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April 2020 Newsletter

Hello all,

We are in such different times that no-one alive has ever experienced.

Who would have thought that Easter and holidays would be cancelled?

The weather has been kind however, although it may be getting a bit dry again- we can't complain though as we have all had way more rain than we had in the whole of last year. I hope the bees aren't as confused as we are.

We can't socialize, but our social bees are getting on with their business.

The year has flown, not surprisingly as there is a slight 'Groundhog Day' effect going on. It will soon be time to close the hives for winter.

If you've got lots of time at home then there is the opportunity to repair some broken worn out hives and maybe do some wax refining.
Hopefully things will get back to normal in the not too distant future, and we can continue with our bee-club meetings.

I have some Sugar shake kits at home – let me know if you'd like one. Any contributions for the newsletter would be appreciated.

Thanks, Mal - 6649 0990

Assistance

If anybody needs help with their hives, please contact me as we have members willing to help with your hives.

Beekeeping during COVID-19

DPI has received several requests from beekeepers to clarify whether or not travel for the purpose of beekeeping is considered a reasonable excuse to leave a person's place of residence under the Public Health (COVID-19 Restrictions on Gathering and Movement) Order 2020 (the order).

Under the order, a person must not, without reasonable excuse, leave the person's place of residence.

The order provides examples of reasonable excuses including:

- **travelling for the purposes of work if the person cannot work from the person's place of residence; and**
- **undertaking any legal obligations.**

Working

DPI advises that persons who work operating or are employed by a beekeeping business have a reasonable excuse to leave their place of residence for the purposes of work (assuming that they cannot do that beekeeping work from home). Beekeeping is important to the community as a food producing industry.

Legal obligations

In addition to the excuse of travelling for the purposes of work, all beekeepers in NSW have a legal obligation to maintain their hives in a biosecure manner at all times - specifically, in a manner which (so far as is reasonably practicable) prevents, eliminates or minimises the known or reasonably known biosecurity risks of their hives.

This obligation is known as the General Biosecurity Duty (GBD) under the NSW Biosecurity Act 2015.

Some beekeepers, including both professional and recreational beekeepers, will need to travel from their place of residence to attend to and manage hives that are situated elsewhere in order to observe their GBD.

This may include but is not limited to carrying out brood inspections, feeding,

requeening and other beekeeping activities that are required to ensure hives remain healthy and free from serious diseases like American foulbrood.

For this reason, DPI advises that both professional and recreational beekeepers may have a reasonable excuse to leave their place of residence for the purpose of undertaking activities required to meet their legal obligations under the GBD in accordance with the NSW Biosecurity Act 2015.

Recommendation when travelling

DPI recommends all beekeepers to carry a copy of their current DPI issued certificate of beekeeper registration when travelling in case they are questioned while on the road. Beekeepers who require a copy of their certificate of registration should contact bfs.admin@dpi.nsw.gov.au

You may also wish to print this advice and carry a copy with you.

Please remember that you must continue to practice social distancing at all times when carrying out beekeeping activities.

Further information

Should beekeepers require information around the impact of the COVID-19 pandemic on primary industries, please visit the [DPI COVID-19 information website](#) or email the COVID-19 Primary Industries Liaison Team covidinfo@dpi.nsw.gov.au

BEES, BEEKEEPING AND THE SENSE OF SMELL (From various Internet sources)

Honey bees (*Apis mellifera*) are highly social insects who live in dense colonies. For this reason, they require a sophisticated set of senses for communication. They also use their senses for food and threat detection. The majority of bees' sensory organs are located in the antennae. This is the first part of the bee to come into contact with scent, flavour and the physical world. Aside from the antennae, their hairs are highly useful for making sense of the world around them.

Olfactory Antennae

Honey bees use their antennae to detect odour. According to research by the National Institutes of Health, published in the "Genome Research" journal, honey bees have 170 odour receptors, or chemoreceptors, in their antennae. This is high for an insect -- fruit flies (*Drosophila melanogaster*) have 62 receptors and mosquitos (*Anopheles gambiae*) have 79. The honey bee's sense of smell is so sensitive that it can detect the trace of a scent in flight. This ability equips the bee to effectively and efficiently locate pollen-rich flowers. Once the scent is detected on the antennae, the bee's hyper-sensitive olfactory path processes the information, enabling the bee to determine the relevance of the scent to her search for pollen. As well as for finding food, honey bees use their sense of smell to locate other bees. In addition, bees are attracted to scented herbs such as rosemary, borage, sage, thyme, catnip, chamomile, lavender, basil, marjoram, hyssop and, of course, beebalm. Bees also use odours to help locate their hive, or their new home after swarming. To humans this pheromone smells lemony. When a bee stings, she releases an odour called an alarm

pheromone to alert others to the danger. This alarm pheromone smells like bananas and attracts other bees to come to the defense of the hive.

