

# BBKA News

BBKA - Supporting Bees and Beekeepers

FREE TO MEMBERS OF THE BRITISH BEEKEEPERS' ASSOCIATION

NO.184 AUGUST 2010



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## £10m Insect Pollinator Initiative Research Grants Awarded

During 2009, The Insect Pollinator Initiative (IPI), which is a fund of up to £10million was announced to support projects aimed at researching the causes and consequences of threats to insect pollinators and to inform the development of appropriate mitigation strategies.

The fund was a joint initiative from the Biotechnology and Biological Sciences Research Council; The Department for Environment, Food & Rural Affairs; The Natural Environment Research Council; the Scottish Government and the Wellcome Trust and is funded under the Living With Environmental Change programme.

The fund was a response to public concern about the long term decline in pollinators in general and the honey bee in particular. The BBKA played a crucial role in raising this public awareness and its research concepts document helped form some of the basis for the research proposals that were submitted.

The decisions about which projects are to be funded was announced recently and the BBKA is pleased that, out of the nine projects, two related specifically to honey bees and a further number have a strong honey bee content. Further details of all the projects funded can be found on page 20.

A project concerned with the epidemiology of European

Foulbrood lead by Dr Giles Budge, from FERA was funded.

A project concerned with the varroa mite led by Dr Eugene Ryabov from Warwick University will look at the natural genetic variation within the hive to study how honey bees respond to varroa, Deformed Wing Virus and Varroa Destructor Virus. Ultimately this project could lead to selecting and breeding honey bees with reduced susceptibility to varroa and the associated viruses.

A project, whilst not specifically about honey bees, will also look at pesticide use and whether sublethal exposure to these could be harming pollinators. This was something the BBKA specifically called for. They will be seeking to understand the molecular basis of learning and memory in bees and how this affected by pesticide exposure.

The BBKA is pleased that the initiative has recognised the economic importance of honey bees as the principal managed pollinator and looks forward to seeing the results of all the projects. It is however aware of other projects that were honey bee orientated that were not successful in the bidding process.

Our research concepts document is the only comprehensive document that identifies areas of research (as opposed to specific projects) in relation to honey bees and we intend to identify in the coming months the areas that

have not been covered by projects funded by the IPI.

The BBKA has a research fund of its own and we are further augmenting this through the successful 'Adopt a Beehive' scheme made possible through sponsorship by Saga. Whilst not of the order of the IPI, it does have the benefit of being able to provide seed funding and 'industry' endorsement of research projects. This can enable researchers to leverage substantial other funding for their projects. The BBKA are therefore urging researchers who submitted projects that had a honey bee element to the IPI but were not successful, or researchers who have projects that did not meet the criteria for the fund to discuss these projects with the BBKA.

The nature of the initiative and the projects funded are medium to long term and in particular the BBKA is looking for research initiatives that are perhaps more short term and of more immediate practical benefit to beekeepers.

Through the efforts of all beekeepers the public profile of honey bees continues to be high and this gives us a unique opportunity to leverage funds for research into ensuring that both long term and short term problems can be addressed with the overall aim of having a healthy and sustainable bee population in this country.

*Martin Smith, President*

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## Chairman's Letter

The pace of activity within the BBKA continues to increase. As we involve ourselves in more initiatives we draw more interest towards keeping bees and the problems that bees face and this in turn draws more interest.

I was fortunate to be able to visit the Royal Highland Show at the end of June to help promote New Holland Agriculture efforts to support bees and beekeeping via its sponsorship of the BBKA, and talk to their senior staff about further ways our relationship could develop. I was also pleased to meet members of the Scottish Beekeepers' Association in their exhibition tent, and watch them entertaining groups of school children by inviting them to do the waggle dance; great cheers ringing out as teachers joined in.

Of course it is not only New Holland that is fulsome in its support of the BBKA, Saga remain fully committed to its sponsorship agreement and anyone who receives the magazine will see repeated references to 'Adopt a Bee Hive' which has reached 3,000 sales, and we have decided to add a beekeeper from Northern Ireland to the list of beekeepers that members of the public, who wish to support the scheme, can choose to adopt.

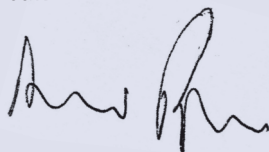
In further support of the scheme and beekeeping in general Sunday Telegraph Magazine has decided to run a six week campaign and we hope that this will give further impetus to our initiative. Progress in developing an Adopt web shop and a range of Adopt products is being made with the objective of having this facility available for the Christmas market including special Adopt gift packs.

Efforts from BBKA members involved at Grand Designs, Gardeners World Live and Hampton Court as well as various events to support New Holland and Co-op initiatives have been tremendous and I would like to thank everyone who has helped make these events a success. They are hard work, and I was only too pleased to rest my feet after my day in Scotland. I want to extend further praise to the committee who developed our Gardeners World Live display which was based around a giant WBC hive including two plasma screen televisions showing scenes from within a beehive, this exhibition received the 'RHS Best Feature in Show' award and the 'RHS Highly Commended' award which I think is a magnificent achievement and just reward for a lot of hard work.

The period since my last Chairman's letter has seen Small Hive Beetle being found in Hawaii, and the Government there banned the export of queens and I understand that the Fera Bee Inspectorate visited apiaries where the most recent imports were received.

Having read in the past few days the draft England and Wales Contingency Plan for Exotic Pests and Diseases of Honey Bees two things spring to mind; imports of bees and/or queens can potentially expose us to risk and in the event of problems being discovered a good up to date data base of all beekeepers throughout the UK could be crucial and I urge every BBKA member to consider joining BeeBase.

At the time of writing the beekeeping season is well underway. At Stoneleigh, the office is handling up to fifty swarm calls per day, the majority of which seem to be about bumblebees. We will try and improve the information on our website to help reduce these calls, but it is important that local councils, police, pest control companies have up to date contact details. I could not really understand why a beekeeper twenty miles south of me was ringing me about swarms and on contacting my local council found the information on their file was out of date.



*Brian Ripley,  
BBKA Chairman*

## In the Apiary



In most areas there is now a shortage of forage for our bees while the population is close to its maximum and the queen is being fed less so her laying rate drops. Resulting in less queen pheromone spread amongst a larger number of workers. In consequence:

- The bees are more inclined to defend their home than they were earlier,
- They are more likely to rob another colony if an opportunity arises; I now have my stocks with reduced entrances to help the guard bees.
- Some stocks will be intent on raising a new queen and again minimum disturbance is appropriate even though swarming is still possible.

August is the end of the beekeeper's year, the time for harvesting the crop. Do be careful when handling supers, we are dealing with food so make sure that everything is clean; full supers should be stood on a crown board and be covered by another one, keep them covered until you are ready to extract. Before leaving the apiary check that the combs are sealed, and if necessary swap some for better ones from another super. This will be time consuming, but extracting honey with a high water content will make for difficulties later. For the last couple of years I have been using an uncapping fork instead of a knife to uncapping the combs, this has worked well, mainly because of the reduced amount of wax removed from each comb, give it a try. I find it better to strain the honey as it comes out of the extractor, later on when it is time to bottle it, it is sufficient to warm very gently to soften it for sale as soft-set honey.

Old hands will know that when cleaning up the extractor it is best to wash it first with cold water and detergent followed by hot water and detergent. If you start with hot water the effect is to soften the particles of wax and smear them out when they become much more difficult to remove.

Each spring many dead colonies are reported to have starved, do make sure that you leave your bees with plenty of stores, pollen as well as honey. It is good advice to take spring losses now by uniting weak colonies rather than by waiting to see which ones come through. From time to time I come across a colony, usually rather small, which will not take the autumn feed, these do not usually survive so I am now determined to unite them in the autumn after a disease check.

Varroa will continue to be a problem needing our attention. If not already started, do get treatment going very soon. For almost all of us this means one of the registered thymol-based medicines, Apiguard or ApilifeVar. These can be very effective, but are not always so. Hence it is important to follow up with a check on mite levels, easily done by counting the daily natural mite fall. Do not delay in doing this because if a follow up is needed it will be better done while we still have warm weather. My preference here is for one or more short treatments with formic acid but lactic acid spray can also be used. On this, as on many matters, beekeepers have varying opinions but hitting the varroa with formic acid in September does seem a better practice than leaving them to multiply and infect wintering worker bees until hitting them with oxalic acid in December.

Now think further ahead, by September most of the large foraging force will have worked themselves to death and most of the supers will have been put away, so next month is a good time to pass the BBKA Basic Assessment. If you have kept bees for a while and not got around to getting it arranged then do it now.

*Brian Gant, Devon BKA*

## 3

and where they are found, further studies are demanded to determine what happens under realistic conditions in the field before such products can be commercialised. Likewise, it is important to note that the commercialisation of a product is not the end of the story – the updating of the regulatory files is a continuous process and will take into account any new scientific evidence that comes to light.

So, in the case of this class of insecticides, there have been

## Box 2. Issues with Imidacloprid in France

- 1999 Gaucho is suspended for use on sunflowers after some beekeepers claim that there may be a relationship between bee mortality and the use of Gaucho on sunflowers.
- 2004 The French Minister of Agriculture decides to suspend the registration of Gaucho in maize despite 'no scientific data linking the use of these products with bee issues.
- 2007 After no improvement in bee health, French food safety authority (AFSSA) demonstrate a multitude of factors are responsible for bee deaths. The French Minister of Agriculture Michel Barnier admits that bee deaths occur in regions where Gaucho had not been applied.
- 2008 AFSSA stated that there is no statistical correlation between bee losses and imidacloprid residues in pollen or from spray applications.
- 2009 Most recent AFSSA study identifies the varroa mite as the main cause of bee losses and that it is not possible to confirm that pesticides play any direct or indirect role in bee losses.
- 2009 French regulators start to approve neonicotinoids uses again.

numerous tests done post-registration including three large 'multifactorial' studies in the US, Belgium, France and Germany in which all the possible issues concerning bee safety have been analysed under real field conditions. In all such studies, poor bee health correlates well with the presence of varroa and bee diseases, but there is little correlation with the use of neonicotinoids<sup>5</sup>.

## Conclusion

Bee losses are occurring in both the UK and elsewhere in the world and their root causes have to be managed to safeguard this economically important pollinator. Whilst bee losses do not seem to correlate with the use of insecticides, farmers should handle them properly; indeed the industry has recently launched a campaign highlighting the need to 'bee careful'<sup>6</sup>. Likewise companies such as Bayer CropScience have recently announced a joint research programme with Bayer Animal Health to bring to the market new products to control the varroa mite<sup>7</sup>, a basic tool to manage bee health in the UK.

*Julian Little*

*Communications and Government Affairs Manager  
Bayer CropScience Ltd.*

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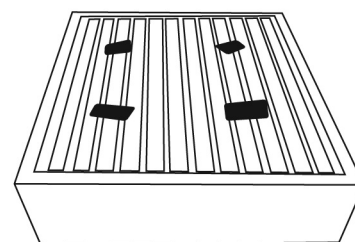
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# Thoughts of Winter

During the summer months, at least in my part of the world, the nectar has dried up and pollen is scarce.

Thousands of bored, frustrated little foragers are stuck in the hive with nothing much to do (other than collect water from time to time to cool the colony). But just because these girls are lazing around does not mean we can follow suit. There is work to be done, especially if we want these colonies to survive the winter. But winter preparation in August? Absolutely! This is the time to re-queen if necessary, fatten up those bees, reduce varroa populations, and take care of any other issue that may have occurred during the season. Let us start by evaluating each and every colony from top to bottom.

A quick suggestion before we crack open the lid. Whenever I venture into the apiary, there is always a colony data sheet in hand. Below is an example of one used over the years at the University of Georgia bee laboratory. Having this information helps to keep track of each colonies' condition. Even if you only have a few colonies, take the time and create a data sheet that works for you. By next year, when you are doing those first colony inspections, you will not have to rely on memory. All the information is already written down on your handy-dandy data sheets (see below).

Now back to the apiary. First and foremost you should check the viability of your queen. How does her brood pattern look? Are there skipped/open cells? Do you see any supersedure cells?

If the pattern is spotty, you may want to look for other problems first, such as disease or mite infestation, before automatically assuming it is queen issues. However, the queen could be old, poorly mated, or was not properly

reared. If you determine that the queen is past her prime, late summer to autumn is a great time to re-queen. If by chance you cannot acquire another queen, and the colony is weak, your best bet is to combine that colony with a strong one or one needing a boost. Weak colonies rarely survive the winter, so there is no sense in allowing the colony to limp along when you could have spared the bees and equipment from eventual disaster.

The next task is to assess the amount of honey stores. Depending on numerous factors (rainfall, temperature, etc.), nectar flows can be superb one year and horrible the next. If flows were below par, or too much honey was taken for human consumption, feeding must become a priority. Once the temperatures drop the bees will not be able to break cluster in order to collect the food. All the syrup in the world will be useless if the bees cannot get to it. And think in terms of gallons when feeding. It has been my experience that five gallons of a 2:1 sugar solution (2 parts sugar to 1 part water or put another way, 2 lbs sugar to 1 pint water) will yield roughly 40 pounds. Depending on your neck of the woods, this may not be enough. If you are unsure how much honey is required to get a colony through winter in your region, consult an experienced beekeeper in your area.

A word of caution: feeding this time of year can be tricky, so be careful not to trigger robbing. A single drop of sugar syrup clinging to the side of a colony will attract attention, especially when nothing else is available. Once bees start robbing it becomes a feeding frenzy, with even strong colonies succumbing to the onslaught.

Next, examine the brood area for disease. You want to see healthy, white larva in the cells. Also look

for depressed cappings or ones with holes. Open these and inspect the pupae. Anything slightly off coloured may be a sign of trouble (unless the pupa is in its later stage of development). Again, if you are unsure about what may be ailing your colony, consult a professional for diagnosis and treatment options.

Another late summer chore is to inspect your equipment. Move frames with old comb to the outer edge so they can be removed in the spring and replaced with new foundation. Replace old, decrepit hive bodies, supers, lids, inner covers and bottom boards with newer equipment. Bee hives do not have to be pristine little palaces; however, they do need to protect the bees from the upcoming, frigid winter weather. Plus gaping holes and cracks allow access for critters to come and go. Mice especially love to make their winter homes in a bee hive. A continual food supply plus a warm cozy environment make it a suitable dwelling. Structurally tight equipment along with mouse guards works well to discourage these unwanted guests.

Queen issues, food supplies, disease, and bad equipment are all things that need to be addressed before the arctic air descends upon us. Yet there is still one more thing we must not overlook: varroa mites. Yes, the dreaded *Varroa destructor*. By the end of summer, mite populations are skyrocketing. Please do not wait until your colonies are crashing. Once the downward spiral begins it is almost impossible for them to recover. Check those mite populations today! Not only is it important to get their numbers under control for the existing bees, but also for the future bees that will bring the colony into the New Year. I will get back to the importance of reducing mite

populations, but first let us talk about these future bees.

The average lifespan of honey bees varies considerably based on the season when they emerge. These variations have been designated into two groups of bees dubbed summer bees and winter bees. Summer bees live approximately six weeks, while winter bees can live anywhere from six to eight months. Winter bees emerge during August or September, depending on location, and differ from summer bees by several physiological characteristics. Scientists have determined that the lifespan of honey bees can largely be determined by the amount of protein stored in the fat body, hemolymph, and hypopharyngeal glands. The most notable and scientifically relevant type of protein is the high-density glycolipoprotein vitellogenin. It is loosely described as a female-specific, hemolymph storage protein, or more specifically, an egg yolk protein precursor. However, since worker bees rarely lay eggs, this protein is stored in fat bodies in the abdomen and head for future use. This specific protein's relevance is largely based on its abundance in honey bee hemolymph as well as its high zinc concentration, which regulates many functions within the honey bee. Vitellogenin is also thought to be a powerful anti-oxidant, which significantly slows the effects of aging.

