



West Suffolk Beekeepers' Association

NEWSLETTER May 2020

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The opinions expressed in this Newsletter are not necessarily those of the Editor, nor of the Association

Notes from the Editor

Hello all at this time of continuing crisis.

Thankfully, for us beekeepers the effects of lockdown are tempered somewhat by the fact that, as custodians of livestock, we have the freedom to visit our apiaries, where there is a semblance of normality for a few hours. All very therapeutic. My site, with its woodland, pond and situation next to wildflower meadows is particularly good. The warm spell in mid-April had brought on my colonies and I had a mixture of very strong (10 frames of brood and eggs), intermediate and weaker colonies, as usual. Unfortunately, at the time of writing, I discovered two queen cells (Plate 1.

Middle right of the frame) in my strongest colony, which was accruing a large amount of honey, with 3 fairly heavy supers.



Plate 1 Queen cells

No queen was visible and there were no eggs so I had to assume they were superseding, an unusual occurrence for this time in the season. It is possible that having marked the queen on the last inspection, the workers had thrown her out. Now they have been checked by the cold wind, and we will see over the next couple of months, if I can keep up the standards of honey yield so coveted by our 'old' President, Philip Draycott.

If you read the April edition of BBKA News you may have seen the article by Gerry Collins of Yorkshire BKA where the preservation of pollen by lactic acid fermentation to form bee bread was discussed. As a silage microbiologist and specialist in anaerobic fermentations, I found the article very thought provoking.

Philip Draycott, who knew of my interest in lactic acid bacteria (LAB) and their role in silage fermentation, challenged me to tell you if in my view fresh pollen is nutritionally better than bee bread.

In an older paper by Gilliam (1997) the authors suggested that fermentation increased nutritive value. However, no evidence such as pH decline/acid production or changes in composition of pollen were presented, only bacterial numbers and pH. However, in a later paper Anderson *et al.* (2014) demonstrated that this was not so and freshly harvested pollen was preferred. With my silage hat on plus the observations of these and other authors at that time I would support the latter hypothesis, as in my experience the actions of solely LAB would not lead to dramatic changes in pollen composition and thus its attractiveness to honey bees and palatability and/or nutritive value.

On the other hand, there is more recent evidence that preservation of pollen by lactate fermentation creates conditions where yeasts can grow and digest the outer husk of pollen grains stored in bee bread. This would make the pollen protein more available, young bees feeding on both pollen protein and that from fungi in bee bread. Thus, Steffan *et al.* (2019) went on to propose and demonstrate that bees of many types, including honeybees, are omnivores like humans rather than as previously thought herbivores, or essentially vegetarians.

References for those who want to read more

Gilliam, M (1997). Identification and roles of non-pathogenic microflora associated with honeybees. *FEMS Microbiology Letters*, **155**, 1-10. Identification and roles of non-pathogenic microflora associated with honeybees

Anderson, K.E. Carroll, M.J. Sheehan (2014), *Molecular Ecology*, **23**, 698-69. Hive stored pollen of honeybees: many lines of evidence are consistent with pollen preservation, not nutrient conversion. *Microbial Ecology*, **23**, 5904-5917.

Steffan, S.A, Prarthana, S, Dharampal, Danforth, B.N., Gaines-Dya, H.R., Tazikawa, Y. and Chikairaishi, Y. (2019) Omnivory in bees: elevated trophic positions among all major bee families. *The American Naturalist*, **194**, 414-420.

Roger Merry rogermerry6@gmail.com

Chairman's Report

I hope everyone is keeping safe and well because these are challenging times for the country but as Roger has said, at least we have our bees to keep us occupied. Those who produce honey for sale are technically key workers but operating in the safest environment possible. While many could live without honey, the world would be dreary without it. Even more important is that bees are needed to pollinate crops which provide over 60% of what we eat.

The lock-down has closed around 80% of our outlets and yet demand is up! It seems that more people are shopping locally for their food. Let's hope for a good harvest to meet this.

A couple of weeks ago a good harvest didn't look promising. Last winter I experienced the highest colony losses in my years of beekeeping. I put this down to last year's dry summer resulting in a very poor ivy nectar flow. I didn't recognise this soon enough and fed too late (mid-October) with most of the losses occurring in the driving wind and rain in February and March. This meant that the bees could not forage as much as they would normally.

Thus, the importance of nutrition at the right time is evident from this year's experience. In the past I've tried feeding in August and the bees ate the food and needed feeding again (I didn't lose any bees that year). I've tried as I said leaving the bees to feed on ivy nectar which has worked if there is a flow! In the year of the "Beast from the East" my losses were half the average. I conclude from this that the period from August to October is crucial as this is the development time for winter bees. Winter bees that have been well fed can cope with poor weather and most disease, underfed bees cannot. I shall certainly be keeping a closer eye on the situation this year.

