

THE IPSWICH & EAST SUFFOLK BEEKEEPERS' ASSOCIATION

First Founded 1880; Registered Charity 1158794



Newsletter for

August - December 2015

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Opinions expressed in this Newsletter are not necessarily either those of the Editor nor of the Association.

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Enjoy your beekeeping even more!

If we are all to live up to looking after our bees properly, becoming better beekeepers and being members of two registered educational charities - the I&ES and the BBKA - (and the new County logo too - see page 7), so far as bees and beekeeping are concerned we need to know what we are talking about. In other words, we have to educate ourselves. This cannot be a 'five minute job' - there is much too much to learn - and more and more is discovered every year - exciting, isn't it? The honey bee really is a superb subject for study! The more we know, the more we find there is to know. If we are to be serious about it, all of us need to commit to lifelong study and learning. What will you be doing over the winter to widen and deepen your own beekeeping knowledge?

BBKA Examinations & Assessments

Suffolk students' results for the Module exams in March are:

Name	BKA	Grade	#	Subject
Richard Allen	I&ES	Pass	3	Pests & Diseases
Peter Langford	Waveney	Pass	3	Pests & Diseases
Thomas Lucking	I&ES	Pass	3	Pests & Diseases
Elizabeth Marley	I&ES	Pass	3	Pests & Diseases
Elizabeth Poupard	Leiston	Pass	3	Pests & Diseases
Richard Watson	Waveney	Pass	5	Honeybee Biology
John Wright	Waveney	Pass	5	Honeybee Biology
Gerda Gibbs	Waveney	Credit	6	Honeybee Behaviour
David Righton	Waveney	Credit	6	Honeybee Behaviour
David Burns	Leiston	Pass	7	Selection & Breeding
Mark Butt	Waveney	Pass	8	Management, Health and History

Intermediate Theory Certificate

Richard Allen I&ES
David Burns Leiston

Advanced Theory Certificate

Mark Butt Waveney

The BBKA Basic Assessment

*If anyone who has been keeping bees for a year or more and wants to take 'the Basic' in 2015, the remaining window of opportunity is only just ajar. The annual deadline for assessments to be completed is 31st August; applications should be in a month before that. If you do want to take it (as Winston Churchill used to say) "**Action this day!**" Applications to Adrian Howard, the County Examinations Officer, Adrian; 01394 411561.*

If you think it would be helpful to have a dummy run first - for this year or next - do please let me know and I should be delighted to arrange one to suit you.

Simon Croson - BBKA's Education Co-ordinator

We have just heard that Simon has been appointed as the BBKA's Education Co-ordinator, in succession to David Blower who established the role. You will remember that Simon spoke to us about photographing bees last November. He is an excellent choice! We hope to see him here soon.

Oxalic Acid We will be offering members the opportunity to buy oxalic acid for use just after Christmas but we have not yet decided how best to do that.

Would you/could you edit this newsletter?

As you will have seen, much of the contents come from other similar newsletters (which arrive free, in numbers), scholarly journals, contributions from our own members, and keeping one's eyes and ears open. It just needs to be published on time - but even that would be up to you.

The prospect may seem daunting but really it shouldn't be - while I have tried to set a good standard, it would be whatever you liked to make of it - there would be no criticism from me - just a sigh of relief! The only qualification is computer literacy. Why not call me to discuss?

Nosema sp.

Nosema is a microsporidian, a primitive but highly specialised parasitic fungus. There are a great many identified named species, only a very few of which infect insects of interest to mankind. Both honey bee *Nosema* species colonise the digestive cells lining the adult honey bee mid-gut (stomach or ventriculus) by firing a tube into them. They then reproduce by injecting genetic material into these cells and forming new spores. When an infection is fully developed, there may be as many as 50 million spores present. Excreted spores ingested by other bees readily infect others. If we look closely enough, *Nosema* spores can probably be found in every colony. When a colony becomes stressed, for example due to a shortage of stores, which may occur at any time of year, then the infection may become acute and prevent it from thriving or, in winter, kill it completely. The spores are 5 to 7 micrometres long with rounded ends and can readily be identified under a microscope at a magnification of x400.



Infection is spread when house bees, very young workers, ingest spores when cleaning comb which has been contaminated by sick bees defecating inside the hive. When ingested, the spores develop within the ventriculus, the organ in which digestion takes place, impairing the bees' ability to digest pollen. The hypopharyngeal glands of infected bees do not develop fully, and this restricts their ability to produce brood food. Dr Bailey reported that in colonies severely infected with *Nosema apis* in early summer, about 15% of the eggs fail to produce mature larvae, compared with about 1% in healthy colonies. The lives of infected bees were shortened by from 10 to 50% and queens were generally superseded within two to eight weeks of becoming infected.

The effects of *N. apis* on the colony include winter and early spring dwindling of adult bee populations, decreased honey production and decreased brood production. In severe cases nosemosis may kill the colony.