Now getting back to the importance of reducing mite populations. Higher mite populations at the end of summer or early autumn coincide with the production of these winter bees. Results from research have shown that mite infestation during the pupal stage has a negative impact on bees because they are not able to accumulate the necessary hemolymph proteins, including

*Continued on Page 6*

Data Sheet

| Apiary:  |           |                     |               |
|----------|-----------|---------------------|---------------|
| Date:    |           |                     |               |
| Colony # | Queen Y/N | Honey/Pollen Stores | General Notes |
|          |           |                     |               |
|          |           |                     |               |

# The Forager

## The Joys of Beekeeping

I thought that this 1 month would consider some of the pleasures of beekeeping which are entirely incidental to the main activity.

Where to start? Well, firstly let us look at the amazing range of stimuli to our senses which our craft offers us. One of my very favourite times is the early season examination when the olfactory combination (OK, smell) of wax, wood, honey, pollen and pheromones is absolutely unbeatable. Then, as the season progresses, I am further entertained by a constant change in the aroma of the crop - over the years I have come to appreciate the delicacy and rarity of lime perhaps more than any other. Although I have often mentioned this range of aromas to other beekeepers, many do not seem to have noticed it. Do I have a particularly sensitive sense of smell or do I just spend too long in the apiary?

Aural stimulation for me comes from the routine sounds of the apiary. The constant hum on a warm spring or summer day of bees coming and going, sometimes punctuated by the changed tone of a departing swarm. The night sounds of the bees fanning to evaporate the excess moisture from the day's hard won crop, and there is more. Some of us have been lucky enough to hear the strange and rather eerie piping made by a virgin queen prior to emerging, but one occasion for me was further enhanced by a simultaneous display of the Northern Lights - absolutely unforgettable!

The sight of a busy apiary always pleases me and reminds me of just how little we know about our bees. How, for example, can drones and virgins, who have never before been to a drone congregation area, manage to get there, do what they have to and, for the queens at least, successfully find their own way back (and all without the aid of satnav)? And so, another of the joys of beekeeping is how little we know - or rather, how much we have still to learn. It is a constant source of joy to me to talk to other beekeepers with different experiences from whom I can learn more - though it would be naïve to think that I will ever

understand this wonderful craft of ours.

If we allow it to, beekeeping can give us an insight into so many different aspects of our environment. We can clearly use it as a mechanism to learn more about our flora and indeed botany itself. Understanding why some flowers are beneficial to honey bees whilst others are not is something which is not immediately obvious to many when they first come into beekeeping but once they combine knowledge of flora with knowledge of bee anatomy all becomes suddenly clear. We are given an insight into ever changing agricultural practices and for some these are a dominant aspect of their beekeeping. For others, particularly urban beekeepers, they are less able to link crop to flora but have the knowledge that there is nearly always something of benefit to their bees in flower and in range.

Our horizons are opened up so much by beekeeping; so much so that it can give you a completely different perspective on life. This thought came to me when, perched atop a ladder, I was trying to persuade a largish swarm that my skep was a more suitable place for them to reside than the open top of a plum tree. In addition to agriculture, flora and botany, it can also give insights into anatomy, genetics, geology, chemistry, marketing, meteorology, carpentry, etc., as well as the fascinating social structure of the bee colony. And of course, there is always the added cache of having an instant conversation topic available whenever anybody discovers that you are a beekeeper.

I could go on (and often do) but I must just tell you about another little occasion of joy that I heard about recently. Apparently, a recent convert to beekeeping was talking about how much he had learnt on his one day Introduction Course and how confident he felt that he had all of the knowledge he would need. My informant tells me that he was quite impressed by this 'newbee' until the discussion got onto hive types and then onto frame types. It appears that our new recruit was rather at sixes and sevens on this and had no knowledge of bee space at all. He thought it was a social networking web site for beekeepers!

*The Forager*

## Thoughts of Winter ...cont

vitellogenin, to the same extent as in non-infested bees; hence reducing their ability to overwinter. In order for the colony to have a chance of overwintering successfully, it is imperative to reduce mite levels before the production of these winter bees. And let us step back even further; the bees rearing the winter bees need the proper nutrition and development as well. They must be healthy enough to rear the winter bees, and the bees rearing those bees need to be healthy and so on.

And one last thing, since adequate amounts of pollen must be available in order to produce winter bees, check the pollen supplies. If pollen stores are

lacking, pollen patties are a must in summer to enhance the production of these winter bees, nurse bees, mother bees, etc.

By storing honey for energy and pollen for protein, European bees have evolved to survive long winters. But unfortunately, with introduced exotic parasites, diseases, viruses and a whole host of other non-indigenous species, 'we' have thrown this whole process out of kilter. Now 'we' must be better stewards of our bees or face the consequences of finding an empty hive devoid of life.

*Jennifer Berry*

*Research Professional III*

*UGA Honey Bee Lab, Georgia, USA*

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# Heater Bees and Brood Nest Warmth

Honey bees are said to be the most intensely researched creatures in the animal kingdom.

As beekeepers we can draw from an astounding wealth of information about the intricacies of colony life. Indeed, successful beekeeping is built upon the close study of colony behaviour. Scientific findings accumulated over the years have contributed to today's vast body of knowledge. However, if it is true that honey bee numbers are continuously declining we must assume that either a lot more knowledge is needed or our existing knowledge needs to be applied in a different way.

In recent years, a lot of fundamental research has been directed at unveiling some of the secrets concerning the warmth regulation in colonies' brood nests. Although a number of researchers have worked in this field and published their findings, the discovery of yet another couple of bee 'professions, in addition to the ones we have been familiar with, is associated with Juergen Tautz. The findings of Tautz and his Wuerzburg university research team were widely reported in the British press (not always entirely accurately) earlier this year.

We now know that there are two additional activities, or 'jobs' carried out by specific bees within the hive. Using thermal imaging apparatus it was established that certain bees which are found in empty cells (between 10-20%) on otherwise sealed brood combs in the nest fulfil an absolutely vital task: they are maintaining the crucial brood nest temperature of about 35°C, and their efforts are fine tuned to the heating work performed by other bees on the comb. A central heating system par excellence! It was previously thought that the bees observed in this behaviour were cleaning, or resting. In fact, efforts were made by bee breeders to eliminate this 'undesirable' queen trait of leaving cells empty on the comb. It has now been established that the bees lying head first in these empty cells are working extremely hard for the good of the colony! So hard that they are totally

exhausted after thirty minutes of engaging in bursts of pumping movements of their abdomens, thereby raising their body temperature to up to 43°C. This has the effect of imparting extra warmth to roughly seventy pupae in the surrounding closed cells. It was also found that bees engaged in this activity belong to no particular age class but can be between 3 and 27 days old. And to spare them the burden of walking to the nearest honey stores, other bees will bring the necessary fuel to them. This group of bees, termed the 'filling station' bees by Tautz, find the exhausted heater bees in the dark of the nest by means of the temperature sensitive receptors on their antennae and feed them highly concentrated honey. Another impressive example of outstanding team work undertaken to ensure the essential warmth of the brood nest. There is a lot more to this research which is compelling reading, such as the effects of different pupal development temperatures on behaviour, performance and sensitivity of the adult bees. It is to the great credit of Juergen Tautz that he has described his findings in a way that the interested lay person can understand<sup>1</sup>.

As beekeepers we can be very grateful indeed for these new perspectives. Are we ready to face their implications? If nothing else, this research clearly sets out the amazing amount of effort and energy that is expended by a honey bee colony to maintain the necessary warmth of the brood nest. It must be essential to healthy colony life to do this. Unlike us, bees do nothing without purpose. Extraordinarily sophisticated feedback mechanisms are deployed by the super organism to ensure constant adaptation to ambient conditions. Of course, most beekeepers are aware that the brood needs to be kept warm, and most beginners will be told fairly early on in their beekeeping adventure that it is not a good idea to 'chill' the brood. Everyone who engages in inspections of the brood nest will have felt and smelled the

fragrant warmth rising from the depths of the hive as it is opened. Nevertheless, beekeeping literature is mostly silent on the subject of brood nest warmth. This may change as the vital importance of brood nest warmth is recognised.

Having been peripherally involved with the manuscript of a new book for beekeepers by David Heaf, which is due to be published by Northern Bee Books in autumn this year, I am very pleased to be able to tell you that the subject of warmth maintenance in the hive is given due consideration.

As interest in feral colonies is growing, and it is noted that they appear to be surviving without the help of beekeepers, we might be well advised to ask what they have that our beekeeper kept colonies do not. In previous issues of BBKA News Craig Exley reported his own observations and conclusions regarding the survival of feral colonies which prompted him to advocate ways of beekeeping that are in closer harmony with the needs of the bees<sup>2</sup>; it was generally assumed then that feral colonies could not survive the depredations of the varroa mite. His experience was otherwise. As we await the results of the Bangor University research project recently announced in the press, we might ponder the issues concerning the health of feral colonies in the light of our own beekeeping practices. "The fact that these feral colonies can survive without medication and feeding by beekeepers suggest that they may be a source of very useful genes", Dr. Malhotra of Bangor university is quoted to say about the new research project which will be carried out in association with a Welsh Bee Breeding project. It is to be hoped that the possible connection between 'useful genes' and undisturbed brood nest integrity as well as swarming might also be investigated.

If we, as people interested in the welfare of the honey bee, take to heart what we have had the privilege to learn about 'heater bees' we might consider some of our own beekeeping practice from the point of view of helping or hindering the colony's essential task of maintaining the warmth of the hive. This should certainly include a hard look at the kind of homes we expect them to live in. There can be no doubt that some hive designs are more conducive to warmth maintenance than others. The same can be said for different modes of bee husbandry. We might feel inspired by what we are learning about the intricacies of the bees' warmth organism to consider the following: Are we not likely to undermine countless heater bees' efforts every time we intrude into the nest? Naturally, there are compelling reasons, at times, to carry out a full scale inspection of brood combs. But these are relatively rare. Is it not true that many an inspection of colonies is rather voyeuristic and self serving? There is mounting evidence to suggest that our honey bees are overworked, undernourished and stressed. We are also becoming increasingly aware that bees here and elsewhere in the Western world struggle to cope with pesticides and other man made ills in the environment. Maybe the new insights into the work of the heater bees holds the key to encouraging us to support actively and consciously the bees' miraculous efforts to control *their own* hive environment. Allowing them to raise their brood at the right temperature without the stress caused by unnecessary nest intrusions might be a step towards that.

**Heidi Herrmann,  
East Grinstead BKA**

1 J. Tautz, The Buzz about Bees  
2 Craig Exley, Seeking a Baseline, BBKA News



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# Pheromones - Part 2

Last time we dealt with a relatively simple pheromone, namely the smell released by the mandibular glands of the worker bee.

This is a 'releaser' pheromone in that it elicits an immediate response from other workers who will gather at the entrance to defend the colony. This time we will deal with a far more complex set of pheromones released by brood. We learn early on that the diet of the brood varies as they mature and that the high protein and high sugar diet given early in a larva's life is changed to a far less digestible diet consisting mainly of pollen and nectar.

Pheromones released by the larva stimulate the workers to feed the right diet for maximum growth and development of a worker. The larva is even able to indicate that it is hungry in a similar manner. So, once again it is the workers responding to the demands of the larva that ensure the larva is nourished properly rather than the

working 'caring' for its young. The pheromone is a combination of at least ten fatty acids that are released from the cuticle of the larva. It is believed that it is the relative proportions of these fatty acids that have this releaser effect to modify the food balance for the larva.

Brood pheromone has at least two more important roles to play.

- There is a primer effect of brood pheromone that suppresses the development of worker ovaries. This is why the appearance of laying workers does not happen immediately the queen disappears and it is very important. By suppressing worker ovaries it will give a new queen at least three weeks to hatch from the queen cell, mature, go on mating flights and develop her own pheromones to suppress worker ovary development. So, once again the balance in the hive is maintained by the complex cocktail of pheromones. Of course, if the colony does not

get a new queen then it is doomed and the only way of passing on its genes to another generation is for the workers to produce some drones, albeit stunted.

- Four of the chemicals in brood pheromone seem to be related to promoting workers to cap the cell so that the larva can pupate. They are fairly volatile fatty acids. On the eighth day after the egg was laid these four increase in concentration and by the ninth day their concentration is over 30 x its original level (it has increased from 15 ng (nanogrammes) to over 500 ng) on the tenth day the concentration has dropped to less than 100 ng. Work has shown that when the concentration reaches 300 ng, worker bees will start to cap the cell. Once again the larva is indicating to workers that they need to start another task.

Unfortunately the varroa mite uses these chemical signals to let it know that a larval cell is ready for

it to enter and start to lay its eggs. Unfortunately for us the threshold for the varroa mite is about 230 ng, less than the capping impulse. So the varroa mite gets in there before the workers seal the cell. The varroa mite is using the chemical signal intended for workers to its advantage and the disadvantage of the larva. This type of action is initiated by a different classification of chemical signal known as kairomones. So in the case of the capping impulse the chemicals are both pheromones (signal to their own species) and kairomones (signal to a predator).

Life in the honey bee colony is far more complex than at first look and remember that every time you open a hive and allow a rush of air into the brood nest, these chemical signals are disturbed and take time to re-balance. No wonder bees are sometimes confused by our manipulations and the effect is far more pronounced when we puff smoke into the colony.

Ivor Davis, NDB

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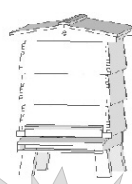
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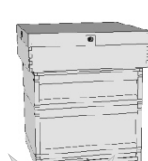
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# Do Bees Smell? Part 2

In the first part of this article we saw that odours (smells) are vital to a bee's everyday life and also to the wellbeing of the whole hive but how are these chemical messages perceived?

Olfactory stimuli or smells are chemicals carried in the air to the bees sense organs. However, gustatory (taste) and olfactory signals are both chemicals, but they are transported to the bee's receivers via a different transport medium; liquid – usually water based, and air respectively. So all living organisms receive information about the chemicals in the world (a chemical soup) around them through taste and smell. Incidentally they also receive information about chemicals within their bodies using internal sense organs so they can maintain a healthy and balanced body internal environment.

In both taste and smell the chemicals have to dissolve in a watery medium to be perceived by the sense organ which translates the information into a nerve message which is passed to the central nervous system. This process can be summarised as:



The sense organ is a transducer and changes one sort of information into another just like a microphone of a phone converts sound into an electrical signal which is sent along the wire to the person you are calling to be 'transduced' back to sound by the earpiece. This means that the organism, the bees knows that the chemical is present around it and so can react in an appropriate way. A good demonstration of this is when bees are trained to sniff out explosives so that if the chemical, say TNT, is present in the air passing through their chamber they extend their proboscis, details can be found at <http://www.technovelgy.com/ct/Science-Fiction-News.asp?NewsNum=1196>. Interestingly when some researchers were training their bees they discovered that they had become responsive to coffee? - On the trainers breath!

So where is the bee's sense organ for smell located? Well just watch a bee at the entrance to the hive and you cannot fail to notice how animated their antennae are, also when potential foragers gather around a dancer they make close antennal contact. So the antennae would appear to be the nose of a bee. Von Frisch<sup>1</sup> showed that workers could be trained to visit dishes marked with a particular odour but this olfactory was lost when their antennae were surgically removed. Further work located the sense of smell to the terminal eight segments of the flagellum. Microscopic examination of the antennae found numerous sensilla which varied in structure but all had a cuticular structure with a nervous connection below and so were obviously sensory in function. The cuticular structures either consisted of a hair, peg, plate or pore. A worker bee would have between 5,000 and 6,000 while a drone up to 500,000 of these sensilla – the queen has only 200 to 3,000. Their size, the hair of one is 30 microns (30 millionths of a metre) in length, and close proximity to each other making deciding their individual function difficult. However, investigations have found that the antenna is sensitive to taste, humidity, temperature, touch (tactile), vibration and even the concentration of carbon dioxide gas.

