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the Boardroom

BBKA News

The newsletter of the British Beekeepers' Association,
incorporating the **BRITISH BEE JOURNAL**



No: 188 – April 2011



© Rachael Baker.

BBKA News goes Monthly and in Full Colour

Welcome to the new full colour, monthly BBKA News, now incorporating the British Bee Journal.

Increased membership — along with an increased demand for more up-to-date news — has allowed the BBKA to take this important step to improve its service to members and advertisers alike. Beekeeping can be a very colourful craft and we have some world class photographers in our midst. Their photographs and diagrams will, I hope, bring alive both the news and the scientific articles that the publication presents to members. We hope you will agree and welcome your views and feedback on the new format.

The redesign and monthly frequency should make for a more attractive, easily read, topical newsletter, which will also better enable our loyal advertisers to bring their messages to you. We hope you like the changes and look forward to your comments in the BBKA survey. More about that in May BBKA News.

We are very excited about the inclusion of the British Bee Journal (BBJ) in BBKA News. The BBJ began life in 1873 when Charles Nash Abbot, a founder member of the BBKA, started the publication. BBJ was later acquired by TW Cowan, relinquishing it to the Herrod-Hempsall brothers who continued to use it to promulgate news of BBKA until around 1943. Cecil C Tonsley, a former secretary and chairman, took over the proprietary rights and editorship in the early 1950s and continued for more than 40 years until it ceased publication in the late 1990s. Although Cecil and his wife Nora have since died we are delighted that their daughter, Christina Williams, on behalf of the family has generously offered the title to the BBKA — a long overdue homecoming one might say. More about the BBJ in due course.

Martin Smith, President

Tim Lovett



Beginner Beekeepers:
Month-by-month help
and advice for new
beekeepers. This
month — the spring
inspection, see page 10.



Bee forage:
A seasonal guide to
bee-friendly plants
your bees will love —
read more on page 13.



Spring Convention:
Plan your visit to the
Spring Convention
now — for events and
exhibition details see
page 17.





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Chairman's Letter

The editor's request for another Chairman's letter is not something I necessarily look forward to because finding interesting things to say can be sometimes difficult. My problem with this letter, however, has been just the opposite, with a number of initiatives coming to fruition. I am proud that this note appears in the first monthly issue of BBKA News. The Trustees are aware that there are other publications available, but BBKA News is the only one that goes to every BBKA member and as numbers of beekeepers grow they took the view that an increase in frequency was warranted.

I hope many of you have seen the various Rowse Honey adverts on TV, which the public are being asked to vote on for a TV campaign later this year. Rowse asked the BBKA for permission to donate a sum of money per vote to the Adopt a Beehive scheme and discussions with the Trustees and Burts Bees agreed that this was an ideal way to get exposure to the scheme whose surplus revenue goes direct to research and education. Discussions are ongoing with all our corporate supporters and others that we are seeking to work with, in order to strengthen BBKA finances and seek methods of increasing members' benefits — ultimately bringing opportunities to support honey bees through research. The Trustees agreed at their February meeting to support a further two research initiatives, details of which will be announced shortly.

In the past few weeks British jewellery designer Alex Monroe auctioned a gold ring for £440, which he donated to the BBKA. He has now created a gold and silver necklace (based on the BBKA logo) and gifted one to the BBKA, which will be offered as an incentive via the Adopt a Beehive scheme. In addition, each direct sale of the necklace will bring a £30 gift to the BBKA. We are extremely grateful to Alex Monroe for this and to Burts Bees who commissioned the scheme.

Four bee hives (kindly donated by Maisemore) have been hand-painted to designs from four celebrities: Joanna Lumley, Alex Monroe, Jodie Kidd and Celia Birtwell. Two of these hives will be auctioned via the BBKA website with proceeds going to the Adopt a Beehive scheme. The remaining two will be auctioned and managed as working hives with some of the honey going to the lucky winners at the end of the season.

I have been in discussion with the northern Area Co-operative for a number of months with reference to the funding of some research that BBKA membership could become involved with. I am pleased to report that seven areas have agreed to give the BBKA £7,000 to conduct a survey into the spread of resistant varroa. The study in July will look at resistance in the northern counties, and BBKA will investigate the practicality of rolling it out to other parts of the country if resources can be found. The BBKA Technical and Environmental Committee will be working with Vita Europe and others to provide resistance kits and local training in their use, and will publish the survey findings in due course. This study will give for the first time an accurate view as to how widespread resistant varroa are, and an opportunity for a follow-up study in three years to measure change.

I have heard members of associations sometimes querying the benefits that the BBKA brings; I hope this first monthly BBKA News and some of the items in my letter help address their concerns.



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In the Apiary

Now that this column is being published monthly it must be remembered that conditions vary throughout the country so the further north-east or the higher your apiary site the later crops flower and colonies develop, while in cities, particularly London, they will be more advanced. Local conditions will therefore dictate your apiary activities.

Most beekeepers carry out the first full colony inspections in April. Pick a fine day with the outside temperature above 15.5°C when bees are flying freely. It is quite safe to examine bee colonies below this temperature, providing you do not delay, but best not below 10°C when all the foragers will be at home and the colony more defensive! Spring inspections can also be carried out on a fine day in March. This first check is important with lots to assess and consider, so make sure you allow enough time to do it properly. What do we consider at this inspection? Broadly, do they: have enough food, have enough room, are they queen right and are they healthy?

Colonies need about four or five frames containing honey and pollen, being equivalent to about two full British Standard (BS) Frames. If bees are starving at this inspection feed sugar syrup using a contact feeder or, in extreme cases, spray the bees with a thin sugar solution, then fill an empty comb with sugar syrup and place it adjacent to the bees. It can be a miracle cure. Check if there is a nectar flow as this will affect emergency feeding requirements. Bee colonies need room to expand their brood nest and stores at this time. A congested brood nest stops colony expansion and creates the desire to swarm. Getting the right balance of winter stores, fed in the previous autumn, is a major factor influencing congestion and can be a problem where colonies have been fed a large blanket quantity of feed or where a late crop such as ivy has been stored in large amounts. Because this is also the time for changing damaged or old brood combs placed at the ends of the brood box in the previous season,



Figure 1. Healthy brood in all stages, with the effect of the wiring shown. Image supplied courtesy of The National Bee Unit at the Food and Environment Research Agency (Fera), Crown Copyright.

excess stores can easily be removed by taking out combs and replacing with clean drawn comb. A supply of clean drawn brood comb is helpful as foundation needs a good nectar flow to be built well. These combs can be obtained by using a brood box as a super in the preceding season. Now is also a good time to exchange all the brood combs by using the Bailey Comb Change, see BBKA News 181, February 2010. This and comb replacement need to be carried out as early as possible before the brood nest expands and becomes wall-to-wall.

Full colonies at this time should be covering five to ten frames. If they are not it could indicate a dwindling problem caused by nosema, acarine or varroa. This must be investigated. Novice beekeepers need to learn what healthy bees and brood look like and ask for assistance when it does not look healthy. Information and pictures of healthy and diseased bees and brood can be found in leaflets, text books and on the web. Full foul brood checks should be carried out as a separate and specific inspection.

Check that a queen is present. There is no need to see her, just make sure that eggs and brood are present. If there are no eggs or brood and you find her it could be because of a shortage of suitable stores including pollen. To rear brood bees need honey, pollen and water; if one is absent they cannot do this and brood production will stop. It could be that she is a young queen who has not started to lay because the bees swarmed three weeks previously! Yes, in some parts of the country this can happen. If you know the overwintered queen was marked finding an unmarked one indicates supersedure or an unknown swarm. Now is also a good time to mark and clip queens if you wish.

Check for queen cell presence. Swarms at this time are not unusual especially in warmer cities. If queen cells are present then they may have already swarmed or are preparing to do so or there could be something seriously wrong with the colony because the queen has failed, been killed or suddenly lost. Knowledge of the appearance of queen cells is an important factor in answering these questions. Now will be the time to start regular swarm control examinations every nine days which can be extended to 14 days if you clip the queen's wing. Most beekeepers manage weekly to fit in with their work and give an allowance for mistakes. There will be more on swarm control next time.

When you reassemble the hive you may need to put supers on the colony, but only one at a time, waiting until the first super is at least two thirds full before putting on the next.

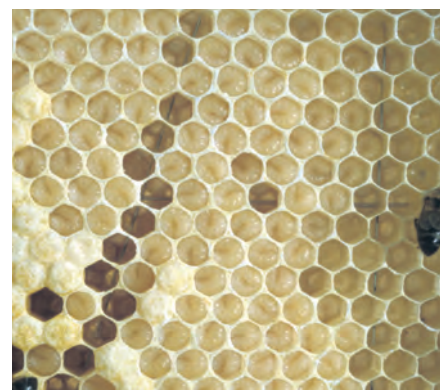


Figure 2. Healthy larvae. Image supplied courtesy of The National Bee Unit at the Food and Environment Research Agency (Fera), Crown Copyright.

Particularly in smaller hives the pollen arch will extend into the first super so it is best to use combs that have some pollen in and those that you intend to replace next winter.

Floors and brood boxes can be exchanged at this time for clean and disinfected ones. While changing over, frame top-bars and edges can be scraped free of propolis and brace comb. Using cleaner equipment helps the ease of examinations and reduces the jarring of combs, which upsets bees.

If you keep bees near oil seed rape you will need to prepare for the crop. Oil seed rape is often described as 'a nuisance at best and a disaster at worst'. This is because the honey crop readily granulates in the comb. To reduce the risk it is important to keep the colony wholly intact so it can maintain warmth in the supers. If it swarms or you artificially swarm it, then the super temperature will drop and granulation will occur more quickly. When the flow has stopped and the honey is ripe it is important to remove the frames quickly and immediately



Figure 3. Healthy brood. Image supplied courtesy of The National Bee Unit at the Food and Environment Research Agency (Fera), Crown Copyright.

extract them. Using clearer boards or leaving overnight will result in granulation. It will then need melting out, which requires specialist equipment.

Pinguis Imperium

Continuing Bee Losses in the United States

This is the first article of a two-part mini-series by Professor Ellis on Colony Collapse Disorder (CCD). In this article Professor Ellis brings us up-to-date with the CCD situation in the US and next month he will discuss potential factors that might influence the incidence of CCD.

By now, many of you have heard that the number of managed honey bee colonies in the US has declined in recent years. In fact, I have written about this topic in this very newsletter, outlining potential causes for the increase in colony losses. Though the term given to describe these elevated losses (Colony Collapse Disorder or CCD) is used in many beekeeping circles around the world, our understanding of this phenomenon remains rudimentary at worst and slightly better than that at best. CCD is not the sole cause of colony losses in the US. In fact, other factors probably eclipse CCD in their level of impact on colonies. With this article I will update you on what is happening with CCD in the US. In a second article, to be published in the next issue of BBKA News, I will explain how our understanding of bee colony stressors has grown since the 'discovery' of CCD, and discuss what the future may hold for our fragile industry.

Every cloud has a silver lining?

In a distorted way, CCD has been a positive occurrence for beekeepers in the US. Since its formal recognition in 2006 (similar CCD like events have occurred before 2006), honey bees and beekeeping have found their way into the living rooms of most American families. Stories about dying honey bee colonies were aired on most major news networks, appeared in prestigious newspapers and news magazines, and could be heard over the airways of countless radio programs. People in the US began understanding how important honey bees are to mankind and whole ecosystems and how they contribute to our food supply. The level of research funding available in the US related specifically to honey bees reached a level never before seen. Various scientific magazines regularly rank CCD as a top-100 science story. There are even rumors that the Vice President and the President have requested/received briefing summaries on bee-related happenings. Clearly bee losses matter.

Examining the colony data

The problem of collapsing colonies in the US started well before 2006. The US National Agricultural Statistics Service (NASS) publishes on its website (<http://www.nass.usda.gov/>) various statistics related to agriculture in the US. These include the number of honey-producing colonies in the US most years since 1939 (Figure 1). A quick look at Figure 1 should tell you a story of bee losses in the US is much greater

than CCD. The number of honey producing colonies in the US was highest in the mid-to-late 1940s when the number peaked at almost six million colonies. Today, there are fewer than 2.5 million honey bee colonies in the US. Moreover, the decline in the number of colonies in the US clearly did not occur over three or four major episodes of colony losses. Rather, the number of colonies has been declining steadily over the past seventy years.

With that in mind, hopefully, you come to the same conclusion to which I arrived when I first graphed the data: CCD, though a real problem, is simply the newest of a series of stressors that have contributed to colony losses over the past seven decades. Managed bee populations have been declining steadily in the US for a long time — even varroa, which were found in the US in 1987 — did not accelerate considerably the rate at which colonies were lost. The take home message here is that beekeeping in the US is on the verge of becoming unsustainable. One need only to continue the curve of Figure 1 to the x axis and he/she will notice that, at the current rate of losses, we will have no honey bee colonies left in the US in the next thirty years.

Taking a sensible view

Of course, I do not believe that this will happen. I just wanted to make the point that beekeepers in the US have faced a myriad of obstacles to keeping healthy bees historically and that CCD is simply another addition to the list. That said, CCD does appear to have elevated the recent loss rate, though how much is debatable at this point. For example, prior to the occurrence of CCD in the US, the net loss of colonies every year was ~1–2%. The loss rate from 2007–2008 was ~5–6% per year. I hesitate to draw any meaningful conclusions from the recent trend, but it does highlight the potential severity of losses accompanying the spread of CCD.