In 1994 a microsporidian similar to *N. apis* was found in the Asian honeybee, *Apis cerana*, from China. This parasite, named *Nosema ceranae*, was subsequently detected in European honeybees in Taiwan. More recently it has been found in Brazil, USA, Vietnam, much of Europe, North Africa and Australia.

N. ceranae does not cause the fast acting, short duration syndrome as has been observed with *N. apis*. It has also recently been shown that *N. ceranae* does not have the seasonality seen with *N. apis*, which is characterised by peak infection levels in spring; it is thought that *N. ceranae* induces significantly higher mortality rates. Non-specific symptoms, such as a gradual depopulation of bees, higher autumn/winter colony deaths or low honey production have been observed. It is now clear that *N. ceranae* is not a new parasite of the European honeybee. The delay in recognising *N. ceranae* is most likely due to the fact the spores of *N. ceranae* and *N. apis* are similar in size although, on average, *N. ceranae* spores are smaller. Another factor which delayed its discovery is that the latest molecular techniques such as PCR are needed to differentiate the species.

[The polymerase chain reaction (PCR) is a technology in molecular biology used to amplify a single copy or a few copies of a piece of DNA across several orders of magnitude, generating thousands to millions of copies of a particular DNA sequence so allowing its identification.]

***Nosema ceranae* can infect honey bee larvae and reduces subsequent adult longevity**

Nosema ceranae causes a widespread disease that reduces honey bee health but was thought only to infect adult honey bees, not larvae, a critical life stage.

We reared honey bee (*Apis mellifera*) larvae in vitro and provide the first demonstration that *N. ceranae* can infect larvae and decrease subsequent adult longevity. We exposed three-day-old larvae to a single dose of 40,000 (40K), 10,000 (10K), zero (control), or 40K autoclaved (control) *N. ceranae* spores in larval food. Spores developed intracellularly in midgut cells at the pre-pupal stage (8 days after egg hatching) of 41% of bees exposed as larvae. We counted the number of *N. ceranae* spores in dissected bee midguts of pre-pupae and, in a separate group, upon adult death. Pre-pupae exposed to the 10K or 40K spore treatments as larvae had significantly elevated spore counts as compared to controls.

Adults exposed as larvae had significantly elevated spore counts as compared to controls. Larval spore exposure decreased longevity: a 40K treatment decreased the age by which 75% of adult bees died by 28%. Unexpectedly, the low dose (10K) led to significantly greater infection (1.3 fold more spores and 1.5 fold more infected bees) than the high dose (40K) upon adult death. Differential immune activation may be involved if the higher dose triggered a stronger larval immune response that resulted in fewer adult spores but imposed a cost, reducing lifespan.

The impact of *N. ceranae* on honey bee larval development and the larvae of naturally infected colonies therefore deserve further study.

These findings, by Professor James Nieh of the University of California, were published in the journal [Plos One](#) and reported in May.

What then can be done to prevent infection in the first place and deal with an infection if our colony has one?

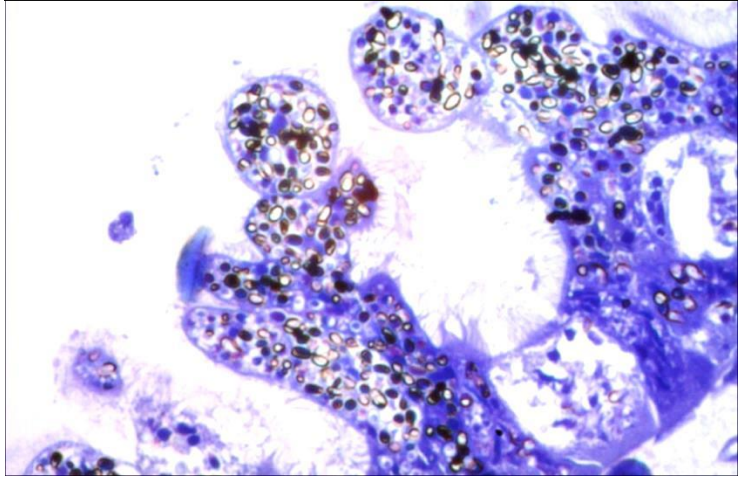
As always, our first efforts should be directed at prevention, so far as this is possible. As mentioned above, *Nosema* is a disease that can flare up when a colony comes under stress - probably not the only cause. Our first efforts should then be directed at reducing as many stress factors as possible.

