The Voice of the Beekeeper" www.nswaa.com.au Volume 15 Number 4 July - August 2022



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# AUSTRALIA'S HONEYBEE NEWS

The official Journal of the NSW Apiarists' Association (NSWAA)

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# PRESIDENT'S REPORT



Well, what a way to come into the Presidents seat! But I must begin somewhere.

I would like to start by thanking Steve Cunial for his contribution over the last 4 years to the Executive Council which saw Steve lead us through last year as our President. It is not an easy job at the top and you done a great service at a difficult time. Thanks again Steve, you will be missed, and I have you on speed dial!

Brian "Hound" Woolfe also moved on after 4 years on the Executive Council. Brian's experience will also be missed as he been involved with the BIBCC since it started. Brian has agreed to help with this position over the next 12 months as the new Executive Council settle into their new roles. Thank you Hound for your time, thoughts and laughs over the past years.

So that left 2 seats vacant on the Executive! I would like to welcome Matt Skinner and Zac Alcock to the Executive Council. It is great to see some young fresh faces coming onto the Council. Please make these twofeel welcome and I know they will work hard for us. Welcome Matt and Zac, I look forward to working with you both.

All that said and done I now turn to the problems at hand.

On the 22<sup>nd</sup> of June I received a phone call from Chris Anderson informing me that **VARROA DESTRUCTOR** had been detected at the Port of Newcastle. What an issue to be hit with when you have just started as President! A State of Emergency was declared as this is the worst pest that our industry could face, and we are in for a fight.

Since then, Varroa has been detected at over 40 properties and a State of Emergency is in place over the whole of the State of NSW. As I said above, we are in for a fight, and I ask all members to abide by the law and help where they can. This is our industry that is being affected by this pest and we need to give it our best shot the beat it.

I know that there's lots of questions to be asked and I am trying my best to get the right outcomes for you all, I just need a little patience and we will get there. The Executive Council are also working hard to guide us through this difficult time. Please keep an eye on our website and Facebook page as we try to keep up with the latest information for you all. The NSW DPI website and Facebook is also a valuable information page.

With the situation being as it is, the Almond season is in a complete shamble. A lot of beekeepers are not going, this is because of the possibility of the use of miticide strips in hives. Miticide strips are being used now as a surveillance tool but will most likely be commonly used in the future. Most other pollination work is going to be affected in some way under the State of Emergency.

We have had more rain this year then we need! Flooding on the North Coast earlier this year and now again in the Newcastle/Maitland area in July. There was Emergency orders in place during the recent flooding, but these orders have now lapsed.

I would like to encourage all members that know other beekeepers who are not members to join the NSW Apiarist Association. We need all the support we can get, and unity shows strength when we are rallying government.

We still have other issues that need addressing like Resources, Biosecurity and the future of the Honey industry for NSW. I feel there are many other areas that need to be approached when this all settles down a bit which may be many months away.

Moving on from the gloom, I would like to announce the new Executive Council,

Steve Fuller - President Therese Kershaw - Vice President Ray Hull - Executive Councillor Matt Skinner - Executive Councillor Zac Alcock - Executive Councillor

I feel very humbled being elected as your President. I can promise that I will represent you all to the best of my ability and if any member would like to talk to me, my phone is always on.

NSWAA also have a temporary Secretary/Treasurer at the moment, Candice Clifford. I would like to thank Candice for the work she has been thrown into, you are much appreciated. This position is currently advertised, as per NSWAA Constitution.

Moving towards the Future!

All the best, Steve Fuller President NSWAA



HELLO! New Members!

Leif Anderson - Taree NSW John Ayers - Maclean NSW Romel Bilog - Vittoria NSW Melody Cameron - Griffith NSW Mike Copley - Carwoola NSW Jeremiah Domaloy Vittoria NSW Kevin Forde (Snr) - Young NSW Andrew Fricker - Frenchs Forest NSW Glen Griffiths - Nowra NSW Andrew Hodgeson - Glen Innes NSW Oliver Holloway - Coffs Harbour NSW Roland Inman - Booral NSW Garry Kenny - Mudgee NSW Garth Miller - Katoomba NSW Jackie Morrison - Wollongbar NSW Jayson Nagen - Vittoria NSW Jenny Palmer - The Whiteman NSW Matthew Preston - Elland NSW Jim Radford - Bowral NSW Jhonny & Corban Rojas - Dubbo NSW Karl Shaw - Boorowa NSW Allan Small - Condobolin NSW Carolyn Sonter - Armidale NSW Mathew Stafa - Muswellbrook NSW Brad & Lucinda Stafa - Muswellbrook NSW Cameron Taylor-Brown - Evans Head NSW Anthony Vanheeraaren - Emmaville NSW Nathan Walker - Inverell NSW Brendon Weiss - Glen Innes NSW Harry West - Bywong NSW Jay Wooder - Emmaville NSW Tony Xu - Aranda ACT Mohammed Zifraan - Vittoria NSW

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## **Position Vacant**

Secretary / Treasurer

NSW Apiarists' Association Inc. are seeking suitable applications for the position of Secretary/Treasurer.

Reporting directly to the Executive Council of the NSW Apiarists' Association, the main duties of this position will include, but are not limited to:

- Organising and attending meetings for the NSWAA Executive these will be held in various locations throughout NSW
- Managing /Handling NSWAA finances including preparing the Quarterly BAS and managing financial matters associated with Conference, Honeyland and memberships.
- Organisation of AGM and annual Conference.
- Maintaining NSWAA membership including management of the NSWAA membership database.
- Managing NSWAA communications and correspondence including receiving, managing and responding to phone calls, emails and other forms of correspondence from members, other industry stakeholders, relevant government regulators and the general public; preparing drafts and submitting formal correspondence on behalf of the NSWAA to government departments, regulatory bodies, Ministers and others; management of the NSWAA website and social media communications.

The successful candidate will have:

- High level of organisation and communication skills to proactively manage day to day requirements of the role.
- The ability to work autonomously and be self-motivated.
- Excellent written and verbal communication.
- Well-developed computer skills including strong experience across the Microsoft Office suite and Xero.
- High attention to detail.
- Reliability with respect to timeliness, communication, money handling and discretion with sensitive information.
- Knowledge of/experience with Word press website content management.