Bees have been shown to detect and respond to more than 60 different odours including methamphetamine, uranium, and tuberculosis. They have been used to detect lung and skin cancers, diabetes, and to confirm pregnancy. It is not known if they can detect potential seizures in humans.

Release of alarm pheromones near a hive or swarm may attract other bees to the location, where they will likewise exhibit defensive behaviors until there is no longer a threat (typically because the victim has either fled or been killed).

Entomologists have long known that honeybees can be trained to detect many scents, including the olfactory footprints of deadly explosives. ... By combining a target substance with sugar water and then presenting the compound to the bee, the researchers manipulate the insects into recognizing a distinct smell.

Bees' Sense Of Smell Might Soon Diagnose Disease

Bees have a nose 100 times more powerful than a human's. Like dogs, it turns out they can be trained and used in diagnostic tests. A London artist now has a contraption to do just that.

Even when a honeybee is a couple of miles away, it can still smell a particular flower or toxin.

A bee's olfactory sense is so acute—as much as 100 times more sensitive than a human's nose—that it can even sniff out the scent of a cancer tumor to help give early diagnoses.

London-based artist [Susana Soares](#) is now training bees to be doctors' assistants.

Bees, it turns out, can learn to recognize biomarkers of disease very quickly. "Bees can be trained in a few minutes," Soares says. Like dogs, they respond to rewards: Give them a sweet treat and associate that with a certain smell a few times, and they'll continue to fly toward the smell afterward.

If the bees recognize a scent, they'll fly towards it.

For a diagnosis, it's as simple as getting a bee to sniff someone's breath to see if a specific compound is present. Soares worked with a glassblower to create a special glass globe with two chambers to help the bees do their analysis. A patient blows into a smaller part of the globe, while the bees wait inside a larger chamber. If the bees recognize a scent, they'll fly towards it.

The test is surprisingly accurate, thanks to the bees' ability to detect incredibly tiny concentrations of molecules in range of parts per trillion. "Research has demonstrated that bees can be trained to target the chemical compounds of tuberculosis, lung, skin, and pancreatic cancer as well as diabetes," Soares says.



She envisions creating a “bee center” with a beehive, training facility, research lab, and health care center. After diagnosing a patient, bees would return to their hives. On her website, Soares asks what would happen if bees became a regular diagnostic tool to screen for cancer. “Which one would we trust more, a machine or a biosensor?” she writes. “Could beetraining become a profession?”

Bees "smell" many things. Guard bees sit or hover near the hive entrance and "smell" other bees trying to enter the hive. If the bees don't have the correct odour of that particular hive they are expelled. The new virgin queens produce a special odour called a sex pheromone to attract drones during the mating flight . Bees also use odours to help locate their hive, or their new home after swarming. To humans this pheromone smells lemony.

When a bee stings, she releases an odour called an alarm pheromone to alert others to the danger. This alarm pheromone smells like bananas and attracts other bees to come to the defense of the hive. This pheromone stays on clothing, so if you are stung you should wash your clothing before wearing it again.

The queen bee has her own pheromones in addition to the smell she produces when ready to mate. The queen also maintains behavioural control of the colony by a pheromone known as the "queen substance." As long as it is being passed around, the message in the colony is that "we have a queen and all is well." When a beekeeper wants to requeen a colony by introducing a queen from another source, he or she must place the queen in a cage within the colony for up to five days in order for the worker bees to get used to her odour.

Bees possess an extraordinary array of capabilities in their tiny frames. Whether raising brood, maintaining the hive, creating honey, foraging or any of the other tasks they undertake, bees have an incredible level of productivity, **derived from their beautifully evolved bodies and a rich set of senses.** They leverage these to the fullest extent possible, especially in relation to how they communicate.

Communication between bees within and away from the colony takes many forms. Each form is extremely well-developed and finely-tuned for the benefit of the colony. To achieve success, bees have strength in all their senses.