The surviving colonies were looking quite small at the beginning of April but they have doubled, tripled and in some cases quadrupled in size in the last two weeks with the sunny weather and oil seed rape in full flower. Although the weather is currently fantastic, we will need some rain soon as the ground was at field capacity in March but is now bone dry. The flowers can't give nectar without moisture.

The season appears to be early so I predict that we could have a long June gap and it will be important to make sure our bees don't go short of food. Last year a few of mine were close to starving (very lethargic), despite leaving on two frames of food as the books recommend and needed rescuing with syrup poured into open cells.

Our Committee is meeting by conference call so that we can keep the Association running remotely. We are trying to support our members by phone and email, answering beekeeping questions as and when they arise.

We have cancelled the Bee Safari planned for July but Sylvia still has the honey show ready to go in September, if we are able. Carol is organising winter talks on the same basis. Roger is planning to issue the newsletter more frequently, every other month for the duration, so please do let him have plenty of content so that we can keep you informed and hopefully entertained! Anyway, hope to see you all soon.

Kevin Thorn

OFFERED ARTICLES

Bees and honey in the scriptures

As a child, for several years I was sent, unwillingly, to Sunday School. Years later I realised that it was probably my parents' only chance in the week to, er, 'get together' without interruption. Thus, when I recently took my Holy Bible, presented to me in 1956, from the bookcase it was rather dusty.

Honey features prominently in the Quran and in Hindu and Buddhist culture. It is mentioned more than sixty times in the Old Testament, firstly in Exodus 3:8: God promises Moses that he will deliver the Israelites out of slavery in Egypt '*unto a land flowing with milk and honey*'. This phrase is repeated at least 17 times scattered throughout eight of the 39 books of the Old Testament.

The qualities of honey serve as useful analogies. '*Pleasant words are as an honeycomb, sweet to the soul, and health to the bones*' (Proverbs 16:24).

But not all is sweetness and light. '*It is not good to eat much honey: so for men to search their own glory is not glory*' (Proverbs 25:27). '*The full soul loatheth an honeycomb, but to the hungry soul everything bitter tastes sweet*' (Proverbs 27:7). '*Hast thou found honey? Eat so much as is sufficient for thee, lest thou be filled therewith, and vomit it*' (Proverbs 25:16).

Strangely, perhaps, the Bible mentions bees only four times. '*And after a time he returned to take her, and he turned aside to see the carcase of the lion: and behold, there was a swarm of bees and honey in the carcase of the lion. And he took thereof in his hands and went on eating*' (Judges 14: 8-9). The image is immortalised in the logo of Tate and Lyle's Golden Syrup '*Out of the strong came forth sweetness*'.

The other three references to bees remind us, unpleasantly, of fraught occasions in the apiary. '*And the Amorites, which dwelt in that mountain, came out against you, and chased you, as bees do*' (Deuteronomy:1:4). '*They compassed me about like bees*' (Psalm 118:12). And a threatened chastisement: '*And it shall come to pass in that day, that the Lord shall hiss [whistle] for the fly that is in the uttermost part of the rivers of Egypt, and for the bee that is in the land of Assyria*' (Isaiah 7:18).

Finally, a warning to those of my gender: *'For the lips of a strange [forbidden] woman drop [drip] as an honeycomb, and her mouth is smoother than oil'* (Proverbs 5:3).

Quotations are from the King James Bible of 1611.

Giles Youngs

The following article was offered by Tim Cox, a new and potentially commercial beekeeper who is being mentored this season by Philip Draycott. He is setting off on a new venture to complement his pest control business, which he largely does in the Autumn/Winter. It is a good example of the type of article that I have been looking for from new and inexperienced beekeepers who are excited by the wonder of bees. It may encourage others to come forward with articles.

“That’s a prime swarm, if ever I saw one”

One evening in mid-April Philip Draycott telephoned me to say “If you are available tomorrow, can you meet me at the yard and follow me to the apiary (*we are of course following government guidelines of social distancing*), to help with splitting a double brood box hive into four nucs”? I of course jumped at the chance to further my education in beekeeping and met him the following afternoon.

Upon arrival at the apiary, all appeared to be calm with bees coming and going from their respective hives. Philip and I donned our bee suits and with smokers lit we set about the business of disassembling the double brood box hive; Philip saying “You look through the top box for the queen and I’ll look through the bottom box. If neither of us has seen the Queen, then we shall swap boxes and check again.

I carefully removed the dummy board and thoroughly inspected frame after frame, with my heart skipping a beat as I occasionally mistook a drone for the Queen,

I inspected the last of my frames – no Queen. “Have you seen the queen?” I asked Philip. “No” he said, so we swapped and checked again; still no queen. “They must have swarmed” he said and as I looked up, there they were hanging on a Hawthorn branch about thirty yards away. “Look!” I said pointing. “That’s a prime swarm if ever I saw one, but it’s out of reach”, said Philip.