This position is a remote/work from home role, with exception of personal attendance being required at Executive meetings throughout NSW on occasions during the year.

To apply, please email your resume and cover letter to steve.fuller@nswaa.com.au.

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# Important Update



#### **Hive Surveillance and Miticide Strips**

Methodical inspection and surveillance are the cornerstone of any eradication plan, as guided by the epidemiologist experts working on the case. The team responding to the Varroa incursion in NSW are using all the available tools to eradicate the mite, whilst balancing the need for business continuity and ensuring we minimise the risk of spread. The NSW DPI is allowing hives in the blue zone, where mites have not been found, to move within NSW by permit. This has been permitted based on the assessment of risk and ensures beekeeper's businesses remain viable and that hive health can be maintained. It is important to note that hive movements must not present a risk to eradication efforts or spreading infestations.

Hives that are allowed to move through the '*NSW Hive Movement Declaration*' will be subjected to surveillance with miticide strips and sticky mats in addition to the alcohol washes. This combination of surveillance instruments is the most definitive tools we have to ensure mites are not present. This system of permit and surveillance undertaken by beekeepers and Compliance Officers, will deliver the DPI management team with much needed essential information on the mite status of hives across NSW.

Currently, the only miticide strips permitted for use in broad surveillance is Bayvarol (flumethrin). Permits for other options are with the APVMA awaiting approval, which could take some time to progress. Presently, until other options are approved and sourced the only option is Bayvarol.

Bayvarol is considered to be 'soft' on bees, especially compared to formic acid for example. Unlike the closely related pyrethroid chemical fluvalinate (Apistan), residues are less likely to be a problem for flumethrin (Bayvarol), probably because the amount of active ingredient in miticide strips is significantly lower for Bayvarol (3.6mg of flumethrin) than for Apistan (880mg of fluvalinate).

Several overseas studies have shown flumethrin residues do not persist in honey after treatment, however, low residues of flumethrin have been found in wax. It is likely that continued and repeated applications could result in an accumulation in wax, with leaching residues in brood honey possible at very low levels.

There is a temporary MRL set for flumethrin in honey at 0.005 mg/kg (5ppb), which is the same or lower than other countries in the world. This means any honey harvested will still be marketable provided the honey meets the MRL.

The general use label for Bayvarol requires treatments to be placed in hives for a period of a six-weeks. The approved minor use permit for Bayvarol surveillance in NSW is for the strips to only be in hives for a maximum of 6 days, further minimising the risk of residue contamination.

The DPI will be working over a 2-week period with many teams to insert the strips and mats and will then return to remove both strips and mats before the 6 day window expires.

Beekeepers can be confident of the legality of the permit of use for Bayvarol (flumethrin) in hives and the protection of MRLs for honey produced from those hives treated. Beekeepers can be assured that emergency miticide treatments that are approved and permitted will have accompanying MRLs to ensure that the legality and food safety of the product is not compromised.

It is important that industry complies with the requirements of the DPI permits for hive movements, which forms part of the overall eradication response.

#### **Further Reading:**

Detection of flumethrin acaricide residues from honey and beeswax using high performance liquid chromatography (HPLC) technique - ScienceDirect

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# Plant Profile

#### Plant Profile: canola (Brassica napus)

The following plant profile is from *Honey & Pollen Flora of South-Eastern Australia* by Dr. Doug Somerville. This book focuses on the value of plants to nectar and pollen-eating animals, honey bees in particular. The result of over 30 years of research, it brings together scientific knowledge and the experience of hundreds of beekeepers into a valuable reference work. The book can be purchased from Tocal College here: www.tocal. nsw.edu.au/publications/bees

#### Honey and pollen flora feedback form:

NSW Department of Primary Industries values your experience working plants for honey and pollen. We would love to hear your feedback on the plant profiles republished in the Honey Bee News. Any help you can provide will be considered in the next update of Dr. Doug Somerville's *Honey & Pollen Flora of South-Eastern Australia*. Please submit your feedback here: https://forms.office.com/r/BmT1kFkF0B



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#### Canola

#### Brassica napus

Includes forage rape, as they are both the same species. Considered self-pollinating although there is significant evidence that yields will increase by 20% with the introduction of honey bees.

Many beekeepers utilise canola blossom to carry out their main spring brood manipulations and inspections. Swarming is a major problem with bees on canola.

**Description:** An annual, planted in May and growing over the winter to flower in early spring with seed pods maturing and harvesting mainly in December. The plant quickly forms a rosette of up to six waxy, blue-green leaves.

Stem elongation begins with branches arising from the stems. Each branch develops one to four leaves and flower buds. The leaf area diminishes as the plant starts to flower.

**Occurrence:** Winter growing oil seed crop, usually in rotation with wheat crops. Occurs throughout the grain growing areas of NSW, Vic., SA, Tas. and WA. Canola does not grow where there are high levels of aluminium in the soil.

Flowers: Older varieties traditionally began flowering in September with flowering over by early October. Newer varieties tend to be quicker growing with flowering commencing in August and even late July in far western locations of NSW. Crops grown in southern areas of Vic. and Tas. and also crops grown in cooler higher elevated regions will flower later, starting in September and extending into October.

Typically, flowering will extend over six weeks, although this can be shorter in dry conditions or extended in wet conditions.

Honey: Produces copious quantities of nectar, although the volume and sugar concentration varies considerably between varieties.

The honey tends to candy extremely rapidly. Thus, it is important for beekeepers to remove canola honey and extract it without delay, otherwise combs become full of candied honey.

Bees will eventually eat this candied honey, but it has the potential to be a nuisance for the entire production season.