- Hives must be weather proof and in good repair, set up on stands to minimize damp.
- Site the apiary to take advantage of sunshine and with protection from the worst of the winter weather.
- A supply of fresh water should be near.
- Excessive moisture in the hive is to be avoided. Mesh floors ensure a dry hive.
- Pollen sources nearby in early spring are very important.
- A variety of nectar sources within range – and the closer the better. Yes I know they can forage up to 3 miles but the further they have to travel the greater the consumption of fuel (honey) to get there and back and the greater the wear and tear on the foragers themselves.
- Gentle handling during manipulations. The beekeeper going through the colony is a necessary operation, not to be neglected, but it does stress the bees, some strains more than others. Use as little smoke as possible.
- Ample stores at all seasons of the year. Bees can starve in spring and summer if the weather is bad or forage is scarce.
- Low varroa mite population at all seasons - but especially when the colony is preparing for winter in August / September. Winter bees emerge in September and October. If mite populations are high at this time then bees which are meant to raise next spring's bees are likely to begin dying off before they can. The effects of a high mite population are very damaging to developing larvae.
- Encourage a high population of bees at all seasons. Ample stores at all times and a prolific strain help in this regard. The winter cluster must be big enough always to have some part of it covering an area of stores. At other seasons, the population needs to be big enough to enable the colony to forage and raise an appropriate quantity of brood.
- Keep your colonies headed by young queens, 2 years old maximum.
- Make up autumn syrup with a small quantity of thymol to prevent the stores going mouldy.

Ron Brown recommended this and so did R.O.B. Manley and both said they had no experience of Nosema. Obtain thymol crystals from a chemist or a bee equipment supplier: these dissolve in alcohol but not in water. Make up a stock solution by dissolving 20 g of the crystals in 100 ml iso-propyl alcohol. This keeps indefinitely in a well stoppered bottle. To prevent fermentation of the sugar syrup, add 1 ml of the stock solution to every 3 litres of syrup (about a teaspoon per 3 gallons). The writings of Brown and Manley are well worth reading. You will find both of them in the Association library.

If all of this looks like a council of perfection, take comfort from the thought that we will be doing well if we can get some of it right and try to learn lessons for the next time! As always, observation and vigilance are needed.

This is a section through one side of an infected bee's stomach, inside to the top. The tiny translucent rice grain shaped nosema spores are everywhere to be seen in the ventriculus lining.



But what do we do if nosema strikes despite all our preventative efforts and how will we know if our bees are infected?

A colony which is not thriving may be infected ('spring dwindling'). Frequently but **not** always, a nosema infection is accompanied by dysentery which will be evident from excrement spotting on hive fronts and on comb. If this is seen, have your bees checked without delay. BBKA qualified microscopists know how to carry out this check. Find out if there is one near you.

If your bees have the disease then, if the season is not too far advanced, a frame change is probably your best hope. See the [NBU website](#) for instructions on how to replace old brood comb.

Feeding sugar syrup is frequently recommended but don't overdo the quantity, little and often is likely to be more use to the bees.

Now that Fumidil B has been withdrawn, there are no antibiotics that may legally be applied to bees in the UK. There are supposed to be other preparations formulated for the purpose that are said to be effective in suppressing nosema, but I can't vouch for any of them.

Much information on Nosema disease and also many other aspects of bee disease will be found on the web. The NBU and BBKA websites should be your first stops. A good American site is [Scientific Beekeeping](#) run by Randy Oliver.

If you prefer books then *Honey Bee Pathology*, by L Bailey and BV Ball and *Honey Bee Pests, Predators and Diseases* edited by R Morse and K Flottum are worthy of study as is Ted Hooper's *Bees and Honey*.

One last word, taking the BBKA modules, especially Module 3 *Pests & Diseases*, is a most worthwhile investment in time and effort.

With grateful thanks to David Rennison, a Disease Liaison Officer from - I regret I can't remember where - and to the Australian Rural Industries Research & Development Corporation's Publication No 08/133 which lists all the references that I have omitted.

For the May nosema test, only one person sent in samples - well done Miriam! [A recent Bee Craft 'Hangout' is relevant.](#)

Will you be having your bees tested on 8th August?

George Rivers

I'm a third generation beekeeper, my grand-father kept bees at Little College Farm, Creting St Mary, in 1917; then my uncle followed him.

I was brought up on a farm in West Suffolk to the age of 9. Some of my earliest memories are of sitting on the landing boards on the front of bee hives. We moved to Bramford in 1932 with four Cottager bee hives. As we had moved into a semi-detached house where we had neighbours, we had to get rid of the bees.

In 1954, a new neighbour moved in with two National hives. My uncle said if the bees swarmed into our garden, he would start again as he had kept a skep and a cap. In 1955, a swarm came into our garden. That was when I started with bees at the age of 12, with a skep and a cap on top. To get honey from the cap, it was all smashed up and strained through a piece of net curtain. At that time, honey was 2/6^d (12½ pence) per pound. Jars were £2 per gross.

In 1956, he got me a new WBC from Smyth's of Lloyds Avenue, Ipswich, for £7-12s-6d. My veil was an old trilby hat with a piece of net curtain, an old jacket and old gauntlet gloves.

