The Essex Beekeeper

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In this issue

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Furthering the Craft of Beekeeping in Essex
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The Healthy Broodbox - Sentinel Apiaries

By Katy Langley and Salma Attan, Essex Bee Health Officers

What is a Sentinel Apiary Site?

You may have heard of these mysterious sites and wonder what they are and their purpose.

Sentinel Apiaries are apiaries across England and Wales where beekeepers have agreed to allow the National Bee Unit to monitor for certain exotic pests such as the Small Hive Beetle, Tropilaelaps mites and the Asian hornet, using traps provided by the NBU. The sites can often be near import areas but not always. My site was selected because it happens to be close to a freight train depot.

So what happens at a sentinal apiary site? The Seasonal Bee Inspector will check the site once a year during the active season. I have an insert to check for Small Hive Beetle that sits inside one of the hives and I add my varroa inserts in at least two of the colonies several days beforehand. I'll put the Asian Hornet trap out before the SBIs visit. Both the AH trap and the SHB traps will be checked. The trappings in the SHB insert will be sent to the lab for analysis. The SBI will take the scrapings from the varroa inserts to be tested in the lab for any signs of pests, particularly invasive species. Often (but not always) a stores frame from a brood box is selected and the honey along with the wax comb is scraped into a jar. This jar is also sent to the laboratory for testing.

Thankfully, so far, nothing strange or exotic has been found in these hives. Long may it last!

Small Hive Beetle

The Small Hive Beetle (SHB), *Aethina tumida*, poses a serious threat to European Honeybees. In Africa where SHB originates it is considered a minor pest akin to waxmoth, however African bees have evolved a variety of defence mechanisms to combat SHB: they remove both larvae and adults from the hive, prevent adults entering and use propolis to 'wall up' adult beetles within the

hive. Unfortunately European Honeybees do not exhibit the same behaviours and colonies have been overrun and destroyed in Australia, USA, Canada, Cuba and Italy, with significant economic and environmental impact. Within two years of it's discovery in the USA, SHB destroyed 20,000 bee colonies. The beetles eat brood, wax, pollen and honey and can proliferate in huge numbers within the hive, eventually destroying it. This leaflet from the NBU gives identification details SHB: what you need to know and the NBU booklet on SHB gives in depth information.

It is important to be able to recognise this notifiable NNIS so it's spread can be prevented in the UK. SHB can infest feral honeybee and bumblebee nests so it is vital that beekeepers can identify it in their colonies. It is likely to spread from imported bees, wax and hive products. UK weather and clay soil will not prevent SHB from infesting our honeybees, since it thrives in the US and Canada under similar conditions.

Adult beetles on comb SHB Larvae

Adult beetle

NB. The outbreak of both EFB and AFB is a continuing problem, please make sure your details are up to date on BeeBase: SBIs will want to alert you if your Apiary is near a foulbrood infection site; they cannot contact you if your phone number or email has changed, or you haven't got round to entering your latest apiary site. If you are not on Beebase, please register now!

Meetings in November 2020

Members are more than welcome to attend another Division's Zoom meeting. Just contact the Division and talk to the relevant co-ordinator.

Please note that all of these meetings are subject to Government COVID-19 rules that may be in place. Please check with the Division, too, to ensure that the event is running.

05 **19:00 - 21:00 - Managing Brood & Half by Derek Driver, Harlow Walden Division**

Address: tba

05 **20:00 - 22:00 - Buckfast talk, What the books don't tell you and why bees change their minds, Romford Division**

Zoom meeting

11 **19:30 – 21:00 - Prosecco and Planning Evening, Saffron Walden Division**

Address: tba

17 **19:30 – 21:00 - Kevin Thorn and the Black Bee Project, Chelmsford Division**

Zoom meeting

25 **19:30 – 21:00 - tba, Southend Division**

Address: WI Hall, Bellingham Lane, Rayleigh SS6 7ED

27 **19:30 - "Freebees: bait hives for profit and pleasure" with Professor David Evans, Braintree Division**

Zoom meeting

December 2020

03 **20:00 – 22:00 - tbc, Harlow Division**

Address: tba

03 **20:00 – 22:00 - If Heath Robinson had been a beekeeper, Graham Royle, Romford Division**