We have looked at the majestic power of pheromones within and outside the colony. **This invisible but pervasive signal – used for many different purposes – is the oil that keeps the machinery of the colony running smoothly.**

While the Queens Mandibular Pheromone (QMP) is perhaps the most well-known and important of the pheromones, even workers use pheromones to signal intent and circumstance.

Bees have a keen sense of smell. ... So can Bees really smell fear? Yes, Bees can smell fear. Instead of detecting fear in others conventionally through sight as humans may do, Bees can sense fear with the help of pheromones produced by animals when they are afraid. When honey bees become alarmed (usually in response to a perceived threat to the hive) they emit the strong-smelling pheromones isopentyl acetate and 2-heptanone. These compounds stimulate an alarm response in other bees, which in turn produce similar

pheromones, so that soon all the bees are in a state of alarm, and ready to attack anything that appears to be an intruder. Smoke acts by interfering with the bees' sense of smell, so that they can no longer detect low concentrations of the pheromones. In technical terms, the smoke reduces the electroantennograph response of the antennae. Strong floral odours can have a similar effect, but professional bee keepers have generally stayed with smoke, perhaps because they have more experience with it, and possibly also because it's cheaper. Either way, the effect is reversible, and the responsiveness of bees' antennae gradually returns within 10-20 minutes.

Beekeepers develop their six senses

Time and again I've noticed that beekeepers develop a keen sense of their environment. They use all five senses—and maybe a sixth—to decide how to best manage their hives. With their sense of sight beekeepers—some who've never cared much about plants—suddenly notice bees on a flower and want to know what flower it is. They start learning what blooms in their area and when. They learn how long a plant stays in flower and whether it provides nectar, pollen, both, or neither for their bees. They learn to recognize pollen by colour. Gradually, too, they start to recognize other species of bees as well as other pollinators.

With their sense of smell they perceive the health of a hive before they open it. Does it have that characteristic "busy" smell of wax, propolis, and nectar? Or does it have the unsettling smell of dysentery or, worse, foul brood?

With their sense of hearing they can tell if it's a honey bee in the garden next to them or some other bee. They can determine population levels by putting an ear to the hive. They may hear the chirp of a new queen or the heartbreaking scritch-scratch of starving bees munching on the woodwork.

With their sense of taste, they know what nectar produced the honey that fills their combs. But the most amazing is the sixth sense that tells a beekeeper his hive is going to swarm, or has gone queenless, or is short of provisions. He can "just tell" that a colony won't make it through the winter, or that it's going to explode with bees with the first breath of spring. He has good feelings about a hive—or bad. He predicts a bounty of nectar—or a dearth. Beekeepers are nearly as fascinating as the bees they keep, and it's no surprise that beekeeping attracts people from all walks of life into its folds. But as different as the individuals are, they each develop an almost mysterious connection with the cyclic forces of nature. Perhaps that's the true gift of the bees.

CUES AND CLUES OF THE BEEHIVE

By Arthur Gaske

INTERPRETATION

To be a good beekeeper and not just a keeper of bees it is necessary to use ALL your senses. Especially your powers of

OBSERVATION

There is so much that you can learn from just observing your bees and seeing what they are doing.

- How many bees are flying
- Amount of pollen being brought in
- Are the bees landing light or heavy

- What is on the ground in front of the hive, eg dead bees.
- How many bees are crawling up grass stems trying to fly and falling back on the ground.

☒☒Are their wings distended

☒☒Are they shivering

☒☒Do they look waxy

- Have the front of the hive bodies got orangey looking spots
- Have you listened to the hum of the bees

Whilst you are looking

- Have the bees been checking you out,
- Are you something they feel threatened by
- Are the bees flying around the hive erratically looking into cracks or crevices, the breathing vents on migratory lids,

landing on the edge of the entrance and taking off again erratically. You may see a bee trying to run out of the

entrance with another bee hanging onto that bee maybe trying to sting the intruder.

- This could be taking place in several sites across the landing board entrance.
- This tells you that all is not well in the honey gathering stakes, the flow has either been interrupted due to weather

conditions or even though that the honey flow is finished.

- This means that maybe you have a rethink about looking at your bees. If you had been thinking about robbing them then have a rethink.

• If you decide to go ahead and rob in a suburban situation this could possibly lead to neighbours getting stung as well

as family members or anything that moves in the vicinity.