I made one or two hives and got some from people who had given up after the War. In the winter of 1963/63, I lost all my bees. I bought a 3 lb package of bees from the York Bee Company, USA, for £5-10s and started again and kept 5 or 6 hives.

I did not treat for varroa and lost them all in 1996. I kept the hives and later that year, a swarm hived itself - small black wild bees with a small queen which kept getting through the excluder. In 2004, I bought an Italian queen. At this time, I have 6 good hives of good Italians.

I bought a new extractor in 1960 for about £10 and still use it.

I will be 72 this year - that makes 60 years as a beekeeper.

We look forward to presenting George with his BBKA 60 years Long Service award at our September meeting

INTERESTING INTERNET BITS AND PIECES

Frighten yourself! See the progress of *Vespa velutina*, the Asian Hornet, [across Europe](#). Contrary to some reports, it is not yet known to have reached the UK but, worryingly, it can only be a matter of time before it does.

Bee video. A year in the life of a bee colony; the camera sees the innermost secrets of the hive

Some amazing photography [in this talk](#) - the first 21 days of a bee's life - thank you Terry for alerting me. A small criticism - the developing bees lie on their backs, not their fronts.

[New science supplies website](#)

Honey Jar offer. [Fred Willis](#) has a few gross available @ £37.00 packed in 72s. Collect, probably on a Saturday, from Esmerelda's, Barsham; 01502 586511.

A coming-of-age film with added buzz!

The 2014 film *The Wonders* is billed as "a mesmerising coming-of-age tale: small and sweet in every good way, but with a power that seems to surge up from deep beneath its sun-roughened landscape." It centres on a German-Italian family of beekeepers so ought to be worth seeing.

What plants are my bees foraging on?

If you want to get an idea of the answer, [this](#) is a really useful link to an interactive pollen recognition chart. As you move the cursor over the chart, each pollen colour is named. **But please bear in mind that this is only a very basic guide.** Only a professionally printed pollen chart is likely to give an accurate identification because computer monitors do not display colour accurately or consistently between brands/models. If you already have an idea, however, then this chart may help confirm it. You could, of course, buy a book. There is a copy of 'The Pollen Loads of the Honeybee' by Dorothy Hughes for sale online at Amazon for £147.00.

Bee colonies for sale @ £150

John Fairhurst & Annette Whitaker are scaling down so have colonies for sale in Nationals or Commercials with one super. annettew38@hotmail.com; 01394 460415.

New Honey Regulations

New legislation came into effect on 24th June 2015 for the sale of honey in England. See the [full set of regulations](#).

The key point is that they are, in the main, just clarifications of existing regulations.

DEFRA's overview, supplied courtesy of the Bee Farmers' Association, indicates that the 'Honey (England) Regulations 2015' ...

- Consolidate all existing rules on honey in one place.
- Clarify that pollen is not considered an ingredient in honey for the purposes of labelling rules.
- Replace the reference to 'EC' by 'EU' for the labelling of blended honey (Lisbon Treaty)
- Introduce the use of improvement notices for any breach of the Regulations and a First Tier Tribunal to help resolve disputes. **Adam Leitch** Reigate Bee News July 2015

'Raw' Honey?

During the Suffolk Show, some Londoners enquired whether we had any 'raw' honey for sale; they usually pay £15/lb for it. At a London bakery's request, I sent them some honey - and was then asked if it was 'raw'!

Cræftiga: Sutton Hoo Festival of Craftsmanship

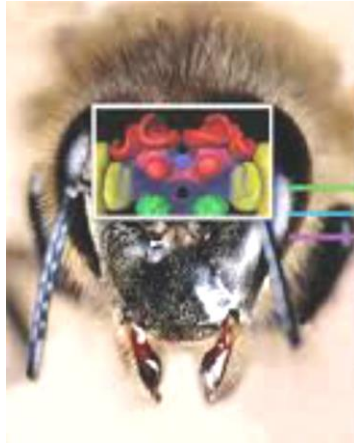
Sat 9 & Sun 10 April. Wanted - two people to promote bees and beekeeping. The two who went last year enjoyed themselves but can't make it in 2016. Could you help? Details from: laura.howarth@nationaltrust.org.uk; 01394 38970. Please let Jeremy know if you can help.

Game of Thrones puts mead back on the menu!

[Where to buy the best mead - the historic drink gone hipster.](#)

Bee Brains - not the short end of the stick!!

In spite of the small size of their brains, honey bees are clever, with a remarkable ability to learn and recall things very quickly. Their brains are about 20,000 times smaller than human brains and contain fewer than a million neurons, whilst ours have around 80 billion. The honey bee brain is, however, ten times denser than a mammal's brain.



The honey bee brain is oval in shape and about the size of a grass seed. It monitors a sophisticated sensory system which gives the bee excellent sight and smell. Currently, our fastest computer can make one billion computations per second. A honey bee brain can make one trillion computations per second!

