

THE IPSWICH & EAST SUFFOLK BEEKEEPERS' ASSOCIATION

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Newsletter for Aug - Dec 2016

Queen
colour
is white

Hon Secretary, I&ESBKA: Malcolm Marchant,
The Orchards, Westerfield Road, Ipswich IP6 9AJ
☎ 01473 289629; secretary.iesbka@suffolkbeekeepers.co.uk

Hon Treasurer, I&ESBKA: Jackie McQueen,
643 Foxhall Road, Ipswich, IP3 8NE
☎ 0473 420187; jackie.mcqueen@ntlworld.com

Newsletter Editor: Jeremy Quinlan,
The Old Rectory, Dallinghoo, Woodbridge IP13 0LA
☎ 01473 737700; Email: JeremyQ@tiscali.co.uk

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

The Suffolk Beekeepers' Association is an Area Association of The British Beekeepers' Association. <http://www.bbka.org.uk/>

Suffolk BKA: www.suffolkbeekeepers.co.uk

County Secretary: Ian McQueen, 643 Foxhall Road, Ipswich, IP3 8NE
☎ 01473 420187; secretary@suffolkbeekeepers.co.uk

Leiston & District BKA www.leistonbeekeepers.onesuffolk.net

Secretary: Penny Robertson, 42 Church Hill, Saxmundham, IP17 1ES
☎ 01728 604388; penn.robertson@me.com

Norwich & District Bee Keeping Club

Secretary: Stewart Spinks, 19 Ardney Rise, Norwich NR3 3QH
☎ 07889 727 543; secretary@ndbk.club

Stowmarket & District BKA stowmarketbeekeepers@gmail.com

Secretary: Sue Haynes, Creeting Hills Farm, Creeting St Mary, Stowmarket, IP6 8PZ.
☎ 01449 722570.

Waveney Bee Group: www.waveneybeekeepers.co.uk

Secretary: Dick Houghton, 288 London Rd South, Lowestoft, NR33 0BG
☎ 01502 518874; 07931 714990; waveneybeekeepers@gmx.com

West Suffolk BKA wsbka@yahoo.co.uk

Secretary: Carol Williamson, Brook Vale House, Stowmarket Rd, Rattlesden,
Bury St Edmunds, IP30 0RR. ☎ 01449 736362.

I&ES BKA Committee Members:

President:	David Adams	01394 448235
Chairman:	Jeremy Quinlan	01473 737700
Hon Treasurer:	Jackie McQueen	01473 420187
Hon Secretary:	Malcolm Marchant	01473 289629

Committee:	Betsy Reid	01473 736506
	Steven Carter	01206 844911
	Barrie Powell	01473 787199
	Gillian Leung	01394 273193
	Helen Tuppen-Davies	01473 742862

Are you serious about your beekeeping?

Beekeeping is a complicated business and, with every year, it becomes more complicated. This is, unfortunately, a simple statement of fact. Human activity brings both pesticides and habitat loss. Movement around the globe is so simple and swift that, involuntarily, pests and diseases are also spread wherever we go. Since giving up and 'throwing in the towel' is not an option, we must deal with the consequences. The only good way is through learning and education. Your learning and education can be validated by the BBKA's examinations and assessments.

There are both practical and more academic routes to validation. The Basic, General Husbandry and Advanced Husbandry assessments require no written examination but just the observation of practical beekeeping and verbal questioning of candidates.

The assessment and validation processes are not a form of masochism for those who thought they had taken their last examination many years ago and had no intention of ever taking another. In today's world, for those who aspire to be in control of the situation, they are a way of organising learning and demonstrating and proving that knowledge, making you a more confident and competent beekeeper. They are also a fascinating and enjoyable study of the complicated organism that is the honey bee. Honey bee studies are a magic well - the more that is found, the more there is to find. Happy hunting!

Jeremy Quinlan with thanks to Jane Tuke for her suggestions.

Practical beekeeping training every week

Our Association apiary at Humber Doucy Lane will be open at 2:00 pm every Sunday afternoon up to and including 14th August. There will be something different every week and something the same - the bees. To lead the training, we have there, in rotation, Barrie Powell, Paul White, Richard Allen and Jeremy Quinlan. They will be supported by one or two of Malcolm Marchant, Rinus Scheijde, Nick Bird, Maureen Howard, Dave Thomas and Gillian & Shobo Leung. This is a considerable commitment by many. It is an opportunity for all to advance your beekeeping knowledge and improve your skills. **Please support us and use the facility.** See http://suffolkbeekeepers.co.uk/ipswich_East_Suffolk_BKA.html.



Beekeeping education

13th September with Barrie Powell at Shotley Gate at 7.00 for 7.30 & continuing 2nd Tuesdays of the month. Contact: beepowell.powell@gmail.com; 07857 656382; 01473 787199

3rd October with Jeremy Quinlan at Dallinghoo from 7.30 & continuing 1st Mondays of the month (January, 2nd Monday). We shall be studying for Module 7: Selection & Breeding Honey Bees. Contact: JeremyQ@tiscali.co.uk; 01473 737700.