The detection of chemicals (smell) resides in the 'sensillum placodeum' or pore plate organ which I have illustrated diagrammatically. A worker has around 3,000 of these and a drone<sup>b</sup> has an extra section to his

stouter antenna which means there is more surface area to house them. Each consists of a very thin elliptical plate, 13 microns long which is perforated by around 1,000 pore of 10 nanometres in diameter – a nanometre is one thousand millionths of a metre. Below this perforated plate is a cluster of receptor cells whose base connects to nerve cells. The mechanism by which individual chemicals are perceived is a complex interaction which depolarises (reverses the electrical charge) of the receptor cells membrane and initiates a nerve impulse<sup>c</sup>. Basically the odorous chemicals diffuses through the pores, dissolve in the moist lymph below and locks into a special site on the receptor cells; this starts a chain of events that produces a nerve message that passes down the antennal nerve to the antennal lobes of the bee's brain. These are large paired swellings on the front of the brain which receive and decode information from the antennal sensilla; their size reflects the importance of smell to the bees with only the optic lobes being bigger. In addition to smell the antennae also 'taste' chemicals via other sensilla which are similar to the pore plate organs having a single but larger pore.

When we hear a sound its direction is known because we have two ears. If the sound source is on your left then the sound wave will arrive at the left ear a fraction of a second before the right; the brain detects this so you know its direction. Now a bee can do the same with its antennae which Forel<sup>3</sup> called a 'topochemical<sup>a</sup> olfactory sense'. This was proven when workers that were trained to an odour in a Y-shaped tube had their antennae glued in a crossed position – they took the wrong branch<sup>2</sup>. This is how a forager homes in on a nectar source using odour as I explain earlier in part one (BBKA News No. 183 June 2010)

Obviously taste and smell work together just as it does with our perception of food. Food never tastes so good when we have a blocked nose! So where else do bees sense chemicals? Well obviously their proboscis has many chemical sensilla but they are also found on their legs. These are especially numerous on the pretarsus or foot. So bees can also smell or taste with their feet but do their feet smell? Well yes but that is another story!

**Bob Gilbert, Master Beekeeper, Warwickshire BKA**

<sup>a</sup> The word comes from the Greek word τόπος (topos, place) and means that describing a combined tactile and chemical sense in some animals that is important in the perception of odours in relation to track or position.

<sup>b</sup> A drone needs heightened senses, both visual through bigger compound eyes, and olfactory to detect the queen's pheromones during her nuptial flight.

<sup>c</sup> For further details of how nerves are propagated and stimuli perceived consult a current A level biology text such as 4.

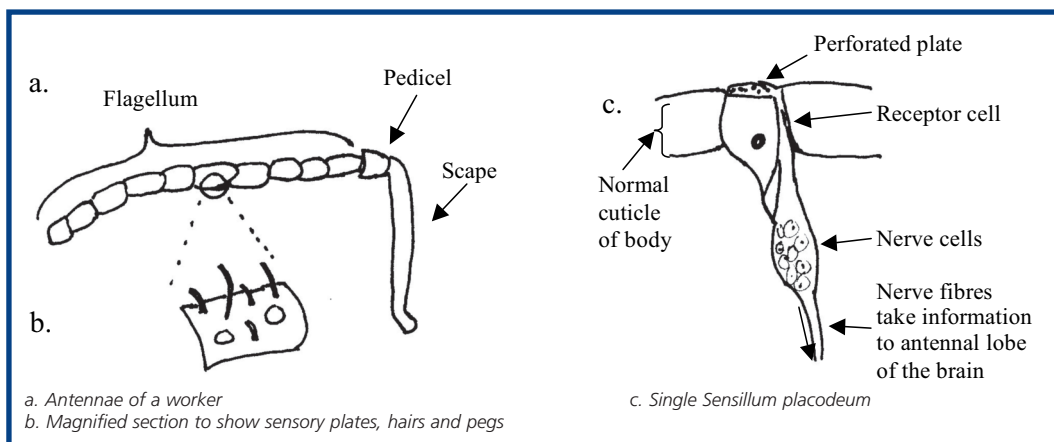
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'sensillum placodeum' or pore plate organ



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## Mel Asks the Experts

For many years beekeepers have been encouraged to use drone comb removal as an integral part of Integrated Pest Management for the control of varroa, but more recently the merits of this have been questioned by some. Not because it does not play its part in varroa control but does it have too much affect on the population of drones available to mate with the queens.

We posed a question on this to Keith Delaplane from the University of Georgia. 'If additional drone comb is added and then removed as part of varroa control, is there still sufficient drone comb in the right balance in the colony?'

Keith says 'The answer hangs on the notion that there is a 'right balance' of drone comb in a colony. And this evokes the whole conversation of super organism theory, which is a way of asking what is the unit of selection in the honey bee - the individual or the colony? There is good support for thinking that colony is the unit of selection. One colony is conceptually one organism that survives or dies depending on its natural fitness. Human observers can impose metaphors on this model: the queen is the ovaries, the wax comb the liver, the pheromones the hormones, and the drones the testes of this 'super organism.'

I say all this because it poses your original question in the right context. What is the 'right balance' of sperm cells in an average human male? Well, the question really only matters if the poor bloke has fertility issues and wants to father a family. But for that individual, he can lead a perfectly normal life with a low sperm count.

I think it is safe to say that beekeepers are mostly concerned with the health and productivity of their personal hives. The fitness or fecundity of their colonies - seeding the neighborhood with more colonies - is secondary. In that respect, I consider legitimate the health benefits of controlling varroa from drone brood trapping - even to the point of removing all drone brood from a colony.'

So as part of my integrated pest management I will be continuing with drone comb removal and also letting the bees decide how much drone they want to produce else where in the colony, but it is an interesting thought to consider.

*Mel*

## Selling Colonies

### But No Movement Records Kept

For the second year, the Bee Inspectors in England are dealing with two separate beekeepers who have sold nucleus colonies which have been found to have European Foul Brood (EFB)

Not only the problem of having a notifiable disease but in both cases the beekeepers have kept little or no records of whom or where the nucleus colonies have been sold. This makes tracing the stocks very difficult and of those

that have been traced some have also proven positive for EFB. These bees had been distributed far and wide within the UK.

All beekeepers who sell bees should keep records of where the colonies go to assist with tracing these stocks at a later date if necessary. It will also help if the purchaser self registers on BeeBase.

*Andy Wattam,  
National Bee Inspector*

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# An August Varroa Treatment

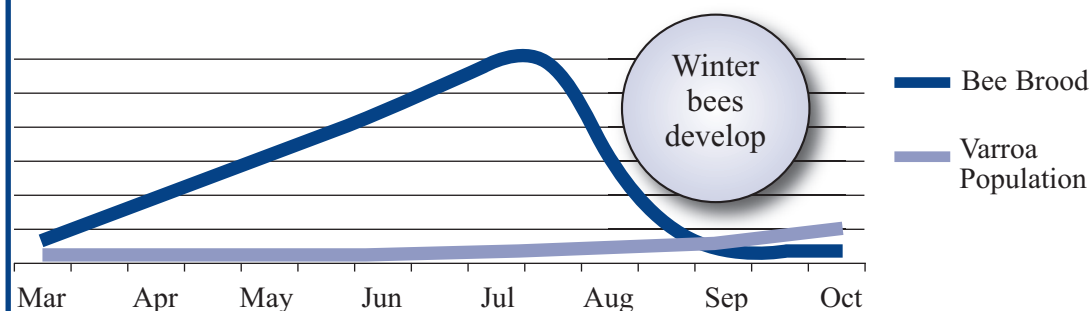
## Why an early August varroa treatment is so important.

From my observations and listening to beekeepers it is clear that many 'early autumn' varroa treatments are being carried out too late in the season.

One often hears of beekeepers' colonies dwindling and dying in late winter with no varroa being present. However on examination the beekeepers advise that varroa treatments were carried out in September and October and the diseases associated with varroa infestations are present. Why is this and what has happened?

During the active season varroa mite populations double every three to four weeks when honey bee brood is present; whilst bee brood quantities vary according to the season. In August there is a comparatively small quantity of bee brood with an increasing number of varroa mites entering this brood to reproduce. The following graph illustrates this effect. The bees that will carry a colony into and through the winter are developing during and after mid-August so control, if required, in early August is important to prevent the bees lives being shortened by the introduction of disease pathogens, particularly bee viruses, carried and triggered by the varroa mites.

## Varroa Population in Relation to Bee Brood



If beekeepers have or wish to work their bees on late flows the importance of bio-technic varroa control methods cannot be over stressed. Their use may result in colonies having mite levels below the treatment threshold of 1,000 during August meaning that treatments will not be required at that time. Further details can be found in the Fera/NBU leaflet 'Managing Varroa'.

Richard Ball  
National Bee Unit

# Fumigating Comb with Acetic Acid

This procedure is often advocated as part of an Integrated Pest Management (IPM) measure for controlling bee diseases such as *Nosema spp.* and offers a lot of benefits but they must be weighed carefully.

Perhaps firstly, the best way of considering whether to use this procedure is to look at its benefits separately in respect of brood or super comb and then consider the actual procedure.

## Brood comb

As a matter of course brood comb should be replaced on a regular basis in order to reduce the disease pathogen load within the colony. Some beekeepers in disease hot spots change brood comb on an annual basis. Personally I try to ensure that all the brood comb in a given colony is changed at least every other year.

Often recommended, as part of an IPM approach to the control of *Nosema spp.* disease the fumigation of used brood comb must be considered in relation to the comments about comb replacement. The costs involved in

fumigation must also be considered carefully against the cost of replacement. In view of the comparatively low cost of foundation it may be more effective, especially in respect of disease control, to render the old comb and part exchange the wax for new foundation. Professionally made foundation poses no disease risk.

## Super comb

It is generally considered that fumigating super comb has benefits in reducing disease pathogen loads in bee colonies. Currently it is thought that European Foul Brood bacteria are susceptible to such treatment. However it is not suitable if brood has been in the comb. It is always best if a queen gets into the supers and lays brood to destroy those combs at the end of the season. Importantly it reduces the risk of wax moth damage in the winter store. No problems are presented if pollen is present. However American Foul Brood bacterial spores are not affected by acetic acid fumigation so combs that have been in contact with this devastating bee disease must be destroyed.

## To fumigate using acetic acid

Firstly you must find and take suitable safety precautions such as using suitable containers. It is only suitable for fumigating empty combs and will kill any bees that are present. Acetic acid will burn the skin off your hands and anywhere else on your body! It attacks concrete and corrodes metal hive parts. Acetic acid does not affect beeswax or stores in the comb. You will require 80% acetic acid together with absorbent pads.

## When ready

1. Scrape the wooden frames to clean off propolis and other excess material. Clean out the brood box or super and coat any exposed metal parts with Vaseline and replace the combs in the box.
2. Place a clean wooden hive floor on the ground and put on it an absorbent pad containing 140 millilitres (¼ pint) of acetic acid.

Absorbent pads can be made up from lint or cotton wool. It is better to do this away from the house as acetic acid has a very distinctive smell, which many find objectionable.

3. Place a box of comb on the floor.
4. A stack can then be built placing absorbent pads as used on the floor between each brood box, or two supers. The stack is closed with a crown board and roof. Seal up the stack using sticky tape around the joints. Polythene tubing, as used for wrapping carpets, makes a very good covering effectively sealing the stack if you make each end airtight.
5. After a week the stack can be opened and the boxes 'aired' for at least two days before use.

Richard Ball  
National Bee Unit.

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The premises where the product will be manufactured and packaged must be appropriate and have a manufacturing authorisation, so meeting the standards of Good Manufacturing Practice (GMP) set by legislation. GMP helps ensure that products are produced to a consistent and appropriate quality.

Before assessing a veterinary medicine application the VMD validates the dossier, checking that the application is complete and contains all the documentation and scientific data required by the legislation. The data requirements are detailed in various guidance notes published by the European Commission's Committee for Veterinary Medicinal Products (CVMP). The dossier may be submitted as paper copies or electronically. Once it is considered 'valid', the dossier is sent to the VMD assessors for review. The VMD may request product samples but does not usually carry out any trials or experiments on the medicinal product under assessment.

On receipt of the dossier, pharmacists and chemists evaluate the data submitted concerning the product formulation, the method of preparation, the quality of the starting materials used in product manufacture and the quality of the containers used for packaging the medicine. These scientists also consider if the tests carried out during production and for product release to the market are adequate to ensure appropriate quality and batch to batch consistency. Stability data for the product are examined to set a shelf-life during which the product will remain safe and effective.

Toxicologists examine the safety and residues sections of the dossier. These scientists look at the data for any potential toxicity of the medicine to the target animal or to the persons administering the medicine. They also examine the residues studies presented in relation to the MRL to set a suitable withdrawal period. This is the period of time from the treatment of target animals to the time foodstuffs from those animals can enter the food chain to ensure that the no harmful residues of the medicinal product will be present in foodstuffs from the treated animal. Another area of interest is potential risks for the environment resulting from the use of the veterinary medicine.

The product's efficacy is assessed by veterinary surgeons. This covers information on the mode of action of the medicinal product and on the studies carried out in support of the correct dosage and administration, as well as information on safety of the product to the target species. Efficacy assessors also evaluate the studies presented to demonstrate the claims proposed by the applicant by ensuring that the labels and product literature correctly describe what the medicine does. Assessors also take into consideration whether or not the effective dose has been defined

and the dosage regimen validated, and whether the trials carried out have taken into account the geographical conditions, husbandry systems and disease conditions in the UK.

At the end of the assessment process assessors collectively analyse the overall benefit/risk balance of the product and give an opinion as to whether or not the product is suitable for authorisation. If the answer is yes, the product's claims will be approved with recommendations and warnings that need to be listed in the Summary of Product Characteristics (SPC) and on the product labels and package leaflet. The VMD publishes the SPCs for all UK authorised products and for new products authorised since 2005 a summary of the assessment report is available

It is worth highlighting the lack of specific legislation for authorising medicines for minor species or for minor use (less common diseases) and, therefore, the current legislation applying to cattle, for example, also applies to bees and other minor species such as goats. The regulatory authorities have recognised that there is a problem of lack of medicines for minor species such as bees and it is clear that this is due, in part, to the relative costs involved in the research and development of new products for minor species compared to

the expected modest commercial return from such niche products. One of the main difficulties as noted earlier, is that only products that contain pharmacologically active substances for which maximum residues limits (MRL\*) have been established, or where it has been confirmed through assessment that the active substance does not require an MRL, may be authorised for use in food producing animals – and bees are considered to be food-producing animals.

The European Commission has introduced measures to facilitate the authorisation of medicines for minor species, such as bees, and when applications are from small or medium size enterprises. For applications submitted via the Centralised Procedure, these measures provide for free scientific advice, reduced data requirements (in accordance with EU guidelines), fee incentives for applications to obtain MRLs, and fee reductions for inspections and authorisations. The VMD also permits reduced data requirements for National Applications and we offer a fee waiver for field trials conducted with veterinary medicinal products aiming to obtain a MA for a minor species. Fee reductions for MA applications may apply in certain circumstances related to a significant animal welfare need. So there are significant attempts to increase the industry interest in products for minor species.

The European Commission has initiated a consultation on the adequacy of the legislation governing veterinary medicinal products and there is an opportunity for bee keepers to provide the European Commission with suggestions on how to improve the availability of medicines for bees whilst ensuring the safety of honey and hive products used for human consumption.

So there is agreement amongst beekeepers and regulators that the current range of medicines for treating bee diseases is inadequate. Whilst there may be changes to legislation at the EU and subsequently national level, which will improve the availability of bee medicines, there are ways in which the situation can be helped in the short term for example through the so called prescribing cascade or importation of medicines authorised elsewhere in the EU, for use in the UK. These will be the basis of the next article in this series.