While some bee behaviour is inflexible and directed by instinct, their decision making and their response triggers are not yet fully understood. Bees learn from older bees. They also use what they learn from experience to decide how to respond in the future. They utilise symbolic communication in a way very similar to ours. Bees form some lifelong memories.

A third part of a honey bee brain, the Mushroom Body neurons, is largely undeveloped until she starts to forage. This brain area then develops rapidly and is used in memory storage. If the colony has a shortage of foragers, some of the nurse bees will start to forage. This task transition, whether triggered by age or social cues, involves changes in the *expression* of thousands of genes in the honey bee brain; some genes turn on and others off. It allows bees to learn and utilise additional brain power to perform complex foraging tasks. Their brains are able to make complicated calculations of distances and optimise route plans for different locations.

Bees must make flying decisions, weather condition decisions, visual, scent tracking and tactile decisions. They pass directions to their fellow workers, receive and follow complex directions quickly, deal with bee enemies and unexpected unfamiliar situations. And they decide when to sacrifice their life for their colony!

If a foraging bee perceives a danger where she is foraging, and upon returning to the colony finds another bee communicating that location in a 'waggle dance', she will give a 'stop signal' by buzzing at 380 vibrations/second and butting the waggle dancing bee which will immediately understand and stop dancing. No more bees will go to this location.

Their overall 'intelligence' benefits the colony. Decisions are made through learning and experience. The process where a swarm reaches a quorum and selects its new nesting site from the various reports of the scout bees is a complex decision making process. Research in Australia has demonstrated that they can recognise different colours, and then use their memory of these colours to find their way through a maze.

Based on an article by Emery Dann, Samona BKA

Bees 'may be developing a form of Alzheimer's'

Bees may be developing a kind of animal Alzheimer's disease because of exposure to aluminium in the environment. A new study has found that the young of bees already show high amounts of aluminium contamination which may be causing mental dysfunction and playing a role in the decline of bumblebee populations.

Because of industrial discharge, aluminium is the Earth's most widespread pollutant and is already known to be responsible for the death of fish in acid lakes, forest decline and low crop productivity. Previous studies had suggested that when bees forage for nectar they do not actively avoid nectar which contains aluminium.

Researchers at Keele and Sussex universities have been investigating whether bees could be accumulating harmful amounts of aluminium and collected bumble bee pupae to study levels of the metal. The pupae were found to be heavily contaminated with aluminium, with individual contents ranging from between and 13 and nearly 200 ppm. Smaller pupae had significantly higher contents of aluminium. In humans, a value of 3 ppm would be considered as potentially toxic to human brain tissue.

The researchers believe the quantities are significant enough to cause cognitive decline in bees in the same way as Alzheimer's Disease effects the human brain.

Professor Chris Exley of Keele, a leading authority on human exposure to aluminium, said: "It is widely accepted that a number of interacting factors are likely to be involved in the decline of bees and other pollinators for example lack of flowers, attacks by parasites, and exposure to pesticide cocktails, "Aluminium is a known neurotoxin affecting behaviour in animal models of aluminium intoxication."

"Bees, of course, rely heavily on cognitive function in their everyday behaviour and these data raise the intriguing spectre that aluminium-induced cognitive dysfunction may play a role in their population decline – are we looking at bees with Alzheimer's disease?"

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127665>

Caffeine in Floral Nectar Enhances a Pollinator's Memory of Reward

Plant defense compounds occur in floral nectar, but their ecological role is not well understood. We provide evidence that plant compounds pharmacologically alter pollinator behavior by enhancing their memory of reward.

Honeybees rewarded with caffeine, which occurs naturally in nectar of Coffea and Citrus species, were three times as likely to remember a learned floral scent as were honeybees rewarded with sucrose alone. Caffeine potentiated responses of mushroom body neurons involved in olfactory learning and memory by acting as an adenosine receptor antagonist. Caffeine concentrations in nectar did not exceed the bees' bitter taste threshold, implying that pollinators impose selection for nectar that is pharmacologically active but not repellent. By using a drug to enhance memories of reward, plants secure pollinator fidelity and improve reproductive success.

Wright et al. <http://www.ncbi.nlm.nih.gov/pubmed/23471406>.

Sat 8 Aug: Nosema Afternoon

The Old Rectory, Dallinghoo IP13 0LA from 2 - 4 pm
If you want me to check for nosema, bring or send us a sample of no fewer than 30 bees. Details of ways to catch them and kill them and a reference form from [Jeremy Quinlan](#). This is a free service!

Wed 23 Sep: Auction/Forum/Ten Minute Tips

In the Scout Hall, Kesgrave IP5 1JF - from 7:30 pm.

Autumn & Winter Evening Classes

These start in September. Interested? Please get in touch with:

[David Adams](#) at Kirton.

[Barrie Powell](#) at Shotley Gate.

[Jeremy Quinlan](#) at Dallinghoo: Module 5, Honeybee Biology.