6th October - Bee Woodwork. Make yourself a nucleus box, a solar wax extractor, etc. with Jeremy Lain from 6.00 - 8.00 pm at his workshop at Lodge Farm, Dennington IP13 8AR. Contact: mail@treeincarnated.co.uk; 07982 392579. *This workshop will not run unless there are enough to make it worthwhile.*

19th October with David Adams and Shobo & Gillian Leung at Kirton from 7.30 & continuing 3rd Wednesdays of the month. Contact: gillybum55@hotmail.com; 01394 273193.

If any of these appeal, please sign up; the organisers would be grateful if that was now.

Oxalic acid

Varroacides based on thymol are not 100% effective so the Bee Unit advises that oxalic acid is used when colonies are broodless – usually at the end of December. Api-bioxal is now available but the smallest 35 g sachet treats 10 colonies; this sells for about £10.50. In the past, as a service to members, we have offered the ready mixed liquid in smaller quantities. **If you think you would like some this year, please tell Jeremy a.s.a.p.. If there is too small a take-up, we won't bother.** If we do go ahead, I should be grateful if someone would volunteer to help me prepare the small quantities required. I look forward to hearing from you.

We welcome our new members

Jan Hamstead (not 'Jam' - apologies!), Stirling Askew, Lily Firth, David Higgins, Steve Howieson, Chris Lander, Neil Mitchell, Joshua Prentice and Steve Willingham.

Are your BeeBase details up-to-date?

Sandra Gray asks that we each please check our BeeBase details.

Cure for baldness?

An old English handbook gives cures for problems such as headache (bind a stalk of crosswort to the head with red flannel) or baldness (prepare an ointment from linseed oil and the ashes of burned bees)..

Would you like to “adopt” a hive?

ActivGardens at Maidenhall offers the opportunity for people who would like to learn. Contact: Susannah Robirosa 01473 345350, 07530 407302, susannah@activlives.org.uk.



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

Ipswich meetings

28th September

Bring & Buy/Forum/Ten Minute Tips

1. Bring your surplus bee equipment; label it with the price wanted. You are welcome to do this at any of our winter meetings.
2. Please tell us of your thoughts, queries and experiences and hear what other beekeepers have to say.

12th October

Harvest Supper in the Westerfield Village Hall

26th October

Hasan Altoufaiia: Oxalic acid vapour against Varroa. See:

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

23rd November

Emma Bradford, EARS2

Student Deformed Wing Virus is not usually virulent / pathogenic but changes in the presence of Varroa. I aim to understand how passing through Varroa changes the virus.



Do you want an out-apiary? Do you live in or near East Ipswich?

If so, there is an opportunity to manage the small apiary at Purdis Poppy Farm. We currently have four colonies which need managing and the number of could be increased. Since starting a care farm business in 2014, we currently do not have time to be good beekeepers but would be happy for the apiary to continue with someone else taking care of it. If you are interested, please contact Liz Marley on 07799 470913 or email liz.marley@me.com.

Bee Improvement Day

Cambridgeshire Beekeepers' Association will be holding a BIBBA "Bee improvement Day" on **Saturday 15 October 2016** at Our Lady of Lourdes Church hall, 135 High Street, Sawston CB22 3HJ, about 7 miles south of Cambridge @ £15 includes a lunch & refreshments throughout the day; david.abson01@gmail.com.

Insulated hives

Derek Mitchell's article on insulation for beehives now available from the publishers Springer for £29.95: see <http://link.springer.com/article/10.1007%2Fs00484-015-1057-z>

Extractor for sale

12 frame stainless steel hand-cranked radial extractor (by Thomas, France) £250 o.n.o. Contact: John Forbes; . 01394 382209 johnforbes@struie.plus.com; 'Struie', Bealings Road, Martlesham, IP12 4RW

New antibiotics from insects?

Antimicrobial peptides (AMPs) are short proteins with antimicrobial activity. A large portion of known AMPs originate from insects, and the number and diversity of these molecules in different species varies considerably. Insect AMPs represent a potential source of alternative antibiotics to address the limitation of current antibiotics, which has been caused by the emergence and spread of multidrug-resistant pathogens. Their study is topical and continues.

Bees poisoned!

In the July edition of their newsletter, the Chairman of the West Sussex BKA, Jim Norfolk, wrote: I have had several communications about poisoning bees recently, so I thought I would dig a bit deeper. Schedule 5 of the Wildlife and Countryside Act 1981, has a long list of species ranging from Adder to Whitefish which are protected. It includes a number of butterflies, moths, and beetles, but no bees. The law states: 'If any person intentionally kills, injures or takes any wild animal included in Schedule 5, he shall be guilty of an offence.' So honeybees are not protected nor are any of our bees. So can bees be killed, for example, by someone with bees in their roof or even bumblebees under a shed, for no other reason than just being there?