Hopefully, you noticed something in the preceding paragraph that made you pause. I shared with you that the loss rate from 2007–2008 was about 5–6% of colonies. You have probably heard that since CCD was noticed in the US that beekeepers commonly lose >30% of their colonies every year. This is true. However, you also need to appreciate what this translates to on the ground. Survey data in the US suggest that the average beekeepers loses >20% of his/her colonies yearly. If you followed that statistic to its logical conclusion, we would have no colonies left in the US in a very short period of time, perhaps less than a decade. This statistic does not tell the entire story. I shared with you net losses in the preceding paragraph while most CCD reports present gross losses.

What is the difference between the two? I think of it best with the following example. Suppose I had one hundred colonies and lost 20% of them this year (roughly the national average). I now have eighty colonies. Historically, I could split colonies the following year and end up close to the original one hundred. Remember, I shared that pre-CCD, we averaged about 1–2% net losses every year. So, I lost twenty but I split and created eighteen new colonies. I am now back to 98 colonies, not quite where I was, but pretty close. Since the arrival of CCD (using the same analogy), I would lose thirty colonies the first year, putting me at seventy. With a net loss of 5%, I am able to split back up to 95 colonies. To that end, the real impact of CCD was my loss of

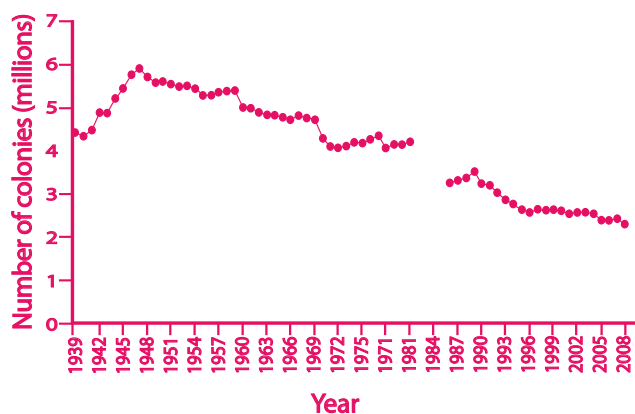


Figure 1. The number of honey-producing colonies in the US most years between 1939 and 2008. The data are provided by the US National Agricultural Statistics Service.



Figure 2. Assessing the health of a honey bee colony. More than ever, beekeepers in the US must remain vigilant to address colony maladies when or even before they become a problem. Is beekeeping becoming unsustainable? Photograph courtesy of the University of Florida.

three additional colonies over that of what is normal (i.e. I went from 98 colonies if 20% losses are normal to 95 colonies since the arrival of CCD). It remains to be seen if CCD affects the overall slope of the curve shown in Figure 1. That said, any stressor affecting the curve significantly can only make beekeeping in the US less sustainable.

'Sustainability' is a buzz word associated with farming practices of all types and certainly applies to beekeeping. Are some beekeepers losing 90% of their colonies to CCD? Yes. Do others lose <5% of their colonies yearly even with CCD around? Yes. The difference is the latter loss level is sustainable while the former is not. Sustainability is an important concept. Many beekeepers want to solve all of the bee

problems. However, I would be happy to discover something that would add to the sustainability of beekeeping in general. Sustainability simply means that beekeeping, keeping colonies alive, making a profit with honey bees, etc. can be perpetuated, in the ideal sense indefinitely. At current loss rates in the US, one is left to wonder if beekeeping has become unsustainable (Figure 2). I feel that it has not, but that there is much left to be done to reverse the very alarming trend.

What is causing CCD?

Thus far, I have spent a significant amount of time discussing loss rates, what beekeepers are up against, etc. With that in mind, I fully recognise the burning question most of you would ask me if you and I were face-to-face at this moment: 'What is causing CCD?' I can address your question quickly, sharply, and precisely: we do not know. To be sure, there are many things that affect the overall health of a honey bee colony — things we were battling well before the advent of CCD. Furthermore, the heightened attention that honey bees have received due to CCD is leading to discoveries of additional bee stressors; the list grows every month. The take home message is simple, honey bees are under considerable stress and promoting their health is essential to the sustainability of beekeeping and agriculture in general. I realize that saying 'many things kill bees' is an ambiguous and unfulfilling answer to what may be causing CCD. With that in mind, in my second article on CCD in the May issue of BBKA News will discuss briefly some of the colony stressors that are receiving considerable attention from researchers.

Jamie Ellis, PhD

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Can You Help Keele University Researchers? The researchers are surveying the levels of pesticides in hives

Honey bee decline has been highlighted as a key concern over the last twenty years or so and many investigations have been carried out to explore the reasons behind this.

In reference to BBKA News, p14, August 2010, pesticides or their residues within beehives could have a considerable negative effect on honey bee health, thus making them more susceptible to disease. In addition bee behaviour is thought to be adversely affected, for example an increased number of bees are prone to disorientation and can therefore lose their way back to the hive. With regard to pesticides, various investigations have been conducted across numerous European countries and in the United States. However, as far as we are aware, no work to date has been conducted within the UK to determine pesticide levels in apiary sources, with the exception of honey.

As part of a PhD research project at Keele University it is our aim to survey wax, pollen and bee samples from across the UK using



highly sensitive chromatographic techniques to determine which pesticides exist within UK apiaries. We are currently investigating pesticide extraction techniques and optimising our analysis methods, but to achieve success in this project, Keele University needs willing and enthusiastic beekeepers to volunteer themselves and donate a section of comb from one hive so that it can be subjected to analysis. Participation is anonymous and each participating individual will receive a copy of their sample results. A maximum of 500 samples are to be screened and analysed so this can only be offered as a 'first-come, first-served' basis.

We will be at the BBKA stand at the Spring

Convention on 16 April 2011 for those who are interested to come along and collect a 'sample collection pack', which will contain necessary instructions and equipment needed for you to help in this project. We cannot do this without your help so please come along and support us.

Kristopher Wisniewski, Keele University,
k.d.wisniewski@epsam.keele.ac.uk

Find out what pesticides are present in your hives

Researchers are optimising their methods for measuring pesticides and want to analyse samples from hives in apiaries in the UK. You can help by sending the researchers a sample of comb from your hive. In return they will tell you what pesticides they find in your wax, pollen and bees. Only you will know your hive's results as all data will be anonymised.

Get your sample collection pack from the Keele University team at the BBKA stand at the Spring Convention 2011 and contribute to the UK survey for pesticide residues

A Bee, or Not a Bee?

About three-quarters of all known species on earth are insects. They occur in bewildering variety, which is both wonderful and slightly annoying because it makes their identification rather tricky.

To confuse matters further, many of the more obvious insects have common names, which are frequently misused. For example lots of folk refer to any or all of the following as 'daddy long legs': Long-legged, fragile spiders (pholcids), Harvestmen (Opiliones) and crane flies (Tipulidae). The term wasp is generally used for anything yellow-and-black, which hangs around the picnic table, and if it is particularly large, fearsome or aggressive it might be called a hornet. The term bee is generally used for the creatures which we keep in hives (i.e. honey bees) in ignorance of the fact that there are ~252 other bee species in the UK.



© Richard Bartz. *Vespa germanica* (Vespid wasp). This file was obtained from [en.Wikipedia.org](https://en.wikipedia.org) and is licensed under the [Creative Commons Attribution-Share Alike 2.5 Generic license](https://creativecommons.org/licenses/by-sa/2.5/).

So, first of all, what is a wasp? Actually, the vast majority of wasp species are tiny, mostly black, and most people never notice them unless they get one in their eye. There are tens of thousands of species. Most of them are parasitoids of other insects, laying their eggs inside the body of their host, where the larvae slowly develop, eating their still-living host from the inside. The



© Richard Bartz. *Vespa crabro* (Hornet) with prey. This file was obtained from [en.Wikipedia.org](https://en.wikipedia.org) and is licensed under the [Creative Commons Attribution-Share Alike 2.5 Generic license](https://creativecommons.org/licenses/by-sa/2.5/).

Ironically, if asked to draw a bee most members of the public draw something round, fat and with yellow and black stripes, clearly a cartoon version of a bumblebee, and rather unlike a honey bee.

This short article is intended to provide a complete beginner's pictorial guide to the most common bees and wasps.



© Entomart.ins. *Lissonota* — one of the many parasitoid wasp species.

creature commonly called a wasp (or a yellowjacket in North America) is a member of the family Vespidae, large insects with sparse hairs and yellow and black stripes. Unlike their parasitoid cousins, these are social insects living in large nests constructed of chewed wood, with a queen and many sterile workers. The workers, which are all female, have a sting which is their modified egg-laying tube. One member of this family is particularly large, well armoured and intimidating — the hornet. This is a single species (*Vespa crabro*), found in the southern half of Britain. Vespidae are omnivorous, and are valuable predators of garden pests such as greenfly, but they can also be rather irritating in late summer when they develop a taste for picnic foods. Thankfully, in my experience, hornets are the least likely of this family to bother us humans.



© D Goulson. White-tailed bumblebee.

Bees are the vegetarian relatives of wasps, having evolved from wasps about 130 million years ago when dinosaurs walked the earth. They feed more or less exclusively on nectar and pollen from flowers. Bees tend to be furrer than wasps, and unlike wasps their hairs are branched or feathery, which helps them to trap pollen. Most of the UK species are small, solitary species which are easily overlooked. The most recognizable bees are the bumblebees. These are also social insects, living in a nest comprising a queen and many workers. They are large, fat, and densely furry, and they also have stings. There are around 24 UK species, and they come in a range of colour patterns, some with yellow and black stripes, others back with red tails, others a rather drab brown.

Honey bees are quite different, being brownish, smaller, more slender, and much less densely furry than bumblebees. Of course honey bees are also social, and unlike bumblebees or wasps, their stings are barbed.



© Alvesgaspar. *Apis mellifera* (Honey bee). This file is licensed under the Creative Commons Attribution-Share Alike 3.0 Unported license.



© D Goulson. Common carder bumblebee.

To learn more about the wonderful diversity of British bees and wasps, visit <http://www.bwars.com>

To learn more about bumblebees, visit the website of the Bumblebee Conservation Trust at: www.bumblebeeconservation.org.



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University of Stirling,
Director, Bumblebee Conservation Trust,
<http://www.bumblebeeconservation.org.uk>

Readers may be interested in Professor Goulson's new book:

Dave Goulson. 2010. **Bumblebees; their behaviour, ecology and conservation.**
OUP. Available at: <http://ukcatalogue.oup.com/product/9780199553075.do>

Review Neonicotinoids says BBKA

The BBKA has called for an urgent review of the data on the possible effects of neonicotinoid pesticides on honey bees. The recent press furore, precipitated by Mike McCarthy's article in *The Independent*, suggested that there was significant new evidence showing damage to bees and that publication of some of this work was being suppressed.

The authors of the new work, however, qualified their findings in that laboratory studies do not reliably reflect field-based experience. As to suppression of data, Dr Jeff Pettis from USDA, Bee Research Laboratory at Beltsville, Maryland, USA, categorically denied that this was taking place.

Nevertheless, the BBKA has, for some time, been of the view that more work on the possible sub-lethal effects of neonicotinoids should be undertaken, as expressed in its 2009 paper *Honeybee Health Research Concepts*. The BBKA is also funding research work on pesticides in wax at Keele University.

The BBKA stopped short of demanding a precautionary ban on these agents for a number of reasons. Firstly, a ban may have the opposite of the desired effect of getting to the bottom of the issue, possibly slowing research work and its review. Secondly, there is a real concern that if neonicotinoids are withdrawn, growers may be forced to use older, 'dirtier' compounds approved under early regulatory

regimes, which are more harmful to bees.

The neonicotinoid issue has been sensationalised and liberally dosed with inaccuracies relating to bans and suspensions across Europe. The BBKA approach is founded on good science, being 'risk' rather than 'hazard' based. There is currently conflicting data, but as yet, no smoking gun. We look to the competent regulatory authority, the Chemicals Regulation Directorate and the independent Advisory Committee on Pesticides to get to grips with this issue, urgently.

Tim Lovett

Choosing the correct protective clothing

Beekeeping is one of the fastest growing hobbies of recent years. This is not surprising because it is open to everyone from the very young to the most senior members of our society. But being properly equipped is key, and choosing the best protective clothing must be top of the list for all beekeepers. There are many suppliers to choose from and it can be tempting to buy a cheaper suit, although it may not last the distance. In this feature we describe some of the common types of suit and veil available.

Considerations to make when choosing a bee suit

A bee suit is not a fashion item. It is important that it is loose fitting because this creates an air gap, which will keep you cool and allow for you to wear clothing underneath without restricting your movement.

For the novice, wearing the right suit is essential to give you maximum confidence when handling your bees. **BBwear** have developed a complete range of full and half suits to cater for every need. We recommend new beekeepers wear a full suit because this offers head to toe protection. The **BB501** (shown right) is a full, economy suit made to the same high standard as the luxury **BB1** (shown below), but without the extra pockets and zips — and at an affordable price. When worn with the correct accessories **BBwear** suits offer some of the best protection around.