Zoom meeting

04 **19:30 – 21:00 - Christmas Event: Live demo of subscription renewal and reflections on beekeeping 2020, S/Walden Division**

Address: tba

11 **19:30 - "Mr Bee" with Celia Davis NDB, Braintree Division**

Zoom meeting

23 **19:30 – 21:30 - tba, Southend Division**

Address: WI Hall, Bellingham Lane, Rayleigh SS6 7ED

EBKA Honey Show 2020

By Michael Webb

It is with some sadness that the Show Committee had to decide to abandon the planning of a restricted Show behind closed doors later in the year. It became clear as the year progressed that the Government's continued action to reduce the effect of the pandemic could have led to the cancellation of the Show. This will be the first occasion since the Second World War that the annual Show has not taken place.

However, the Show Committee will continue to work remotely to plan for the 2021 Show with the expectation that conditions will have improved sufficiently to plan for an event that welcomes in the general public to see and enjoy the work of our beekeepers.

Obituary: Bill Fides

A tribute by Jean Smye, EBKA President

We have received the sad news that Bill Fildes died recently. Many of you will remember when Bill and his wife Sue were the leading lights of Thurrock Division. They supported all EBKA events with vigor, until they seceded to set up their own independent beekeeping group. Bill's wife passed away some years ago and will be remembered for producing the first Essex Beekeeper Magazine. Bill became President of Thurrock Beekeepers and was always ready to give a helping hand and encouragement where ever needed.

He will be sadly missed by those of us that knew him.

The Only Way Is Essex Bees

By Braintree Beekeepers' Association

A bright and clear day in early September saw some unusual activity in an apiary of one of our Braintree division members. Approaching the site a visitor mentioned that it looked like there had been a chemical spill or disaster of some sort, as the field and apiary site was filled with people wearing full PPE – it quickly became clear that they were all wearing bee suits, all 20 of them! It was later reported in the Daily Mail online that the visitors were wearing "hazmat" suits; great to see the journalists doing a top job as usual!

The reason for this drama; well drama itself in the form of The Only Way Is Essex (aka TOWIE). One of the cast members (Diags) turns 30 in February and so is completing a bucket list of sorts before he reaches the milestone, one of the things he wanted to try was beekeeping and so was surprised by fellow cast member Chloe Sims with a visit to the Essex countryside to get up close to some honey bees!

With the COVID-19 pandemic leaving our usual apiary meetings abandoned in place of virtual ones, when the enquiry came through for help with a "beekeeping experience" Stacy from Braintree Beekeepers stepped forward to offer her apiary as a solution. There followed a lot of back and forth with Lime Pictures (the production company) relating to health and safety, weather (gotta love a 40mph gale when you're planning a TV shoot!) and permissions, before confirmation finally came through that two cast members and eighteen crew would be rocking up on the afternoon of 1st September to film.

Then came the adventures around the countryside collecting up enough bee suits for everyone and sorting them according to size!

The day of the shoot couldn't have been more perfect – calm, clear and warm but not too hot. A quick check of the apiary midday - the bees were flying beautifully and the wasps had temporarily moved on from harassing the hives!

The filming itself took about an hour with a lot of prep prior to cameras rolling. Three cameras were set up in the field next to the hives, one for each cast member and one for the beekeeper and her bees, microphones hidden within suits- taped within the hoods.

Initially some shots of just Stacy and the bees were taken for a montage and then shooting paused to walk through the story and some direction given for key moments to film with the cast. Social distancing of crew and cast was particularly important as although in full suits and gloves there were no masks being warn, this meant some adaptations were required to accommodate the space, with

Stacy working and demonstrating with one hive to Diags who then had to copy on another, Chloe observed from several metres back.

Following a brief exploration of a few frames and a quick conversation about the queen, and in particular her mating habits, the Director called cut and declared that they'd got enough and the scene was brought to an end.

The next scene just involved the two cast members and two jars of honey, the tasting and conversation led into some mischief with the honey and resulted in two very sticky bee suits which the wasps took a liking to!