This is a 'stand-alone' Module which may be tackled first; a demanding but fascinating study, useful in understanding much other bee science.

Thu 1 Oct: Bee Woodwork Classes begin

Build yourself a 6 frame National nuc box. Workshop is just north of Dennington; sessions from 6:00 pm. Applications to [Jeremy Lain](#).

Wed 22 Oct: Dealing with Varroa

Hasan Al Toufalia, Sussex University:

<http://www.sussex.ac.uk/lasi/sussexplan/varroamites>

Wed 25 Nov: FWAG - enhancing agricultural habitats

Steve Podd: The Farming & Wildlife Advisory Group is a farmer-led, not-for-profit organisation, founded in 1973, whose aims are to help 400 Suffolk farmers combine positive wildlife conservation with sound agricultural business.

Wed 9 Dec: Christmas Get-Together

Dallinghoo Jubilee Hall IP13 0JX. Details later. Cost the same as last year. Note your diary! Reserve a place with [Jeremy Quinlan](#).

We welcome our new members

Tim Archer, Katie Brown, Noelle Gore, Stephen Gore, Vesna Gvozden, Jean Heaffey, Abi Kernahan, Charles Simms, Tom Verrill, Timothy Wilmshurst, Debbie Winget.

Things to do in August

Treat against Varroa! Feed!

Each colony needs 40lb (or 20kg) honey/sugar syrup stores. White granulated sugar can be bought from Bookers: 10 kg £6.99; 25 kg x 2 @ £21; your BBKA membership card gets you in but there is a world glut so you may find it cheaper elsewhere.

“Rasp-bees?”

Why should our bees suck our raspberries? How do we stop them? Ideas please! *Tim Heath*



Swarm Collection!

I had, shall we say, an experience yesterday afternoon/evening. A swarm of bees had settled at the bottom of a bank on the stream that runs parallel to the first tee at Broadstone Golf Club.

Not being able to get a sheet down because of the running water, I managed to get the box sort of half way under the swarm and brushed with hope! Getting most of them in, I then put the box on the bank and began to climb up to turn it over. While I was doing so a gust of wind picked the whole box up and dumped it into the stream.

The queen obviously bailed out and the whole lot (apart from a few washed away to eternity) took off to settle on a chain link fence next to the first tee. As they had grouped on both sides of the fence and it was about eight feet up, it was impossible to brush, so I tried to shake them down. I succeeded only in shaking the queen onto me, which I only discovered when about ten thousand bees decided to settle on my shoulders and head.

As you can imagine, by this stage I had acquired quite an audience of golfers, who burst into a round of applause when I positioned the nuc box on a huge white sheet in one corner and proceeded to jump up and down over it to dislodge the bees from me. This worked as I obviously jettisoned the queen and most of the bees onto the sheet which I think then decided they had had enough and marched straight into the box.

One of the golfers remarked "there's a lot to this swarm collecting isn't there?"

Ivor Kemp, Bournemouth & District Beekeepers' Association; June 2015

The importance of hive ventilation

Optimum winter conditions for bees are, we know, a constant cold temperature and dry conditions. Bees die from damp not from cold. This problem has been recognised for years. Back in 1932 Wedmore, writing in 'A Manual of Beekeeping', said: "If some British beekeepers suffering from winter losses could be persuaded to try and kill their bees one winter by excessive ventilation they would be surprised at the number of colonies they would save thereby".

It is quite easy to calculate that for every kg of honey consumed by bees they release 680g of water and 1,173g of carbon dioxide due to respiration. Most of the energy released is used in winter to maintain core temperatures in the hive. It is also well known that warm air holds more moisture than cold, and as it cools the moisture condenses back to water. Warm air is less dense than cold air and carbon dioxide is much denser than air. All of which means air saturated with water vapour and with a high carbon dioxide level needs to be removed from the hive. So how do we achieve good ventilation? There are two main ways to do it.

Top ventilation can be achieved by leaving one of the feed holes open, or by propping open the crown board with matchsticks or similar. The bees will form a protective mantle round the brood, which traps air rather like feathers on a bird and retains heat in the cluster. The bees may consume more food to make up any heat lost through the top of the brood box.

Floor ventilation. The use of open mesh floors for Varroa is not new - mesh floor ventilation was described by Wedmore. An open mesh floor replaces a small entrance for fresh air with a very large one. It is then possible to manage without top ventilation. Insulation over the crown board ensures the wood stays warm and water vapour doesn't condense there and drip on the bees. There is no scientific data as to which system is better in terms of survival and even energy usage, but the open mesh floor with insulation may lose less heat because a bubble of warm air will form at the top of the hive. *Courtesy Chichester Beekeepers via eBees*

Beekeeping Pulls in Crowds at Suffolk Show

Close to 12,700 visitors passed through the Beekeeping and Honey Tent at the Suffolk Show this year to learn more about bees and beekeeping, and their vital role in maintaining our environment.