The current guidelines are given in a booklet available on BeeBase entitled: 'Guidance on Treating Feral Colonies'. The Pest Management Alliance (PMA) has a more detailed one [one](#). It is mostly just common sense guidance. Don't poison bees except as a last resort, follow both the BBKA guidelines, and the HSE guidelines on pesticide use. Is the nest causing a problem and have people been stung? Every reasonable action should be taken to prevent foraging honeybees finding the nest by blocking the holes or removing the nest.

The PMA guidelines state: 'The requirement to "take every reasonable action to prevent foraging honeybees from gaining access to the treated nest, by removing the combs or blocking the nest entrances" still applies, even though this phrase may not be on the label of the product concerned. This requirement is implicit in the Food and Environment Protection Act 1985 with reference to non-target species and is of particular importance in this situation given the likelihood of neighbouring bee colonies robbing the treated nest.'

Blocking holes is actually difficult. I thought I would trap out the bees in my roof. I left one entrance and then set about sealing all the others. The bees just kept finding more holes further and further away. Eventually I gave up. They are still there. Basically the only way to remove bees is to open up the space and take out the combs. Poisoning and sealing up is not easy to do and apart from the risk to robbing bees and contamination of honey with pesticide and what about all those tens of pounds of honey fermenting inside the wall?

If you could identify which of your neighbours had called in the pest controller for bees in their roof you might well be able to bring a case, not because your bees had been poisoned, but because the guidelines had not been followed

It is now 30 years since West Sussex beekeeper Dick Tutton made legal history when he was successful in bringing an action along with 3 other local beekeepers against A D Walker Ltd over poisoning bees when the farmer sprayed his oilseed rape with *Hostathion*. The action was brought on the grounds of negligence in that the farmer had used the chemical in a manner which contravened advice issued by the Agricultural and Advisory Service (ADAS) and the manufacturer's instructions issued with the product. The advice and instructions recommended that in order to reduce the risk of harming bees, the chemical should be used on cool days or at dusk and never when the crop was in bloom.

Where do we stand today? One of our members lost colonies to spray drift last year (see photo). The hives were situated just 25 yards from a crop of wheat, which was sprayed by a contractor. The Bee Inspector visited and samples were taken but nothing came of it. The point is not whether the bees are poisoned but whether the rules were followed. The Wildlife Incident Investigation Unit (WIIU) categorise poisonings as: approved use; misuse, in which rules were not followed; abuse, in which animals

were deliberately poisoned; unspecified and unknown. If the use was approved and the pesticide was used correctly then nothing can be done. So nationally what is the incidence of reported bee poisoning? The WIIU publish their results and for 2014 of 336 cases, mostly birds and mammals, 5 were bumblebees and 19 honeybees. Reading through those 19, presence of pesticides were found in only 6 and all cases were classified as 'unknown', which would indicate there was no subsequent prosecution.

So what are we to make of the new BeeConnected Crop Spray Alert launched by the BBKA, the NFU and the Crop Protection Association? - 'Alerts from farmers will tell beekeepers when spraying is happening up to a maximum of 5km from their hives, the crop being sprayed and the compound being applied. The beekeeper will receive an email allowing them to take mitigating action such as moving their hives or shutting the bees in for a short while'. Farmers and beekeepers may register now at www.beeconnected.org.uk and the system will go live in September, at the start of the next spraying season.



We are more closely related to honey bees than we thought

New research shows similarities in the social organization of bees and mammals, and provides insight into the genetics of social behavior for other animals. These findings, published in PLOS Computational Biology, use sociogenomics - a field that explores the relationship between social behavior and the genome - to show strong similarities in socially genetic circuits common in honey bees and mammals.

The last common ancestor of the animals and insects is thought to be a legless creature that lived over 600 million years ago, for which we have no evidence of its social behavior. Since then social insects such as honey bees and social mammals such as humans have pursued separate paths. But a major unanswered question in understanding the genomic bases of social behavior is whether these separate paths towards sociality emerged from common molecular roots or drew upon different molecular substrates each time.

The authors say: "When we began this study there were three possible outcomes: a) Our tools would not be adequate to determine whether sociality in honey bees and mammals shared a common genomic origin, b) we would discover there was no common genomic origin discernible from the data, or c) we would discover that there is a common origin. The answer turned out to be c), which is nice, because it is the most interesting answer."

To discover this, Hui Liu, Gene Robinson, and Eric Jakobsson of the University of Illinois developed new computational tools to analyze patterns of gene conservation across a wide range of animals, for genes activated and inhibited in the honey bee brain by exposure to a chemical communication signal that triggers alarm.

The study shows that these genes are more widely conserved between honey bees and mammals, compared to either honey bees and asocial insects, or honey bees and asocial vertebrates and shows the power of using the tools of computational genomics to analyze gene expression patterns for the purpose of elucidating the evolution of behavior.

Current threats to honey bees in the UK

At a Spring Convention held in York, Giles Budge said he thought the top ten threats to honey bees (in reverse order) are:

- 10) Nosema
- 9) Pesticides (including systemics)
- 8) Honeybee genetics
- 7) Chronic Bee Paralysis Virus (CBPV)
- 6) European Foulbrood (EFB)
- 5) American Foulbrood (AFB)
- 4) Wasps
- 3) Varroa and deformed wing virus (DWV)
- 2) The weather
- 1) The beekeepers themselves

What are **you** doing to improve **your** beekeeping skills? See page 2.