*Martha Spagnuolo-Weaver, VMD and Tim Lovett, BBKA*

\* MRL is the maximum concentration of a residue of a pharmacologically active substance that can legally be present in food. The CVMP assess the scientific data presented and recommends MRLs for active substances intended for use in food producing species in the EU.

For further information on the issues discussed follow the links:  
<http://www.vmd.gov.uk/ProductInformationDatabase/>

# Habitat Aid

Some of you may have wondered about the link from the BBKA website to Habitat Aid, others of you may not yet have heard of Habitat Aid. So we have asked Nick Mann, the founder of Habitat Aid, to explain.

I have kept bees since 2005, and I suppose I can blame them for giving up a modest career in investment management to set up Habitat Aid. I hope to persuade and enable folk to at least partly recreate or help replace key habitats like meadows, wetlands, orchards and woodland. The company also helps a small

number of charities financially.

Habitat Aid is partly an online retailer selling mostly trees, plants and seeds sourced from really good quality specialized suppliers who often have a limited or no e-commerce operation themselves. Half our profits from sales go to selected partner charities, which are linked to specific products. We sell exotic 'trees for bees', for example, which help fund the excellent Laboratory of Apiculture and Social Insects at Sussex University. This will not just help charities financially, but also helps get key messages across. For example, we encourage folk to

help give honey bees all year round forage so we sell trees like *Acacia dealbata*, which flowers beautifully from January.

We also act as a kind of honest broker. I am building a network of consultants in areas like garden and estate design, meadow creation, and wetland projects. We recommend and introduce these folk to each other and the landscape professionals, to give advice or to design and project manage. We then supply the plants for these schemes. We have just worked on a lovely pond project for Channel 4's 'Landscape Man' on this basis. We have also

started to run courses on things like making meadows and ponds.

Lastly, we are developing products directly with our partner charities. We are working with the 'Adopt a Beehive' scheme and BBKA Enterprises to supply native seed mixes for bees.

Habitat Aid has been trading for a year and we are still tiny, but I am cautiously optimistic. It has been a terrifying mid-career move, but now I look forward to getting to my desk in the mornings.

Nick Mann

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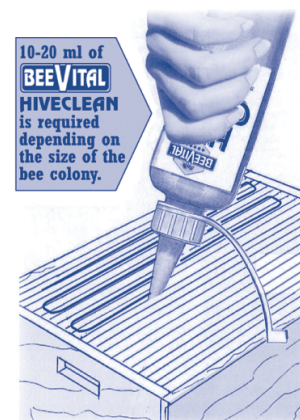
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## A New Research Project

Surveying the levels of pesticide residues in bees and stored pollen and their effects on bees

Dr Falko Drijfhout at Keele University, together with David Aston and Pam Hunter from BBKA, has been awarded a BBSRC CASE PhD studentship to study the levels of pesticides that could potentially be accumulating inside a beehive. The PhD student will start with the project in October 2010 and will be working closely with beekeepers across the UK.

### Background

The recent high levels of colony losses in the beekeeping industry worldwide have led to considerable speculation as to the cause of these losses. One of the potential reasons for the sudden death of colonies is a general decline in the health of bee colonies. Hence, an important question to address is why this decline in bee health is occurring.

Several speculations have indicated that pesticides or the residue of pesticides in the bee hive could have a considerable negative effect on the health and/or behaviour of honey bees. What this effect is remains to be seen, but it could result in a dramatic change in bee behaviour e.g. bees taking longer to find food, having difficulty in finding food or bees becoming more prone to disorientation and hence becoming lost. On the other hand if the bees' health is declining bees could be more susceptible to diseases.

Due to these uncertainties some pesticides have already been banned in Germany and France, as it was thought that these pesticides are responsible for the death of honey bees. Although the most recent study of bee losses in France concluded that it was not possible to confirm that pesticides play any direct or indirect role in bee losses. Recent international studies revealed that pesticides can accumulate in pollen and also indicated a potential negative effect on bee behaviour.

### Project

In this research project, which is a collaboration between Keele University, Sheffield University and the BBKA, the main aim is to identify whether any pesticides can be detected in a bee hive. The project will initially focus on adult bees and stored pollen. These will be collected from many bee colonies originating from at least four regions of the UK; all having different agricultural practices.

These samples will all be chemically analysed for trace levels of any pesticide residues. The analysis of the pesticides after extraction will be done via either gas chromatography (GC) or liquid chromatography (LC). Detection of the pesticides can be done via ECD or FID (with GC) and mass spectrometry (with GC and LC). Since the effect of pesticides on bee health is likely to be related to the bees' behaviour (disorientation) rather than a direct effect (mortality), the analysis will aim to detect levels below the lethal dose.

Depending on the outcome of these studies other material from the bee hives, such as brood, wax etc, will also be collected and chemically analysed for the presence of pesticides.

Through a survey conducted with beekeepers, data related to colony losses and colony health will also be obtained. Results from this survey will then be compared to the levels of pesticides found in the collected bees or stored pollen. This will reveal if there is a correlation between the presence of pesticides and colony health and/or colony losses.

If pesticides are found, this study will also reveal which pesticides are found within the different areas in the UK. This will then be compared to similar data from other European countries, where specific pesticides have already been banned.

I will keep you updated on my research.

**Dr Falko Drijfhout**  
Keele University  
[f.drijfhout@chem.keele.ac.uk](mailto:f.drijfhout@chem.keele.ac.uk)



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# The Importation of Bees – a Reflection

Honey bees have been imported into the United Kingdom, to sustain and improve apiculture, in large numbers since the 1850s.

However, the emergence of exotic parasites and diseases has led many to question the wisdom of such importation. Like so many issues in beekeeping (following the two beekeepers + three questions = six answers rule), the importation of honey bees has polarised opinion, with some condemning its practice, whilst others continue to actively import honey bees in numbers. The aim of this article is to provide an objective viewpoint on the matter and to explore the issues surrounding the importation of honey bees.

## Background

The earliest known successful importation of honey bees into the country was the introduction of the Italian bee (*Apis mellifera ligustica*) by Thomas White Woodbury in 1859<sup>1</sup>. The original incentives for importing bees may well have been curiosity, and it is noteworthy that there were often drives to naturalize exotic animals during this period<sup>2</sup>. However, the commercial value of introducing the productive and often well tempered Italian bees to a country that had only known the skeppist's product: the unreliable British bee, was soon realised. An industry was born in the UK. Commercial queen rearers in Italy rose to the challenge and were supported by importers of bees in the UK.

By the 1920's the so called 'Isle of Wight bee disease' had claimed many bee colonies, with losses of 75-90% recorded in many parts of the country. Many observed that fact the old British bee was more susceptible to this malady, the cause(s) of which has been a matter of some debate. Such losses, from a commercial pollination perspective, could not be tolerated by a country that was still reeling from the financial drain of the First World War. Consequently an official restocking scheme was established utilising imported bees to hasten the recovery of the beekeeping industry.

Subsequent importation of

honey bees has been dictated by a combination of fashion and availability, with Dutch ('Black and Tan') bees, French ('Black') bees, Buckfast bees and Italian bees (from numerous sources) all seeing their own importation heyday. Small numbers of other strains of bees have been imported intermittently. Legislation has also advanced, with little or no control over bee imports in the early years advancing to a raft of legislation covering modern bee importation (see the BeeBase website).

Since 2000, over 40,000 queens have been imported into England and Wales<sup>3</sup>, a significant figure when it is considered that there are only an estimated 230,000 colonies in England<sup>4</sup>. Most bee imports are as accompanied queens in queen cages.

## Problems with Importation

An obvious problem with the importation of honey bees is the introduction of exotic pathogens. Although the world wide movement of containers and cargo poses a significant threat of introducing exotic species and bee diseases, the deliberate importation of queens also increases the risk of introducing exotic pathogens. This risk is likely to be highest with smaller, less easily detected pathogens, such as viruses, which are thought to be a significant cause of honey bee mortality, and novel pathogens. Although safeguards have been put into place to reduce the possibility of the inadvertent introduction of bee disease, the importation of honey bees remains an avoidable risk to national bee health.

Bees must be suitable for their environment and the beekeeper, and their environment must be suitable for the bee. Although the importance of different ecotypes is often overplayed, it is certainly true that some bees will be better agricultural insects within certain areas than others. Some bee varieties (not those usually imported) are incompatible with beekeeping in the UK. However, those bees that have become established within a region (whatever their genetic make-up) will have already proven themselves to be able to survive

the local environment, an assurance that cannot be guaranteed with imported bees.

Local variations such as the proximity of an important early nectar crop or pollen source may give one variety of bee a slight edge over another in the honey crop stakes, and bees acclimatized to alien climates may be less capable of producing a surplus as locally reared honey bees, especially where nectar yields are poor.

Furthermore, queens that have spent some time travelling will often be in a sub-optimal state to take on the immediate role of 'mother of the colony'. Honey bees that are acclimatized to other countries therefore should be treated as an 'untested entity' and there is an undeniable failure rate: partly through stress on the bee; failure of acceptance by the colony; the beekeeper being less able to meet the needs of the bee and through a degree of environmental incompatibility.

The introduction of an imported queen is, to many, an easy step towards improving an inadequate local strain of bee. Breeding for improvement solely from inadequate local strains of bees on a small scale is a long, laborious and often fruitless task. However, the introduction of new genetic material can also raise some issues. Bees are less tolerant of queens from other races and risks of introduction failure are higher in dissimilar bees. The genetic variety that can be subsequently produced when two bees of very different genetic make-up are crossed can be unpredictable. Subsequent generations will have representatives that both meet the needs of the beekeeper and some that do not and the beekeeper needs to ruthlessly select from the offspring to obtain a stable population of honey bees that have the required apicultural properties. Furthermore, the heterosis effect (hybrid vigour) needs to be anticipated, and some colonies may become very populous and (potentially) quite a handful as bees 'boil over' when boxes are removed. There is also the risk that introducing new genetic material will be perceived

to compromise the individual breeding efforts of local bee breeders with differing breeding goals. The beekeeper may also need to reassess assumptions about how much space and food a colony needs, the intent to swarm and many other properties when trying a different strain of bee and be prepared to change his/her practice to suit the needs of a different strain.

## On Balance

Importation of honey bees poses an avoidable risk to bee health and has its own intrinsic problems. Locally reared honey bees should be the first point of call when attempting to improve a strain of bees as they both lend some assurance that they will be environmentally compatible and avert the bee health risks associated with imported bees. If the beekeeper wishes to try another strain of bee, (s)he should first look to UK reared queens from bee breeders as these will again avoid the bee health risks associated with imported bees and will be acclimatized to these islands. Only when the needs of the beekeeper cannot be met with British reared queens should importation be considered and then it should be limited in extent by what is necessary. The long and significant history of honey bee importation has met the needs of our forebears and resulted in a highly diverse population of UK honey bees that is better placed to meet the needs of the modern beekeeper. The beekeeper is therefore best advised to avoid honey bee importation where possible, to best assure the long-term sustainability of beekeeping in Britain.

**Richard Bache, Somerset BKA**  
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# Observations on Morphometric Analysis by a New User

Selective breeding of animals and plants has preoccupied the human race for thousands of years though more recent scientific research, applications and innovative methods have made the process somewhat faster and more focussed.

Beekeeping has not been totally sidelined from this progress though it must be admitted the lack of research funding over recent decades has done little to enhance the selective breeding of the honey bee to encompass, as it should, the many beneficial traits (real or imagined) of this important insect.

It was, therefore, with some interest that I read Brian Dennis' article in June BBKA News concerning morphometric bee wing analysis and its role in distinguishing the possible subspecies and therefore traits in colonies of the honey bee. The BBKA article will hopefully have stimulated some readers to 'have ago' at the method and more seriously look at the benefits of queen breeding. I am not an expert on morphometric analysis but rather a new user of the technique and as such I write the following in this light.

It took me a few days to understand the principles behind the method and then to set up the system on my own PC but I was surprised that the images produced by a rather elderly Epson Perfection 3170 scanner coupled

with Adobe Photo Shop 7 were so good. While at the time of writing there are improvements to be made in my data handling/manipulation (I await my daughters input into this!) I have got the methodology working using the programmes available on the British Improvement and Bee Breeders' Association (BIBBA) web site viz. Adam Tofilski's DrawWing programme and Peter Edwards' MorphPlot. There were a number of unexpected 'minor' problems in my method but with a little thought these were overcome. For instance as I progressed with the many wing samples I was scanning I noticed that certain numbers were being 'refused' by the DrawWing programme. This was traced to finger prints in the glass of my scanner! However, I found the technique fascinating if not a little addictive though consideration of my results started to beg questions to which I was uncertain of the answers.

This is not the place, as a beekeeper new to this technique, to air the technical problems I encountered or solutions I implemented but rather one in which to address some issues which may be of interest if this method gains a foot hold among beekeepers. Perhaps the points raised might be addressed by those already involved with these morphometric methods and who may be able to provide some answers. Hopefully at least it

may stimulate discussion on the subject. The following restricts its remarks to DrawWing and MorphPlot as these are the ones I used. There are other programmes which address the same characteristics of the honey bee wing.

The DrawWing programme produces data on the relationship between various vein lengths and angles in the forewing of a bee, producing values for the Cubital index (Ci), Discoidal shift angle (DsA) and Hantel index (Hi). These may be totally unknown and/or seem complex to the uninitiated but reference (Google) to 'A new biometric method used in Sweden' by Per Thunman, Stockholm, makes them obvious.

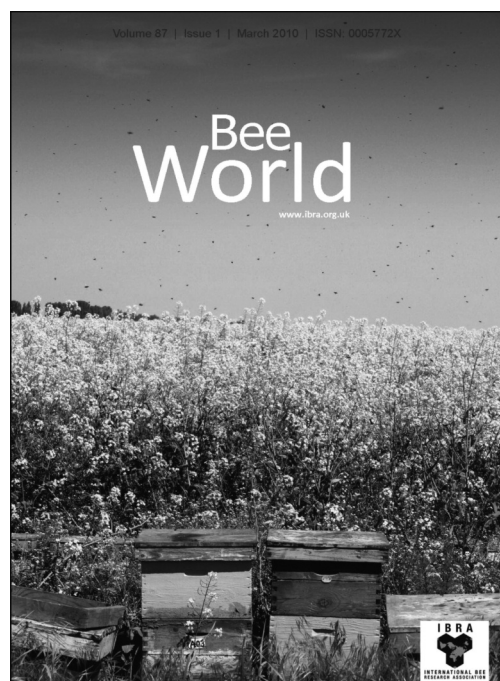
One obvious question is which of three relationships which is produced by the DrawWing programme (viz. those between Ci, DsA and Hi) are indicative of say *Apis m. mellifera* (the British black bee) or say *Apis m. ligustica* (the Italian bee). Clearly if beekeepers start to use or report results using different starting points we will end in a bit of a mess. The DrawWing data seem to indicate that some of the relationships are not as 'indicative' of the British bee as others. For instance in a hive of mine Ci/DsA and Ci/Hi are 40% while DsA/Hi is 80%. The figure of 80% would be misleading as an indicator for *Apis m. mellifera* as apparently it is the Ci/DsA ratio which is the preferred criteria. Peter Edwards MorphPlot

places red rectangles on each of the three graphs which enclose the values purported to be those of *Apis m. mellifera*. It is quite possible to have data indicating *Apis m. mellifera* in one rectangle but not another. It can also be noted that different authorities place differing *Apis m. mellifera* values on Ci, DsA and Hi. A further pitfall for the unwary! I have found quite differing values for these relationships in adjacent hives and of course wonder if the differences are real or the result of some methodology difference.

A question that follows from this is; How were the wing criteria for the British black bee arrived at? Over the years its reduction and hybridisation presumably makes type specimens difficult to come by. I have no idea about this but it would be interesting to know.