## RATING



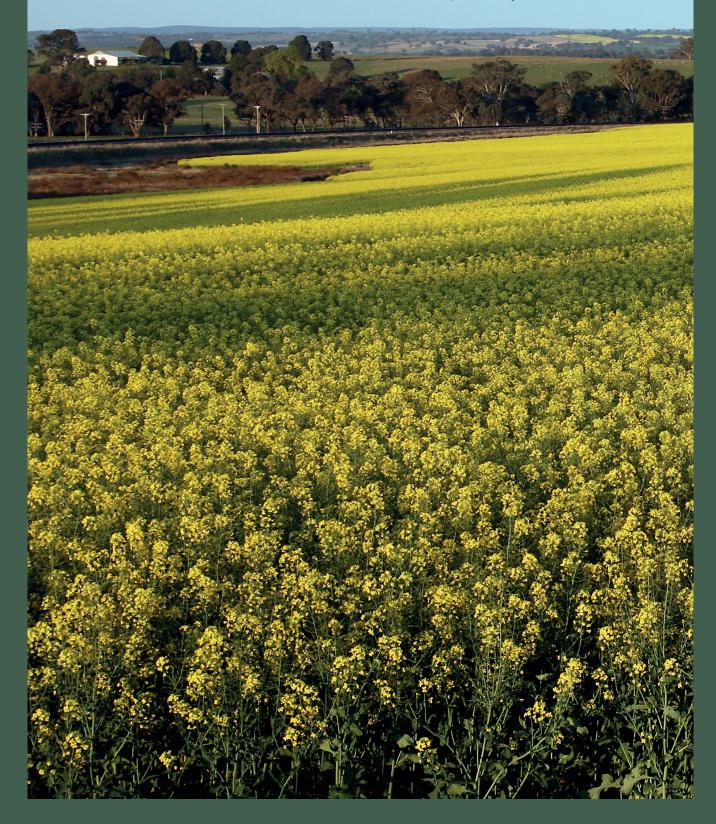
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Response Level												





Honey crops from 20 kg and up to 100 kg of honey are possible. Climatic factors, the population of bees and the canola variety all combine to influence yields.

**Pollen:** Bees collect large loads of yellow-coloured pollen. The crude protein levels range from 22%–27% and the fat content is around 7%. Canola pollen is extremely attractive and foraging bees have been observed to fly many kilometres to collect it. Canola pollen is very valuable.



# Fact sheet

#### Varroa mites

#### What are varroa mites?

Varroa mites (*Varroa destructor* and *V. jacobsoni*) are external parasites of adult honey bees, and drone and worker bee brood. Varroa mites feed and reproduce on larvae and pupae, causing malformation and weakening of honey bees as well as transmitting numerous viruses. Heavy varroa mite infestations can build up in 3-4 years and cause scattered brood, crippled and crawling honey bees, a reduction in honey bee population, supersedure of queen bees and ultimate colony breakdown and death of the hive.

#### What do they look like?

Adult female varroa mites are oval, flat, red-brown and around 1.1 mm long and 1.5 mm wide. They can be seen with the naked eye. Varroa mites complete their life cycle in honey bee brood and can be observed in both drone and worker bee brood. Examining the brood involves uncapping brood (preferably drone) to check for the dark mites in the cell and against the pearly white bodies of the developing brood. They can also be observed between the sclerites and between the head and thorax on adult worker bees and drones.

#### What can they be confused with?

Varroa mites could be confused with the braula fly (*Braula coeca*) which is red-brown, 1.5 mm long, covered in spine like hairs and has six long legs. This pest is currently only present in Tasmania and is generally considered quite harmless. Varroa mites could also be confused with pollen mites (*Mellitiphis alvearius*) which are light brown and are around 0.75 mm long and 0.75 mm wide. Pollen mites are not harmful to honey bees but are sometimes found in hives.

Varroa mites could also be confused with other exotic parasitic mites, most notably tropilaelaps mites (*Tropilaelaps clareae* and *T. mercedesae*). If any mites are observed on adult honey bees or in the brood, call the Exotic Plant Pest Hotline immediately on 1800 084 881.

Varroa mites on honey bee pupa

3

Varroa mite on a forager worker bee

6

-ood and Environment Research Agency (Fera), Dopvright

Braula fly (top), varroa mite (right), tropilaelaps mite (bottom) and pollen mite (left)











#### What should beekeepers look for?

Symptoms are dependent on the level of varroa mite infestation, the level of brood within the colony and the potential of viral infections transmitted by the varroa mites. Colonies with low infestation generally show very few symptoms. As varroa mite infestation grows, it results in the significantly reduced weight of worker bees and drones, impaired flight performance and a lower rate of return to the colony after foraging, a reduced lifespan as well as deformed wings and abdomens. Colony symptoms, commonly called parasitic mite syndrome (PMS), include a reduction in the adult honey bee population, loss of coordinated social behaviour, distorted and deformed honey bees, scattered brood with dead or uncapped brood and rapid honey bee de-population in the colony.

#### How do they spread?

Varroa mites can spread through drifting drones and worker bees as well as through swarms and absconding colonies. The transport and movement of hives, used beekeeping equipment, packaged bees and queen bees are also effective means of spread.

#### Where are they now?

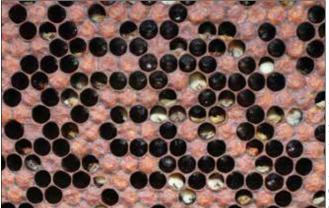
*Varroa destructor* is present in Europe, North America, South America, Africa, parts of Asia and New Zealand. The genotype of *Varroa jacobsoni* that parasitises European honey bee brood is currently only present in some regions of Papua New Guinea.

# How can beekeepers protect their hives from varroa mites?

This pest is currently not present in Australia and there are strict quarantine requirements in place to protect the Australian honey bee industry.

If you see any of these symptoms, or observe mites on your honey bees or in the brood, call the Exotic Plant Pest Hotline.





Parasitic mite syndrome (PMS) caused by varroa mites



Worker honey bee with severe wing deformities as a result of varroa infestation

For more information about varroa mites, go to **www.beeaware.org.au/varroa-mites**. The BeeAware website contains extensive information on varroa mites, including:

- Life cycle
- Effect on bees
- Detection methods
- Spread and distribution
- Overseas experiences
- Additional fact sheets and videos

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# **NSWAA BEE HIVE INCENTIVE PROGRAM**

An opportunity for NSWAA members and business associates to support each other through the Bee Hive Incentive Program.