BB501



Left: BB1 full suit; Right: smock
Centre: jacket

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The 'BB' fencing type hood



The RR round type hood

All hoods can be thrown back when not in use as illustrated by the **BB1**

full suit (shown right), and they are attached to the suit by open-ended zips. This means they can be removed easily for washing purposes. We are trying to source plastic boning for the round hoods, but all our hoods are washable — a quick hand wash and drip dry is usually adequate. The BB range hoods are also machine washable. To protect the veil when in a washing machine it is a good idea to unzip it and place it inside the suit.



BB1 full suit

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BBwear carry children's suits from age four to twelve in a range of colours and are keen to promote beekeeping among the younger generation. We support those beekeepers who are working with schools and colleges and some associations now have bespoke Bee Tents made by **BBwear** that are used for demonstration purposes at shows allowing children the opportunity to take a look into a working hive.

"We design products around our customers' needs"

BBwear has been manufacturing and supplying protective clothing for more than ten years. We pride ourselves on the quality of our products and the service we are able to offer. Our suits are made in the UK using only the best materials and components. We supply suits to many businesses and associations and endeavour to offer a fast competitive service. We also supply suits to most countries in Europe, North America and Australia.

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How you can contact us

If you have any questions please make contact with us via our website www.bbwear.com or email us at mike.bb1@btinternet.com

Come and meet us

We will be at the BBKA Spring Convention at Stoneleigh and the National Honey Show and would love to chat with you.



Beekeeping Notes For Beginners

This is the first article of a new series written with beginners in mind and it tackles what you should know and do at the spring inspection.

So, here we are in the spring. If your bees have made it through the winter, well done, but do not be overconfident. Now is the time for you to assess the status of your colony, identify the needs of your bees and plan your beekeeping year.

Food and survival

Experience shows that March and April remain critical times for bees. It is not the cold of deep winter that affects colonies — bees can deal with this. What is harmful is the onset of spring, where hive activity has increased, brood rearing is well under way, most of the winter stores have been eaten and spring nectar sources are thin on the ground. In addition, the bees that have supported the colony for the last few months — the ‘winter’ bees — are now coming to the end of their lives and their ability to keep the brood nest warm is reducing.

“A good food supply is vital at this time.”

You can assess the amount of food in the hive in two ways without disturbing the brood. Firstly, you can ‘heft’ the hive by lifting one side of the hive or stand gently off the ground so that it tilts slightly. This will give a good impression of the weight of the hive. With experience, you can compare this with the weight of the hive from the previous autumn and gain an idea of the remaining stores. Some beekeepers fix a large screw-eye securely to each side of the floor and use a spring balance to assess the weight. (Weigh each side and add the two together, do not try to lift the whole hive.) If you have no idea what weight you should expect, make up a similar empty hive with spare equipment and heft this in the same way. If the two hives are similar in weight, then the ‘live’ hive is probably at risk because there is no extra weight of food. Alternatively, remove the roof gently (wear a veil — bees may fly out even if it is cold!) and see if there are lots of bees at the hole in the crown board. If so, then they may well have run out of food in the hive below.

Emergency feeding action

If the hive seems to be starving, feed using a contact feeder with sugar syrup or add bakers’ fondant (candy) to the brood box directly.

Sugar syrup should be mixed at a ratio of 1kg white sugar (NOT brown) to 2 pints of water (this is the ‘weak’ strength) and fed using a contact feeder. Fondant is usually placed directly on top of the brood frames in slices — place on cling-film to hold it together. The slices are thin and fit into the bee space between boxes. Do this as soon as you get a warm spell.

Stimulation

One often encountered problem is that colonies seem ‘slow to start’ in the spring. This may become particularly apparent at the first brood inspection. One way to deal with this is by ‘stimulative’ feeding. A small quantity of ‘weak’ syrup is fed to the colony in a small contact feeder honey jar with an adapted lid — several designs are available. This

feeding should be intermittent — it does not matter if the container is left empty for a few days between feeds. This mimics the effect of the erratic early spring flower income to the colony and will encourage a higher rate of egg-laying.

Right: Contact feeder and lid for 1lb jar contact feeder; Below: homemade jar contact feeder



© Photographs: C Deaves.

Housekeeping

Remove the mouseguard if you fitted one last winter. The bees need an unimpeded small entrance and the mouseguard will knock pollen off the foragers’ legs to the detriment of brood feeding. Make sure the entrance is clear ‘inside’ the hive. Often debris and dead bees will block it. Use a little judicious gentle poking to check — a cock pheasant tail feather is ideal for this. And wear a veil!

First inspection

Try to be patient — stand to one side of the hive and observe it for a short while as this can provide important information. If the bees are flying, and especially if you can see pollen coming into the hive, then the bees are doing as well as can be expected.

When should you open a hive?

There is a lot of new brood in the hive and relatively few bees to help keep it warm. If the brood/eggs chill in cold air the colony development will be badly affected. It needs these new bees to replace the dying winter bees and to create the foragers that will work the spring nectar.

“Opening the hive and inspecting each frame of brood should **only** be done when the weather is warm — around 16°C — on a calm sunny day.”

Why are you opening your hive?

It is very tempting, especially for the beginner, to open the hive ‘just to have a look’. This is perfectly understandable — all beekeepers go through this stage, but please try to go through it as soon as you can. Every time you open a hive, even if you just remove the roof and crown board, you affect the colony. Firstly, you lose a lot of warm air and the colony has to expend effort re-establishing the correct levels of temperature and humidity. Secondly, and more importantly, you disperse

the mixture of pheromones (chemical messages in lay terms) that regulates colony behaviour. Many pheromones are present; some indicate the presence of the queen, some indicate progress in egg-laying and some indicate the state of brood development. Pheromones are the main means by which work is managed in a colony and how outside conditions are communicated to the queen and her attendants. Remember, it is dark inside the hive and smell is a good means of communication.

After a hive is opened it can take one or two days for full pheromone control to be re-established. However, please do not use these considerations as an excuse *never* to open a hive — at some stages you have to intervene (e.g. to deal with swarming later in the spring) and you have to maintain an effective disease management regime, where opening is inevitable.

Smoke gets in your eyes

Before you open the hive, practice lighting your smoker and keeping it alight. It is a truism that smokers go out just as you open the hive and need them most. It is a good idea to light your smoker before you get other equipment ready and put on your bee suit. That way, you allow time for it to go out before the hive is opened! To avoid this pump the bellows two or three times every so often. There is no need to do this vigorously, because the other problem with a smoker is that it goes too well and produces too much smoke. To remedy this, lay it on its side for a while. This reduces the updraught and it will subside.

Smoke is used in two ways in beekeeping and it is important to observe the effects of smoke carefully — do not just puff away. Firstly, smoke applied at the entrance is intended to calm a colony. This takes time to work, ideally wait 10 to 15 minutes for a full effect. Get to know how each colony responds to smoke. The effect will not last for ever, so you should be organised to carry out the jobs in hand. Secondly, smoke is used to move bees about, particularly when reassembling hives. Crushed bees make a colony aggressive. Practice this and observe how your bees respond.

Get focussed

You should always have a purpose in mind for inspecting a hive with the required equipment ready and to hand. That way, you will not expose the bees for longer than required.

“*The purpose of the first spring inspection is to inspect the brood colony and to possibly supply additional food.*”

You need to remove any super(s) first and place them to one side on the upturned hive roof (not on the grass) — remember the queen could be anywhere in the hive. Your objective is to examine each brood frame carefully. Make sure you understand how to use the hive tool (and wedge, if you use it) to avoid damage to yourself and the hive. At the first inspection of the year, hive parts are always more firmly stuck together than will be the case later, and comparatively more force will be required to separate chambers and to lever frames. Take care and work slowly — bumps and bangs will disturb the bees.

Remove and hold each frame carefully. Keep it over the brood box until you are sure you have located the queen. Look at both sides, but focus on what you have to do — do not just watch the bees ... as much as that might give you pleasure. You will need to answer several fundamental questions during this first hive inspection.

Is the queen present?

Determining whether the queen is present is *not* the same as seeing the queen! There are many signs in a colony that a queen is present

(or not) and you will gradually become more expert at detecting these. For now, if you can see eggs and young larvae (or even recently capped brood) in a good pattern in the right place in the brood chamber then the colony has a queen (where else could the eggs have come from?) and all is well so far. Start to learn to recognise a good sequence of eggs, larvae and capped brood. You will find this sequence working inwards to the centre of a brood comb. You will hear beekeepers taking about 'BIAS' and see this in hive records — it means 'brood in all stages' and is indicative of the correct development of the colony.

If you do see the queen, is she marked like she was last autumn?

If she is, then you know where you are, but if not, do not panic. The mark may simply have come off, but it is possible that last year's queen was replaced over the winter for a number of possible reasons. In this case, keep a careful eye on the brood pattern to ensure that your new queen is not just laying drone eggs.

Is the laying pattern even?

Remember the brood shape you are looking for — a roughly spherical shape in the centre of the brood box. Also, look at any sealed brood cells — is the surface of the capping level from cell-to-cell? Little peaks of cells standing proud may be drone brood in worker cells and are indicative of a potential queen problem.

If there are frames full of stored honey in the brood box, make sure these are at the sides (the 'flanks') of the brood box — move them if not. These frames should not present a barrier to the brood developing a good shape.

Can you see evidence of potential disease?

If the laying pattern is uneven with random gaps ('pepper-pot brood') then you may have a disease problem. Get advice from a more

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experienced beekeeper as soon as you can — it may help to take a photo of the brood frame. If you see lots of brown faecal specks on the top bars or around the hive entrance this may also indicate a disease problem that has built up over the winter confinement. Again, get advice on this as soon as you can.

If there are damaged, old or dirty frames, remove them if you have replacement frames available. Otherwise move them to one side of the brood box for later disposal when you can spend longer at the hive. Never leave frames out — gaps in the brood box will be filled with brace comb very quickly and this will create handling problems in the future.

“*Get to know what a good brood pattern should look like — this will become instinctive over time and is your best way of spotting disease problems.*”

Is there room for brood and food?

Make sure that there are empty frames in the brood box, the queen's egg-laying rate is about to increase considerably. Make sure the super has room for more income once spring arrives.

Is there enough food for the colony until the next inspection?

There should always be one or two frames of sealed honey in the hive at this time of year. If the colony does not have this, then feed as described above.

“*Now write the information you have gained by answering these questions down on your hive record card.*”

Good apiary hygiene

Now is a good time to get into good hygiene habits in the apiary. For those who did not wash their suit after the final apiary visit last year, a good windy day is the ideal time to wash it — ideally use a boil-wash. Propolis can be removed with a solution of washing soda. Make sure your gloves and hive tools are also clean before you enter the apiary — they can also be cleaned with washing soda.

When feeding, do not allow syrup to run over the outside of hives. When inverting contact feeders make sure that they are full and invert them away from the hive over long grass or similar. This will reduce the risk of other bees robbing the hive.

You will find, and probably remove, a lot of wax brace comb on the top bars of the brood frames. This is common at the first inspection. Do not just leave it lying about or throw it onto the compost heap, as it represents a possible disease risk. Make sure you have a closable container (such as a biscuit or sweet tin) to put small pieces of wax into until they can be properly recycled.

If you have identified failed colonies, it is always a good idea to ask an experienced beekeeper to look at them and advise on possible causes and what to do next. You will need to consider what equipment can be cleaned up and what needs to be burnt.

In the meantime, make sure that the hive is made bee-tight to prevent entry by other bees. Using an entrance block is ideal for this if it is of a type that can fully close the hive. Any removed equipment is kept in a closed container or strong plastic bag. If the colony did die of something nasty, now is the time the other colonies will find it and transfer inflection.

Towards the end of spring, it is possible that your bees may find a good foraging crop and produce some early honey. Keep an eye on space and income, and ensure that you keep space available for the honey stores — adding supers early is better than adding them late.

Chris Deaves,
Chair of Education & Husbandry Committee

Checklist

1. Open hives only when the temperature is 16°C or more, and on a sunny day.
2. Confirm the presence of the queen (see her, or see her eggs, larvae or capped brood).
3. Confirm the brood pattern is regular — roughly spherical and regularly arranged flat-capped worker cells, not domed drone cells.
4. Heft the hive — or weight it — to ensure there are adequate food stores. Also, look for honey stored in capped cells around the frame edges and pollen stored in cells immediately surrounding the central brood area.
5. Look for signs of disease: 'pepper-pot brood', faecal specks. Also look out for any musty or strange smells.
6. Change all damaged, old or dirty frames — or move them to the edges of the hive and change at the next inspection.
7. Enjoy your first spring inspection!



Course in a Case

In this BBKA News we start a new series of articles for beginners. Inevitably, as well as describing what needs to be done throughout the year these articles will refer to techniques and equipment, which are unfamiliar to the new beekeeper. To help you, the BBKA has been preparing the 'Course in a Case' (CiC) as part of its educational programme. The CiC is planned as a series of queen colour-coded resource kits for beekeeper tutors. Two are now available and more advanced ones are in preparation and samples of these will be available on the BBKA stand at the Spring Convention.

The Beginners CiC ('white') is intended to help teach absolute beginners. It can also be used to prepare content for short 'taster' events. A free copy has been distributed to every Association and branches/divisions have been able to purchase their own copies at a discount.