We know that within a hive we can have bees of differing sizes and colouration and that this is explained as the result of multiple mating by the queen leading to differing sperm genotypes in her spermatheca, these differing genotypes being apparently mixed in her. Incidentally, in passing, if the sperm are not homogenous in the spermatheca then a new problem in sampling might arise but that scenario is best left alone at present. A question then arises, how likely is it that our sample contains bees which are representative of bees in the hive? This is a problem of both sample size and sample position. It seems that young bees from the brood chamber might differ in 'mean' genotype of those taken from say a super. This is because the latter could contain bees from other hives which have arrived in the colony by drift or by robbing. Thus it seems where we sample in the hive could be an issue. To collect newly hatched bees it would probably be necessary to take frames out rather than to scoop bees off the top bars.

We are on more sticky ground when considering the number of bees in a sample which are needed to represent the colony. Sampling theory is well established, though can be complex, but clearly at one extreme one bee obviously will not represent the mean hive genotype and using the whole hive as our sample would be, to say the least, deleterious to our colony! A



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# Climate Change and the Northward Spread of Bumblebees

While politicians continue to bicker about how best to tackle the problem, climate change continues apace and is having marked effects on the distributions of British bumblebees. Two of our commonest species, the buff-tailed and red-tailed bumblebees were once rare or absent from much of Scotland but have now spread to the far north coast. 2009 saw the first ever Scottish record of the southern cuckoo bumblebee, which no longer lives up to its name. The tree bumblebee (*Bombus hypnorum*) which invaded the south coast in 2001 from France has now spread as far

north as Northumberland and those of us that live in Scotland are eagerly awaiting the first arrival.

Buff-tailed bumblebees have ceased to hibernate in the south, so that workers can be seen all year round. This phenomenon was first seen in Devon in the 1980s and has now spread to the north midlands.

All of this might seem like good news for bumblebees, but of course there is a downside. The species which are spreading at the northern edge of their range are also likely to be disappearing in the far south; for example the prospects for bumblebees in Spain

and the south of France are bleak in the long term. In the UK, the species most threatened by climate change are those that prefer cold climates, such as the great yellow bumblebee, *Bombus distinguendus*. This lovely bee was once found throughout Britain but has contracted northwards (largely driven by habitat loss) and now is only found on the far north coast of Scotland, in the Western Isles and Orkney. It is a very furry species, well adapted to the cold and wet climate of northern Britain. It has nowhere further north to go in Britain as the climate warms. To make matters worse,

most of the remaining populations are on flower-rich coastal grasslands (machair) which are vulnerable to even small rises in sea level or severe winter storms.

The survival of such species in Britain in the long terms seems doubtful. The only tactic we can employ to help such species is to try to ensure that the habitats in which they still survive are in tip-top condition.

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## Observations on Morphometric Analysis

...cont

heterogeneous colony will require a larger sample than a homogeneous one. I have learned that beekeepers do use differing bee numbers in a sample but do not know the effect that this may have on the validity of any values obtained. To allow us to compare our results with those of other beekeepers we need to be sure that our sampling techniques are applicable to our requirements.

The DrawWing programme at first produces a black and white image of the veins of the wing and then automatically places nineteen small red rectangles over certain wing vein junctions or cell ends of the wing image. The distances and line angles between these various points are used to calculate the values of Ci, DsA and Hi and produce tables and graphs. Of the nineteen points only those numbered 0,1,2,18,6 and 4 are used for calculating Ci and DsA, the values apparently of interest to us. Now one thing that can happen is that for some reason (e.g. wing orientation, image clarity) not all of the points may be automatically added to the image and some or occasionally all have to be placed in position manually by 'drag and drop'. Two possible errors arise here. One is the correct allocation of red squares to correct vein junction and the other is positioning the red square correctly on the junction. The vein junctions are allocated numbers (not on the image but in the DrawWing information web page) and the small red squares have

numbers as well. However, if manually 'drag and dropping' these rectangles the image has to be enlarged by the slider in the image window to see these numbers on the rectangles. Placing the wrong square on a junction produces erroneous results and though these can usually be spotted in the resulting indexes to be aware of this problem is to be forewarned! I did several samples before I realised this to be a potential problem.

The second of the two problems mentioned above is that the two indices, Ci and DsA are sensitive to the manual fine placement of points. While Ci is sensitive to the position of the placement of

red squares 0, 1 and 3, DsA (dependant on points 18, 6, 4 and 2) is particularly sensitive to the placement of points 4 and 2 though less so to 18 and 6. Thus an individual's view of a junction and their computer mouse control may influence the value of an index, particularly the DsA index.

So where does this leave the 'average interested beekeeper'. Well, I found the exercise very interesting and it opened an unknown area of beekeeping to me as well as entomology in general. I would recommend it to interested people but data interchange between people venturing into this area is recommended not only from a

technical problem solving point of view (particularly for the more elderly beekeeper who might be a little afraid of a foray into this area of computer imaging, and this includes me!) but also to make sure we are 'singing from the same hymn sheet'. In this way we will encourage the development of this methodology.

Finally it must be added that for beekeepers who are seriously into queen breeding the morphometric technique should be used in conjunction with other parameters such as body colour, length of overhairs, proboscis length etc.

*Dr Chris Coulson,  
Beverley BKA*

## Education



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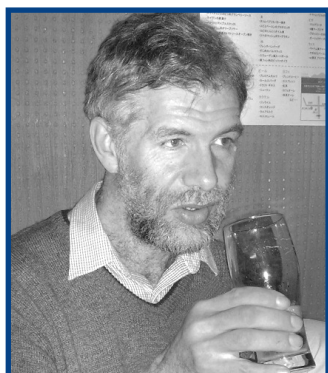
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# Meet the Researchers

*This month Dr Stephen Martin gives an introduction to his research work.*



I am currently on the car ferry travelling to the Isle of Man to collect several bee colonies for the Sheffield University honey bee virus research programme.

It is nearly forty years since I was last on the Isle of Man. It was our family holiday and apart from the motorbike racing and a big water wheel, I cannot remember much. At that time I had no interest in honey bees or insects in general. Fishing, birds (egg collecting!) and hiking were my main interests as a boy. Studying Zoology and Applied Zoology at Bangor University led to an interest away from bird photography and more towards entomology.

In 1982 I visited central China as part of a mountaineering expedition, during that trip I made a bumblebee collection that

contained many rare species and got me involved with people such as Paul Williams at the Natural History Museum. Interestingly, Paul and I have just had our first joint scientific paper published on bumblebee chemical recognition. After university I made my first of many trips to Japan to study their insects. Firstly it was high altitude beetles but in my spare time I worked with the local hornet hunters and ended up studying Asian hornets during my first and all subsequent trips to Japan.

After all my research funding ended, I decided to take a break from academia and looked for a research job outside university. I turned down a job with the BBC film unit and the Game Conservancy before joining the National Bee Unit, which was then based at Luddington. My job was to conduct research on the newly arrived varroa mite and so I was thrown into the deep end of bee research and more importantly bee politics. Certain people in the bee world were certainly not happy with the appointment of me due to my lack of honey bee experience. Ted Hooper's guide to beekeeping showed me the basics. Things at Luddington were frantic as the varroa mite spread throughout the country and everyone wanted answers and they wanted them fast. This was a world away from academia.

Luckily I was out stationed down in Devon where varroa was already well established and I met Len and Joan who provided me with a research apiary, numerous cups of tea and over the years and taught me all I needed to know about bees, everything from politics to pollen. I learnt to manage bees for the purpose of my research. I certainly would never call myself a beekeeper as I have killed more colonies than even the worst beekeeper. But that is part of my job to understand how and why honey bee colonies die. It is a very complex and challenging question and specifically the type of problem I like to tackle.

Over the years honey bee research has taken me all over the world and brought me into contact with the widest range of people. Honey bees are special among the insects, since they are one of the few species that humans have such a direct impact on. It is impossible to study almost any aspect of honey bee biology without having to consider the human influence, although in many cases it may not be obvious.

This can be both a joy and a pain.

After seven long and productive years with the National Bee Unit I returned to academia. This was always my aim as I wanted to tackle other biological problems outside varroa. Currently my time at Sheffield is split between investigating honey bee viral diseases and the chemical recognition systems of insects, particularly ants and bees. Decoding the chemical language of insects is another challenging question that I like to tackle, and as such is taking up more of my time. Despite this I still find time to pursue my honey bee research programme which takes me to exotic places such as the Isle of Man or Hawaii in order to understand the impact our actions have on the health of our honey bees.

I will soon be the proud owner of the healthiest, certified viral free colonies in the whole of England, pity they will not stay that way for long! Did I mention that I am a bee researcher not a beekeeper?

*Dr Stephen Martin  
Sheffield University*

## Guide to Bees & Honey by Ted Hooper MBE

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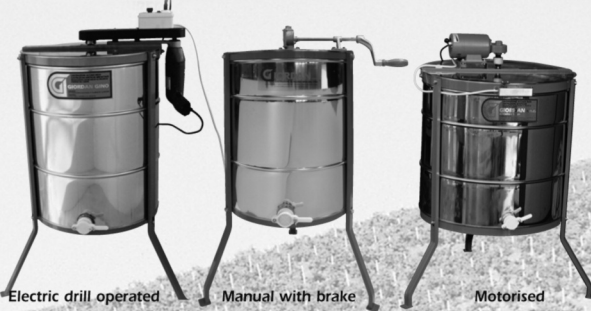
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# Healthy Bees Project Management Board

The ADM in January 2010 debated the decision by BBKA Executive to withdraw from the Healthy Bee Project Board and although the delegates supported the Executive position there was a feeling that the delegates would favour re-engagement.

An opportunity to visit Sand Hutton and meet senior representatives from Fera helped identify and address differences and paved the way for a return to the Board which was viewed by some Board members with some reservation but in fact the BBKA's return was seen afterwards by many as having a positive effect on the proceedings.

Many BBKA members, although they know of the Healthy Bee Project, may not be fully aware of the type of areas that are discussed or who in fact attends so I hope the following helps.

The BBKA took its place around the table at what in effect was the sixth meeting held in London on the 6 May 2010.

The Board is made up of representatives from Fera, the Bee Farmers, Welsh Government, Welsh BKA, a beekeeper from Kent and an observer representing the Scottish Government.

Discussions as you would expect were across a wide range of subjects including: -

- EU funding opportunities and whether the various schemes could be identified.
- Hawaiian SHB update.
- Office of Government Communication report and conclusions on the Healthy Bee Project Board arrangements, this has made recommendations about how the Board should be constituted in future, and the need to focus on achievable targets.
- Healthy Bee Board Budget issues for 2010/2011 and what money was

available and whether there were identifiable schemes worthy of support.

- Draft work plans for the advisory groups, these being;
  - Science and Evidence Advisory Group.
  - Husbandry and Education Group.
  - Communications Working Group

These groups report the detail of their discussions and recommendations to the main Board.

- BBKA plans based on their Course in a Case (CiC) to develop the process through various training/attainment levels to Master Beekeeper.
- Compulsory Registration of Beekeepers; a detailed discussion that allowed all present to give their viewpoint. (Note: this was rejected in favour of continued voluntary registration of beekeepers on BeeBase)
- A presentation of a report on the study of beekeeping practices.
- Discussions about the best way to put forward a business case to Defra for the next two to three years of funding. The board decided to set up a Working Group to formulate the case and the beekeeping representatives would be Brian Ripley and Robert Smith.

The recent change in Government and its Emergency Budget might still have some impact upon the way that the future of the HBPB develops but from my point of view I met with new people and it will take time to gain their confidence that BBKA, whilst continuing to make a strong but constructive argument on behalf of its members and honey bees, it sees the way forward as through a constructive dialogue together not shouting at each other from a distance.

*Brian Ripley, BBKA Chairman*



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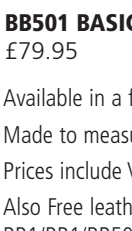


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# The Insect Pollinator Initiative

## Projects to be Funded were Announced in June

### **Sustainable pollination services for UK crops**

**Led by Dr Koos Biesmeijer, University of Leeds**

This project will determine which wild and managed pollinators contribute to pollination of insect dependent crops and whether at present the lack of wild pollinators limits agricultural production in UK landscapes. In addition, the researchers will analyze how the supply of managed honey bee hives for crop pollination can be improved. Next, the researchers will investigate whether climate change will affect UK crop pollination in the future. The results will pave the way towards sustainable crop pollination by providing knowledge that can be applied to decisions about crop, landscape and pollinator management practices in the UK.

### **Modelling systems for managing bee disease: the epidemiology of European foulbrood**

**Led by Dr Giles Budge, FERA**

Honey bee populations are threatened by a range of established and emerging diseases. With new and increasing stresses on bees, it is important to examine ways of preventing and tackling these diseases. In the UK we have twenty years worth of data about where and when some diseases have been found. This project will use data on European foulbrood (EFB), as an example to model how this and other diseases are moving in the UK landscape. It will also generate new data about how the pathogen behaves within the colony and study how the genetics of the bee, the behaviour of the beekeeper, and changing meteorological conditions determine the spread of disease. The project aims to create the first model of its kind that can be applied at different scales (colony, apiary, region etc.) and to different bee diseases.

Ultimately, this project aims to develop a system that can make predictions about the epidemiology of a range of bee diseases, and lead to the development of effective means of controlling disease occurrence. In the shorter term it seeks to deliver improvements in how we inspect and monitor for EFB, and how we may decrease the impact of EFB and related diseases on our honey bee population.

### **An investigation into the synergistic impact of sub lethal exposure to industrial chemicals on the learning capacity and performance of bees**

**Led by Dr Chris Connolly, University of Dundee**

We rely on a varied cocktail of pesticides to protect crops from pest damage and pesticides are also used to protect bees from mite infestation. Exposure to such chemicals could be harming beneficial pollinators and chronic exposure may be particularly important in the context of other challenges faced by these insects.

Many insecticides work by interfering with information flow in the brains of insects - either increasing or decreasing their brain activity. Researchers will be asking whether chronic exposure to chemicals used to control mites, combined with levels of agricultural pesticides that are not lethal but could be damaging, are affecting foraging, navigation and communication in bees.

Honey bees and bumblebees will be monitored and the researchers will investigate their ability to learn. To do this they will assess their performance using radio tagging of individual bees and assessment of specific learning tasks. In partnership with the Scottish Beekeepers' Association they will carry out a three year survey of the impact of environmental chemicals on colony performance. The team will study the brain cells of bees in the laboratory to monitor the effects of pesticides. They will be seeking to understand the molecular basis of learning and memory in bees and how this is affected by pesticide exposure. The researchers will also attempt to produce the first ever honey bee cell line to facilitate future pesticide screening.

### **Linking agriculture and land use change to pollinator populations**

**Led by Professor Bill Kunin, University of Leeds**

There is growing evidence that both domestic honey bees and wild pollinators are in trouble, and that many wildflowers that depend on them for pollination are also declining. What we do not yet know is how

these trends are linked; whether pollinator declines are driving flower losses or vice versa. This project tests whether we can predict how common and diverse pollinators will be in a region from the local abundance and diversity of flowers, and similarly whether plant reproduction is affected by the pollinators available. The researchers will also test whether other factors such as pesticide usage and land use history have an impact on pollinators, and whether honey bees and wild pollinators affect each others' populations.

One part of the project will focus on re-surveying pollinators in sites where they have been studied in the past, to test whether they have been affected by changes in land use. The researchers will also survey both plants and pollinators in nearly one hundred landscapes around Britain, carefully chosen to represent contrasting land management.