Deformed Wing Virus: Honey bees threatened by a more virulent strain of the virus

According to an international research group, a genetic variant of the deformed wing virus (DWV) is more dangerous to honeybees than the original viral strain. The consortium of researchers is based at Freie Universität Berlin and Martin Luther University Halle-Wittenberg. The emerging variant could represent a threat to honeybees worldwide and is probably already widespread in many parts of Europe. The findings were published in the recent edition of the international journal "Proceedings of the Royal Society B".

The researchers stress the importance of identifying and characterizing the full diversity of pathogens thought to be responsible for disease. Prof. Dino McMahon, who co-led the research with Dr. Myrsini Natsopoulou, now at the University of Copenhagen, said, "Our findings are interesting because they show that one of the main culprits of honeybee decline – deformed wing virus transmitted by varroa mites – is in fact composed of many different strains. Importantly, we have shown that an emerging variant of DWV, termed DWV-B, is more virulent than the globally established form of the virus, termed DWV-A. Our study also identifies the geographic distribution of this virulent virus genotype in honeybees across Great Britain. This may help us understand regional differences in honey bee mortality".

Editor's note: Prof Stephen Martin thinks DWV (B) is less virulent, indeed conferring immunity, so perhaps this is in fact 'DWV (C)'.

Varroa mites choose the right host to suck

The Varroa mite's lifecycle consists of two phases: one where they feed on adult bees, called the phoretic phase, and a reproductive phase that takes place within a sealed honeycomb cell, where the mites lay eggs on a developing bee larva.

The MSU-led study, published in the June 2016 issue of Scientific Reports, shows that the mites clearly prefer to infest adult bees at mid-age, or during the nurse phase of a bee's lifecycle when they take care of larvae, rather than during the younger (newly-emerged) or older (forager) phases of an adult bee. The study also found that the physiological type of a host bee had significant effects on the mite's reproductive fitness and success later on.

"Our study clearly demonstrated that Varroa mites preferred nurses over the older and younger bees," said Huang, the study's lead author. "Further, we showed that feeding on different hosts gave them different reproductive outputs."

Mites chose bees in the nurse phase of their lifecycle - the nutritional prime of bee life - over their older and younger counterparts at significantly higher rates. Also, those which fed on nurses had the highest reproductive success rates and the lowest infertility rates.

Previous studies have shown that the mites choose their reproductive hosts, but Huang's study shows that they can go one

step further: they correctly pick the most nutritious bees to suck haemolymph from.



Zachary Huang, Michigan State University

Varroa mites detected in North Queensland

On the 29th June, a colony of Asian honey bees (*Apis cerana*) was detected in a container stand at Port Townsville. There were approximately 5,000 bees with their queen. On inspection of the colony, two Varroa mites (*Varroa jacobsoni*) were found.

Asian honey bees were first detected in Far North Queensland in 2007 and it has not been possible to eradicate them.

Varroa destructor seems not yet to have reached Australia.

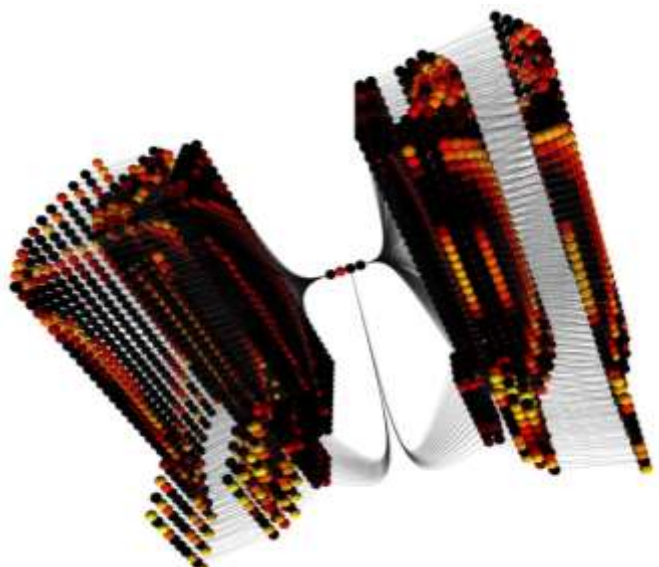
Bees as porcupines

Whilst searching for some further information on the winter bee recently, I checked with a couple of reliable reference books: 'The Illustrated Encyclopaedia of Beekeeping' and 'Guide to Bees and Honey' by Ted Hooper (Ted is also co-author of the Encyclopaedia), I came across a few interesting - and intriguing - facts that had escaped my notice on previous occasions.

As we know, when the environmental temperature begins to fall in late autumn and early winter, the bees form themselves into a cluster around the empty comb to conserve heat. When the temperature has reached 13°C the cluster is said to be complete. The coldest bees are usually the outside bees on the bottom of the cluster where the temperature can fall to 8°C and these bees then become immobilised - they can't fly or walk! Even in this perilous condition, however, they can still manage to act as guardians of the colony. If the colony is disturbed these bees can protrude their stings and the surface of the cluster becomes similar to that of porcupine quills and any intruder that touches it is stung!