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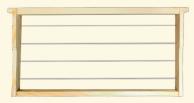
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# **Honeyland Report**

This year's Honeyland was an unknown as the RAS had moved us from the Woolworths Dome into Hall 5 Arts and Craft. But all turned out well. Once our customers had found us, usually by mistake, they said they thought being in Hall 5 was better than the Dome with more room and no pushing as we were not in a doorway as we were in the Dome.

The Beezeebo displays were well received as the crowd relaxed sitting on the floor or standing up the back. Every display was ended with a round of applause. Which was good to hear.

We have a visit from Dugald Saunders, NSW Minister for Agriculture, who participated in a bee display with Malcolm Porter which was well received by the crowd.

The sale of stock went out the door well with a lot of sold signs being placed on the price list.

I would like to thank the following who donated honey or items for our Promotion Bag:

Harold and Judy Saxvik, Laurie and Therese Kershaw, Malcolm and Debbie Porter, Goldfields Honey, Tamworth Branch of NSWAA, Northern Tablelands Branch of NSWAA, Tocal College, Beechworth Honey, Australian Rainforest Honey, Hive and Wellness, Berries Australia and the Almond Board.

A big thank you to Tanya Ananin for her work as secretary it has been truly appreciated. Also thank to

Kieren Sunderland and his volunteers Bryn, John, Kay, Donald and Lucy for packing the honey.

I would also like to say a big thank you to the volunteers who worked at Honeyland because without them there would be no Honeyland:

Octavia Barrington, Vincent Schnyder, Ed & Dallys Napiorkowski, Robyn Lewis, Pete France, Ted Pennay, Bruce & Lynn White, Tanya Ananin, Denise Cunliffe, Julie Colley, Klaus Neuscheler, Nadine Chapman, William & Sharon Gibbons, Michael Fogarty, Warwick Smith, Carolyn, Mark & Thomas Martin, Alyssa Staggs, Dennis & Janelle Howard, Penny Downy, Trevor Romer, Bruce McGregor, Malcolm Porter, John Knox, Tracy, Harold & Jasmyn Nankervis, Casey Cooper, James Horlyck, David Gorman, Tim Walsh, Justin Wall, Nigel Lawson, Addyson Vernon, Wayne Hammond, Laurie & James Kershaw, Claire Bennett and Vicki Lockwood.

I would also like to thank the Executive Steve Cunial, Steve Fuller, Brian Woolfe, Ray Hull and Therese Kershaw for volunteering.

I am lead to believe that the Woodchop Bar did well from Honeyland...I'll leave that there.

As you can tell it takes an army to make Honeyland a success and Honeyland was a great success.

Debbie Porter NSWAA Show Coordinator





## Technical Specialist, Honey Bees Report

Elizabeth Frost

Technical Specialist, Honey Bees Tocal Agricultural College, NSW Dept. of Primary Industries T: 02 4939 8821 M: 0437 731 273 E: elizabeth.frost@dpi.nsw.gov.au

#### Help eradicate Varroa mite

NSW Department of Primary Industries' (NSW DPI) early warning surveillance system detected Varroa mite in biosecurity surveillance honey bee hives at the Port of Newcastle late June 2022. NSW DPI is working to protect the NSW beekeeping industry by ensuring we eradicate this parasite. Where it's established around the world, Varroa mite is the most damaging pest of honey bees.

Varroa mite is not established in Australia. Estimated losses of \$70 million, (in honey and hive products) per year could result if Varroa were to establish in Australia. This doesn't account for the critical contribution of honey bees to agriculture through pollination services; valued at \$14.2 billion in 2017.



Figure 1. Varroa mite on \$2 coin. Credit: Elizabeth Frost

The Varroa mite eradication plan is supported by biosecurity zones covering areas within a 50 km radius from any known Varroa infestation. Within a biosecurity zone, no hive or bees are to be moved and beekeepers must let NSW DPI know the location of all hives by:

- completing the Report a biosecurity concern form: forms.bfs.dpi.nsw.gov.au/forms/9247
- emailing hive.location@emergency.dpi.nsw.gov. au, OR
- calling the Exotic Plant Pest Hotline, 1800 084
  881 (9 am to 5 pm, 7 days a week).

If you're a beekeeper, do your part by not moving your bee hives from their current NSW location until the state emergency order is lifted or if you have a movement permit. Keep up to date with NSW Department of



Primary Industries Varroa mite alerts here: <u>www.dpi.nsw.</u> gov.au/biosecurity/seasonal-pests-and-diseases/spring/ varroa-mite

Beekeepers should also educate themselves about Varroa mite. On their own, individual Varroa mites are identifiable by the trained eye. However, most Varroa mites in a bee hive are hidden from view underneath the capped cells of developing bees or squeezed between the body parts of adults bees. Roughly the size of a sesame seed, these reddish brown mites can go undetected for some time unless the beekeeper is carefully monitoring for them, ideally by using the alcohol wash detection method. Alcohol wash instructions can be found here: beeaware.org.au/wp-content/uploads/2014/03/Alcoholwashing.pdf



Figure 2 Mature and immature stages of Varroa female (large) and male (small) mites. Credit Zachary Huang

Additional Australian education tools about Varroa mite can be accessed for free at:

- Tocal College Varroa Mite Online Training: courses. tocal.nsw.edu.au/courses/varroa-mite-online-training
- Department of Primary Industries Schools Programdeveloped 'Investigate: varroa mite (Stages 3 and 4): www.nswdpi-schools-program.com/investigatevarroa-mite

# Cover Photos

Do you have a bee related photograph that you would like to see on the cover of Australia's Honeybee News?

> Email it to honeybeenews@icloud.com

Left unchecked, Varroa mite will kill any honey bee hive it infests. All feral and untreated bee hives will eventually die. This is why it's so important for us all to work together to eradicate Varroa. Report your hive locations and if you find a suspect Varroa mite, call it in immediately to the Exotic Plant Pest Hotline, 1800 084 881 (9 am to 5 pm, 7 days a week). Let's fight the mite!