### **Impact and mitigation of emergent diseases on major UK insect pollinators**

**Led by Dr Robert Paxton, Queens University Belfast**

One of the greatest challenges to bees is coping with new exotic diseases and diseases that are native to the UK but are becoming increasingly severe. The research will focus on diseases caused by Deformed Wing Virus and Nosema ceranae. These are amongst the most serious diseases that affect honey bees and they have recently been found to infect some bumblebees. Using laboratory and field experiments, including radar tracking of individual flying bees, researchers will investigate the direct impact of both diseases on affected honey bees and bumblebees, as well as any additional harm caused by a double infection; the whole effect may be greater than the sum of the two diseases. They will also look at the potential for the diseases to affect other bumblebee species. Mathematical modelling and a countrywide bee survey will assess the risk Nosema ceranae and Deformed Wing Virus pose to the UK's major pollinator species. The team will also test two new methods to control the microorganisms that cause such diseases which are based on pro-biotic bacteria and RNA interference technology. The project will provide an assessment of current and future risks to the UK's major pollinators that can inform government policy. New ways of controlling bee diseases will be of immediate benefit to the pollinator industry and hobby beekeepers in ensuring sustainable pollination in the UK.

### **Unravelling the impact of the mite Varroa destructor on the interaction between the honey bee and its viruses**

**Led by Dr Eugene Ryabov, University of Warwick**

Previous studies by this team have shown that two of these viruses, Deformed Wing Virus (DWV) and Varroa Destructor Virus-1 (VDV-1), can combine to form a new sort of hybrid virus that current diagnostic methods cannot correctly identify. Susceptibility to varroa and bee diseases is known to vary. However, the basis for honey bee resistance to varroa and these viral diseases remains poorly understood; it is thought that it may be due to the genetics of different bees. This project will look at the natural genetic variation within the hive to study how honey bees respond to varroa, to VDV-1, DWV and the new hybrid viruses. This will make it possible to show how some honey bees' own cells possess the ability to limit the severity of a viral infection. The team will identify molecular markers for resistance that will make it possible to select and breed bees with reduced susceptibility to varroa and honey bee viruses.

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# Data Protection

## Beekeeping Associations can use an Exemption

**'Data Protection seems to rank with Health and Safety as a troublesome issue for voluntary organisations.**

There is a lot of uncertainty about how to proceed, and frequently there are objections raised about what appear to be straightforward issues. Most beekeeping associations need to keep lists of the names and addresses of their members. In addition it is likely that there will be information held about members' beekeeping qualifications, their numbers of colonies for Bee Diseases Insurance, their e-mail addresses, their availability for helping at Association events, their apiary locations for spray liaison, etc., etc.

The newspapers seem to have a non-stop stream of stories about losses of data by government and bank officers, and about people having their data hacked into, or having their identities stolen. Inside the world of beekeeping there are reports of current issues about the information on beekeepers that can be held in the National Bee Unit's BeeBase lists. The legislation has changed over

the years, together with the descriptions of what organisations need to do to achieve legality. The whole scene can appear very intimidating, but with a little care the legislation can be dealt with fairly simply and directly.

First a bit of jargon has to be explained. In the earlier legislation organisations were required to 'Register', with the government agency if they held personal data.. People sometimes still refer to this term when they are talking about data protection. The present requirement under the 1998 Data Protection Act is that any individual or organisation holding personal information about individuals – they are known as 'data controllers' in the current jargon, - is usually required to 'notify' the Information Commissioner's Office. This notification requires form filling, and there is an annual fee (naturally). This fee is £35 per annum; there is a tiered structure but it is almost impossible for any higher fee to apply to beekeeping associations.

Fortunately, help is at hand for 'not for profit' organisations in the

shape of a specific exemption from the requirement to notify. The details of this are in a booklet 'Notification Exemptions - a Self Assessment Guide' which is available at the Information Commissioners' website: <http://www.ico.gov.uk>. Enter 'notification exemptions' into the search box on the top right of the home page, and the first item found should be this booklet.

The booklet is fairly easy to follow, and most important of all, it includes a very straightforward series of questions that enable you to establish if you need to notify. Most beekeeping associations, particularly those that are registered charities, will find that they are exempt from this requirement to notify. Yippee, no form filling, no annual fee, definitely a result!! However, there are still some common sense requirements to be satisfied over the handling of data.

In the case of my own local association, Harrogate and Ripon BKA, we are using this exemption, and our policy is to inform all members of the data that we intend to hold, and the places where we will send that

information. If any individual wishes to opt out they can do so, but the onus is on individuals to opt out, - the default position is an opt in to all circulations of data..

There is one specific initiative that Harrogate and Ripon BKA has taken and that is to provide the names and addresses of all members to the Regional Bee Inspector on an annual basis. New members and members joining through our beginners' courses are advised of this policy as they join. Our view is that satisfactory bee health can only be achieved if the bee inspector knows, as far as is practicable, where all the bee colonies are located. The statistics on bee disease show very clearly that the majority of outbreaks of foulbrood are found by bee inspectors examining colonies; in this majority of cases the diseases are not found by the beekeepers themselves. It is interesting that in the two years since we implemented this policy, not one beekeeper has asked to be opted out. We would commend this policy to all beekeeping associations.

*Mike Rowbottom,  
Harrogate and Ripon BKA*

# The Insect Pollinator Initiative

## ...cont

**Can bees meet their nutritional needs in the current UK landscape?**

**Led by Dr Geraldine Wright, Newcastle University**

An important but often overlooked reason that bee populations are in decline is that these important pollinators can no longer obtain adequate nutrition as a result of changes in land management practices worldwide. This project aims to find out the nutritional needs of honey bees and bumblebees and relate this to the way that bees forage on flowering plants. The researchers will also examine how nutrition influences susceptibility to diseases and to toxins that are sometimes found in the food consumed by bees. By measuring the nutritional value of the nectar and pollen of many UK agricultural, horticultural, and native plant species, the aim will be to identify UK plant species that are important floral food sources. The results will provide a basis for the development of nutritionally balanced, artificial food sources for bees and will allow farmers, land managers, beekeepers, and gardeners to improve foraging habitat for bee species worldwide.

**Investigating the impact of habitat structure on queen and worker bumblebees in the field**

**Led by Dr Claire Carvell, NERC Centre for Ecology and Hydrology**

For the first time researchers are going to use a new high-tech approach to unravel fundamental aspects of the ecology of bumblebees and so help us understand why these essential pollinators are declining. It is known that they need safe nesting sites and lots of flowers, but not how the distribution of nesting and foraging habitats across a landscape, or habitat structure, affects in detail how nest-searching queens or

foraging workers use these habitats. The researchers will analyse DNA from live wild bees to estimate how far queens fly to start new nests and how far workers fly to forage. All of this information will be fed into a computer and mapped out using details of the landscape collected during fieldwork alongside aerial scans of the area. The study will focus on five different species including the rare *Bombus ruderatus*, a UK Biodiversity Action Plan species.

**Urban pollinators: ecology and conservation**

**Led by Professor Jane Memmott, University of Bristol**

Urban environments are growing across the UK, and perhaps surprisingly, flower rich oases in otherwise uninviting city habitats can support large numbers of pollinators. For example, 35% of British hoverfly species were found in a single Leicester garden and honey bees produce more honey in urban Birmingham than in the surrounding countryside. Pollinators supply a crucial ecological service, and finding ways to improve their lot is a major challenge.

This project will answer three questions: where exactly is the pollinator biodiversity in the UK - urban habitats, farmland or nature reserves, where are the hot-spots of pollinator biodiversity in cities and what can we do to improve their diversity and abundance? To answer the first two questions the researchers will look at whole communities of bees, flies, butterflies and beetles that visit flowers, constructing food webs that describe the patterns of flower-insect interactions. To answer the third question they will add flower mixtures high in nectar and pollen to selected city habitats in Bristol, Edinburgh, Leeds and Reading and test whether this increases pollinator species richness and abundance.

# BBKA Written Examinations

## Successful Candidates in March 2010

### Module 1 – Honey Bee Management

|                                              |             |
|----------------------------------------------|-------------|
| Helga Aldersey, Bournemouth, Dorset          |             |
| David Aldersey, Bournemouth, Dorset          |             |
| Bridget Bowen, Dorchester, Dorset            | Credit      |
| William Calvey, Ashton-in-Makerfield,        | Credit      |
| Deborah Campbell, Gerrards Cross, Bucks      | Credit      |
| Allen Coates, St Werburghs, Bristol          | Credit      |
| Andrew Cooper, Gateforth, N Yorks            | Credit      |
| Gordon Cutting, Chalfont St Giles,           |             |
| John Dadswell, Wendover, Bucks               | Credit      |
| Paul Daniels, Sandy, Bedfordshire            |             |
| Sheila Ellison, Luston, Leominster           | Credit      |
| Elizabeth Evans, Harrogate, N Yorks          | Distinction |
| Russell Fairchild, Winchester, Hampshire     |             |
| Valerie Farnden, Isleworth, Middlesex        | Credit      |
| James Fidell, Wiveliscombe, Somerset         |             |
| Simon Foster, Teddington, Middlesex          | Distinction |
| Jean Frost, Alresford, Hampshire             | Credit      |
| Janet Frost, Wedmore, Somerset               |             |
| Andrew Frost, Wedmore, Somerset              |             |
| Robert Gaffney, Porterstown, Dublin          | Credit      |
| Paul Gardiner, Mitcham, Surrey               |             |
| Margaret Ginman, Groombridge, E Sussex       | Credit      |
| Robert Grayston, High Wycombe, Bucks         |             |
| Deborah Greenhill, Farnham, Surrey           |             |
| David Haigh, Drighlington, W Yorks           | Credit      |
| Paul Hillier, Flaunden, Hertfordshire        | Credit      |
| Patrick Hopkins, Taunton, Somerset           | Credit      |
| Geoffrey Inglis, Guiseley, Leeds, W Yorks    |             |
| Robert Jackman, Herne Hill, London           | Credit      |
| Diane Jobson, Eaglescliffe, Durham           | Credit      |
| Bryony John, Leominster, Herefordshire       |             |
| Maureen Jubb, Bingley, W Yorks               |             |
| Bridget Knutson, Cheddar, Somerset           | Credit      |
| Hilary Lambert, Ilkeston, Derbyshire         | Credit      |
| Brian Latham, Leeds, W Yorks                 |             |
| Graham Legg, Wistow, N Yorks                 |             |
| Caroline MacKenzie, Preston, Lancashire      |             |
| Avis Marshall, Sunbury on Thames, Middlesex  |             |
| David Marston, Yeadon, Leeds, W Yorks        | Credit      |
| Simon Maslin, Hull, East Yorkshire           | Credit      |
| Wendy Maslin, Hull, East Yorkshire           | Distinction |
| Charles Millar, Craven Arms, Shropshire      | Credit      |
| Rowland Molony, Beer, Devon                  |             |
| Margaret Murdin, Waterloo, Merseyside        | Distinction |
| Malcolm Padfield, Dewsbury, W Yorks          |             |
| Patricia Pegrum, Trowbridge, Wiltshire       |             |
| Marilyn Poole, Bolton, Lancashire            | Credit      |
| Christopher Ring, Derby, Derbyshire          |             |
| Margaret Roberts, Gerrards Cross, Bucks      | Credit      |
| Peter Rogers, Aldershot, Hampshire           | Credit      |
| Cliff Rose, Kingstone, Herefordshire         |             |
| Robert Sanders, Bishopston, Bristol          |             |
| Michael Saunders, Ludlow, Shropshire         |             |
| Jean Savigar, Aston Clinton, Buckinghamshire |             |
| Angela Schofield, Long Preston, N Yorks      | Credit      |
| Jane-Maria Scrase, Bristol                   | Credit      |
| Neil Seymour, Bristol,                       | Credit      |
| Gregory Sharp, Selby, N Yorks                | Credit      |
| Nancy Shering, Salisbury, Wiltshire          | Distinction |
| Mary Slater, London,                         | Credit      |
| Diane Steele, Storrington, West Sussex       |             |
| Sean Stephenson, Wendover, Bucks             |             |
| Stuart Stevens, Weymouth, Dorset             | Credit      |
| Jan Stuart, Colaton Raleigh, Devon           |             |
| Kathryn Surtees, Pilling, Lancashire         | Credit      |
| Heather Taylor, Bolton, Lancashire           | Credit      |
| Mary Trace, Lanivet, Bodmin, Cornwall        |             |
| Michael Tucker, Chalfont St Peter,           |             |
| Kathleen Wallace, York, N Yorks              | Credit      |

|                                               |        |
|-----------------------------------------------|--------|
| David Welham, Churchill, Avon                 |        |
| Christopher Wells, Mickleton, Gloucestershire |        |
| Michael Whittick, Milton Abbas, Dorset        |        |
| Marlise Zannetti, Godalming, Surrey           | Credit |

### Module 2 – Honey Bee Products and Forage

|                                               |             |
|-----------------------------------------------|-------------|
| David Aldersey, Bournemouth, Dorset           |             |
| Helga Aldersey, Bournemouth, Dorset           |             |
| Daniel Basterfield, Ottery St Mary, Devon     | Distinction |
| Anne Binns, Holsworthy, Devon                 | Distinction |
| Robert Bond, Hastings, East Sussex            | Credit      |
| Bridget Bowen, Dorchester, Dorset             | Credit      |
| Geoffrey Buckland, Weymouth, Dorset           |             |
| Deborah Campbell, Gerrards Cross, Bucks       | Distinction |
| Andrew Cooper, Gateforth, N Yorks             | Credit      |
| William Corr, Axminster, Devon                |             |
| Gordon Cutting, Chalfont St Giles,            | Credit      |
| John Dadswell, Wendover, Bucks                | Credit      |
| Adrian Davis, Deal, Kent                      |             |
| Julie Elkin, Barnstaple, Devon                | Credit      |
| Angela Findlay, Honiton, Devon                | Distinction |
| Simon Foster, Teddington, Middlesex           | Distinction |
| Robert Gaffney, Porterstown, Dublin           |             |
| Angela Gales, Lyndhurst, Hampshire            | Credit      |
| Audrey Gill, Horley, Surrey                   | Credit      |
| Leila Goss, Cotleigh, Honiton, Devon          | Credit      |
| Alexander Gray, Christchurch, Dorset          |             |
| David Haigh, Drighlington, W Yorks            | Credit      |
| Barnaby Henderson, Milton, Cambridge,         |             |
| Paul Hillier, Flaunden, Hertfordshire         | Credit      |
| Paul Hurley, Bourne End, Bucks                | Distinction |
| Elizabeth Jack, London                        |             |
| Deryck Johnson, Saffron Walden, Essex         |             |
| Penelope Learmonth, Felsted, Essex            |             |
| Malcolm Legg, Thaxted, Essex                  |             |
| Margaret Murdin, Waterloo, Merseyside         | Distinction |
| Emma Norris, Colyton, Devon                   |             |
| Patricia Pegrum, Trowbridge, Wiltshire        |             |
| Celia Perry, Ashted, Surrey                   | Distinction |
| Vanessa Rickett, Prestwood, Bucks             | Distinction |
| Frank Rickett, Prestwood, Bucks               | Distinction |
| Jane Ridler, Hatfield Broad Oak, Herts        | Credit      |
| Richard Ridler, Hatfield Broad Oak, Herts     |             |
| Margaret Roberts, Gerrards Cross, Bucks       | Distinction |
| John Roberts, Gerrards Cross, Bucks           | Distinction |
| Cliff Rose, Kingstone, Herefordshire          |             |
| Bridget Schneiders, Ilminster, Somerset       | Distinction |
| Nancy Shering, Salisbury, Wiltshire           | Distinction |
| Janet Stanton, Gerrards Cross                 |             |
| Sean Stephenson, Wendover, Bucks              | Credit      |
| Stuart Stevens, Weymouth, Dorset              |             |
| Kathryn Surtees, Pilling, Lancashire          |             |
| Christopher Wells, Mickleton, Gloucestershire |             |
| Michael Whittick, Milton Abbas, Dorset        |             |
| Kay Wreford, Sittingbourne, Kent              | Distinction |
| Marlise Zannetti, Godalming, Surrey           | Credit      |