A second point I had also overlooked was the significant role that the bee's body hairs play in forming the insulating blanket of the cluster - thereby conserving heat. We have come to learn that a colony of bees is a colony of sharers i.e., food, water, labour, etc, are all equally shared by the bees. I don't believe, then, that this characteristic is missing in the Winter Bee and I like the suggestion that the 'lucky' bees at the top of the cluster - nearest the food store - consume and metabolise the honey and generate heat. They then move through the cluster relieving or replacing their colder sisters. Thus we have that happy, healthy and warm colony to get us through to spring. *The Irish Beekeeper*

Bee eyesight



This is a visualized snapshot in time of the model running. Each sphere represents a model neuron; the lines represent the connections between them and the colours the output of each neuron. The outer layer is the input to the bee eyes, and this is processed by deeper layers of the brain in the centre of the model. Credit: Cope et al

Scientists have built a computer model that shows how bees use vision to detect the movement of the world around them and to fly. This research, published in *PLOS Computational Biology*, is an important step in understanding how the bee brain processes the visual world and will aid the development of robotics.

The study, led by Alexander Cope and his co-authors at the University of Sheffield, shows how bees estimate the speed of motion, or optic flow, of the visual world around them and use this to control their flight. The model is based on honey bees as they are excellent navigators and explorers and use vision extensively in these tasks, despite having a brain of only one million neurons (in comparison to the human brain's 100 billion).

The model reproduces the detailed behaviour of real bees by using optic flow to fly down a corridor, and also matches up with how their neurons respond.

This research shows that how a bee moves determines what features in the world it sees. This explains why bees are confused by windows - since they are transparent, they generate little optic flow as bees approach them.

Understanding how bees avoid walls and what information they can use to navigate, moves us closer to the development of efficient algorithms for navigation and routing - which would greatly enhance the performance of autonomous flying robots.

US Customs seize 60 tons of Chinese honey

In 2001, after determining that Chinese-origin honey was being sold in the United States at less than fair-market value, the US Commerce Department imposed anti-dumping duties. Currently, these are \$2.63 per net kilogram, in addition to a "honey assessment fee" of 1.5¢ per pound on all honey.

On 28th April 2016, three shipping container loads (195 barrels valued at \$200,000) of bulk honey were seized as being falsely declared as originating from Vietnam to evade anti-dumping duties. Tests determined that the honey had a greater than 99% probability match with Chinese-origin honey.

The US authorities have convicted nine individuals (not including 10 remaining foreign fugitives) in a series of global schemes which evaded nearly \$260 million in anti-dumping duties on honey from China and which also involved honey containing antibiotics prohibited in food.

The Suffolk BBKA Examinations Secretary

Adrian Howard has been carrying out this role really excellently for four years. This is all the more creditable because he no longer keeps bees. He has given notice that he wishes to retire at the County AGM next March.

The County Committee is looking for someone else to take on the job. Could it be you? Anyone interested is invited to contact Adrian a.howard106@btinternet.com or 01394 411561 to discuss what is involved. This is administrative work liaising with the BBKA Exam Board; you appoint the assessors; you don't carry out the assessments yourself.

The buzz around Australia's bee exports

Tasmania in southern Australia is one of the few places where honey bees remain free of *Varroa destructor*. That's led to a lucrative business selling live bees overseas. Lindsay Bourke, the president of the Tasmanian Bee Keepers' Association, tells the BBC about [selling bees to Canada](#).

Apiary (still) Wanted!

While we do have the offer of an apiary site elsewhere, it would be better if we had our own place. Does anyone know of a small corner we might buy? Please keep your ears and eyes open for a suitable place.

National Honey Show

Sandown Park Racecourse
Thursday 27th, Friday 28th and
Saturday 29th October 2016

Preparations are well underway for this year's show with our usual excellent programme of lectures and workshops. It's over to you all now to plan your visit, your entries, give the stewarding and staging entry teams something to do, and make it the most spectacular display ever. Please [get in touch](#) if you can spend some time helping with the stewarding.

The 2016 Schedule will be mailed out to National Honey Show members at the beginning of August. This year it will include the programme of events over the three days.

New class for 2016: Skep. To be made by the exhibitor using traditional materials and suitable for use. If it has been used the skep must be in a clean condition with no comb inside. So all those of you who have attended the skep making workshops over the years will have a chance to show off your new skills.

The Trade, Educational Stands and Attractions

There will be a children's table with candle rolling, a children's quiz, a (virtual) observational hive, a skep making demonstration on the Saturday. Everything will be under one roof. Our usual supporters have already booked, plus some newcomers, so there will be much to see alongside our competitive display. As we have more space this year, there is still time for new traders and supporting groups to contact us with a view to taking space over the three days: e-mail tradestands@honeyshow.co.uk.