Figure 3. NSW DPI Schools Program. Credit NSW DPI



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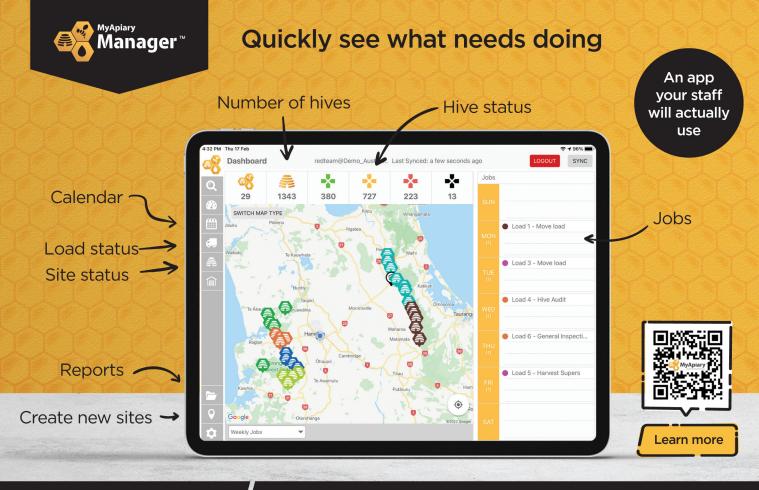
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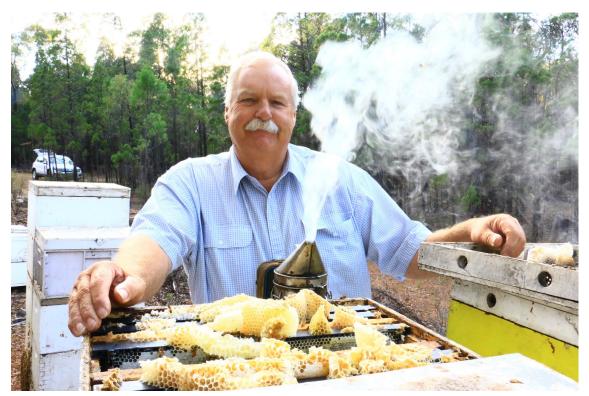
4th Australian Bee Congress 2022



# 4th Australian Bee Co

# Congratulations to the winners of the 4th Australian Bee Congress Photo Competition!

These photos will be included in NSWAA Calendar Do you have phots that you would like to have included in the calendar? Send photos to info@nswaa.com.au



**People and Bees Section** Sam Lockwood



Up Close Section Daryl Brenton

# ngress Photo Winners



**Open Section** Ben Merivale



Scenic Section Daryl Brenton

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#### Honey Bee Industry Development Officer Report

#### Madlen Kratz

Honey Bee Industry Development Officer Tocal Agricultural College, NSW Dept. of Primary Industries T: 02 4939 8948 273 E: madlen.kratz@dpi.nsw.gov.au

#### The lifecycle and feeding habits of Varroa mites

#### Lifecycle

The lifecycle of Varroa mites includes two distinct stages, the phoretic phase and the reproductive phase. The phoretic phase is spent on the adult bee and the reproductive phase is spent inside a bee brood cell (Figure 1).

Varroa can only reproduce on bee brood No brood = no mite breeding

Figure 1. The lifecycle of Varroa mites showing the phoretic and reproductive phases, adapted from Nazzi et al. (2016).

#### Finding the right cell to breed in

The female mite enters the brood cell of an advanced-aged larva just before the cell is capped, by nurse bees. Mites enter worker cells around 15-20hrs prior to capping and drone cells around 40-50hrs prior to cell capping. Mites are attracted to the right aged larvae via various chemical cues released by the larvae itself or from components of the bee brood pheromone, which also plays a role in initiating capping of brood cells in nurse bees.

The mite does not reach the brood cell on its own but is carried there by a nurse bee, which is abandoned only a short distance from the bee larva that will be parasitized.

#### Male vs female brood cells

Mites find drone (male) honey bee brood significantly more attractive to breed in than worker (female) brood.

Approximately 4 out of 5 mites will enter drone brood if given a choice.

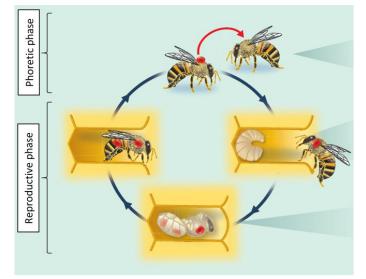
Why drone brood may be more attractive:

- Longer development phase
- Slightly lower brood temperature
- Greater amounts of attractant compounds (from larvae and/ or larval food)

Queen cells are rarely invaded by mites, possibly because of chemical cues from royal jelly that are absent in larval food of workers and drones.

#### Egg laying

The mite sinks itself into the larval food at the bottom of the cell and emerges once the brood cell is fully capped. The mother mite may lay up to six eggs at intervals of about 30 hours. The first egg develops into a male mite and the rest are female.





#### Egg development

Mite development from egg to adult takes about 8–10 days. The first mite (male) mates with the female mites as they mature. On average, 1.5 daughter mites emerge from a worker cell and 2.5 daughter mites emerge from a drone cell along with the mother mite (Figure 2). The male and undeveloped female mites die inside the cell.

The mother mite and her daughters are then capable of crawling back into adjoining brood cells to complete the reproduction life cycle again. Once the population of mites has increased substantially, it is possible for several female mites to enter and reproduce in the same brood cell.

There can be 24–30 breeding cycles for the mites in a year. It is believed that female mites will breed up to three times over the course of their life span. Thus, as long as honey bee brood is present, the mites will breed and their numbers will increase exponentially. If drone brood is present, then the mite population will increase even faster.



Figure 2. The normal composition of a "Varroa family" within a honey bee worker brood cell, approximately 11 days after the capping of the brood cell. Upper row from left to right: Protonymph, deutonymph, deutochrysalis. Lower row from left to right: freshly molted young female, mother mite, adult male. – Figure adapted from Rosenkranz et al. 2010.

#### Feeding

#### What do varroa mites eat?

Previously, it was believed that Varroa mites exclusively feed on the haemolymph ("bee blood") of honey bees. Since then Ramsey et al. (2019) discovered that unlike previously thought, the parasitic mite does not consume haemolymph, but damages host bees by consuming fat body. In a trial, mites that fed on fat body not only survived for longer, but also produced more eggs than those fed haemolymph. This suggests that fat body is integral to their diet when feeding on brood as well.