- The answer is to not go past the OBSERVATION STAGE.
- Are they buzzing around 5cm from your face to get to the hive taking no notice of you.
- What is the buzzing sound now
- Is it normal
- Is the pitch much higher
- Are the bees movements jerky and darting

If you dare to windmill with your hands, he presto! Instant sting.

If you ignore the bees buzzing around 5cm from your face rather frantically it will leave you for a short time but will

return and go through the same process and eventually not come back at all.

Sometimes the first bee that was buzzing with a high pitch sound may return with 2 or 3 other high pitched buzzers.

This tells you that all is not happy in the family home and it is time for you to decamp slowly.

On the other hand you might on first arrival to look at your hives hear a really high pitch buzz and feel the bee hit you

in the back of the neck or ear.

When this happens there is only one thing to do and that is hit the bee as it hits you and scratch the sting out immediately.

If you do not kill the stinger she will keep hitting you and the high pitched sound or her buzzing wings is a call to

arms of her sisters who will be devotees of the same kamikazi school of high speed attack.

IT IS TIME TO LEAVE AND GEAR UP!

If you absolutely have to look into the hives make sure the smoker is belching lots of thick white COOL smoke,

preferably from forest she-oak needles.

Now OBSERVE what is happening around you.

- Are there clouds
- Is it windy
- Which direction is the wind coming from
- Are the bees coming in light
- What is the smell or odour in the immediate hive area
- Is it sweet or sour

All this has been OBSERVED and yet you haven't even opened up a hive yet.

OPENING THE HIVE

- You go to the hive entrance, a few puffs of smoke at the entrance,
- Lift the corner of the lid, a couple of puffs.
- Put lid back down and wait a minute or so making sure you are standing to the side or back of the hive, not in front of the entrance.
- Lift the lid off, then the inner cover. Now observe what the bees are doing.
- Are they forming rank, if so a couple of puffs of smoke, if not use your hive tool.
- Split the frames gently and deliberately.
- Withdraw a frame
- Look at its edges
- Smell the odour of the hive
- Put your nose down to the gap formed when you withdrew the aforementioned frame and breathe deeply.
- Is it sweet or sour (foul).
- Are the bees in the hive buzzing normally.
- Are they buzzing nervously.
- Are they buzzing, crying, distressed?

Lift off the boxes of honey placing them on your upturned hive lid with a puff or two of smoke over boxes before lifting them off.

Now you are down to the brood box. Lift out the frame of brood nearest the side wall. Look quickly on both sides

making sure the queen is not on it and lean it against the side of the hive.

What you are looking for is eggs on end and tiny larvae. When you find these start observing the bees behaviour, this

will help you find the queen. All the time LISTENING to the buzz of the hive.

You should also be SMELLING at the same time. Gently shake off excess bees back into the hive body then start

looking at the frame of brood.

- Give the frame a shake on the flat, this lets you know how good or bad is the honey flow.
- Turn the frame on its axis and position yourself with the sun coming over your shoulder and the frame angles so that the sun lights up the bottom of the cells.

If the queen is young and vigorous there should be even concentric arches of brood, larvae.

If conditions are really good there should be a sea of royal jelly in the bottom of the cells with the tiny larvae floating in it.

The smell you should be smelling is slightly sour coming from the abundance of royal jelly.

There should be a band of honey around the sides and top bar. All this is done quickly as you want to have the hive

opened as little as possible. While you are doing this your ears are LISTENING to the sound of the bees.

When they start to alter their pitch – anxious. A couple of puffs of smoke over the brood box and frames and also over the top of your honey supers.

Quickly go through the brood frames

- How many sealed brood
- How many unsealed brood
- How lavishly are they being fed
- What sort of shake have you got
- Is it consistent with what you have observed in the flora (buds) flowering
- How much more is to crack, i.e. how much that is going to start flowering in another four weeks
- Are the bees really happy and progressive, if so
- Split the brood and say put in four well drawn combs alternating between unsealed brood.
- Lift up four frames sealed brood and put into middle of honey super
- Take out four frames sealed honey all the while LISTENING for changes in buzzing (bee talk)

telling you when the

judicial use of smoke is needed to start putting the hive back together, take off honey or put on extra box or boxes.

If you do not want to take off honey this time put the four frames of sealed honey on the outside and four empty

frames in the middle of the new box you have given them.

LISTENING

When you first take off the lid and cover, LISTEN to the hive sound, bee talk.