The tent sported a fresh new look and logo under the banner “Promote, Teach, Inspire”, and visitors to the tent were able to see live bees at work in the two observation hives, use microscopes to find out what bees look like close up, talk to beekeepers about all aspects of beekeeping and honey processing, and of course buy honey and beekeeping products. Activities for younger visitors included candle rolling, a quiz competition to win a large fluffy bee, and the chance to get their hands on many of the tools of the trade as well as some of the wonders of apiculture, such as natural wax comb containing recently laid eggs and developing larvae.

Another highlight of visiting the tent was the annual Honey Show, where over 30 competition classes attracted close to 200 entries from all over Suffolk. And, to make this year’s competition all the more special, the 12 competition trophies were presented on the closing afternoon by Bob Flowerdew,

the well-known organic gardener and panellist in Radio 4’s Gardeners’ Question Time, who



Sally Fletcher & Lee Smith, joint winners of the Novices' Cup

treated the audience to some illuminating insights into bee behaviour and bee-friendly plants. Feedback from the honey judge, Fiona Dickson, was that the standard of entries was exceptionally high.

The show could literally not go on without the tremendous contribution of the stewards, all volunteers from the SBKA, many from the Ipswich branch. The stewards were fantastic, engaging with the public with energy and enthusiasm to share their knowledge and love of beekeeping.

Next year, and in the future, it would be great to see more of our novice beekeepers coming along as stewards, taking part in the novice classes and then progressing on to other competitions.

More importantly, I hope that all beekeepers, especially our members, will make showing a routine part of beekeeping and so all will enter at least one of the Show competitions every year.

For the [results of the Show](#).

For more information, contact Liz Marley (Show Secretary) by email (liz.marley@me.com).

“B-Lines” in Suffolk?

Had you heard of B-Lines? I hadn’t either but was attracted to a report of bee highways in Oslo that allow insects safe ways of crossing the city.

I then found that they are in the UK too, fostered and promoted by the charity Buglife – but not yet, apparently, in our part of the country - see the map.

Buglife says: “Everyone can take part! Whether you own a large area of land that you would like to turn into a wildflower meadow or just have a small patio or window sill, you can help [create the B-Lines network](#). Whether you’re a landowner, farmer, school, local authority, business or an individual hoping to make a difference, you can help create wildflower habitat in your area.”

My experience of taking bees to the two adjacent prisons at Hollesley Bay and Warren Hill has shown that there just isn’t enough forage for the bees to produce any surplus honey. In fact, to keep them manageable, they need feeding.

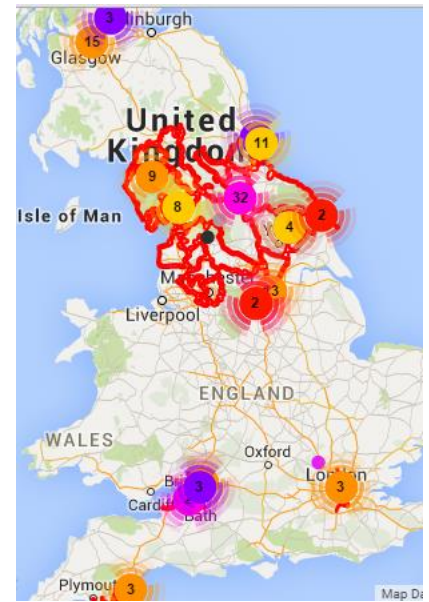
Improvement is on the way, however. The Suffolk Punch Trust has agreed to plant a nectar plot near their garden, taking out about an acre of the car park grassland using a donated nectar seed mixture; there was enough for an acre at the Prison and an acre at SPT. A contractor broke up the ground - it hadn’t been cultivated for some years and was very compacted. It is now all ready for seeding. I am not sure if they have drilled yet. Hopefully the weather will cooperate after drilling - nice gentle rain required!

What will you do to help make a B-Line a reality here?

“Burt’s Bees”

Have you ever wondered who Burt is, or was? He started the Californian company which sponsors the little white WBC hive collecting boxes for the BBKA. The idea is that, in return for £1, donors get a leaflet about bees. I hope it will soon be corrected.

Burt Shavitz died recently aged 80 and his obituary told us that since 1984, his name and face, “a grizzled visage of bearded hippydom”, has been attached to a range of lip balms, candles and toiletries that were originally made from the wax harvested from his beehives and sold from the back of his truck. Although no longer involved with the company, he noted that “As a celebrity of sorts, I’m contractually obligated not to say ‘Buzz off.’”



Calendar

Members of the six Associations which form the Suffolk Beekeepers' Association are welcome to attend any or all these meetings. There will be other meetings but details were not available at the time we went to press.

Ipswich & ES BKA winter meetings are held in the Scout Hall, Kesgrave IP5 1JF from 7:30pm.