#### Why is this finding so important?

The fat body of honey bees, a tissue roughly analogous to the mammalian liver, is the primary storage and synthesis site for protein and lipids. A honey bee's fat body is essential to proper immune function, hormone regulation, pesticide detoxification, overwinter survival, and several other essential processes in healthy bees.

Ramsey et al. (2019): "Adult bees parasitized by Varroa as brood are unable to store protein from the pollen consumed in their diet as adults and the synthesis of fat is inhibited."

Substantially damaged fat body tissue has a reduced ability to produce antimicrobial peptides (critical in immune response), lipophorin and wax precursors (important for preventing dehydration). The fat body also plays a critical role in thermoregulation, regulating metabolism and facilitates metamorphosis.

#### Where is fat body tissue found?

Fat body tissue is distributed throughout the body cavity of larvae and early stage pupae. In adult bees fat body tissue is located in the abdomen (primarily localized to the inner dorsal and ventral surfaces of the metasoma) (Figure 3).

#### Feeding strategy of mites

#### Feeding location

Varroa mites predominantly prefer the inner ventral surface of the metasoma as larger deposits of fat body tissue are found in this location. Varroa mites also seem to prefer the third segment, possibly because it is the longest segment, providing more space for feeding while concealing most of its body from a grooming host (Figure 4).

Adult host

Varroa mites prefer to feed on nurser bees over other adult bees

Nurse bees have substantially larger and more nutritionally dense fat body tissue than newly emerged bees or forager

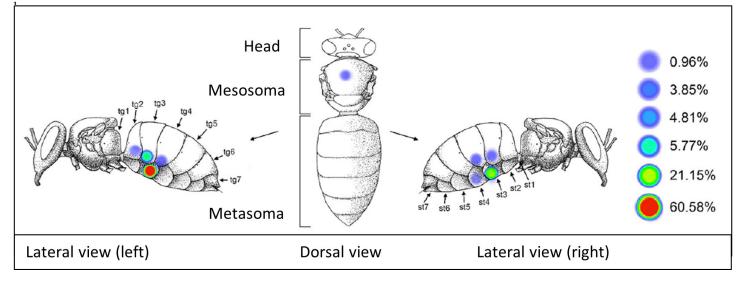


Figure 3. Varroa destructor shows consistent preference for the underside of the abdomen (metasoma) of adult host bees, an area predominated by fat body tissue just beneath the cuticle. (Left) Diagram showing frequency of Varroa found in each location on 104 parasitized worker bees in five trials (st, sternite; tg, tergite). Mites strongly preferred the third segment of the metasoma to any of the other 23 locations. Adapted from Ramsey et al. (2019).



Figure 4. Varroa mite hiding on the underside of a worker bee abdomen (inner ventral -right).

#### Varroa detection and monitoring

For information on varroa mite detection and monitoring please visit: <u>www.dpi.nsw.gov.au/biosecurity/seasonal-pests-and-diseases/spring/varroa-mite</u>

#### References

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# 4th Australian Bee Congress



#### BEE BIOSECURITY OFFICER REPORT Rod Bourke - NSW Bee Biosecurity Officer NSW Department of Brimery Induction Biogeography NSW

Rod Bourke - NSW Bee Biosecurity Officer NSW Department of Primary Industries - Biosecurity NSW Tocal Ag College, Tocal Rd Paterson NSW 2320 Ph: 02 4939 8946 Mob: 0438 677 195 Email: rod.bourke@dpi.nsw.gov.au

#### Looking at Varroa mites.

BIOSECURITY

PROGRAM

No matter which way the varroa incursion ends up it cannot be denied that EVERYTHING changed forever for all Australian beekeepers on Wednesday 22<sup>nd</sup> of June, 2022. The biggest of the big bad wolves, Varroa destructor (V. jacobsoni, Tropilaelaps and Tracheal Mites are the other ones) was confirmed to be in NSW and the uncertainty associated with actually having it here began. I live and work within 40 minutes of where it first popped up and so it is on my own doorstep, and maybe already breeding within my own bees!

On that day I was called by the Deputy Chief Plant Protection Officer (CPPO) advising that varroa mites had been found on sticky mats from two of the Newcastle Port sentinel hives. I was asked to accompany Mark Page (BBO-Surveillance and who manages the program at the Ports of Newcastle, Botany and Kembla under the direction of the National Bee Pest Surveillance Program procedures) to euthanize all the hives at Newcastle that night.



*The Sentinel hives are sampled approximately every 6 weeks via many different methods. This alcohol wash contains around 450 bees.* 



A sticky mat after 24 hours in a hive with miticide strips. The longer the mats stay in the more debris that they pick up, which can make it harder to spot mites (which is why they get sent to the lab).

The next day we were up early and transported all wrapped hives to a secure DPI location where we removed absolutely every bee and piece of brood and debris from all 9 hives, double wrapped, labelled and decontaminated everything and transported it all to the Lab at Menangle by 7pm that night. During that day we bagged up around 150 000-200 000 bees and pulled out a few obvious drone brood, and we saw ZERO mites during all of that work. We both know what mites look like and yet nothing was seen during 6 hours of sifting through dead bees and brood. We then drove to another location, completely decontaminated everything again and left that vehicle there and drove off home in a clean one.

The lab later advised that they found a total of 600 mites washed off the euthanised bees (and one hive had over 200 mites) and generally between 1 and 8 mites per 100 sealed brood that they uncapped. With around 3 frames containing sealed brood per hive that could be anywhere between 100 and 1000 mites sitting protected under capped brood in some of those hives.

This demonstrates just how hard it is for most beekeepers to actually spot varroa with the naked eye on bees, as it is simply not very effective unless you are already "lousy" with high mite numbers. Therefore Australian beekeepers cannot rely on their eyesight to do "visual varroa surveillance", which is exactly why the Australian Honey Bee Industry Biosecurity Code of Practice (the Code) has always listed sugar shake, drone uncapping and alcohol washing as the 3 approved methods of exotic mite surveillance.