National Honey Show Membership

Just to mention that if you take out or renew membership in the summer, as many do, you'll not only receive your copy of this year's Schedule in the post, but it makes admission on the day a much faster process. Only £15.00 for all three days!



THE EFFECTS OF SMOKE

There has been some discussion on the Bee-L List* recently about how smoking bees actually works. Peter Borst, quoted from J.B.Free, ("Engorging of honey by worker bees when their colony is smoked" 1968) who noted that after the bees in a small colony had been smoked, the amount of food in their honey sacs soon increased greatly, then decreased slowly; after two hours the average amount of food contained was greater than before smoking occurred. Free did not think the amount ingested was related to the age of the bee, but mentioned that 10 day old bees (those likely to be feeding brood and building comb) were fuller before the colony was smoked, so they were fuller afterwards. Bees that stung a provocative object tended to have less food in their honey sacs than bees that did not sting it. Free calculated that only about half the bees gorged when smoke was applied so thought it highly likely that the other effects of smoke were also important to beekeepers.

Peter Borst then quotes from a work by Kirk Visscher et al ("Alarm pheromone perception in honey bees is decreased by smoke" 1995) who state that "the application of smoke to honey bees' antennae reduced the subsequent electroantennograph response of the antennae to honey bee alarm pheromones, isopentyl acetate and 2-heptanone."

They found that the effect was reversible and the antennae gradually returned to the same responsiveness of the control bees after 10-20 minutes. A similar effect occurred with a floral odour Phenylacetaldehyde, suggesting that smoke interferes with olfaction generally, rather than specifically with alarm pheromone detection.

A reduction in peripheral sensitivity appears to be one factor in the way smoke reduces defensive behaviour. Interestingly, smoke also has an effect on the defensive behaviour of wasps and bumble bees, even though they do not gorge on honey. Trials on *Vespa pensylvanica* and *Bombus sonorou*s showed that attacks on ping-pong ball targets were greatly reduced-up to >10 fold in the case of *V. pensylvanica* - after smoking.

Further comments were made by Randy Oliver, an extremely experienced and practical bee farmer and regular contributor to the American Bee Journal. Randy only uses smoke sparingly, and only on bees that need it, i.e. the ones on the periphery of the nest, especially at the entrance where the guard bees congregate. "By closely observing the behaviour of those guards, one can determine exactly the amount of smoke required. The guards are the only bees that pay any attention to the beekeeper. They are the bees that watch you and follow your movements. Any bee watching you is aware of your presence. If I see eyes watching me from the interspaces between the combs, I apply just enough smoke to turn those bees around, so that they no longer face me. So long as no bees are facing me (and thus aware of my presence), I can handle the frames with impunity.

I do not discount the effect of smoke on the diminution of the olfactory receptors to alarm pheromone, but in general, the effect of smoke, as I use it, is exhibited prior to any release of alarm pheromone. A small amount of smoke changes the behaviour of the guards, gently repels bees from the tops of the combs, and if applied to an open comb, causes the younger workers to move off the open brood and to engorge on nectar."

Randy reckons he has to make a 'serious handling mistake' for the bees to release any alarm pheromone. He can smell it (not everyone can) and can see how it elicits defensive behaviour in any older bees that happen to be in the odour vicinity. Persisting with any manipulations at that moment will exacerbate the situation and the colony defence response will quickly grow. On the other hand,

by simply giving the pheromone time to disperse, and by applying a small amount of smoke to stop bees watching him, Randy finds he can soon continue working.

His final comment is a situation we have all been in at one time or another. "Once a full defensive response is initiated (as in the case of Africanized bees), the beekeeper has the choice of either ceasing working that hive (or perhaps the entire apiary), or stepping up his use of smoke to an extreme level. At that point, the olfactory suppression likely comes into play."

The Bee- L List is a USA based moderated mailing list, with often quite high-powered discussions on a wide range of beekeeping topics. To [access](#)

Bumble-bees use fuzz to detect electric fields

Biologist Gregory Sutton and colleagues at the University of Bristol used wax to secure a live bumble-bee onto a post made of clay. The bee was held 1 cm away from a steel disc that had 400 V applied to it in 1 second pulses. This caused the bumble-bee's fine hairs to wiggle back and forth and this motion was measured using a technique called laser Doppler vibrometry. This involves aiming laser light at the hairs and measuring the wavelength of the reflected light – which is Doppler-shifted upon reflection from a moving object.



Knowing the hair's motion, the team could calculate how far the hairs are deflected by the electric field. Then, by inserting a needle into the base of a hair, the researchers were able to detect the electrical signal from neurons responding to the motion of the hair.

Sutton was surprised that the hairs alone were responsible for the bee's detection of electric fields. The team's original guess was that the neural response to the electric field came from the insect's antennae. "We made over five hundred different attempts to get the antennae to respond to the electric field," he says. "We could not do it." Nor did the researchers find the wings or feet sensitive to the field, so they concluded that the hairs were responsible for electric-field sensing, or electroreception.