The Novice's CiC ('yellow') is a teaching resource for beekeepers at the BBKA Basic Assessment level, i.e., those who have kept bees for a full season. The descriptions of disease, biology and husbandry are at a more advanced level. Fera have funded part of the development costs.

Tutors' note: each CiC can be used as a complete course if you are starting from scratch. If you have a well-established teaching programme at these levels the CiC will give you new ideas and material to add to it — you can use the resource in a way that suits you best.

Contact the NBC for more information.

A Close-up of Bee-friendly Plants

All good guides to beekeeping will discuss bee forage as it changes through the growing seasons, and will offer comments on the yields, flavours and granulation properties of honey produced from various plants. If, like me, you did not study biology or botany at school and have limited gardening skills, then

flowers. The hazel, when its flowers have been pollinated and fertilised, will bear hazelnuts (strictly, these are fruits) later in the summer. Like most pollens, hazel pollen is best observed with a x400 microscope and is often used for size comparisons, being of very uniform size — about 0.028 mm from corner to opposite side.

bees to produce royal jelly and broodfood so that colony expansion can get going in early spring.

Flowering bulbs

At roughly the same time as hazel is producing catkins, many gardens will be producing cheerful shows of snowdrops and crocus. Bees will enjoy working these flowers as they are low to the ground and less affected by wind. In early spring, when the air temperature rarely exceeds 12°C, honey bees are very susceptible to chilling, so a drift of snowdrops or crocus in full sun will be very attractive to them.

The snowdrop (*Galanthus nivalis*; figure 2) is a member of the lily family (Liliaceae), which also contains plants that flower in late spring and summer, such as the bluebell, alliums (onion, garlic, chives) and hyacinth. Modern classifications place snowdrops with daffodils and snowflakes in a separate plant family — Amaryllidaceae. You will not see honey bees foraging on daffodils, even though they bear many similarities to snowdrops. Daffodils exude a natural defence toxin, called lycorine, which acts as a feeding deterrent.

A snowdrop has, like all members of Liliaceae and Amaryllidaceae, six petals. Strictly speaking, the snowdrop has perianths, rather than petals, the three outer segments being larger and pure white, while the three inner segments are half-size, deeply notched and with a green mark near the tip. The outer perianths protect the sexual parts of the snowdrop (anther and stigma), which in many other plant families is achieved with leaf-like sepals. The perianths will open and close,



Figure 1. Hazel (*Corylus avellana*) flowers and catkins, and inset image of stained pollen grains.

a simpler, pictorial guide to flowers may be a gentler introduction to the fascinating subject of bee forage, rather than a list of plant names and flowering times.

In this series I will take the flowering season as a guide to plant selection, focusing on those plants that are well-known for their appeal to bees. This article concentrates on plants that flower in late winter and early spring. Subsequent articles will illustrate flowering plants in spring and summer.

Late winter and early spring trees

There are relatively few native plants that flower between January and March, so it is often trees such as hazel, willow and yew that offer the first 'fresh food' for bees in late February and March. Many of you will be familiar with the form of hazel and willow catkins, although you may be less clear about their functions.

Hazel (*Corylus avellana*) is a member of the plant family Betulaceae, which also includes birch, alder, and hornbeam. The male lambtail catkins (figure 1) are produced on leafless trees and it is from these catkins that copious amounts of pollen grains are dispersed by the wind. Being wind-borne, the pollen is small and carried a good distance to maximise the chances of encountering the tiny red female

For convenience, microscopists usually refer to pollen size in microns (or µm; 1 mm = 1000 µm), so hazel pollen is about 28 µm.

Bees will collect the pollen from hazel trees. Although it is not as protein-rich as pollen from willow or plants such as crocus and snowdrop, it provides a good early source of amino-acids that are essential for worker



Figure 2. Snowdrop (*Galanthus nivalis*) flowers. **Upper inset:** untreated pollen showing oil droplets. **Lower inset:** parts of outer petals (perianths) removed to reveal anthers and stigma.

depending on temperature and light. The yellow/orange snowdrop pollen is coated with droplets of oil, which allow it to adhere to the hairs of visiting insects who seek out nectar, including the honey bee.

The spring crocus (*Crocus vernus*; figure 3) is a member of the Iris family (Iridaceae) and in common with all irises the flower is borne on a white tube formed from the six perianths. The spring crocus pollen grain is readily visible to the naked eye, being >0.1 mm in diameter. Relatively few other plants have such large pollen — hollyhock, mallow, field scabious, and evening primrose are other notable examples. The three anthers, which burst open when ripe (called dehiscence) are covered with bright orange pollen grains, but do not extend out as far as the stigma. The stigma is covered with stubby, sticky protuberances where pollination takes place.

Having got a good early start through foraging on early pollen from trees and obtaining both nectar and pollen from flowering bulbs the honey bees should be ready in April to work the flowers of prunus, pyrus and malus — or to give them their more familiar names, cherries, sloes, plums, pears and apples. This will be the topic of the next article.



Adrian Davis,
Canterbury BKA

Figure 3. Spring crocus (*Crocus vernus*). **Top left:** crocus plant. **Bottom left:** close-up of flower. **Bottom right:** microscopic detail of stigma. **Top right:** anther covered with ripe pollen.

Neonicotinoids Debated

MP, Martin Caton's, Early Day Motion (1267) on the 'Impact of neonicotinoid pesticides' on bees and other invertebrates attracted some 69 supporters as of March. Mr Caton obtained an adjournment debate in Westminster Hall on 25 January 2011 entitled 'Neonicotinoid Pesticides'. The key points made are outlined below (see *Hansard* for the verbatim report).

Opening the debate, Mr Caton referred to the 2009 *Buglife* report which cited studies highlighting concerns on the potential harm of neonicotinoids to pollinators. He welcomed the BBKA's call for an urgent review of the data. The Minister, Lord Henley was said to have asked the Chemicals Regulation Directorate (CRD) to review the *Buglife* report and had indicated that the Advisory Committee on Pesticides (ACP) had carried out a further review. The ACP had since stated that no review had been undertaken and further it appeared the CRD report was not complete.

Mr Caton referred to James Cresswell's findings at Exeter University, showing a 'reduction in honey bee performance' in laboratory tests with neonicotinoids. Mike McCarthy's article in *The Independent* was cited, which — worryingly — implied that publication of work by Dr Jeff Pettis in the US

Department of Agriculture, linking pesticide use with bees' susceptibility to nosema infection, was being suppressed. Mr Caton concluded asking the Government for a formal response to the new data to which he had referred, proposing the withdrawal of licences for neonicotinoids used on pollen and nectar producing plants, pending further robust research to clarify if there indeed is a link.

James Paice, Minister for Agriculture responded, as Lord Henley may not speak in the Commons. He insisted that there was no complacency on the part of the Government. All pesticides are toxic, even those approved for organic use; he accepted that neonicotinoids were, per definition, toxic at certain levels. He countered Caroline Lucas' (MP Brighton Pavilion) intervention in which she complained that the *Draft Assessment Report* for pesticide approvals was prepared by the company concerned and thus biased, by reminding her that these documents are open to public scrutiny following ACP and regulatory review. He stated that all the papers in the *Buglife* report had been considered by the ACP which concluded that they did not raise any new issues. Mr Paice undertook to respond on the apparent inconsistencies over the ACP and CRD reviews. He agreed the *Buglife* report indicated a gap in our knowledge of the effect of neonicotinoids on over-wintering bees and that Government supported the addition of

studies relating to this in data requirements in Europe for pesticide approvals.

Commenting on James Cresswell's findings he said the author doubted the environmental relevance of lab-based studies. Referring to allegations made in *The Independent* article, he quoted Dr Pettis' response, which made it absolutely clear that the delay in publication was procedural and there was no suggestion of suppression. Dr Pettis also added that it was not possible to make a direct comparison with lab-work and field studies.

Concluding, the Minister said that there was a need to consider what further work should be done. The EU Commission is developing proposals for bee health, including research and measures to understand and tackle the decline in wild and managed bees. He challenged the assertions that neonicotinoids have been banned in some countries; restrictions had been introduced but there were no bans. He reminded those present that the £10M Insect Pollinators Initiative included work at Dundee University on the effects of sub-lethal pesticide exposure on bee navigation and communication. Finally, he underlined the importance of bees to food production, stating his clear wish not to jeopardise the role of bees in any way.

Tim Lovett

Importation of Bees: what are the choices we face?

The BBKA is often asked why it does not campaign to 'stop' all import of bees. This apparently simple question unfortunately does not have a simple answer, but I will attempt to draw out some of the threads of the arguments in this article and indicate what is possible and what is probably not.

Firstly a quick summary of the law and the numbers involved

During 2010, 123 consignments of bees were imported into the UK from within the EU. These consignments comprised 452 colonies from Cyprus and Spain and 7,290 queens from a wider range of countries, but with over 50% coming from Greece, with Slovenia as the next major source. Read further details at <https://secure.fera.defra.gov.uk/beebase/public/BeeDiseases/eulimportReport.cfm>

All these colonies and queens require a health certificate before they can be imported. Inspections at the apiary of destination were carried out on 85 of the 123 consignments imported. No report is available on the results of these inspections.

Colonies of bees cannot be imported from outside the EU except from New Zealand where a separate EU/NZ Veterinary Agreement is in place. For queen bees imported from outside the EU there are restrictions that again require a health certificate to accompany the bees. All imports from countries outside the EU must enter the UK at a designated Border Inspection Post (Heathrow, Gatwick or Manchester airports). In addition, on arrival at the apiary the queens must be transferred to new (queen) cages before being introduced to any local colonies. The packaging and all the attendant bees must be sent for analysis for small hive beetle and *Tropilaelaps* mites (Bee Diseases and Pests Control (England) Order 2006 article 11).

The EU specifies a list of approved countries from which the import of queens is allowed into Europe, subject to certain conditions being met — which has the practical effect of restricting imports to Argentina, Australia and New Zealand. (*The Importation of Bees into England. A guidance note for Importers.* Fera). So in theory, once in the EU, these imports could then be moved within the EU and imported in to UK. Until recently Hawaii was also included on this list, but with the recent outbreak of small hive beetle this major exporter of queens has now been suspended from the list of approved countries.

In total, during 2010, the number of queens imported into England/Wales was: Australia 650, Hawaii 750 (before the restrictions were imposed) and New Zealand 1050. (<https://secure.fera.defra.gov.uk/beebase/public/BeeDiseases/importReport.cfm?year=2010>) From this same source it can be seen that of a total of 23 samples, 16 had traces of nosema and one had varroa present. In addition, four of the samples from Australia had Pollen Mites (*Mellitiphis alvearius*) present. This is not, strictly speaking, a parasite of the honey bee but, as its name implies, a mite that eats pollen.



© David Wootton. Queen bee surrounded by her retinue

Turning now to the possible reasons for wanting to ban imports. Reasons often cited are:

- To prevent the spread of disease and
- To prevent the dilution of our native species of bee.

If we deal with the latter one of these objections first

You can argue this two ways. Firstly, in the UK we have a variety of management techniques and a variety of hives that in turn are suited to different strains of bees. In addition, we have a growing number of beekeepers who extol the virtues of the native British black bee (*Apis mellifera mellifera*). Unlike other countries, beekeeping is primarily undertaken by a large number of amateur beekeepers most of whom keep a relatively small number of hives (4.7 per beekeeper in the BBKA survey 2010). One side-effect of this is the lack of large-scale queen producers that exist in some other countries and, as a direct consequence, a wide genetic pool from which British queens are drawn. If we look at the numbers of imports each year (A total of just over 10,000 in 2010) as a % of an estimate of the total number of hives of 180,000 at the moment, we arrive at a figure of just over 5%. Is 5% per annum significant enough to have an effect on the characteristics of the UK queen population? It could be therefore argued that

bringing in 5% per annum is not likely to have a discernible effect on the traits. Or put another way we already have mongrel bees and they cannot be made worse!

On the other hand there are a number of breeding projects trying to develop strains of bees that are suited to our climate and also have 'varroa-resisting' characteristics. For these projects to have any long-term chance of success then the smaller the influx of bees into the genetic pool the better. In addition the 5% imported each year are generally in large batches and are more likely to be genetically similar, as opposed the genetically diverse native population. The effect of the imported 5% could, therefore, be magnified. If we want to set about improving our queen quality in this country we have to work on all fronts, and in this context the 5% imported each year is extremely relevant.

If we then consider the second cited reason for restricting imports — prevention of disease

We have the considerable benefit of being an island in this regard — but equally this did not help us with varroa. The numbers quoted for nosema might give cause for concern — certainly the % tested that had nosema present of 70% (16 out of 23) is very high — but from a very small sample. The concern at the moment is obviously small hive beetle and *Tropilaelaps*, but nevertheless it is self evident that if we were able to successfully ban imports then it would significantly reduce the likelihood of us importing either of these species.

Could we argue to instigate a ban?

The legislation surrounding this is nowadays bound up in the requirement of free movement of goods and services around the EU. It is possible to ban bees both from Member States and third countries, but only where the government has become aware of a serious bee health risk such as an outbreak of small hive beetle and then only pending a Commission decision on the action to be taken. Once the Commission has introduced a safeguard decision (or discussed the matter and decided not to issue a safeguard decision) then the UK should act in accordance with the Commission's action.