All of these methods do work at finding mites, but right now (at time of writing mid-July 2022) all beekeepers should be looking at undertaking alcohol washing as the preferred method. Alcohol washing is the quickest and most accurate method for a busy beekeeper to use when looking for mites and having to sample many hives in a short period of time. Whilst in New Zealand some years back Mark Page and myself thoroughly sugar-shook a sample of bees (took around 4 minutes) and found 1 mite. We then alcohol washed that same sample and quickly obtained another mite. This demonstrates that whilst alcohol kills the bees sampled (which makes it a good swarm management tool in spring) that it is also generally more effective than sugar. More info at <u>www. dpi.nsw.gov.au/varroa</u>

Nevertheless many recreational beekeepers in the Newcastle area have been using sugar shakes and finding mites, so this all demonstrates that actually getting out there and looking for mites is far more important than which method you use. The biggest point that has so far come out of the varroa incursion is that it is blatantly



obvious that some beekeepers were not doing their mite surveillance, and judging by their high mite numbers they should have found them in March-April (which would have greatly assisted the eradication effort).



High mite numbers. Our industry is in crisis because beekeepers were not looking for them. Pic Mark Page, NSW DPI.

Beekeepers running more hives than they can effectively manage has always been a major concern, as generally they just don't do a very good job of keeping them alive and healthy, plus they also impact other beekeepers around them. They are time poor so often cut corners and don't undertake all the proper management they should. One of the things that they have obviously skipped on is undertaking their legal obligations under the Code to survey for exotic mites in spring and autumn each year, so they have REALLY impacted all beekeepers around them now.

It remains unclear how this varroa mite incursion will play out. Varroa could be fully eradicated, or mainly contained within quarantine zones (with small outbreaks here and there that need to be addressed) or move towards a transition to management if it spreads slowly via natural foraging and swarming (or far more quickly via beekeeper movements - definitely the fastest way that it will spread), beekeepers need to now realise that they need to change their ways. Check your hives and if you find mites don't move, but do report it to DPI.

When we look back at the fate of the dinosaurs after a few meteors struck the planet you can compare that to what happens in every country where varroa arrives. There is a new kid on the block and every beekeeper will have different abilities at managing its negative affects upon their bees and their businesses bottom line. The really important thing is to accept that things are changing in Australian beekeeping NOW and YOU need to change how you do things, otherwise you may not make it. It will be sink or swim, some will leave the industry and others will fill the voids left by them.

The main initial steps that every beekeeper should address to become more resilient to varroa are;

1. Record keeping. Please, start keeping records if you have not done so yet, and ensure that you accurately detail all hive movements, hive management and results of all brood inspections/pest and disease sampling including varroa numbers if you do find them. For all those with records please ensure that everything is up to date and covers all the important points.

2. Mite sampling. Undertake FREQUENT mite inspections, which for any commercial operator should be alcohol washing an absolute minimum of 10% of hives in each apiary, and re-done frequently. Ensure that you mark which hives were washed and when. Keep records (written and photographic) and advise NSW DPI of all your results especially if you find mites (keep sample for testing).



Enlarged picture from a mob phone shows the distinctive shape of varroa. If your eyes are a bit tired then use glasses, take pictures, using a jeweller's loupe or magnifying glass to assist. Keep samples if you find anything even remotely suspicious.

3. Re-evaluate your hive numbers. If varroa becomes established the overall number of hives that each beekeeper can manage drops (sometimes by quite a lot) as much more work needs to be done on each hive (and frequency of visits). If your operation already runs high hive number per beekeeper then to survive with varroa that will need to change. Options include reducing your hive numbers, working far more hours (which has many downsides) or employing and training more workers. All of these options have ramifications on operating costs and profitability, so think them through thoroughly before making a decision.



Industry volunteers assisting DPI to do mite surveillance on a neglected apiary. Neglected apiaries would succumb to high mite numbers and then spread mites (and AFB) as they weaken and get robbed. Please don't be part of the problem.

4. Undertake bee biosecurity training. Every beekeeper needs to be prepared, so they should understand both the little mite that is varroa and the various management options required to keep it in check. The majority of hives in NSW continue to rear brood all season and right through winter, which makes life easier for varroa. They will breed up faster and many of them will be protected (whilst in their reproductive phase under capped brood) from most treatments that will kill phoretic mites (the ones that are exposed on adult bees). A lot of varroa treatments have strict conditions for how and when to use to avoid chemical residues in honey or excessive death of bees or brood, so there will be a lot to learn in that area. Treating varroa is not just about putting strips in hives all year round, so beekeepers need to understand and plan when they can undertake different treatments at specific times, and if they need to pull bees off a honey flow and remove all honey first, or manipulate hives to give them a brood break to ensure that a specific treatment will be safe and actually work well enough.

5. Barrier systems. Running these and having individual hive identification can really assist in varroa management through improved biosecurity and the ability to keep better management and movement records.

The entire varroa journey will be easier if it is eradicated soon, but due to the sheer size of the red zones it is likely that this outcome could take many years, cost many tens of millions of dollars and impact numerous beekeepers along the way. Therefore we should all be prepared for a longer association with varroa and learn all about our new enemy. NSW DPI is preparing industry relevant varroa training as part of its support of beekeepers, so watch this space.

And to finish the beginning of this varroa story Mark and I were sent to a commercial apiary on Saturday 25<sup>th</sup> June, where any remaining doubts about there being any varroa here were thoroughly smashed. Getting over 60 mites in a quick alcohol wash (they were dropping out like flies) of the first hive we checked proved beyond all doubt that we are in the biggest fight of our beekeeping lives.

We all need to choose if we will sink or swim, so if you are on the swim team who aim to win then please ensure that you do everything as asked by NSW DPI. Their rules are set out to give us the best hope of winning this fight against varroa. Everybody is impacted (some a lot more than others), and it only takes one rotten egg to derail a great amount of hard work and sacrifice made by many others. I ask EVERYBODY to follow the DPI rules and to remember that most of you are not hurting nearly as much as those in and around the red zone, so please don't let them down.

NATIONAL BEE BIOSECURITY PROGRAM The National Bee Biosecurity Program is funded by the honey bee industry through a component of the agricultural honey levy, with state governments contributing in-kind resources. Plant Health Australia manage the program on behalf of Australian Honey Bee Industry Council.