### Module 3 – Honey Bee Pests, Diseases and Poisoning

|                                          |             |
|------------------------------------------|-------------|
| Brenda Allan, Whitbourne, Worcestershire |             |
| Sylvia Barber, Dulverton, Somerset       |             |
| Lea Bayly, Milton Combe, Devon           | Distinction |
| Gillian Brewer, Bedford,                 | Distinction |
| William Clayton, London                  | Distinction |
| Andrew Cooper, Gateforth, N Yorks        |             |
| Jonathon Cox, Peterborough, Cambs        | Credit      |
| Lesley Day, Horsham, West Sussex         |             |
| Brian Downes, Corsham, Wiltshire         |             |
| Robert Gaffney, Porterstown, Dublin      | Credit      |
| Terry Gibson, King's Lynn, Norfolk       | Credit      |
| David Gillman, Wembley, Middlesex        |             |
| John Goodwin, Congleton, Cheshire        |             |
| Ross Gregory, Swindon, Wiltshire         |             |
| David Haigh, Drighlington, W Yorks       |             |

# BBKA Written Examinations

|                                            |             |
|--------------------------------------------|-------------|
| Frank Jubb, Bingley, W Yorks               |             |
| Antony Mabey, Southampton, Hampshire       | Credit      |
| Jack Mummery, Barnstaple, Devon            |             |
| Malcolm Padfield, Dewsbury, W Yorks        | Credit      |
| Jim Pearson, Dewsbury, Yorkshire           | Credit      |
| Darren Peate, Shrewsbury, Shropshire       |             |
| Christine Phillips, Hitchin, Hertfordshire | Credit      |
| Priscilla Platt, Port St Mary, Isle of Man | Credit      |
| Andrew Smith, Brooke, Norwich, Norfolk     |             |
| Janet Sparrow, Wirral, Merseyside          | Distinction |
| Sean Stephenson, Wendover, Bucks           | Distinction |
| Stuart Stevens, Weymouth, Dorset           |             |
| James Stuart, Andover, Hampshire           | Credit      |
| Janet Thompson, Port St Mary, Isle of Man  | Distinction |
| Mary Walter, Leominster, Herefordshire     | Distinction |
| Frank Ward, Harrogate, N Yorks             |             |
| Michael Whittick, Milton Abbas, Dorset     |             |
| John Wilby, Dartford, Kent                 |             |
| Neil Wilmore, Redmire, Leyburn             | Credit      |

## Module 4 - Intermediate Honey Bee Biology

|                                            |             |
|--------------------------------------------|-------------|
| Julian Audsley, Dover, Kent                | Credit      |
| Geoffrey Buckland, Weymouth, Dorset        |             |
| Rebecca Champion, Etchingham, E Sussex     | Distinction |
| Elizabeth Evans, Harrogate, N Yorks        | Distinction |
| Robert Gaffney, Porterstown, Dublin        | Distinction |
| Alexander Gray, Christchurch, Dorset       |             |
| Ross Gregory, Swindon, Wiltshire           |             |
| Paul Hurley, Bourne End, Bucks             | Distinction |
| Geoffrey Inglis, Guiseley, Leeds, W Yorks  | Credit      |
| David Marston, Yeadon, Leeds, W Yorks      | Distinction |
| Sandra Oldfield, Blandford St Mary, Dorset | Credit      |
| Angela Schofield, Long Preston, North      | Credit      |
| Andrew Smith, Brooke, Norwich, Norfolk     |             |
| Stuart Stevens, Weymouth, Dorset           |             |
| Michael Whittick, Milton Abbas, Dorset     | Credit      |

## Module 5 – Honey Bee Biology

|                                             |             |
|---------------------------------------------|-------------|
| Caroline Beardsmore, Gaulby, Leicestershire |             |
| David Blower, Kenilworth, Warwickshire      | Distinction |
| Rosemary Burgess, Taunton, Somerset         | Distinction |
| Peter Callan, Newton Hall, Durham           |             |
| William Clayton, London                     | Credit      |
| Andrew Coles, Taunton, Somerset             |             |
| Brian Downes, Corsham, Wiltshire            |             |
| Alexander Ellis, Whitchurch, Shropshire     |             |
| Janet Flynn, Sutton, Macclesfield, Cheshire | Credit      |
| Pauline Ford, Ferring, West Sussex          | Credit      |
| Stuart Hatton, Hatton, Warrington, Cheshire |             |
| Pamela Hatton, Hatton, Warrington, Cheshire | Credit      |
| Ian Homer, Dorchester, Dorset               |             |
| Ruth Homer, Dorchester, Dorset              | Credit      |
| Helen Howarth, Colne, Lancashire            | Distinction |
| Pamela Hunter, Cowfold, West Sussex         | Credit      |
| Adam Leitch, Reigate, Surrey                |             |
| Anthony Platt, Hartford, Cheshire           | Credit      |
| Angela Pocock, Ferring, West Sussex         | Distinction |
| Thorsten Rettig, Yarm, Cleveland            |             |
| Bridget Schneiders, Ilminster, Somerset     | Distinction |
| Michael Southern, Urmston, Manchester       | Credit      |
| Sally Wadsworth, Chippenham, Wiltshire      |             |

## Module 6 – Honey Bee Behaviour

|                                             |             |
|---------------------------------------------|-------------|
| Sheila Borwick, Amersham, Bucks             |             |
| Fiona Cook, Sandy, Bedfordshire             | Credit      |
| Stephen Kelly, Cynwyd, Denbighshire         |             |
| Adam Leitch, Reigate, Surrey                |             |
| Jenny Lewis, St. Erth, Hayle, Cornwall      | Credit      |
| Avis Marshall, Sunbury on Thames, Middlesex |             |
| Joanna Schup, Whixall, Shropshire           | Distinction |
| Ian Stell, Catford, London                  |             |

## Module 7 - Selection and Breeding of Honey Bees

|                                           |             |
|-------------------------------------------|-------------|
| Daniel Basterfield, Ottery St Mary, Devon | Distinction |
| Ian Fitzgerald, Harrogate, N Yorks        | Credit      |

|                                           |             |
|-------------------------------------------|-------------|
| Mike Harris, Kings Caple, Herefordshire   | Credit      |
| Pamela Hunter, Cowfold, West Sussex       | Distinction |
| Stephen Kelly, Cynwyd, Denbighshire       | Distinction |
| Adam Leitch, Reigate, Surrey              | Distinction |
| Carolyne Liston, Hainford, Norfolk        | Credit      |
| Eileen Marrable, Upminster, Essex         | Credit      |
| Margaret McCord, Richmond, N Yorks        | Distinction |
| Charles McDevitt, Killinghall, Harrogate, | Credit      |
| Malcolm Padfield, Dewsbury, W Yorks       |             |
| Jim Pearson, Dewsbury, W Yorks            | Distinction |
| Hazel Sharples, Farnham, Surrey           | Credit      |
| Margaret Watson, Wirral, Merseyside       | Credit      |

## Module 8 - Honey Bee Management and History

|                                       |             |
|---------------------------------------|-------------|
| Paul Aldred, Preston, Lancashire      |             |
| Andrew Clavey, Chorleywood, Herts     |             |
| Fiona Cook, Sandy, Bedfordshire       | Credit      |
| Gail Johnson, Dulverton, Somerset     | Credit      |
| Carolyne Liston, Hainford, Norfolk    |             |
| Robert Maurer, Redhill, Surrey        | Credit      |
| Howard Nichols, West Norwood, London  | Credit      |
| David Rayner, Clitheroe, Lancashire   |             |
| Joanna Schup, Whixall, Shropshire     | Distinction |
| Hazel Sharples, Farnham, Surrey       |             |
| Richard Simpson, Colyton, Devon       | Distinction |
| Ian Stell, Catford, London            | Distinction |
| Alastair Welch, Hindhead, Surrey      | Credit      |
| Richard Wilson, Morecambe, Lancashire |             |

## As a result of passing modules the following have achieved their Intermediate Theory Certificate

|                                             |             |
|---------------------------------------------|-------------|
| Julian Audsley, Dover, Kent                 | Distinction |
| Anne Binns, Holsworthy, Devon               | Credit      |
| Rebecca Champion, Etchingham, E Sussex      | Credit      |
| William Clayton, London                     | Credit      |
| Andrew Coles, Taunton, Somerset             |             |
| Lesley Day, Horsham, West Sussex            |             |
| Brian Downes, Corsham, Wiltshire            | Credit      |
| Ian Fitzgerald, Harrogate, N Yorks          | Credit      |
| Robert Gaffney, Porterstown, Dublin         | Credit      |
| John Goodwin, Congleton, Cheshire           |             |
| Pamela Hatton, Hatton, Warrington, Cheshire | Credit      |
| Stuart Hatton, Hatton, Warrington, Cheshire | Credit      |
| Paul Hurley, Bourne End, Buckinghamshire    | Distinction |
| Adam Leitch, Reigate, Surrey                | Credit      |
| Avis Marshall, Sunbury on Thames, Middlesex |             |
| Patricia Pegrum, Trowbridge, Wiltshire      |             |
| Andrew Smith, Brooke, Norwich, Norfolk      |             |
| Michael Southern, Urmston, Manchester       | Credit      |
| Stuart Stevens, Weymouth, Dorset            |             |
| Frank Ward, Harrogate, N Yorks              |             |
| Michael Whittick, Milton Abbas, Dorset      |             |

## As a result of passing modules the following have achieved their Advanced Theory Certificate

|                                         |             |
|-----------------------------------------|-------------|
| Andrew Clavey, Chorleywood, Herts       |             |
| Fiona Cook, Sandy, Bedfordshire         | Credit      |
| Mike Harris, Kings Caple, Herefordshire | Credit      |
| Pamela Hunter, Cowfold, West Sussex     | Credit      |
| Gail Johnson, Dulverton, Somerset       | Credit      |
| Carolyne Liston, Hainford, Norfolk      |             |
| Robert Maurer, Redhill, Surrey          | Credit      |
| Margaret McCord, Richmond, N Yorks      | Credit      |
| Howard Nichols, West Norwood, London    | Credit      |
| David Rayner, Clitheroe, Lancashire     |             |
| Joanna Schup, Whixall, Shropshire       | Distinction |
| Hazel Sharples, Farnham, Surrey         |             |
| Richard Simpson, Colyton, Devon         | Credit      |
| Ian Stell, Catford, London              | Credit      |
| Alastair Welch, Hindhead, Surrey        | Credit      |
| Richard Wilson, Morecambe, Lancashire   |             |

Congratulations to all these successful beekeepers.

*Val Francis, BBKA Exam Board Secretary*

## TECHNICAL & ENVIRONMENTAL

### BBKA Winter Colony Loss Survey Results 2009-2010

This note describes the results of the BBKA winter loss survey conducted amongst its members. A very big thank you to all who completed and returned their forms to the BBKA Office. I would like to acknowledge the hard work by Margaret Anderson in the BBKA Office who abstracted the data from the survey returns. The method, response and results are detailed below.

#### Method

- 2,500 survey forms were directly mailed to members of the BBKA in March 2010.
- The names were abstracted from the membership database on a fully randomised basis.
- The survey period was from 31 October 2009 to 31 March 2010
- A FREEPOST facility was provided for members to return the forms.
- The BBKA membership was around 17,000 during the period of the survey.

#### Response

- 1,066 forms were returned containing data which could be used.
- 1,042 returns were from members in England and these were used in the data analysis to obtain the following results.

#### Results

- |                                                                                    |       |
|------------------------------------------------------------------------------------|-------|
| • Number of colonies at 31 October 2009                                            | 4,922 |
| • Number colonies at 31 March 2010                                                 | 4,045 |
| • Overall colony loss in England                                                   | 17.8% |
| • Number of splits / increases reported                                            | 195   |
| • Number of colonies sold or removed                                               | 72    |
| • Number of colonies reported as died out and no dead bees were left in the colony | 150   |

The overall percentage loss figure of 17.8% was a reduction on the two previous years. Such a figure masks the wide variation found across the English counties. The figures found in each county and other observations made from analysis of the data will be described in more detail in October BBKA News.

This information has been given to the COLOSS project team as part of the UK's contribution to its work.

We now have three years of data and we plan to repeat the survey again next year. So please keep good records in case you are one of the members asked to complete an anonymous survey form next year.

*Dr David Aston, NDB, Chairman,  
Technical and Environmental Committee*

## Julie Slegg – A New Member Joins the NBC Team



Originally from London, I married and moved to Warwickshire in 1987. I have a 21 year old daughter and 19 year old son, both at University. I have lived very locally in Cubbington for three years.

For thirty years I was a Civil Servant working at the Land Registry as a Registration Executive and Team Leader. Firstly based in London for nine years and the last 21 years in Coventry. I took very early retirement in May 2009 when the

opportunity arose and was able to spend last summer at home with my children and elderly mother. I also had a variety of temporary jobs until I

was successful with my application to BBKA.

Although not a beekeeper (my husband is very allergic to bee stings!), I enjoy gardening and grow a variety of fruit and vegetables with the help of a greenhouse. I have also recently bought a motor home and now spend weekends and holidays touring the countryside and planning trips to various places of interest. I also enjoy walking my two Westie dogs.

My job at BBKA was exactly what I was looking for and as no day is ever the same I am already enjoying my time there.

*Julie Slegg  
Part Time Administrative Assistant*

## The 'New Look' CONBA – No Longer Just the UK

CONBA-UK or the Council of National Beekeeping Associations of the UK has widened its membership to include a voting representative from the Bee Farmers' Association and one from the Republic of Ireland (Federation of Irish Beekeepers' Associations).

This was discussed at great length at the spring 2009 meeting and a proposed new Constitution modified to allow such a change was presented to all member associations in October 2009. These changes were ratified by BBKA at a recent Executive meeting and since all other member associations approved the proposed changes, these were instituted at the recent spring meeting, where the new members were warmly welcomed. They had been invited attendees for some years, but now have official voting rights.

The inclusion of a representative from the Republic of Ireland meant that the title had to change to reflect such a change. The new full name is *The Council of National Beekeeping Associations of the United Kingdom and Ireland* to be known briefly as CONBA.

As before, there are two representatives from each member association but each member only has one vote. Decisions are taken by consensus, not by a majority. Observers from other organizations may attend on occasion by invitation but have no voting rights. The post of Chairman rotates around the member associations and is held for up to two years; currently it is held by Dinah Sweet from the Welsh BKA.

CONBA play a valuable role in keeping in touch with European beekeepers and has in recent years joined the European Professional Beekeepers' Association. We do feel that such a link is important as we need to know what problems our European colleagues have and how they are approaching them. The Europeans can at times be somewhat militant by our standards and we do not necessarily always agree with them but by being a member, we do have access to what is happening.

*Pam Hunter,  
BBKA Representative to CONBA*

# Business Corner

## BBKA General Secretary

The BBKA has had four General Secretaries over a relatively short period and the problems caused by these short tenures has been exercising the minds of a working group of Trustees who were charged with the responsibility of addressing the issue and making recommendations to the Executive for their consideration and agreement.

The expansion of the BBKA and increasing workload on what has been traditionally a part-time post has placed unnecessary pressures on the job holders and the Trustees have looked at the changing role when considering a replacement.

This advertisement seeks for the BBKA an Operations Director/General Secretary which will, by attracting the right candidate, help address the growing need to have someone working for the BBKA who can handle the increasing demands of the media, challenges of Corporate Sponsors, fund raising, developing and managing a strategy for the charity as well as the important tasks of strengthening relationships with associations and consultation with them where appropriate.

Increasing workload will be addressed by changing the post from part-time to full-time, and this will give the Charity the continuity that is does not get from a structure that sees Trustees carrying out management tasks rather than giving leadership and overseeing strategic direction.

The vacancy advertised will also appear in suitable publications which the Trustees hope will attract a broad range of candidates and two panels have been agreed who will conduct first and final selection interviews.