Examples exist where Member States ignored these provisions, such as the failure of France to lift a ban on imports of UK cattle and beef. Despite the repeated statements of the illegality of the ban the French did not act.

It would take a very strong argument indeed for the UK government to even contemplate acting in such a way over bees. One might envisage a situation in relation to disease, but it is difficult to imagine a situation with regard to improving queen quality.

Are there alternatives to a ban?

People import queens to satisfy a need, either in their own apiaries (but given the paperwork involved this is restricted to a few large-scale beekeepers) or more normally to be able to sell on either as a queen or in a nucleus to enable people to either start keeping bees or to increase their stocks.

Our cold and wet northern climate means it is possible to import a mated queen earlier in the season than a locally produced queen can be produced. In the majority of cases I would suggest the new beekeeper is simply after a colony and they would be happy with a locally sourced colony and queen if one was available, but often they are not. The price of bees has increased dramatically in the last few years and this has encouraged the more experienced beekeepers to breed and sell queens and colonies in their area. This increase in supply has not, however, managed to erode the supply of stocks that are still



© David Wootton. Queen bee surrounded by her retinue.

being supplied headed by an imported queen. Perhaps given time, however, we can, in effect, crowd out imported queens by a successful home grown breeding programme.

Conclusion

The wider context of free trade within Europe does mean that the UK is constrained over its ability to restrict imports from other Member States, but it can work to influence bans from outside the EU. How?

The way forward is very much in our own hands (or more accurately our own hives!). If UK beekeepers expand their production of

queens locally and beekeepers come to value these over queens imported from thousands of miles away, then commercial trade in imports will gradually wither.

Beekeeping associations are a natural focus for local breeding programmes. For a queen improvement programme to work it needs all the beekeepers in the local area to work together — maybe now is the time for your group to take up the challenge.

Martin Smith,
President

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Spring 2011 Convention

The annual beekeeping event not to be missed!
15–17 April 2011, Stoneleigh Park, Warwickshire

Bee There!

With just a couple of weeks to go there is still time to book your ticket, though no longer at the 'in advance' rate. But what value it represents with an impressive list of lecturers, workshop and course leaders offering something for everyone.

New venues are in use this year; the **Princethorpe Suite** will host our principal lectures and the **Oak Tree Suite** provides both lecture and workshop space. There is so much going on over the three days that you need to look at the programme in detail to plan your visit and get the most out of the weekend. Visit www.bbka.org.uk to download the programme.

Top Lecturers

Our headline group of lecturers includes Keith Delaplane, Ingemar Fries, Mario Pahl and Francis Ratnieks (seen below 'in action' at last year's Spring Convention). A wide range of topics will be covered including honey bee genetics, behaviour, diseases, ecology and husbandry in this 34th Spring Convention; topics that will appeal to all, from the beginner through to expert beekeeper. See overleaf for more details.

IPI Colloquium

With generous financial support from the Insect Pollinators Initiative (IPI) funders and Thornes, the IPI colloquium is being held on Saturday 16 April 2011 to present up-to-date news on the £10M of projects funded under the IPI. Delegates will be taken through the whole research programme and then offered a chance to contribute views on progress to date.



Courses

A few places may still be available on the courses and workshops; check the website for availabilities.

The Trade Show

Bigger and better than ever, with 63 exhibitors in four areas, the key suppliers of general and specialised equipment will all be there — invest!



Non Beekeepers' Events

Right: Patchwork, quilting, encaustic art, wild flower gardening, and cookery will appeal to all. For those who are interested there is also the prospect of a healthy and instructive walk in a nearby ancient wood on Sunday morning.



Education

Sunday is a special day when you can get up to speed on the 'Basic', learn about the General Husbandry and Advanced Husbandry exams and find out just what it takes to succeed. Budding trainers itching to use the CiC are also catered for. There may also be places on the National Bee Unit Disease recognition course — just ask.



Brand-em!

A special attraction this year is the Wyvern Forge smithy demonstration. You can order your own personalised branding iron in advance and take a step to protect those valued bits of kit by making your mark!

For tickets, the programme and further details go to www.bbka.org.uk.

Key Lectures Friday 15 April

Princethorpe Suite

12.30–13.30	The Sussex Plan for honey bee health and well-being	Francis Ratnieks
14.00–15.00	The honey bee in decline	Keith Delaplane
15.30–16.30	American Foul Brood — biology and epidemiology	Ingemar Fries
17.00–18.00	Honey bee cognition — how bees perceive the world	Mario Pahl

National Beekeeping Centre — Auditorium

12.30–13.30	Beekeeping for poverty alleviation	Pam Gregory
14.00–15.00	The future of beekeeping	Dan Basterfield
15.30–16.30	From Autumn through to Spring	Ian Craig
17.00–18.00	Breeding Varroa tolerant bees	Ron Hoskins

Key Lectures Saturday 16 April

Princethorpe Suite

10.00–11.00	Honey bee ecology	Keith Delaplane
11.30–12.30	<i>Nosema ceranae</i>	Ingemar Fries
13.00–14.00	Honey bee genetics and breeding	Keith Delaplane
14.30–15.30	Gateways to discoveries in biology	Francis Ratnieks
16.00–17.00	American Foul Brood — biology and epidemiology	Ingemar Fries

National Beekeeping Centre — Auditorium

10.00–11.00	The Sussex plan for bee health & well-being	Francis Ratnieks
11.30–12.30	Let the bees tell you	Ian Craig
13.00–14.00	The 'comb-wide-web' of the honey bee	Mario Pahl
14.30–15.30	Modern commercial beekeeping	Dan Basterfield
16.00–17.00	The rise and rise of the tree bumble bee	Clive Hill

The Case for Education — Spring Convention 11.30am Sunday 17 April 2011

Calling all trainers: A chance for local association tutors to learn about the thinking behind the 'Course in a Case' venture and discuss how to get the best out of the 'Cases', lead by Ivor Davis, one of the authors and the series Project Manager.

The materials can be used 'straight out of the box' but even more benefits can be derived by adapting them to your own style, possibly adding your own materials. The seminar will show how these resources can also be used to prepare for BBKA examinations and assessments but principally how they can be used to build knowledge and competence in honey bee husbandry.

Contact Ruth Homer to book your place: workshopconvenor@live.co.uk



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The Forager asksWhy?

I recently received an e-mail advising me that yet another book on 'how to get the best from your bees' had been published. When we already have a plethora of very average books giving beekeepers a whole range of confusing advice — why? When we have two exceptional books for beginners (and more experienced beekeepers) in the form of Ted Hooper's excellent standard *Guide to Bees and Honey* and Clive de Bruyn's more recently published *Practical Beekeeping* — why? And it is worth noting that both of these authors have achieved the National Diploma in Beekeeping — a pretty sure sign that they have a good level of both practical experience and academic knowledge about our favourite subject.

Now, do not get me wrong, I am not against books on beekeeping. My collection currently runs to around 200 different tomes and the book stalls are always my first port of call at both The Spring Convention and The National Honey Show. But what I want from a beekeeping book is something that can actually contribute more information or greater understanding of some aspect of beekeeping or other — not something that recycles information already available in many of the existing publications.

Last year I purchased a new publication that appealed to me, even though I think I have passed through the 'novice' stage. It appealed because the quality of the photography promised to be outstanding and so it was but unfortunately there were some fundamental flaws in the text. It was such a shame as for only a few pounds more I could have bought, and subsequently did, the latest publication from the pen of Thomas Seeley: *Honeybee Democracy*. Now that is a book which really brings a new understanding of beekeeping into the open. It so perfectly complements much of the work included in *The Buzz about Bees*; the 2009 publication by Jurgen Tautz. Both of these books have, based on considerable research, enabled the authors to demonstrate that a honey bee colony is better considered as a single entity rather than as a collection of individuals. They have demonstrated what I have suspected for a number of years: that we need to move our understanding of bees forward a step and think about the 'collective intelligence' of a colony.

I suppose that my concern about beekeeping publications started many years ago when I realised that books were sometimes published for the gratification of the author rather than for the edification of the reader. But it was strongly reinforced by the publication, a couple of years ago, of a book which expressed concern about the future of bees worldwide. The problem was that it did so in a way which implied that so-called 'colony collapse disorder' was not just a problem in the US but also here in the UK. It is not of course as most beekeepers will now know, but there has been no retraction from the book authors. This book, together with the publicity garnered by the BBKA at the time, did much to fuel public concern about the state of bees. A concern which was based on uncertain foundations and was aided and abetted by a media hungry for bad news stories! But how many people have come into beekeeping in the last few years on the back of this media irresponsibility?

But back to books. While some seem to be unprepared to read very much about beekeeping, there is clearly a demand for bee-keeping books. I was astonished to discover recently that an early edition of *The Pollen Loads of the Honey Bee* by Dorothy Hodges is now worth a fortune (a quick check showed that although no copies are currently available Amazon are quoting a price of £470). This is clearly another effect of the dramatic increase in numbers of beekeepers. We are fortunate that some of the many extremely useful and informative



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books of the last three or four decades or so have been reprinted, either by the original publisher or by one or other of the specialist bee publishers. As a result, affordable copies of such classics as *Plants and Beekeeping* by F N Howes, *At the Hive Entrance* by H Storch and two books by Free, *Pheromones of Social Bees* and *The Social Organisation of Honey Bees* are once again available. These are books in which the authors have tried hard to produce something that is beneficial to the beekeeping community rather than something that will flatter their egos.

So I finish with a plea. If you are a budding author, particularly of a beekeeping book, please try to produce a book which is more for the benefit of the readers than the benefit of the author.

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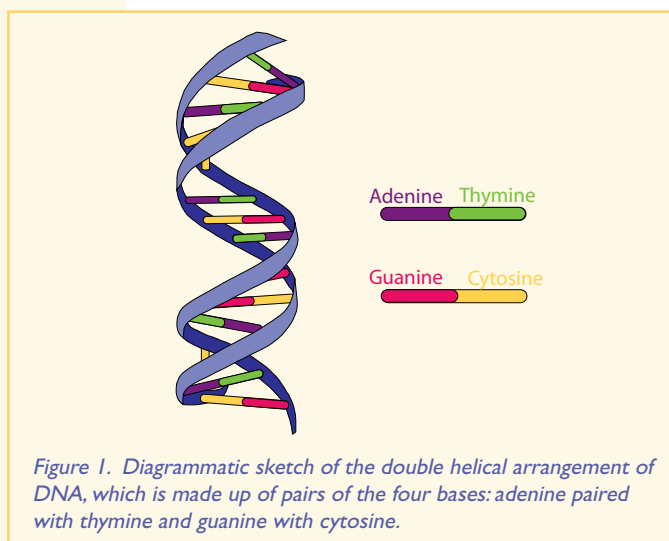


A Beekeepers' Guide to RNA Interference

RNA interference or (RNAi) has been in the news recently as a possible breakthrough in the area of bee disease. But what is this technique? This article aims to walk you through the basics of this relatively new and exciting science.

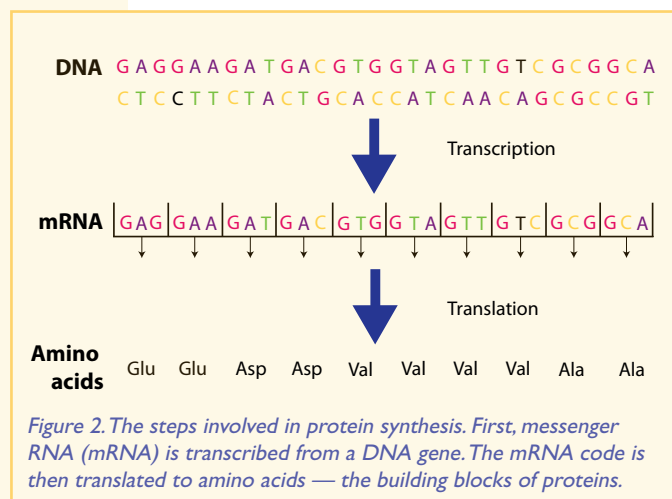
From genes to proteins

Before we can move onto the details, we need to review a few basics about the biology of cells. Every eukaryotic cell (ie. a cell from any species that isn't a bacterium or a virus) contains a nucleus that houses deoxyribonucleic acid (DNA; Figure 1). This is the double helix genetic blueprint that contains all the genetic information that a particular organism needs, and is made up of four bases (Adenine, Thymine, Guanine and Cytosine; abbreviated to A, T, G and C respectively).



The genetic code of DNA functions as a map or a guide by which a cell can produce the necessary proteins it needs to survive. It does this in a two-step process (Figure 2). Firstly, from the DNA a 'transcription' process occurs whereby the genes that are needed for that cell to function are synthesised as messenger ribonucleic acid (mRNA). You can think of this as the copying down of a shopping list from a recipe book. You need to write down the ingredients and quantities needed to take to the supermarket, and you do this on a piece of paper rather than taking the whole book with you.

The double-stranded DNA in the cells of your eyeball contains all the genes that code for all the proteins that you need in your entire body (the ultimate recipe book). However, there is no need, for



example, for your eyeball to synthesise the proteins that are needed to construct toenails. Only specific genes are transcribed in specific cells. Once the single-stranded messenger RNA has been transcribed, this code can then be further 'translated' into amino acids — the second step in the process of creating the proteins.