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## Vale John Norris Deacon 4<sup>th</sup> October 1934 – 24<sup>th</sup> June 2022 "Gone to the Bees"



John or Deaco to many of us was a loyal member of the Central Tableland Branch of NSW Apiarist Association. A branch meeting was not a meeting unless John was in attendance. He was part of our beekeeping family.

John was born at Yerranderie near Warragamba Dam where times were hard and the family lived off the land. This gave John a wealth of knowledge and love of the land, flora and fauna.

Married life saw John move to Lithgow where he worked as a local mechanic and together with his bees John raised his family. His mechanical skills got him out of many a breakdown with old bee trucks in remote locations. So in his late 80's John was still beekeeping and sharing his knowledge with anyone who would listen. Most people who travelled the highway from Sydney to western NSW would know John as he was the guy who sold his honey every weekend at a spot near Hartley at the foot of the blue mountains.

John, a man of good humour, always had a tale to tell. He thought mobile phones where rubbish as they never worked when you needed them. Just a month ago after a day with the bees he was stuck at the side of the road no phone reception. It was coming on dark and he saw tractor lights in the distance so set off on foot, a good mile, to find someone to pull him out. He was only 87. John was a good mate to all and a true gentleman.

Photo above is taken at our last branch field day in April 2022





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## A Few Facts About a Beekeeper.....

# When did I become a beekeeper?

In 2005 I became a full-time beekeeper, but I have always helped during the school holidays & done weekends work.

*Apiary home location?* Sutton in the southern tablelands.

*Favourite honey?* River Red Gum

#### Do I do pollination, if so, what?

We have done some almond pollination in the past in the Griffith NSW area

#### Are you a queen breeder?

I try to breed as many queens as I can for our own use

#### Pack your own honey?

No but the family has been supplying Capilano for many years

*Favourite honey recipe?* Making honey joys for the kids

*Family history?* I'm a 3rd generation beekeeper

*Favourite hobby?* Fishing and hunting

*What is the most useful beekeeping equipment you own?* A Bobcat you can do everything

*What is your favourite season?* Spring

*What honey flow do you avoid?* Grey box (knockem box)

# **BRANCH NEWS**

#### **Cental Tablelands Branch Update**

Central Tablelands Branch of the NSWAA held Its AGM in Bathurst on Tuesday 19/7/22.

After many years of dedicated service to the subbranch Mal Porter – long serving president & Debbie Porter – long serving secretary decided not to re-elect for these roles.

We would like to thank Mal & Debbie for their tireless efforts and service to our branch, they leave big shoes to fill.

Newly elected board Sam Lockwood (President) Claire Bennett (Secretary) Robert Porter (Treasurer) Mal Porter (Vice President)

We look forward to serving the branch.

We shared a minute's silence for lost members & shared stories and memories of our friend and long-term member John Decan who recently passed away in June.

Current major industry issues were discussed including the Australian honey library, imported honey, pest & disease training and the current varroa mite incursion and efforts towards its eradication.

In effort to boost attendance and to gain new members we have decided to hold the next meeting as a daytime meeting on Saturday  $22^{nd}$  Oct.

We welcome and encourage any members of NSWAA or interested beekeepers to come along and attend our meetings.

Claire Bennett Secretary





# **BRANCH NEWS**

#### North Coast Branch update

On the 25<sup>th</sup> of May the North Coast branch held a meeting at Macksville RSL club for members that reside around that area as it is a long way to travel for them to attend meetings further North. This meeting was a follow up to a previous meeting held in April, mainly to see if we could revive the Mid North Coast branch.

Approximately 40 beekeepers turned up which was great to see and appreciated by all. This time we were able to have Rod Bourke and Mark Page attend to give a pep talk about pest and disease courses, this was meet with great interest and many signed up for future courses. Thankyou Rod and Mark for making the time to attend. It was also unanimously agreed that we look into the revival of the Mid North Coast branch.

Steve Fuller North Coast branch President.



#### Flood Update Meeting

On the 27<sup>th</sup> May the North Coast branch were lucky to secure a meeting with various government bodies to address the issues we are having in gaining access to grant money and help as required.

Approximately 50 interested people turned up for this meeting and was address by the following people. Ross Turvey - Rural Recovery Support Service, DPI, Wollongbar Stephen Green – DPI Regulatory Specialist Bees Craig Jenkins – Director Business, Industry, Tourism Flood Recovery Kelly Moroney – National Recovery & Resilience Agency, Recovery Support Officer

All listened as each speaker outlined what is available and how to apply for them. These agencies also learnt a lot from the questions asked. The general feeling was it was a worth while meeting and all gained something from it. I would like to thank each speaker for making the effort of coming to our meeting and listening to our concerns.

Cheers, Steve Fuller North Coast branch, President

#### North Coast Branch AGM

On the 27<sup>th</sup> May, North Coast branch held its' AGM. This meeting was well attended by 40 members and nonmembers.

The results are;

President, Steve Fuller Vice President, Troy McWhitter Secretary, Col Maloney Secretary Aid, Dave Fairhall Treasurer, Tony Hannah Congratulations to these volunteers as a lot of work goes on behind the scenes.

We were also lucky to have Senior Constable Sam Martin of the rural crime team attend to give an informative talk about theft and vandalism prevention and how to go about reporting it. Key points noted were, a; bees are our livestock, b; if you think someone has been in your apiary – take photos and report it. Thank you to Senior Constable Sam Martin for his time to attend our meeting.

Our next meeting will be on the 29<sup>th</sup> July. Place to be confirmed, if interested please contact us.

Regards, Steve Fuller North Coast branch President





#### **Branch Meeting Dates**

#### **Sydney Metro**

First Tuesday of every month at 7.30pm at Chifley College Bidwell Campus, Daniels Road, Bidwell.

#### **Central Tablelands**

January - third Tuesday April - third Tuesday July - third Tuesday October - third Tuesday

#### Riverina

Our meeting dates are usually in the first week of February, May, August, and November each year. Lately our meetings have been held alternatively between Wagga Wagga and Griffith.

Usually on the first Monday, when held in Wagga Wagga and on the first Thursday, when held in Griffith.

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#### **CROP POLLINATION ASSOCIATION (CPA)**

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#### Note: Rates from 1 March 2017

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