When reflecting on the day Stacy said; "It was a thrilling experience being part of a TV show, getting to show off the bees and having several film cameras following along. It was sad that we didn't get to properly look at the bees and for there to be more of an educational element to the filming; but it's not that kind of show so not a big surprise! I haven't been able to see the final edit before it goes live so I hope it shows off the bees responsibly. The two cast members were really nice people and genuinely seemed interested in beekeeping and the honey bees, asking lots of questions off camera along with a lot of the crew too. I felt quite special having people seek me out to enquire as to the bee's behaviours, I hope the show garners some interest for our Essex beekeeping associations – with several million viewers my fingers are crossed that it comes across well."

The episode aired on Wednesday 7th October 2020 on ITVBe but you can still view it on CatchUp.

The Science Behind Honey's Eternal Shelf Life

By Shropshire BKA, via eBees

A slew of factors—its acidity, its lack of water and the presence of hydrogen peroxide—work in perfect harmony, allowing the sticky treat to last forever. Modern archaeologists, excavating ancient Egyptian tombs, have often found something unexpected amongst the tombs' artifacts: pots of honey, thousands of years old, and yet still preserved. Through millennia, the archaeologists discover, the food remains unspoiled, an unmistakable testament to the eternal shelf-life of honey.

There are a few other examples of foods that keep– indefinitely– in their raw state: salt, sugar, dried rice are a few. But there's something about honey; it can remain preserved in a completely edible form, and while you wouldn't want to chow down on raw rice or straight salt, one could ostensibly dip into a thousand year old jar of honey and enjoy it, without preparation, as if it were a day old. Moreover, honey's longevity lends it other properties–mainly medicinal–that other resilient foods don't have. Which raises the question, what exactly makes honey such a special food?

The answer is as complex as honey's flavour – you don't get a food source with no expiration date without a whole slew of factors working in perfect harmony. The first comes from the chemical make-up of honey itself. Honey is, first and foremost, a sugar. Sugars are hygroscopic, a term that means they contain very little water in their natural state but can readily suck in moisture if left unsealed. As Amina Harris, executive director of the Honey and Pollination Centre at the Robert Mondavi Institute at University of California, Davis explains, "Honey in its natural form is very low moisture. Very few bacteria or microorganisms can survive in an environment like that, they just die. They're smothered by it, essentially." What Harris points out represents an important feature of honey's longevity: for honey to spoil, there needs to be something inside of it that can spoil. With such an inhospitable environment, organisms can't survive long enough within the jar of

honey to have the chance to spoil.

Honey is also naturally extremely acidic. “It has a pH that falls between 3 and 4.5, approximately, and that acid will kill off almost anything that wants to grow there,” Harris explains. So bacteria and spoil-ready organisms must look elsewhere for a home–the life expectancy inside of honey is just too low.

But honey isn’t the only hygroscopic food source out there. Molasses, for example, which comes from the by-product of cane sugar, is extremely hygroscopic, and is acidic, though less so than honey (molasses has a pH of around 5.5). And yet–although it may take a long time, as the sugar cane product has a longer shelf-life than fresh produce, eventually molasses will spoil.

So why does one sugar solution spoil, while another lasts indefinitely? Enter bees. “Bees are magical,” Harris jokes. But there is certainly a special alchemy that goes into honey. Nectar, the first material collected by bees to make honey, is naturally very high in water–anywhere from 60-80 percent, by Harris’ estimate. But through the process of making honey, the bees play a large part in removing much of this moisture by flapping their wings to literally dry out the nectar

On top of behaviour, the chemical makeup of a bees stomach also plays a large part in honey’s resilience. Bees have an enzyme in their stomachs called glucose oxidase (PDF). When the bees regurgitate the nectar from their mouths into the combs to make honey, this enzyme mixes with the nectar, breaking it down into two by-products: gluconic acid and hydrogen peroxide. “Then,” Harris explains, “hydrogen peroxide is the next thing that goes into work against all these other bad things that could possibly grow.”

For this reason, honey has been used for centuries as a medicinal remedy. Because it’s so thick, rejects any kind of growth and contains hydrogen peroxide, it creates the perfect barrier against infection for wounds. The earliest recorded use of honey for medicinal purposes comes from Sumerian clay tablets, which state

that honey was used in 30 percent of prescriptions. The ancient Egyptians used medicinal honey regularly, making ointments to treat skin and eye diseases. “Honey was used to cover a wound or a burn or a slash, or something like that, because nothing could grow on it – so it was a natural bandage,” Harris explains.