This latest work follows the group's [2013 study](#), in which the researchers discovered that bumble-bees can sense electric fields. This electrosensory capability is believed to help the insects to navigate toward flowers, with each type of flower having a distinctive electric-field pattern.

"When a bee leaves home for the first time, it doesn't know what a flower looks like," Sutton says. "So when a bee encounters its first flower, it takes her a while to learn how to get pollen and nectar from it." Being able to sense the electric fields allows bees to target known flower types to avoid having to re-learn the mechanics of feeding.

People Allergic to Insect Venom Need Precision Medical Diagnosis and Treatment

A team of researchers at Aarhus University has elucidated individual profiles of allergy reactivity in patients that are not protected after treatment with immunotherapy. The aim is to improve medical treatment of people who are allergic to insect stings.

Approximately 30 % of the European population suffers from allergies and 3-5 % is allergic to insect venom. In Denmark alone, 50,000 people are at risk of severe allergic reactions if they are stung. The majority of people, however, are not aware of their allergy. If aware of the allergy they can be protected with an acute injection of drugs or a long-term treatment with an allergen vaccine. This treatment is relatively successful, but there are a certain number of patients that do not respond as expected to treatment. The putative reasons remained unclear.

Insect allergy sufferers do not react to the same allergens and, in some cases, the treatment has a reduced effect or does not work at all. A limited protection at worst can be fatal. "Vaccines for immunotherapy today are often based on the natural sources such as venom from insects and can therefore contain very different amounts of allergens and even venom from different species of insects. All venom allergic patients are treated the same way by using insect venom preparations, and this sometimes is not ideal," says Associate Professor Edzard Spillner.

The researchers are therefore working on developing artificial allergens that perfectly mimic the allergens in insect venom. Professor Spillner is an expert in the development and design of proteins for diagnostic and therapeutic use. In his laboratory at Aarhus University, he has produced a variety of artificial proteins for diagnostic and therapeutic purposes. The research group also focuses on artificial human antibodies to insect venom allergens and other structures with relevance for allergic reactions. Here the known allergenic antibody IgE is particularly in the spotlight. In collaboration with other researchers at Aarhus University, the most interesting ones have been crystallized recently. "We can isolate and rebuild IgE from the patient's blood and identify the target structure it reacts with. This way we can analyse how it behaves together with the allergens. The better we understand the molecular mechanisms of action, the greater our chances are of developing new concepts in allergy treatment," says Prof Spillner.

The next step for the researchers is to describe precisely how the artificial antibodies bind to the individual antigens, and this may be the key to finding out by which factors the allergic reaction is driven. Using a set of several insect venom allergens, his research group and collaborators were able to carry out comprehensive mappings of the antibodies in patient sera that can cause anaphylaxis, and this is an important step in the direction of more and deeper knowledge of allergy, particularly to insect venom.

"After we can identify specific components of the venom as allergens and produce them artificially in the lab, we have routine access to studying the molecular processes going on in the blood of allergy sufferers. The component resolved approach is a major breakthrough in allergy and, in particular, in insect venom allergy and could be a benchmark for individualized immunotherapeutic treatment," says Prof Spillner.

The technology has the potential for improved and more extensive diagnostic practice. The researchers estimate that a large portion of people who are allergic to insect venom are currently unaware of their condition, and are unprepared for any severe allergic reactions that can occur when they are stung. Of those being aware and obtaining immunotherapy, those patients with specific recognition profiles could be identified which are at higher risk for unsuccessful immunotherapy using insect venom preparations.

In a large study involving several centres in Germany, Switzerland and Denmark, the researchers could show that in particular one of these

components can be absent or significantly underrepresented in therapeutic preparations. Pronounced reactivity of the patient to one of the allergens, called Api m 10, has now been identified as a risk factor for therapeutic failure in honey bee venom immunotherapy. This is good news for all allergy sufferers because the approach points to unsolved problems with therapeutic preparations. Improved preparations will probably be able to provide better protection of individual patients. Professor Spillner says: "We carried out our study in the field of insect venom allergy, but in principle similar phenomena apply for all kinds of allergies. We expect to extrapolate our results and use similar methods to study the causes of other allergic reactions".



'My colony is queenless!'

All too often the cry is heard: 'My colony is queenless!' Have you ever said that? Or thought it really might be so? Honey bee colonies nearly always arrange for a successor queen.

Perhaps a swarm issued but you didn't see it go. It can take five weeks for a young queen to mate, mature and start laying. Before you start to fret about where to find another queen, try a test frame. A test frame is a frame of eggs and very young larvae put into the problem colony. If the colony really is queenless, the workers will draw out queen cells around eggs / small larvae. These emergency queen cells began as ordinary worker brood but are then drawn out into little 'hockey stick' shapes. If the colony is queen-right, the bees will develop the eggs into normal worker brood.

All authorities recommend that you have a minimum of two colonies; that's one reason why you need another colony from where you can take an appropriate frame. A test frame is an almost fool-proof way of checking whether a colony is queen-right or not. If you don't have that other colony, beg or borrow a frame of eggs and very young larvae from another beekeeper. Obviously, the donor colony needs to be healthy and larvae may die of cold but the eggs will survive. Stick a drawing pin in the top of the top-bar so that when you inspect a few days later, you know which frame to check.