The key point to remember here is that in eukaryotic cells DNA is double-stranded, while messenger RNA is single-stranded. However, some viruses contain double-stranded RNA, and it is thought that as a defence mechanism against these viruses a process evolved which recognises these double-stranded RNA molecules and selectively destroys them. We can now harness this process in a technique known as RNA interference.

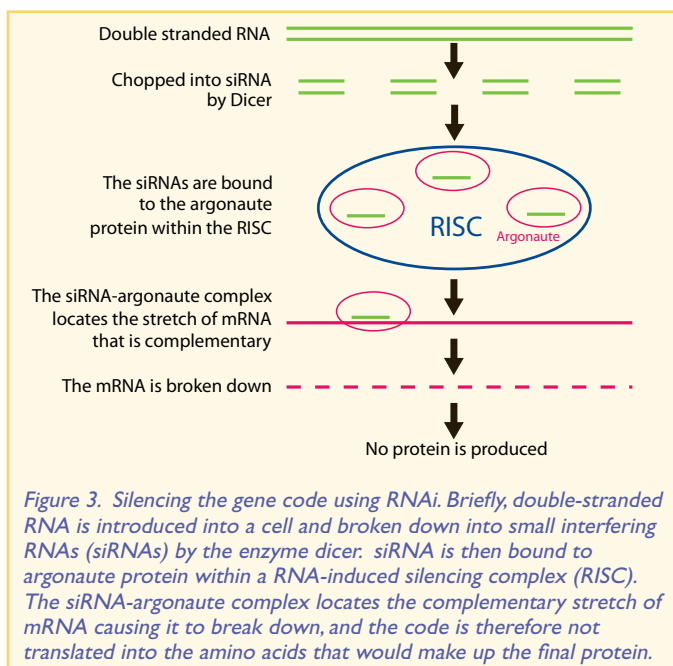
How does RNAi work?

If we want a cell to stop producing a certain protein then, using RNAi, we can selectively 'silence' the gene code that produces that protein. If we choose to target a protein that is critical for the survival of the cell, then we can use this technique to kill the cell 'from the inside'. Because of the well-defined relationship between DNA base pairs, mRNA base pairs and amino acids (Figure 2) once we know the sequence of amino acids that make up the protein of interest we also know the mRNA and DNA sequences that code for those amino acids. We can then synthesise a stretch of double-stranded RNA that matches the mRNA sequence of a gene we want to silence and introduce this into the target cell. The double-stranded mRNA in effect fools the cell into using the same defence process that it would use to actively destroy a virus — it targets the double-stranded stretch of RNA that we have introduced. The double-stranded RNA is broken down into smaller chunks by an enzyme called Dicer (Figure 3). The smaller chunks of double-stranded RNA are known as short interfering RNAs (siRNAs) and are usually 20–25 base pairs long. These siRNAs are incorporated into a RNA-induced silencing complex (RISC) that is used as a guide to selectively destroy all other RNA with that same sequence with the assistance of another enzyme known as argonaute. So not only is the double-stranded RNA that we introduced into the cell broken down, but also the naturally occurring single-stranded RNA within the cell. Without the RNA for a gene, the protein that the gene encodes can not be produced. When this protein is crucial for a cell to survive, the technique ultimately results in cell death.

If we go back to our recipe book analogy, we hear that a competitor of ours is entering the local honey show with the same cake as us. They have read the recipe and got their list of ingredients. They copied the list and went to the supermarket with the list and purchased every ingredient on the list. However, we followed them to the supermarket and removed the eggs from their trolley. The eggs are still on their list, but every time they put a box back in the trolley it disappears again. Without all the ingredients it is impossible to finish the recipe.

Applications of gene silencing

RNAi is a tool whose power has been harnessed in a number of different scientific fields. Craig Mello and Andrew Fire were awarded the Nobel Prize in Physiology or Medicine in 2006 for their work published in 1998 describing how they had used the technique to silence genes in the free living nematode worm *Caenorhabditis elegans*. It has proved a reliable technique when used in this model organism and has also been used widely by the plant science community. In fact, the process was originally discovered in petunias and described in 1990 when it was coined cosuppression. However, the success story of RNAi has not been reproduced in all scientific areas. Despite the



similarities between *C. elegans* and the parasitic nematodes found in the gastrointestinal tracts of mammals RNAi has a much less reliable effect on parasitic nematode genes. In mammalian cells, it was found that the double-stranded RNA that is introduced has to be much shorter than in other systems, but following this breakthrough a number of large scientific studies have been set up around the world to understand more about cell biology and about the use of gene silencing as possible drug therapy.

The appeal of selective gene silencing is that the effect of a potential drug would be so specific. With conventional therapies there is always the danger that while successfully eradicating the micro-organism that causes disease you also eradicate other species that you are not trying to remove. If, for example, you spray a potent herbicide over your vegetable patch you will kill the lettuces as well as the dandelions. Although lettuces and dandelions have many genes in common, there will be differences at the nucleotide and amino acid sequence level between the two species. This is exemplified by the amino acid sequences (shown in Figure 4 below) produced from part of the chloroplast gene needed to make chlorophyll for both dandelion and lettuce. They show that at the amino acid level the sequences are very similar, but not identical, which we would expect in an evolutionarily conserved process. In order for the amino acid sequences to be different, the original DNA sequences would also have to be different. So a stretch of the gene could be identified that was different between dandelion and lettuce and the double-stranded RNA could be designed to match the sequence from the dandelion. Then you could spray an RNAi-based herbicide over your vegetable patch that would kill only the dandelions.

Pros and cons need to be considered

This example also highlights one of the drawbacks of RNAi. Within your vegetable patch it is not only the dandelions that you want to remove, but all the other weeds as well. Its high specificity means that RNAi-based treatments will only ever affect one species.

Dandelion	M E K F Q S Y L G L D R S Q Q H H F L Y P L I F Q E Y I Y V L A H D H G L T R S I L L E N A G Y D N K S S L L I V K R L	60
Lettuce	M D K F Q S X L G L D R S Q Q H Y F L Y P L I L Q E Y I Y V L A H D H G L N R S I L L E N A R Y D N K S S L L I V K R L	60
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Figure 4. Amino acid sequences (amino acids are abbreviated to their single letter codes) for dandelion and lettuce. An asterisk shows identical amino acids, dots show amino acids that are different but similar in structure, and gaps shows amino acids that are different between dandelion and lettuce.



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Treating honey bee diseases

In terms of tackling bee disease there have been a couple of leaps forward into the realms of RNAi technology recently. A large field trial using RNAi to target Israeli acute paralysis virus appeared to have some very encouraging results. As the research authors say, this is the first real-world use of the technology for disease control, which is a good prospect for the future of bee health. Importantly, the researchers have shown that they could administer the therapy through feeding the bees, which prevented them succumbing to the virus. This is an easy way for beekeepers to be able to administer a therapy to colonies so it shows some promise.

But what about varroa? Well mites are much more complex organisms than viruses. They are multi-celled eukaryotic organisms with a much more sophisticated biology. This makes the process of developing successful RNAi therapies more complicated and technically challenging. Exciting progress has recently been made in this field, but it is likely to be further in the future before large scale trials of any treatments occur, with a number of hurdles to be overcome before you can order an RNAi-based therapy with the rest of your beekeeping supplies.

I hope this introduction to RNAi has proved useful. As with all scientific techniques there are lots of resources online, but for an excellent animation of the process of RNAi I can recommend the website: <http://www.nature.com/focus/rnai/animations/index.html>. The animation is aimed at scientists but hopefully after reading this article it

will make sense and help you better visualise the process.

Rachael Baker,
The Moredun Research
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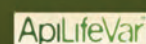
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Is Varroa Still a Problem in the 21st Century?

This was the question posed at the International Bee Research Association (IBRA) one-day conference on varroa, held at the University of Worcester on 29 January 2011. Richard Bache was one of the 180 delegates eagerly in attendance, and he brings us some of the meeting highlights.

I feel that varroa has been treated as 'yesterday's news' and been out of the headlines, despite the fact that it remains one of the most significant problems encountered by UK beekeepers. I therefore relished the opportunity to hear top-class speakers give an overview of the latest research news.

Varroa spread and tolerance

The day started with an enlightening talk by Dr Steve Martin on varroa biology. Dr Martin laid out the historical perspective, noting how the natural range of *Apis mellifera* was completely distinct from the Eastern honey bees (all other *Apis* species). Charting the colonisation of new areas by varroa he illustrated how its spread has been largely aided by beekeeping practices. There was a hint of disappointment in his voice when he noted that the very bee movements that aided the spread of varroa have not ceased. He said he believes that pyrethroid resistance within varroa populations is a clonal phenomenon and that it has spread along similar routes to the initial colonisation of varroa. Indeed, you cannot help but wonder whether other potential threats will move along the same routes (seasonal migration and permanent movements) within countries and between countries.

Dr Martin took us through some of the taxonomy of varroa mites and noted that although *Varroa destructor* seems to have evolved relatively recently from mites on *Apis cerana*, it cannot replicate on the Eastern honey bee. He noted also that there are variations in the pathogenicity of different *Varroa destructor* strains and discussed some of the varroa management strategies pointing out that the evidence does not support using small cells to control varroa.

The observations of dorsal dents in the varroa carapace have been claimed by some to be caused by bees biting the mites, but Dr Martin referred to a paper that cast doubt on this theory, noting that bee bite marks would not be so symmetrical and would produce a corresponding dent on the underside of the mite. Also, these dents overlie some muscle tissue and it is thought that they could represent instead developmental defects from dehydration of these muscles.

Known mechanisms of varroa tolerance were also explored: *Apis cerana* drones are killed when more than one mite parasitises the cell. Since the workers are unable to uncap

the cell and release the mites it provides a check on mite populations and allows the mites and bees to sustainably exist together. Varroa populations in Africanized honey bees seem to depend on the number of sealed drone cells and it has been thought that the bees may be drone-trapping to control varroa populations. Both these models have taught us that although viral disease is an important determinant of mortality in varroosis the mite load is an important determinant of the effects of infection.

Impact of viruses in varroosis

Dr Joachim de Miranda spoke on the impact of viruses in varroosis. He explained the taxonomy of viruses that have been described in the honey bee noting that those that infect the honey bee fall into 12 distinct groups. Within the groups, some form quasi-species where a swarm of closely-related viruses evolve, providing the variation that best assures the ongoing survival of the strain. This survival strategy is similar to that of the honey bee colony, where genetic diversity within the colony helps to ensure the colony survives a variety of threats to its health.



Scanning electron microscope photograph of *Varroa destructor* on honey bee host. Courtesy, Erbe, Pooley, United States Department of Agriculture, Agricultural Research Service, Electron microscope Unit. The micrograph was obtained from the Wikimedia Commons, which is a freely licensed media file repository.

There are a number of potential transmission routes for viruses in varroosis, but much viral disease seems to increase with varroa infestation and the incidence of viruses changes with the varroa incidence throughout the year. The viruses that are known to be associated with varroa are: acute bee paralysis virus, Kashmir bee virus, Israeli acute bee paralysis virus, black queen cell virus, deformed wing virus and slow bee paralysis virus. These viruses have differing effects on the colony: acute bee paralysis virus causes significant loss

of bees and therefore the colony will collapse whereas deformed wing virus is not so lethal to the colony and therefore persists longer.

Managing varroa limits viral disease

Dr de Miranda talked about the development of semi-quantitative lateral flow devices for the detection of viruses, similar to those used by bee inspectors for foul brood as a possible future tool in the management of varroa. While viral disease remains an extremely important aspect of varroosis it was noted that there are no effective measures to control the viruses directly and therefore beekeepers should focus on the management of the varroa mite as a means to limit the impact of viruses.

Chemical control: costs and complications

Dr Max Watkins of Vita Europe gave an insight into the chemical control of varroa. He explained that many thousand chemicals must be evaluated through many stages of screening and development to find a practical and marketable formulation. The process takes around 12 to 15 years and can be expected to cost £100million. EU regulations require the establishment of a maximum residue limit, to ensure the product is safe, has a high manufactured quality and is stable with assured efficacy. There are specific problems with chemical treatment of varroa — the mites and bees share similar biology and the same environment, and varroa mites can be protected within the hive. Selective toxicity towards the mites is therefore difficult to achieve. The advantages of chemical therapy are that it can control varroa, reduce viral damage, reduce the subsequent stress on bees and ensure the role of bees in pollination and honey production. Potential problems include toxicity and sub-lethal effects to bees and larvae, residues in hive products and the potential for mite resistance.

Many varroacides affect specific single ion channels, which confers some specific and useful variability in their effects, but also the potential for resistance to develop. There is no evidence of increasing resistance to thymol though, as it has a multi-site action. Field resistance tests can be unreliable and accurate bioassays are required to confirm unexpected findings in the field.

I found an Italian study in which pyrethroids were withdrawn after a high level of resistance had become established in the

mite population, particularly interesting. Ongoing surveillance of the levels of pyrethroid resistance in this population showed that it decreased from 42% to just 4% within five years. This suggests that the adaptation for pyrethroid resistance is detrimental to the mites and seems to suggest that even where pyrethroid resistance has become established there may be scope for infrequent pyrethroid use as part of a wider varroa control strategy.