At the Executive meeting of 11 July 2010 Trustees gave their total support to the policy, and expressed their thanks to Mike Harris for doing a sterling job for the BBKA over the past two years.

Further to the above but of no less importance there will be a period when BBKA will operate without anyone in post. As part of the change process the Trustees also noted their approval to the appointment of Margaret Anderson to the position of Office Manager at the National Beekeeping Centre effective 1st August 2010 and I would like to congratulate her on moving to this new role.

*Brian Ripley, Chairman*

## OPERATIONS DIRECTOR/ GENERAL SECRETARY

The BBKA invites applications for this new full-time appointment that offers a wide ranging and strategic role in an organisation that is enjoying significant membership growth and being challenged by the growing task of managing change and developing important member support services and sustainable fund raising activities. The appointee will report to the Chairman of the governing body of Trustees and will be expected to attend and contribute to meetings of Trustees, as appropriate.

The job will be home-based as it is anticipated that most of the work will be conducted in locations away from the BBKA's Stoneleigh offices. The appointee will be supported by an efficient and experienced office staff.

The BBKA is seeking a person with strong career credentials and excellent communication skills, a well organised self-starter and a motivator of the invaluable volunteers, associations and organisations that support the work of the BBKA.

The appointee must have a suitable car and valid driving licence and will be provided with IT equipment and support. Business and travel expenses are reimbursed and attractive salary is available to the right person.

Please apply by e-mail to [brian.ripley@bbka.org.uk](mailto:brian.ripley@bbka.org.uk) attaching your CV and any other relevant supporting documents



## BDI in 2011

No Change in BDI Premiums for 2011

From 1 January 2011 the minimum subscription will continue to be for three colonies and will remain at £2, but there will be some simplification of the premiums, with bands being introduced for those with a higher number of colonies

| No. of Colonies | Basic Subscription | Additional Cover Cost | Total  |
|-----------------|--------------------|-----------------------|--------|
| 1-3             | £2.00              |                       | £2.00  |
| 4-5             | £2.00              | £2.00                 | £4.00  |
| Up to 10        | £2.00              | £5.25                 | £7.25  |
| Up to 15        | £2.00              | £7.75                 | £9.75  |
| Up to 20        | £2.00              | £9.50                 | £11.50 |
| Up to 25        | £2.00              | £11.10                | £13.10 |
| 26 to 30*       | £2.00              | £13.60                | £15.60 |
| 31 to 35*       | £2.00              | £16.10                | £18.10 |
| 36 to 39*       | £2.00              | £18.10                | £20.10 |

\* The changes for 2011

BDI have again been able to hold the rates for 2011. Changes to the rates of compensation will change as they are paid in line with catalogue price changes.

The work of BDI is to try to improve bee health and husbandry; also to improve beekeepers' awareness and knowledge of disease and infestations. If, with your help, we are successful there will be better chances of improved production and healthy bees.

*Donald Robertson-Adams, BDI Secretary*

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## FINANCE



Financial reports (including forecasts) made to the quarterly meetings of the EC continue to be developed to provide the management information needed.

The BBKA's financial position remains strong, boosted by a combination of membership growth and income from Adopt a Bee Hive launched at the end of March with SAGA sponsorship. The proceeds of Adopt 'will fund vital research into honey bee health and help educate Britain's beekeepers too'. These factors and the Education Project (Course in a Case) have added to the accounting and administrative workload of the Stoneleigh office and staffing has been necessarily increased.

We are over two-thirds of the way through the BBKA and Enterprises financial year, so planning for the year-end closings, annual accounts preparations and audits is now in hand. The deadlines are tight, if audited accounts are to be distributed in good time for the ADM.

*Michael Sheasby, Treasurer and Chairman, Finance Committee*

## GOVERNANCE

The Governance Committee has been considering various constitutional and standing orders matters that may necessitate propositions to the ADM to amend points of detail, rather than substance.

Regarding the next ADM, consideration is being given to the cost effectiveness of introducing electronic voting by individual keypads. This should speed up the vote counting process and ensure that all votes are accounted for immediately. The conduct of the overall meeting can therefore be speeded up, thus enabling the ADM business to be completed sooner. A revision of the nomination form was agreed to make it more informative and to avoid the need for nominees to address the ADM, other than to answer any appropriate questions.

*Michael Sheasby, Chairman, Governance Committee*

## EDUCATION AND HUSBANDRY



- The sale of library books realised a total of around £2,000. Many thanks to Pam Hunter for organising this and cataloguing the BBKA library.
- We are looking at ways of getting the catalogues of the Cotton and Cowan collections of beekeeping books and making these available to members.
- Work continues on the BBKA Education Project (Course in a Case) and ways of involving other stakeholders are being discussed.
- A revised 'Sting' leaflet is awaiting publication. This contains additional advice for persons on some types of long term medication.
- We have decided to prepare a consolidated advice/risk assessment document relating to beekeeping in public places and commercial premises. This will bring together many odds and ends that we have prepared recently and add some new material. If you have any material that may be useful, we would be glad to receive it.
- Many thanks to those of you (around twenty) who provided feedback from the 'Train the Trainers' day at the Spring Convention. Some of this was very detailed and clearly based on many years of experience and we are looking at ways of using this.
- On the same general point, you may have received a note about creating a 'regional training and support' programme. If you have views on this, please let us know.
- Finally, congratulations to Clive Joyce. Following his involvement in the 'Farming Today' beekeeping articles, he is now receiving fan mail!

*Chris Deaves, Chairman, Education and Husbandry Committee*

## From the 'Desk' of the General Secretary

This will be my last contribution as BBKA General Secretary having served just over two years. During this time the membership has grown from 12,500 to over 18,000 and continues on the same path. I wish I had the time and energy to keep up but I have come to accept that the post now requires someone with more of both!

However, as I leave at the end of July I would like to thank all of those people who have supported me throughout my tenure.

We should all be very thankful that the BBKA continues to attract some excellent people onto the Executive committee who, without exception, work tirelessly for the good of the organisation. It has been a pleasure and privilege to be a member of this team and I can assure you, BBKA is in safe hands while we have such people at the helm.

This year I have been very busy coordinating support for the National Shows and while I am indebted to many hundreds of volunteers for spending countless hours on the various stands 'talking bees' to the public. Two people in particular have given me and the BBKA outstanding support – they are Judy Earl (Harrow BKA) for her outstanding contribution in organising and delivering over eighty volunteers at the Grand Design event and Clive Joyce (Warwick and Leamington BKA) for delivering the RHS award winning stand at Gardeners' World Live. Without people like Clive and Judy these magical occasions do not happen and I thank them both enormously.

Another stalwart I have to thank is Margaret Anderson, the BBKA Office Manager, and her superb team who have recovered seamlessly from all my errors, mistakes and omissions as if they never happened. Again, nothing to worry about while this team is around. Thanks Margaret, Letitia, Jan, Jan and Julie.

And finally I have to thank you, the Area Association Secretaries, Treasurers, Delegates and Members for your tolerance, friendship and support and wish you all the very best in your beekeeping adventures.....now where did I leave those bees??

Many thanks

*Mike Harris, Ex- General Secretary*

## Collins Beekeeper's Bible - Book Competition Winners

The winners of the Collins Beekeeper's Bible, drawn on 1 July 2010 at the NBC by Roger Cullum-Kenyon, Julian Routh and Chris Deaves were:

H Moir from Bridport, Dorset

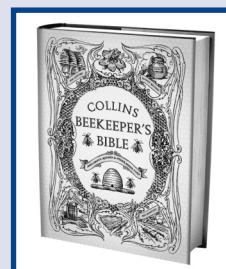
Mrs Julie Wessels from Preston, Lancashire

Corinne Sibal from Ilminster, Somerset

Mark Robinson from Lower Beeding, West Sussex

Ms A Feyereisel from Ramsgate, Kent

The correct answer to the question 'How much does bee pollination contribute to the UK agricultural economy each year? was £200 million.



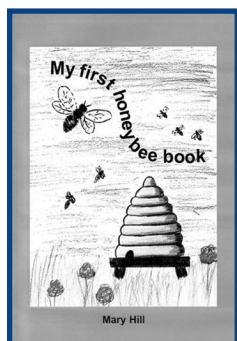
## Book Review

### My First Honey Bee Book

This book by Mary Hill won the Moorcroft bowl at the National Honey Show 2009 and will be welcomed by all beekeepers who want to share their appreciation of bees with their children, grand children or neighbours' children.

There is little doubt that seeing the bees at work in the garden and in the hive is a really exciting experience for a young child and I am sure that any beekeeper, having dressed the child appropriately, will be talking enthusiastically about what can be seen. Reading the book with the child as a follow on, gives a further chance for children to talk and enthuse about what they have seen.

There is also a place for this book to be read in First schools following a visit from a beekeeper who has enchanted the children with wax to smell, honey to taste and live bees to see in his observation hive. The information is excellent for young children. It is written in basic language and provides a sound explanation both of things the children will



have seen and the social structure of the colony. It is well within the reading age of many a 7 year old and would fulfil the role of a non-fiction reader as required by the National Curriculum.

I would see that its greatest potential for the child would be in reading it as a shared experience with a beekeeper who could answer questions and extend the child's understanding/knowledge. In this context it would certainly be 'My First Honey Bee Book'.

Copies of the book can be obtained from Mrs Mary Hill, Whittington, Old Wives Lees, Canterbury, Kent. CT4 8BH. (£4 including p&p).

*Sylvia Chamberlin*

## Yours Letters

### Stings

Is Dr John Gowar quite certain that the cues for a bee to sting include carbon dioxide from mammalian breath as an individual entity?

Finding it uncomfortable to lean over low brood chambers in the way that Fran Barnes does on page 24 of June BBKA News, it was an improvement when I raised the mesh floors to provide a longer drop for mites. And I have recently rebuilt a hive table intentionally taller than usual. Yet this brings the bees closer to my face and, as I regularly discuss their condition with them, I wondered whether my exhaled breath would disturb them. It does not appear to do so, nor does lifting the frames and blowing on them to clear a space among the densely packed creatures to allow me to see the cells, which I have done for years. At least, not until I combine that with other known stimuli, such as quick movements, sweat, heat, fear or flutter; or, worst of all, already-stung gloves (which I conceal to some extent at the time by puffing smoke over them after flicking out the sting with the corner of the hive tool.).

It seems counter intuitive that carbon dioxide alone would elicit the sting response, for there must be many non-threatening occurrences of the gas in the experience of bees, from each other and other animal species and from decaying plant material. It would surely be maladaptive for them to waste womanpower on such things. And would our tradition of going to tell the bees the news, and draping the hives in mourning amid loud lamentations, have developed over the centuries if it always provoked violent reactions from the recipients?

Perhaps Dr Gowar might see whether it is possible experimentally to separate out carbon dioxide from the other sting triggers, and exonerate it. I would not go so far as to expect the bees to greet me with 'Breathe on me breath of God', for I am modest about the amount of good I think I do them, but it would be reassuring to know that I was not war-mongering every time I spoke to them.

*Peter Lanyon, Norfolk BKA*

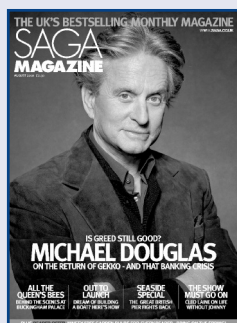
### In Response

Peter Lanyon does what I often do, which is to blow on the bees to clear a space to see into the cells. I was relying on Lesley Goodman's 'Form and Function in the Honey Bee' for the statement I made. It is Chapter 9 page 185, 'Bees may initially be alerted by a variety of stimuli, including vibration of the substrate, mechanical stimulation of the bee and the presence of mammalian breath containing carbon dioxide.' She does not give a specific reference for this statement, but it may be contained in one of the first two references she gives for chapter 9.

One only has to observe a group of beekeepers inspecting hives in an apiary to see bees clustering opposite some ones mouth when they speak. It is not everyone, perhaps it is those with bad breath or who have eaten garlic! Who knows?

I will try to find a definite reference.

*Dr John Gowar*



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## 2010 BBKA Forum

The 2010 BBKA Members' Forum will be held on Saturday 2 October 2010 at the NBC at Stoneleigh. This year it will be centred on three themes:

- We will show the progress made with our Course in a Case project and be able to discuss our plans for delivery during 2011 and beyond.
- We have seen the Insect Pollinator Initiative invest £10 million but there may be other small scale ideas not contained within BBKA Research Concepts that would benefit from some 'seed corn' investment funds. We will seek ideas at the forum via a series of small working groups.
- We have raised the profile of the honey bee and made good progress in raising funds for research and education through our Adopt a Bee Hive scheme. The Forum will allow discussions and seek suggestions on ideas of how we might develop our strategy of achieving a sustainable income and ways this can be used to further BBKA charitable objectives. These ideas can be captured from groups working together.

## ADM 2011

The closing date for propositions and nominations for the 2011 Annual Delegates' Meeting is to be received at the National Beekeeping Centre is 23 October 2010.

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## BBKA Trustees

The ADM 2011 brings with it the opportunity for BBKA members to identify themselves as candidates for consideration to become BBKA Trustees.

Becoming a Trustee was not something that I recall being anxious to do, my only real contact with Stoneleigh was the Spring Convention, and with the BBKA via regular receipt of BBKA News. I was persuaded to stand for election because it was argued that to prosper the BBKA needed members to become involved.

Since then I have been able to have some impact in helping influence beekeeping affairs nationally, although others will decide, whether that involvement has been of benefit.

For the BBKA to continue to flourish it requires a good mix of experience, not only of beekeeping but also Finance, Marketing, Fund Raising, Sponsorship etc, the BBKA is a rapidly growing charity with all the problems and opportunities

faced by a small business and these can only be overseen by an enthusiastic group of Trustees.

The past twelve months have seen a surge in projects that will continue to exert pressure on existing trustees, increasing media attention, involvement with the Healthy Bee Project Board, and its various committees, Insect Pollinator Initiative, Adopt a Bee Hive, new web site, education via Course in a Case, and a myriad of the normal bread and butter issues of running the BBKA, the office, leaflet design and updates, various national shows.

Trustees meet in committee six times per year and routinely via e-mail. Continuity is crucial, Trustees move on but policies have to continue and develop and for this to happen we need to attract new members. If this is something that might interest you but you want an informal discussion first why not give me a call.

**Brian Ripley, BBKA Chairman**  
01665 570203

## Diary of Events

### 2010

**13 - 14 August** - Bees & Honey at Shrewsbury Flower Show. Schedules/details from Brian Goodwin 01743 884524

**3 - 5 September** - BIBBA Conference at Kilcoran Lodge Hotel, Cahir, Co. Tipperary, Republic of Ireland. 'Going Native' – The Practicalities of Breeding Local Honey Bees. Speakers: Jim Ryan, Jo Widdicombe, Peter Edwards, Jacob Kahn, Kasper Bienfeld, Ben Harden, Mary Coffey, Mervyn Eddie, Dorian Pritchard, Roger Patterson, Dave Cushman.

There will be a visit to Dún Aonghusa (the breeding apiary of GBBG) - workshops and demonstrations led by Micheal Mac Giolla-Coda. Full details <http://www.bibba.com/>

**18 September** - Cornwall BKA & West Cornwall BKA - 'A Bit of a Do' at Truro School. Speakers include Norman Carreck, Rodger Dewhurst. Workshops and tradestands. Tickets £5 in advance, £7 on the door. Refreshments and 'Pasty lunch' available to buy. For more info - [www.westcornwallbka.org.uk/bitofado](http://www.westcornwallbka.org.uk/bitofado)

**28 - 30 October** - National Honey Show

### 2011

**15 - 17 April** - BBKA Spring Convention, Stoneleigh

**CIRCULATION:** 18,600. Please send any alterations for direct mailing via your Association secretary, to the BBKA Members' Register.

**ISSUE DATES:** February, April, June, August, October and December. Copy by 1st of preceding month.

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