Sat 1 Aug	Stowmarket Honey Show Bacton Fayre	www.stowmarketbeekeepers.co.uk/
Sat 8 Aug	Nosema afternoon 2 - 4 pm Old Rectory Dallinghoo IP13 0LA	Ipswich & ES Jeremy Quinlan 01473 737700
Sat-Sun 5-6 Sep	West Suffolk Honey Show Wyevale Garden Centre Bury St. Edmunds	West Suffolk BKA
Wed 23 Sep	Auction/Forum/Ten Minute Tips: Scout Hall, Kesgrave IP5 1JF	Ipswich & ES Malcolm Marchant
Thu 1 Oct	Bee woodwork classes begin at Dennington 6 pm	Ipswich & ES Jeremy Lain 07982 39257
Wed 22 Oct	Dealing with Varroa: Hasan Altoufalia, Sussex University	Ipswich & ES Malcolm Marchant
Thur-Sat 29-31 Oct	National Honey Show St George's College, KT15 2QS	http://www.honeyshow.co.uk/
Wed 25 Nov	Enhancing agricultural habitats Steve Podd, Suffolk FWAG	Ipswich & ES Malcolm Marchant
Wed 9 Dec	Christmas Get-together Supper Village Hall, Dallinghoo IP13 0JX	Jeremy Quinlan 01473 737700

Chocolate Almond Bon-Bons

4oz finely ground blanched almonds ¼ cup honey
1tbsp butter or margarine ¼ tsp almond extract
4oz melted chocolate Pinch of salt
Combine almonds, honey, butter/margarine, almond extract and salt. Form into small balls and dip into melted chocolate. Put on waxed paper and refrigerate to cool.
Recipe from Roger Patterson's Honey Recipe Site:
www.honeyrecipes.org.uk

Midlands & South West Counties bee conference

18/19/20 Sept at Cirencester Royal Agricultural University. See:
<http://www.mswcc.org.uk/>.

Part-time Certificate and Diploma courses at Cambridge University

[The Institute of Continuing Education](http://www.instituteofcontinuingeducation.com), University of Cambridge, offers courses in Evolutionary Biology, Ecological Monitoring and Conservation and Historic Environment starting in October or November.



Box House Beekeeping Supplies

In East Bergholt, Suffolk - for the local supply of hives, frames and foundation, tools and other equipment for keeping bees. Open by arrangement - please email or telephone Paul White to discuss your requirements. 01206 299658 or 07768 634038.
www.box-bees.co.uk; email: sales@box-bees.co.uk

Antennae cleaning

Contamination of body surfaces can negatively affect many physiological functions. Insects have evolved different adaptations for removing contamination, including surfaces that allow passive self-cleaning and structures for active cleaning. When foraging for either nectar or pollen, a bee gets well covered with pollen grains. As she is hairy, they stick all over her. Her eyes are protected by hairs



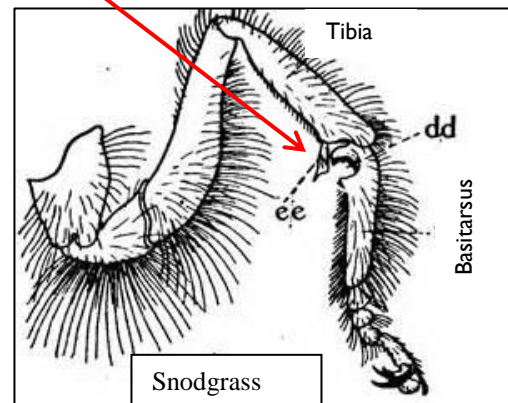
Honeybee with ivy pollen Regret photographer unknown

but her antennae, her sensors, need to be quickly cleaned and made functional again. This is the function of her front leg antennae cleaners. See also:

<http://www.understandingbeeanatomy.com/265/>

While [this study](#)

examined the function of the antenna cleaner in *Camponotus ruffifemur* ants, it is much the same in bees, another hymenopteran. The cleaner is a clamp-like structure consisting of a notch on the basitarsus (marked Tar in the diagram) facing a spur on the tibia, both bear cuticular 'combs' and 'brushes'. The insects clamp one antenna tightly between notch and spur, pull it through, and subsequently clean the antenna cleaner itself with their mouthparts.



We simulated cleaning strokes by moving notch or spur over antennae contaminated with fluorescent particles. The notch removed particles more efficiently than the spur, but both components eliminated more than 60% of the particles with the first stroke. Ablation of bristles, brush and comb strongly reduced their efficiency, indicating that they are essential for cleaning.

To study how comb and brush remove particles of different sizes, we contaminated antennae of living ants, and anaesthetized them immediately after they had performed the first cleaning stroke. Different-sized beads were trapped in distinct zones of the notch, consistent with the gap widths between cuticular outgrowths. This suggests that the antenna cleaner operates like a series of sieves that remove the largest objects first, followed by smaller ones, down to the smallest particles that get caught by adhesion.