Integrated management

Professor Keith Delaplane gave the next talk on the use of integrated varroa management strategies stating that varroa represents the 'snowball that sets the avalanche' in many colony losses. The principle of integrated management is to use many different techniques to control the mite and to reserve the use of chemicals to instances of high mite levels. Many management techniques have only weak effects and they are therefore difficult to quantify accurately. However, the net result of studies into open mesh floors, for instance, is that they help to control varroa.

A sobering fact highlighted by Professor Delaplane was that in the US queens have very poor longevity — 12 months is considered to be a good lifespan! In the US attempts have been made to breed productive bees that were also tolerant of varroa by generating a score based on the aggregate of several honey bee assessment criteria. The breeders used drones from all the colonies to avoid problems with inbreeding, but found that they could not successfully breed for multiple criteria (including varroa resistance). This surely has implications for bee breeding programmes; that only a few qualities can realistically be selected for at the same time and achieve short-term success. Professor Delaplane explained that honey bee breeding has not achieved similar successes to that in other animals because in the honey bee colony it is the maintenance of genetic variability that confers resistance to disease rather than the selective pressures to eliminate more susceptible individuals as required in other species. This should act as a warning to avoid promoting inbreeding within our honey bees when developing a bee breeding strategy. Professor Delaplane spoke quite frankly and noted that even integrated pest management strategies have a lot more scope for success, especially as they introduce labour intensive operations such as monitoring mite levels that would consume a lot of time for bee farmers.

Biological control

I was particularly delighted to hear Dr David Chandler's realistic talk about the biological control of varroa. He noted that social insects need many strategies to evade pests and are

particularly susceptible to them on account of their sociality. Biological control of pests is an area led by greenhouse crop production as high levels of pesticide resistance make integrated pest management more efficacious. In fact, 90 biological control species are used in greenhouse crops.

Dr Chandler talked about his area of expertise — entomopathogenic fungi. He described features that make them suitable candidates for further study, notably: they exist as a wide range of strains throughout the environment, they act through contact and can target closely related mites. However, for practical purposes a strain would need to work in the relative heat and dryness of a bee hive, must be safe for the bees and be practical to apply. He then gave a good appraisal of the research conducted to address some of these challenges, which resulted in either dead fungi, dead bees or failure to control varroa, highlighting the complexity of this research strategy. However, I felt this was a promising avenue for further research to identify useable



Mites on drone brood. Courtesy of The National Bee Unit at the Food and Environment Research Agency (Fera), Crown Copyright.

fungi strains. If a suitable strain and a suitable delivery device could be developed, the strategy is likely to be that of inundation: providing high levels of native fungal species to kill the mites before fungal numbers fall to their natural low levels.

Breeding varroa resistance

Norman Carreck spoke about breeding honey bees for varroa resistance and emphasised the scope for varroa tolerance, because some populations have survived without active mite control. He described the many mechanisms that may be at work in apparently tolerant strains including: properties of the mite population, hygienic behaviour, viral resistance, grooming or effects that occur after capping brood cells. He cautioned that damaged mites may not necessarily be a sign of inherited tolerance and may represent post-mortem damage, learned traits or defective varroa mites.

Trying to breed for varroa tolerance is difficult as we have a poor understanding of

the mechanisms involved, tolerance is difficult to measure and the stability of the strain needs to be high. What I found interesting and disappointing in equal measure was that undesirable traits may be associated with strains that have been bred for varroa tolerance. He described several projects to develop resistant honey bees, but noted that the goal is still many years away.

Dr Carreck's experience is in investigating hygienic behaviour in the honey bee, which is thought to confer varroa resistance and control mite levels. At the University of Sussex he uses the freeze-kill method to measure hygienic traits, but concedes that we do not know whether this has the same effect as chalkbrood or the pin-kill method. I wonder whether beekeepers who select against strains that show evidence of chalkbrood may also be selecting for this tolerance mechanism in their bees.

Future directions

The final talk was given by Dr Jochen Plugfelder about the way ahead for varroa control. Because colony losses are high in areas where varroa is endemic he felt that to control colony losses we need to control varroa. Interestingly, in Germany, apart from varroa, the factors that were most associated with colony loss were old queens and deformed wing virus — the latter presumably being a consequence of varroosis. He then reviewed some of the available treatments and concluded that the application of powdered sugar, the use of small-cell foundation and RNAi vaccination are ineffective measures, but there is limited efficacy in extract of hops, formic acid and the use of thymol with electrostatic powders. He felt that we need to better recognise varroa tolerance traits and should investigate the entombing of mites in drone comb and grooming traits. Biological methods of control should also be examined in more depth and the use of kairomones to bait varroa should also be considered further.

I felt the whole day was a timely reminder of the significance of varroosis and a satisfying update on current research topics. So, is varroa still a problem in the 21st Century? Unfortunately the answer is yes, but inroads are being made on many fronts and management strategies are being developed. There is still light at the end of the tunnel.

Richard Bache,
Master Beekeeper, Somerset BKA

The proceedings book will be published in time for the BBKA Spring Convention at Stoneleigh and will be available from the IBRA stand

Ask the Experts

This time, although not something that will improve our beekeeping this is a point of interest that is often debated. We asked Brian Dennis, the question: **To bee or not too bee — honeybee, honey bee or honey-bee?** (cf beekeeper, bee keeper, bee-keeper — or should this be bees keeper, since we keep more than one bee? — beekeeping, bee-keeping, Bee-Keeping, etc.)

Consulting a variety of sources one can find almost every variation of the term. For example:

- ❑ *Collins Compact Dictionary* (1997): honeybee (and bumblebee).
- ❑ *Encyclopaedia Britannica*: honeybee.
- ❑ *Merriam-Webster Dictionary*: honeybee.
- ❑ *BeeBase* (NBU): honey bee.
- ❑ *Chambers 21st Century Dictionary*: honey bee.
- ❑ *BBKA News*: honey bee.
- ❑ *Fera*: honey bee.
- ❑ *Bee Craft*: honey bee.
- ❑ *Wikipedia*: both spellings.

In the preface of his 1956 classic *Anatomy of the Honey Bee* the American entomologist Robert E. Snodgrass explains the book's title:

“First, it must be explained why the name of the bee appears in the title as two words, though ‘honeybee’ is the customary form in the literature of apiculture. Regardless of dictionaries, we have in entomology a rule for insect common names that can be followed. This is: If the insect is what its name implies, write the two words separately; otherwise run them together. Thus, we have such names as house fly, blow fly and robber fly contrasted with dragonfly, caddicefly and butterfly, because the latter are not flies, just as an aphision is not a lion and a silverfish is not a fish. The honey bee is an insect and is pre-eminently a bee; ‘honeybee’ is equivalent to ‘Johnsmith’.”

The second quote is much more recent and a little easier to read. It appears as the Author's note in *Fruitless Fall* by Rowan Jacobsen (2008):

“Copyeditors¹ of the world beware. The spelling of insect names in this book follows the rules of the Entomological Society of America, not Merriam-

Webster's. When a species is a true example of a particular taxon, that taxon is written separately. Honey bees and bumble bees² are true bees and black flies are true flies. A yellowjacket, however, is not a true jacket. Entomologists, who have to read the names of bugs a lot more than the rest of us do, would appreciate it if we all followed these rules.”

Conclusion

In this country honey bee is preferred; in America, honeybee. Scientific writers prefer honey bee.

1. Also written as copy editor, copy-editor.
2. Usually spelt bumblebee.

Brian Dennis,
Northamptonshire BKA

Do you have a burning question to ask the experts? If you do, please tell us what it is and we will put it to experts on your behalf.

Pros and Cons of Wired Foundation

As I write this, the hives in my apiary on Exmoor are being battered by sleet and spring still seems a long way off. Hopefully by the time you are reading this piece the milder weather will be with us and the new beekeeping season will be off to a flying start.

This is the time when many of us are reviewing our equipment and planning potential purchases. Beekeepers are encouraged to replace brood comb regularly as old brood combs are known to harbour pathogens, so foundation is an item that regularly appears on my shopping list. Perhaps some of you need to buy foundation or are planning to exchange wax for foundation at the Spring Convention. There seems to be a bewildering variety to choose from particularly when you are first starting out, with manufacturers producing foundation to fit a number of frame sizes according to the type of hive in use.

Using foundation in our brood frames encourages the bees to build flat combs inside the wooden frame while maintaining the correct bee space. This allows frames to be

removed from the brood chamber for disease inspections and other colony manipulations. Wiring the foundation reinforces its strength helping it to withstand the stresses placed upon it. Remember that a British Standard brood frame holds 5lbs of stores. It is probably worth saying that when you fit commercially produced foundation wired in a zig zag or W pattern into a frame, the three wire loops are caught under the wedge and pins driven through the wedge and wire loop into the top bar. The weight of the comb is then supported by the wire loops and in warm weather the comb may expand into the space between the bottom bars.

Some beekeepers prefer to wire their frames and then embed the wire into a sheet of foundation believing that this produces a more even flat comb. The wire is often attached to the frame side bars with hooks or through eyelets. The wire is then embedded into the foundation by heating the wire using a battery or by using a heated embedding tool rolled over the wire on the foundation. Of course it is possible to produce your own foundation and there was an article in BBKA

News, October 2010, which explained this process.

Whether you choose to use worker or drone foundation in your supers, wired foundation will help to stop the combs exploding in the extractor. Frames in honey supers are not subject to the same number of inspections as brood frames and some beekeepers prefer to use unwired foundation arguing that it is still possible to use an extractor, particularly the radial variety.

Unwired foundation is used in supers for producing a variety of honey comb products including cut combs and sections. The foundation replicates the midrib of a naturally produced honey comb with manufacturers producing thin unwired foundation for use in comb products. The alternative is to fit the frame with a starter strip of foundation and allow the bees to produce comb.

Gail Johnson,
Somerset BKA

Business Corner

Introducing New Members of the Executive

I have been a beekeeper for ten years, mostly in a small way with a maximum of six colonies and currently three. I am just finishing my third year as Chairman of Cambridgeshire BKA (CBKA). During that time I have attended all of the BBKA Forums and ADM's as the representative of CBKA. I have also served on the Working Group developing the new BBKA website, having previously been instrumental in updating CBKA website.

Within CBKA I have served as Editor and Chairman, am part of the Education and Training Working Group and have chaired the Website Working Group. I am involved in the Beginners' Course as part of the tutor team and present one of the series of lectures on that course. I also talk to



Doug Brown

outside groups on bees and beekeeping.

I believe strongly that we must encourage all beekeepers to continue to update their knowledge of current best practice by attending talks, seminars and beekeeping courses. And, of course, by reading books and journals and keeping an open mind. We all have to take every opportunity to learn more about bees and their needs and to keep up-to-date with new developments. We also have to help new-comers to beekeeping by mentoring and supporting them during those early years. I have found that doing this brings new learning opportunities for the mentor as well.

I am a supporter of increased research into bees, their health and the threats to their continued existence.

I have served as the President of the Ulster BKA, Chairman of CONBA and Dromore BKA. Founder Member and Chairman of the Institute of Northern Ireland Beekeepers (INIB). INIB attracts international speakers yearly. I have co-ordinated speakers in partnership with Somerset BKA, National Honey Show and other associations.

I feel privileged to work with many association committees and always seek to give my full commitment to any project undertaken. For these efforts I have been rewarded with Honorary Membership from Roe Valley, Clogher Valley, Donegal and the Welsh Beekeepers'.

I am involved with charity groups, am on the Board of Directors for Praxis (Mental Health and Learning Disabilities) and Support for the Haiti Disaster. I lecture in Culinary Arts at the Belfast Metropolitan College and am Executive Chef at

Malone Golf Club. In my spare time I enjoy gardening, painting and pottery and I am a very enthusiastic mead maker.



I have been a dedicated beekeeper for many years and continually sought to improve the understanding and knowledge of beekeeping. I was therefore both delighted and honoured to be awarded the MBE for my efforts in 2009. Some of my friends have suggested that it must stand for Michael's Best Efforts!! My future vision is to build an educational beekeeping unit for queen rearing of the Irish native honey bee. I hope with that with my experience, commitment and beekeeping contacts I am able provide support to BBKA and its members as part of the Executive Committee.

Michael Young, MBE

The New BBKA Insurance Policy

Following a review of the potential insurable risk exposures that face both the BBKA as an organisation and the Registered Members of the BBKA, Towergate Risk Solutions in Sevenoaks were appointed as the BBKA's Insurance Brokers. Details are provided on the BBKA website or may be obtained directly from Towergate.

While the cover is not significantly different from the previous placement, there are several areas that have been clarified so that members now have clear guidance as to what is acceptable to insurers. Other activities may also be covered but will need prior agreement via Towergate. The Public Liability and Products Liability insurance cover all Registered, Partner, UK-resident Individual Members and non-profit-making Specialist Member Associations against any financial loss, injury, or damage. This loss has to have been caused by the Member or their bees while undertaking beekeeping activities or through the normal use of their hive products. There is a limit of indemnity of each and every claim of £10,000,000

and cover excludes:

- ❑ Work at Height: any activities above three metres must be referred to Insurers.
- ❑ Cover may be provided subject to details of the activity and safety precautions.
- ❑ Use of Heat Away from the Premises: other than for sterilisation of beekeeping equipment not undertaken within a private dwelling or commercial premises.
- ❑ Pest control or Bee Infestation: swarm collection is covered and it is acceptable to receive expenses but the policy is not intended to cover commercial activities.
- ❑ Sourcing and Supply of Products other than primary hive products such as honey, wax and propolis. The policy does not cover cosmetics, food or drinks that have additional materials added or undergo a new manufacturing process. The limit of indemnity in respect of Products liability is limited to £10,000,000 in total for the annual policy period rather than per claim.
- ❑ The first £250 of third party property damage claims only. All other claims have a nil excess.