As it happened I had a telescopic ladder in my vehicle and so up it went, Philip exclaiming “Only if it’s safe, it’s not worth hurting yourself for a swarm”. There was a fairly stout branch to prop it against, so loppers in hand I ascended the ladder and after removal of a couple of obscuring branches the great size of the swarm revealed itself. Philip placed a cloth on the ground saying “Do you think it’s in the right place”? “I would move it more over this way” I said and after giving the branch holding the swarm a sharp and deliberate tug downwards the entire swarm fell to the ground exactly where Philip had previously placed the sheet! I should have never have questioned the master!

Events had overcome our original objective but we eventually managed to deal with the queen cells. However, returning to swarm, plenty had gone into the skep but a similar number had reunited around the branch and whilst we watched, all of a

sudden, the bees on the branch took to the air. “Hmm looks like they’re off” said Philip, “We’ve lost them”. Then, “No!” he exclaimed, “They’re going into the skep too!” It was an amazing sight and sound, the air around us filled with bees and the sound of thousands of wings buzzing, probably a once in a lifetime moment? We left the swarm to continue in peace and find sanctuary within the skep. Returning about 7.30pm, the bees were all still in the skep thankfully, so Philip tied the cloth around it and we delivered the bees to their new hive. Philip placed a board at an upward angle in front of the new hive then gently positioned the skep onto the centre of the board and unwrapped the sheet. Ready”? he said, and slowly lifted the skep off the sheet and with a thump and a whoomph, fifty million bees fell onto the board (*well it seemed like that many to me*) and they began to RUN into the entrance of the hive (Plate 3), which we had made as large as possible by propping up the bottom of the brood box placing an entrance bar under each front corner so that the bees had the entire width of the hive to enter by, and even then I had to keep clearing the entrance because it kept getting jammed by the sheer numbers.



“I was still there at nightfall as the remaining stragglers went in, a memory that will no doubt stay with me for the rest of my life. Thank you, dear Philip.

Plate 2. Bees running into the hive

Tim Cox

A tale with a happy ending

On 25th March John and I were called out to rescue some honey bees from an ash tree that had fallen in the high winds earlier in the year.

It was a mature tree and it fell onto a farmers’ fencing, letting sheep out into the street at Cowlinge. A tree surgeon was cutting the trunk into large rounds and suddenly a cloud of bees appeared and he decided that discretion was the better part of valour and left promptly. I was asked to investigate.

On arriving it was obvious that there were a reasonable number of honey bees present and they were calmly going about their business at one end of one of the large rounds (Plate 3). We had come prepared for everything and John (my husband) proceeded to cut through the round with a chain saw to enable us to upend it and stand a brood box, crown board and roof over the nest of bees (Plate 3).



We then left as several bees were flying and came back a few days later to find they had started to move up into the frames and were enjoying the fondant that I had left over the crown board!

Another week passed and when we went to check on the bees they were all in the brood box. John had brought his chainsaw and helped cut up the rest of the tree.

Plate 3 Brood box in position

I had a quick inspection and found a yellow marked queen and quite well-behaved, healthy bees. We put a floor underneath them, tied them up and took them to our home apiary.

I have since united a small drone laying colony with them which boosted the numbers and they now have a super on and are doing well

It was obvious from the size of the combs, the outer combs being quite black, that honey bees had been going to this tree for several years, but last year someone had lost a prime swarm near here and it had survived the winter. What a shock it must have had when the tree fell.

The tree was slowly dying as there was a large hollow interior which honey bees had taken advantage of.

A happy ending.

Sylvia Pettitt

Science Snippets

Bacteria reared to protect bees from pests and pathogens

Among the many challenges plaguing honey bee populations is the varroa mite. Scientists from The University of Texas at Austin have developed a new strategy to protect honey bees using genetically engineered strains of bacteria. The bees are inoculated by spraying them with a sugar water solution containing the bacteria and they ingest the solution after grooming one another. The bacteria then take up residence in the bees' gut, producing medicines aimed at protecting the bees from varroa mites as well as the deformed wing virus. The two infections usually occur simultaneously as the mites weaken the bee's ability to fight off pathogens

The team engineered two bacterial strains, which promote a helpful response to viruses in bees and trigger a lethal response in the mites. Compared to control bees,

those treated with the bacteria were 36.5% more likely to survive the virus and 70% of mites were more likely to die compared to those feeding on control bees (Fig. 1). “While the experiments occurred under strict biocontainment protocols used with genetic engineering”, one of the team said, “even absent of such protocols, the risk of the engineered bacteria escaping into the wild and infecting other insects — and thereby conferring some anti-pest or anti-pathogen superpowers — is very low.”