- If a hive is queenless the bees sound agitated – unhappy and I call it crying
 - If a hive has lost its queen – superseded and raised a new queen but she has not long hatched out and has not as yet mated the bees sound anxious
 - If a hive is “sick” for whatever reason then the sound of the bees is sort of agitated and when your nose takes an active role you can smell that all is not well. The demeanour of the bees is aggressive.
- When you take off the lid and cover of a queen right healthy and prosperous hive the sound you will hear is a normal humming sound – happy bees.

I have already told you how your sense of smell is so important in helping you to assess conditions in the hive,

likewise your eyes are the key to see what is going on outside the hive.

To be a good beekeeper you have to be a student of nature. Look closely at what is happening around about your

hives, e.g., your hives may be getting a tremendous shake, the weather is fine and sunny, there is no sign of a change,

there is a light breeze, you are working your bees, everything is great then maybe an hour later the breeze stiffens, the

tone of the bees change and they start to get a little toey but you finish your work.

The next day no shake of nectar, bees are as cranky as all hell and prone to rob, but the following day everything is

fine, bees are happy getting a tremendous shake. The only thing different is there is no breeze.

Lesson to be learnt that wind stops green mallee yielding –

Walking through the scrub looking at bud and blossom pull down a limb to look at the flowers to see how much nectar

is in the flowers. Maybe they are full. Go around the other side of tree that was in the shade, pull down limb to look at nectar in flowers and guess what - could be dry as a chip.

Look at different trees on shady side, no nectar; on sunny side plenty of nectar. Go back in the afternoon the reverse happens.

Lesson to be learnt if you had looked on the shady side only you would have thought there was zero flow.

Another example of bees going great. Queen laying profusely, really big brood and bees getting a tremendous shake, plenty of blossoms to break and then another floral source so heavy with bud the limbs were all hanging down like

bunches of grapes. Come back to civilisation for four weeks, counting the tins of honey that are going to come.

Return to the bees, go down into the brood nest on the first hive after lifting off three boxes of honey but the brood

nest is shrinking. First thought queen getting past it.

Take off three boxes of honey on next hive go down to brood nest, brood nest shrinking, bees packing honey into cells

as brood hatches and all the hives were the same.

Everything looked great to me, the flow they were working was yielding, the buds on the upcoming flow were full and

yellow and just about ready to start cracking.

Came home, went back four weeks later, not a flower in sight. Ground under trees yellow with bud that the trees had

thrown off.

Lesson learnt from OBSERVATION. Somehow those bees knew what was going to happen weeks before it did

happen.

ARTHUR GASKE

Seasonal Management

Autumn

- Inspect the frames for food stores at the beginning and at the end of autumn; hives need six frames full of honey for food over winter
- Inspect the queen. Check that the queen is active on the comb, does not have worn wings or damaged legs and that she is laying compact areas of eggs
- Re-queen if necessary

Check the brood for brood disease. Look for a solid brood pattern, not more than 10 per cent of cells empty

Club News

Foundation and Apithor

Michael Worraker has our clubs supplies of Wax Foundation and Apithor SHB traps. Please contact him at 0408 293031 or by email. The price of foundation will now be \$2.50 per sheet.

Varroa Mite –Sugar Shake

April was Sugar Shake month, and I have free sugar shake kits available. I have them at my place at Kremnos or I can leave them in Coffs Harbour for pick-up if anybody would still like to have one. Contact – 6649 0990. Mal

Services and supplies

Michael Worraker also has queen cells for sale at various times

Ross Wood - Mated queens and Nucs - (Grafton) 0421 817 710

Steve Fowler - All manner of beekeeping equipment for sale. Steve and Janet usually turns up at meetings with a ute full of gear. To pre-order call - 0418 412621

Glenn Locke - Mt Coramba Apiculture - Flow hive mentoring and troubleshooting, queen bees and nucs. - 0459066297

Steve Hayes - little star bees - Nucs and hives - courses with native bees

Contact - 6564 8737

Di McQueen and Scott Richardson - queens, nucs, hives and beekeeping equipment

honeybeehives.com.au 0411 097 275

Honey Collection

For all those who have put in their honey, we are negotiating with Capilano for a Non-Contracted one-off sale. Update - We have a one-time supply contract and Matt is arranging for pick-up. MTF

Latest update. Quotes have been given for the honey. \$6kg paid for Drums 1-3, and Drum 4 with a Manuka content paid \$14.30kg! As soon as the money is in the bank I'll arrange payment.

Mal