While the insurance policies are on an annual basis, cover starts when members pay their local association subscription provided the association registers the Membership with BBKA within the BBKA financial year. The certificate and policy schedule are available for download and printing from the BBKA website. If specific cover confirmation is required, this can be obtained from Towergate.

The BBKA policy also includes Trustees Liability cover for all officials of BBKA and its associations and branches affiliated to BBKA. The limit of indemnity is £2,000,000 with the first £500 of any claim being paid by the officer. As with all insurance, the final wording is that contained in the policy and the interpretation rests with the insurance company. The BBKA dedicated contact Wendie Le Vey at Towergate is happy to answer any specific questions and can be contacted by telephone at either 01732 228716 or 0844 892 1300; by Fax: 0844 892 1301 or by Email: wendie.le.vey@towergate.co.uk Web-Site: www.towergate.co.uk/sevenoaks

From the Boardroom...

BBKA Executive meetings are not always comfortable with Trustees and Executives querying progress and sometimes lack of progress of the various Committee Chairmen.

The Treasurer's report looked at progress in meeting the 2011 budget and while some areas are not at the level hoped for, money from Corporate Sponsors, which was not included in the plan has helped maintain initiatives on CiC delivery and research investment. A potential means of attracting small donations from members of the public for further research investment was considered including some ideas for incentivising associations to take part. Agreement was reached for further work to be done to finalise a workable scheme.

Four papers seeking to improve Governance were presented and accepted with improved versions of Trustee nomination forms, a Code of Conduct for Trustees and terms of reference for President and Chairman.

Reports were received from all the Committee Chairmen, particularly Technical and Environmental, who were seeking Trustee support for two areas of new research that they had discussed. One, from Keele University, looks at the nutritional benefits from different pollens and was accepted, the other study, understanding the sounds produced by honey bee colonies, was sent back for further development of the scientific benefits.

A paper looking further at CiC training for the next 12 months was considered and accepted. The potential problems of BBKA members keeping bees in unconventional ways were also discussed because of the insurance implications of not making any effort to control the swarming impulse.

At least one London Borough has raised concerns about BBKA members who are keeping bees in the same allotments, and there is some fear of possible eviction. BBKA will discuss the implications with insurers, but it is felt that beekeepers do have a duty of care and their choice of husbandry techniques might need to be considered.

Brian Ripley,
BBKA Chairman

Stoneleigh Shows

The committee has been planning and organising two major events — the Edible Garden Show at Stoneleigh and Gardeners' World Live at the NEC. The Edible Garden Show was in March and the it was the first time that the BBKA has been involved. Hopefully, by the time you read this we will have demonstrated the importance of bees to the growing of edible plants! Our efforts will now be focussed on the Gardeners' World Live Show on 15–19 June. Last year, the BBKA garden was awarded RHS Highly Commended and Best RHS Feature in Show. We hope that we do as well (or better!) this year. However, it is a great opportunity to present bees and beekeeping to the public. These events depend on the support of members to steward. If you can help with stewarding, contact Clive Joyce by email: c.joyce1@ntlworld.com. After (or before) you have completed your duties, you will be free to see the show.

Brian P Dennis,
Chairman, Stoneleigh Shows' Committee

Technical and Environmental

Cuprinol wood preservatives

BBKA has been in discussions with Cuprinol regarding the use of their products on beehives. Their marketing and website information is at odds with the conditions of the regulatory approval on their product labels. We are waiting for their clarification.

BBKA winter survival survey 2010–2011

Arrangements have been made to conduct this year's survey. A random sample of 2,500 Registered Members have been direct mailed and asked to complete the questionnaire and return it FREEPOST to BBKA. This year we have invited respondents to include the first half of their post codes. If you have received one, please do complete and return it. We need good data to determine what is happening to our honey bee colonies.

Varroa resistance to pyrethroids

Planning has started to conduct a national field survey of the current position of varroa resistance to pyrethroids. The work will be done in conjunction with Vita Europe. More about this in a future BBKA News.

Spray liaison

The BBKA office has been asked to contact member associations and ask them to update the details of their Spray Liaison Officers and, where possible, those of their divisions and branches. This will be used to update the BBKA website. If you are a Spray Liaison Officer please make sure the BBKA office has your contact details.

Dr David Aston, NBD,
Chair of Technical and Environmental Committee



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The New BBKA Website Goes Live in April — bbka.org.uk

At the 2010 ADM, a proposition was unanimously accepted that the existing BBKA website should be updated to provide even more (and better) value to members. Since then the development work has been progressing and it is hoped to demonstrate it to members at the Spring Convention at Stoneleigh and launch it in late April 2011.

The main working group consists of Doug Brown (Cambridge), Nick Harwood (Suffolk), Peter Owen (Warwick and Leamington), Steve Turner (BBKA Webmaster) and Dave Teasdale (North Staffs) and you will not be surprised to hear that the task of trying to meet all of the members' requirements has not been easy.

The main requirements were to:

- Be attractive and be more appealing to general public and members in the 21st century.
- Be easier to use.
- Provide better search facilities.
- Provide more value to members.
- Provide information to support BBKA

charitable status.

- Attract new beekeepers.

Some new facilities being provided are:

- Improved security and individual website 'logging in' — you will need your BBKA membership number to log in.
- Quicker and easier navigation.
- Seasonal information provision for the general public and members, eg. swarms.
- New swarm 'catcher' facilities, ie, 'find me a beekeeper who can help me'.
- New photograph gallery for members to contribute to and freely use.
- More beekeeping training information.
- Easier and quicker website up-dating and management.
- Plus much more....

Newer technologies have been used in the development, which we believe has resulted in a new website that is exciting because it 'looks and feels' very different to the current website. Steve Turner will continue to be the Web Manager, but we want to enlist some additional members with new ideas to assist him in the task of keeping

it looking 'fresh'. The new website will be tested prior to going live and we are currently looking for volunteers to help with the final testing. If you are able to assist us in either task, please contact me via the BBKA Office.

More information will be published in the next issue of the BBKA News but please remember that this is YOUR website and any constructive ideas will always be welcome.



Example of new Home page. The main information will fit to most screens, extra information is included in the 'footer'.

David Teasdale

Chairman, BBKA Website Group

Dave Cushman's Website

Dave Cushman passed away in February 2011 after a long period of ill health. He was probably best known for his website <http://www.dave-cushman.net/> that has become a tremendous resource for beekeepers worldwide and considered by many to be the best. At Dave's request Roger Patterson will be taking over this website, which has become a valuable facility for beekeepers. Contact email: roger-patterson@btconnect.com

Diary of Events

13 April. Somerset BKA. Special Lecture, Keith Delaplane at Hazlegrove School, Sparkford, on the A303. Details: Sharon Blake 01460 242124

15-17 April. BBKA Spring Convention 2011, Stoneleigh.

30 April. West Sussex BKA Annual Bee Market & Auction, Brinsbury Campus, North Heath, Pulborough, RH20 1DL. Details: Graham Elliott grahammt@tiscali.co.uk or 01403 752493

9-11 June. Royal Cornwall Show. Schedules available 1 March from Sheila Sleeman, tel: 01872 863842.

14 May. York and District BKA Annual Auction at Murton Museum of Farming. Enquiries: Nigel Davies on 01904 468001.

21 May. Sussex Beekeepers' Association Annual Beemarket. Heathfields Community College, TN21 8RJ. Harold Cloutt 01424 838302.

27-29 October. National Honey Show, Weybridge, Surrey.

Classified Directory

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Entries for sale: 9-11am, viewing 11am, sale 12am.

BEES FOR SALE. Anyone wishing to sell bees must have them inspected prior to sale, and must arrange for them to be brought to Murton on the previous day.

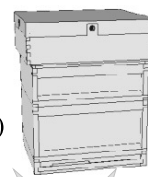
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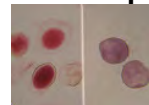
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Your Letters



Dear Ed.

The Microscopy Exam

I read Bob Maurer's account of taking the BBKA Microscopy Module exam with great interest as it mirrors the experiences of our own members in Harrogate and Ripon BKA who have taken the exam. We now have 25 full or associate members who have this most useful qualification and have also trained a similar number of bee-keepers from associations in Yorkshire and the North East of England. Several of our members are trained to examine this module.

We have a team of dedicated 'tutors' who run a course every other year and have done so since the late 1990's. The reason why we do this biannually is that there needs to be considerable preparation before the course starts — the purchasing of microscopes, dissecting equipment, books and chemicals. (We have also found Brunel Microscopes Ltd very helpful in supplying some of the necessary equipment.) Our students meet every month on a Saturday morning from January through to July, with a revision session in September before the exams, which take place in the late autumn. Between each session students have 'homework' to do — collecting pollen, making anatomy slides and practising dissection. All these skills are rehearsed in a laboratory at a local secondary school where gas and electricity are laid on. We emphasise the need for safe working practices. The 2010 course also used the knowledge and expertise of the Regional Bee Inspector to update us all on bee diseases and the latest advice on treatment from FERA.

Gaining the Microscopy certificate also serves as a launchpad for developing your skills to the benefit of your fellow beekeepers. You can train others in your association who can help identify common diseases, particularly *Nosema*. Try holding a *Nosema* 'clinic' in the spring where members of your association can bring samples of bees for 'on-the-spot' testing and advice.

When combined with a digital camera the microscope becomes a powerful teaching aid. We have produced a CD-ROM, which assists beekeepers in identifying pollen, with pictures of stained pollen and a spreadsheet based on Rex Sawyer's '*Pollen Identification for Beekeepers*'. This is invaluable when trying to label honey correctly. With further study you should even be able to identify adulterated 'local' honey! Some members have explored more advanced techniques using phase contrast and dark field microscopy and are interested in taking a closer look at the anatomy of the bee by producing stained sections using a microtome. Microscopy opens a window into the hidden world of bees.

I would urge more beekeepers to explore this fascinating and rewarding branch of our craft. It will teach you much and be an invaluable skill, which can benefit all beekeepers in your association.

If any association needs advice on how to set up a course for their members, then please contact me at:
j.a.chandler.479@btinternet.com

John Chandler,
Harrogate and Ripon BKA

The CD is available through Northern Bee Books, along with Rex Sawyer's book. Thornes and Bees For Development also stock it. I can sell the CD for £12 incl p&p, if approached via email. A percentage of the profit goes to Bees For Development. Beekeepers may use the photos for educational purposes, but as the disc is copyrighted they should request permission before using the photos in written material.



The Secrecy of EFB

In February BBKA Graham Farren complained about the secrecy surrounding the location of outbreaks of EFB. He believed the interests of beekeeping would be better served if this secrecy was lifted, and I agree. The benefits to the beekeeping community from encouraging everyone to be completely open about disease outbreaks were drummed into me when I first became a beekeeper many years ago, and I have espoused this approach ever since.

In 2005 after a disease outbreak in my apiary I took this up with the National Bee Unit (NBU) by making a 'Freedom of Information' request. It was turned down by the NBU using the sort of arguments deployed by Mike Brown in his response to Graham Farren, and when I persisted, I merely received a somewhat longer, but similar rejection from the NBU. These arguments do not hold water. The location of apiaries with disease is not 'personal data' within the meaning of the Data Protection Act, and even if it were, it is the sort of information whose release would not be barred by the Act. Further, as Graham Farren wryly observed, the NBU's approach to bee diseases is completely inconsistent with DEFRA's approach to foot and mouth, where it published the precise locations of outbreaks on the website within 24 hours — and that applied whether you were a private individual with one animal or a large scale farmer with thousands.

I would have taken it one stage further with a formal complaint to the Information Commissioner, but I held back for two reasons. First, the NBU believes that if it does not keep the information confidential, bee inspectors will have difficulty getting cooperation from some beekeepers. That may be so, but it is a question of weighing the benefits from encouraging an open approach among the vast majority of beekeepers against the disadvantage that a small number may become more difficult. Although my gut feeling was (and is) that the pros heavily outweigh the cons, if I was wrong I could have been responsible, single handedly, for making the disease inspection regime less effective. It was, I decided, something that ought to have endorsement from a wider group of beekeepers or from a beekeeping association before going further. Secondly, the NBU was in a spot because it had been telling everyone their details would be kept confidential, and if that was ruled unlawful by the Information Commissioner, the NBU's credibility would have taken a nose dive. Again, this is not an outcome I wished to achieve, so I offered to withdraw my request if the NBU was prepared to change its approach in the future. In response, the NBU told me it intended to review its approach to confidentiality.

Sadly, that review has not produced a change, so perhaps it is time the BBKA took up the cudgels. Surely the Executive Committee can't believe this secrecy is in the best interests of beekeeping.

Peter Hayward,
Monmouth

In Response

The Executive Committee note the comments in the above letter and have agreed to enter into discussions with the National Bee Unit as to the relative merits and legality of publicising (or not) the precise location of an outbreak of disease. In doing so they will take account of the factors both for and against including those noted by Mr Hayward in his letter.



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