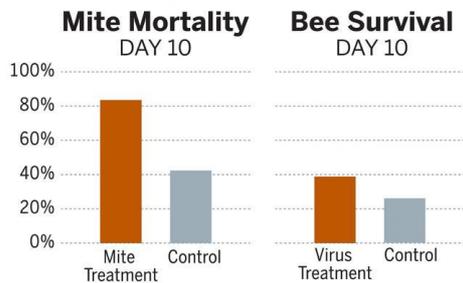


Figure 1. Mite survival and mortality, with and without treatment

Further research will be needed to determine the effectiveness and safety of the treatments in agricultural settings, but this approach

shows promise in helping to curb colony collapse and promoting a healthier bee population.

Abstracted from Advanced Science

Scientists find a half male, half female bee, split right down the middle

Broadly speaking, animals tend to be sexually dimorphic. You have males, with small gametes, and females, with large gametes, both of which are required for sexual reproduction. Every now and again, though, nature throws a surprise - producing an organism that's a combination of both sexes, divided straight down the middle. This condition is known as **gynandromorphism**, and scientists have just found the first known gynandromorphic individual of its species in a nocturnal bee native to Central and South America, *Megalopta amoenae*.



On its left side, the bee is physiologically male. It has a small, dainty mandible, a long antenna, and a thin, delicate hind leg with fewer bristles (Plate. 2).

The right side has female characteristics - a shorter antenna, a pronounced, toothed mandible, and a thick, hairy hind leg.

Plate 2. Gyandromorphic bee

In this case, researchers led by entomologist Erin Krichilsky of Cornell University were conducting a study on circadian rhythms in *M. amoenae*, and were working with living bees from the forest in Panama. The phenomenon has also been shown to occur in honeybees. Has anyone seen one and could send me a picture?

Abstracted from an article by Michelle Starr in Science Alert

Other matters

Coronavirus worries:

If members have any concerns about swarm collection, please contact Tim Slaven and he will if necessary remove your name from the swarm collectors' list. Please note however that the list isn't directly handled by us, so it may take a while to alter. Meanwhile, please say no to anyone who contacts you about a swarm. From a legal standpoint, BBKA advice says that collections can be made subject to social distancing.

News

One of our members, Giles Youngs, has had a letter published in the latest edition of **Beecraft** and the letter above his had a response from Anna Oliver, who talked to us about the National Honey Survey at the Society meeting at Lawshall in March.

New Beekeepers in 2020

The WSBKA Committee suggest that members should discourage potential new beekeepers this year as it will be almost impossible to give them the training, hands-on experience and help that they will need in the current climate. Our Secretary had enquiries from two people who are eager to start, having bought everything but the bees and clearly not realising that there's more to it than buying a puppy or kitten! Plus another enquiry from someone with bees who had to be mentored by phone and email several times – and she's not even a member.

Reject queens wanted

Jane Corcoran needs reject queens for her microscopy research. If you have one you would like to send her, please kill humanely by putting her in plastic bag or box and freezing overnight at -20 C and if possible preserve in white wine vinegar – of course frozen ones are welcome too. Jane's address is The Old Pear Tree, Whepstead, Bury St Edmunds IP29 4UD, email jane_corcoran@hotmail.com.

Honey wanted

Is there a member that lives near to Marham Park, Bury, who sieves rather than filters their honey (ie. high pollen content) and would be willing to supply the occasional 1 lb jar (preferably recently bottled) to a friend who suffers badly from hay fever? He's tried some of mine which he feels has helped his condition but I'm 12 miles distant, far from ideal, especially under current circumstances. Email Carol Williamson wsbka@yahoo.co.uk if you want more details.

Use of Refractometers to indicate when to harvest rape honey

During the oil seed rape season Carol Williamson takes honey off before it has been capped and in order to avoid the chance of crystallisation uses a refractometer to measure the isotopic ratio of sugars in the honey to calculate the sugar concentration, to check if it is ready for harvesting without risk of fermentation. She finds it invaluable and puts her mind at rest, although I must admit that I have one but have rarely had any problems and thus not used it. Carol says that they can be

purchased for £20 or so on Amazon etc. or nearer £40 from Thornes. She extracted the following notes on calibrating her refractometer from Dave Cushman's website and says that the method hasn't failed her yet. She has just extracted three supers less than 10% capped, the measurements being between 15% and 16.5%

Calibrating a refractometer

Owing to the remarkably consistent properties of Extra Virgin Olive Oil, one drop of it on the slide will always read between 71 and 72 on the Brix scale. If you set the lock-nut to show any such oil at 71.5, you will have correctly calibrated the water content scale in your honey at the same time.

Refractometers used by beekeepers are for guidance only. The figures mentioned above are for reference and are not intended to replace the conventional methods of calibration.