Another reason for 'My colony is queenless!' could be that, when your back was turned, she got into the super. The solution here is even simpler, shake all the bees into the brood chamber and replace the queen excluder and the super above it. The only snag is that there may be drone brood in the super and they will then be stuck there.

Preparing Bees for Winter

In East Anglia most plants will be producing seeds/fruit by the end of July and forage will be limited to a few plants like ivy.

In late July

I refit entrance blocks with a small entrance so the bees can guard against wasps.

Then

I extract honey at the end of July and immediately treat for varroa with Thymovar (thymol) or MAQS (methanoic acid). Treating in early August ensures that young bees born in the autumn will be varroa free and more importantly varroa transmitted viruses free. These are the bees that will be the long lived (winter) bees and will survive longer than virus infected bees. If you treat in late autumn the long life bees will be already born and could be infected by viruses reducing their life span.

Check that your queen is laying worker brood and this proves that she has mated successfully.

Then I feed 15/20kg sugar - at the time of writing 25kg costs £9.50 at Makro/Booker when you buy two or more 25 kg sacks and you can buy sugar there if you show your BBKA membership card. Less than £10 spent on food is a great investment when compared with the cost of a nuc in the spring.

I overwinter most colonies on double broods and new comb can be drawn out during autumn feeding.

Once feeding is complete I leave the bees alone - no inspections after the end of August. Any forage from ivy is left for the bees to use.

In October I put plastic around each hive as Green woodpeckers are a nuisance. I staple it just beneath the crown board and around the entrance. It works brilliantly in deterring the pests.

Around Christmas time, all colonies are treated with oxalic acid to reduce the varroa population further and then I hope all will be well. *John Everett, Master Beekeeper* May 2016



Honey jars and lids

Honey jars & lids @ £37.50 per gross, £19.00 per 1/2 gross or extra lids only at £12.50 per gross, £1.10 per doz.
Email: Fred Willis frederickwillis@btinternet.com or 01502 586511.
Delivery to Esmeraldas, Grange Farm Centre, NR34 8JN for collection on Saturday 13th August. **Order now!**

Suffolk Wildlife Trust photographic competition
<http://www.suffolkphotography.org/>

<h1>Calendar</h1>		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.		
Sundays to 14 Aug	I&ES Humber Doucy Lane apiary from 2:00 pm. See website .	Ipswich & ES Malcolm Marchant
Wed 28 Sep	Bring & Buy, Ten Minute Tips, Forum	Ipswich & ES Malcolm Marchant
Wed 12 Oct	Harvest Supper - Westerfield	Ipswich & ES Malcolm Marchant
Wed 26 Oct	Hasan Al Toufalia; Oxalic acid vapour against Varroa	Ipswich & ES Malcolm Marchant
Thu 27-Sat 29 Oct	National Honey Show, Sandown Park; £15 for 3 days! http://www.honeyshow.co.uk/	
Wed 23 Nov	Emma Bradford, EARS Student, Using RNAi to combat Varroa	Ipswich & ES Malcolm Marchant
Sat 5 Nov	Essex BKA Annual Conference 9:30-4:30; Barking & Dagenham College RM7 0XU; www.ebka.org	

Walnut & Honey Tart

Ingredients: Pastry: 170g (6oz) plain flour, 85g (3oz) butter, 3tsp castor sugar, ice cold water as required. **Filling:** 85g (3oz) butter, 142g (5oz) soft brown sugar, 170g (6oz) liquid honey, 113g (4oz) shelled walnut halves, 3 eggs lightly beaten, ½ tsp vanilla essence, grated rind of 1 orange.

Method: Pastry: Rub butter into flour, add sugar, add enough water to make a stiff dough. Line an 8" flan dish with pastry. Bake blind for 5 to 7 minutes at 200°C (400°F) or gas mark 6. Leave to cool.

Filling: Cream butter & sugar, add orange rind, gradually beat in the eggs, add honey & vanilla essence; beat again. Sprinkle walnuts the bottom of the pastry case and pour in the honeyed mixture. Bake for 45 minutes at 200°C (400°F) or gas mark 6. If the filling begins to brown too quickly, lower the heat slightly.

(National Honey Show 2002)

Too many colonies in an apiary? [From Bee-L:]

Tom Seeley's famous Ithaca Forest swarms, although infested with Varroa, managed to exist for years without becoming overwhelmed, but when they were congregated in an apiary they succumbed. This just goes to show that, apart from the beekeeper, the worst enemy of a colony of bees is another colony of bees!

Winter evening entertainment at home

<http://www.honeyshow.co.uk/lecture-videos.php>

Kindly words are a honeycomb, sweet to the taste, wholesome to the body. *Proverbs 16:24*

Vita has produced an infographic about varroa. It's free and downloadable from the [Vita Gallery](#). This follows their first infographic on swarming.

The Asian Hornet, *Vespa velutina*, has been identified in Alderney. [See](#)