What’s more, when honey isn’t sealed in a jar, it sucks in moisture. “While it’s drawing water out of the wound, which is how it might get infected, it’s letting off this very minute amount of hydrogen peroxide. The amount of hydrogen peroxide comes off of honey is exactly what we need, it’s so small and so minute that it actually promotes healing.” And honey for healing open gashes is no longer just folk medicine–in the past decade, Derma Sciences, a medical device company, has been marketing and selling MEDIHONEY, bandages covered in honey used in hospitals around the world.

If you buy your honey from the supermarket, that little plastic bottle of golden nectar has been heated, strained and processed so that it contains zero particulates, meaning that there’s nothing in the liquid for molecules to crystallize on, and your supermarket honey will look the same for almost forever. If you buy your honey from a small-scale vendor, however, certain particulates might remain, from pollen to enzymes. With these particulates, the honey might crystallize, but don’t worry–if it’s sealed, it’s not spoiled and won’t be for quite some time.

A jar of honey’s seal, it turns out, is the final factor that’s key to honey’s long shelf life, as exemplified by the storied millennia-old Egyptian specimens. While honey is certainly a super-food, it isn’t supernatural–if you leave it out, unsealed in a humid environment, it will spoil. As Harris explains,” As long as the lid stays on it and no water is added to it, honey will not go bad. As soon as you add water to it, it may go bad. Or if you open the lid, it may get more water in it and it may go bad.”

So if you’re interested in keeping honey for hundreds of years, do what the bees do and keep it sealed–a hard thing to do with this delicious treat!

This article originally appeared in Smithsonian Magazine - Natasha Geiling.

COVID -19 and bee stings

By Somerton and District Beekeepers, via eBees

Could bee sting therapy possibly have a role in COVID-19 treatMaybe not. Should in-depth, scientific research be launched? Yes, say a trio of researchers in an article published in sciencedirect.com. Lead author Wei Yang, an oncologist from China, and two associates related some interesting but anecdotal information about beekeepers in the COVID-19 epicenter, the Hubei province. The beekeepers surveyed didn't contract the COVID-19 virus. Neither did a group of surveyed patients receiving apitherapy.

"A total of 5115 beekeepers were surveyed from February 23 to March 8, including 723 in Wuhan, the outbreak epicentre of Hubei. None of these beekeepers developed symptoms associated with COVID-19, and their health was totally normal. After that, we interviewed five apitherapists in Wuhan and followed 121 patients of their apitherapy clinic. These patients had received apitherapy from October 2019 to December 2019, and all the five bee apitherapists have the habit of self-apitherapy for their own health care (apitherapy means making use of bee venom from the honeybee's sting to treat or prevent certain diseases). Without any protective measures, two of the five apitherapists were exposed to suspected COVID-19 cases and others were exposed to confirmed COVID-19 cases, but none of them were infected eventually. None of the 121 patients were infected by SARS-CoV-2, and three of them had close contact with immediate family members who were confirmed SARS-CoV-2 infection cases.

Sugar syrup and HMF

By Somerton and District Beekeepers, via eBees

If you want win friends and influence people, learn to pronounce hydroxymethylfurfural, and you will soon understand why it is normally called HMF.

HMF is a product of overheating honey and causes the honey to degrade very quickly. There has been talk recently of creating HMF when boiling sugar to make syrup or fondant. According to the authoritative websites I could find, HMF is the result of overheating fructose, a sugar found in honey, but when bees collect nectar, they are supping up sucrose, a disaccharide, which means it is a compound of two or more sugars. Bees add an enzyme to the nectar which inverts it (invertase or sucrase) and splits it into its constituent simple (monosaccharide) sugars. Those are primarily glucose and fructose, hence the danger from overheating, but...

Boiling white granulated (sucrose) sugar doesn't create HMF because the fructose is bound up in the sucrose and is unaffected. So fear not, your bees are safe when fed syrup or fondant.

To ensure inclusion within the diary of county-wide events would Divisions provide the editor with details of local meetings by the 4th of the previous month.

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