

BBKA News

BBKA - Supporting Bees and Beekeepers

FREE TO MEMBERS OF THE BRITISH BEEKEEPERS' ASSOCIATION



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In this Issue

Chairman's Letter	2
In the Apiary	2
Spring Convention First Visit	3
The Forager	4
The Dance of the Bees Pt 2	5/6
Morphometric Assessment of Honey Bee Colonies	7/8
Taking the Medicine Part 3	9
Pheromones Pt 1	10
Using Dusts for Varroa Control	11
Ted Hooper	12
Do Bees Smell? Pt 1	13
Dr. Juliet Osborne	14
BBKA Exam Framework	15
Gardeners' World Tickets	15
Suffolk Nosema Day	16
Taking a Sample of Adult Bees	16
News from the NBU	17
Beekeeping in the Yucatan	18/19
Book Reviews/Competition	20
Business Corner	21/22
Education and Husbandry	
Digital Technology	
Technical and Environmental	
Raffle Winners	
Your Letters	23
News Round	23
National Honey Show	24
Small Hive Beetle in Hawaii	24
Diary of Events	24

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Course in a Case

BBKA – Education Competency Model

Level	Standard	Assessment
***** LEADER	NDB	☐ ☐ ☐ ☐ ☐
***** MASTER	Gold Standard	☐ ☐ ☐ ☐ ☐
**** PROFICIENT	Silver Standard	☒ ☒ ☐ ☐ ☐
*** IMPROVERS	Bronze Standard	☒ ☒ ☒ ☒ ☒
** NOVICES	Introduction Course	☒ ☒ ☒ ☒ ☒
* BEGINNERS		☒ ☒ ☒ ☒ ☒

BBKA Educational Framework

BEGINNERS: Individuals who have attended an Introduction to Beekeeping course and are in their first season of Beekeeping

NOVICES: Beekeepers who have completed their first season and are learning the basics of Colony Management

IMPROVERS: Beekeepers who have grasped the fundamentals of Beekeeping (verified by passing the BBKA's Basic Assessment)

PROFICIENT: Beekeepers who have managed a number of colonies and are able to advise colleagues. These individuals will require little tuition or mentoring to maintain high standards. (verified by passing the BBKA's General Husbandry Assessment and possibly Modules 1, 2 and 3 of the Theory Examinations)

MASTER: Beekeepers who show high levels of competency and probably give talks and lectures on beekeeping matter. (verified by passing the BBKA's General Husbandry Assessment and Modules 1-3 and 5-8)

LEADER: Beekeepers who have studied beekeeping to the highest level and are considered the point of reference for beekeeping matters in their locality. (verified by attaining the NDB qualification)

The massive rise in awareness of the importance of honey bees and the numbers of people coming into the craft hungry for training has made the BBKA look at how it can support its Associations in this formidable challenge.

The Education Forum convened last October made it clear that there was a need for practical help in the form of training resources. A further need was identified for resources that go beyond the 'Beginner' stage and enable beekeepers to develop their skills and competence, that would cater for training needs over a wider span of the beekeeper's development. We

need to get people started on the right track but also help them to keep moving forward.

Thus was born the **Course in a Case (CiC)** a new educational concept created by the BBKA to help member Associations teach beekeeping to their members. Whilst there are some notably excellent training courses run by local groups, many admit that they do not have sufficient trained tutors/ demonstrators and there is a distinct lack of ready to use material for this training. The CiC concept will cater for the Beginner and move through six levels Novice, Improver, Proficient, Master and on up to Leader, at the level of those bidding to take the

National Diploma in Beekeeping (NDB). But do not confuse this initiative with the BBKA Examination System. The CiC concept is all about gaining knowledge and skills to apply when keeping bees, not taking exams and gaining certificates – that channel is already well established!

The first Course in a Case is now available aimed at Beginners (Introduction to Beekeeping) and an example has already been offered to all Member Associations, free of charge. It has been funded by the educational grants received from the Wills Wildlife Foundation and the Cameron McIntosh Trust. Further funding

Continued on Page 6

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Chairman's Letter

Sore feet, a car full of wax and frames and good memories; my legacy from the 2010 Spring Convention.

The weather was wonderful the crowds in good humour the traders nearly sold out and the lecturers excellent. The volcano in Iceland disrupted the programme only momentarily as the organisation of alternative lectures and changes went ahead seemingly without hitch and the organisation and stewarding was faultless and I thank all of those involved in making the three days, and particularly Saturday, a major success.

Of course the show was not without some areas of concern; space, oversubscribed lectures, sun shining on screens making viewing difficult, but with an event that grows ever larger the organising committee, I have no doubt, is aware of the problems and will be seeking to address them for the 2011 Spring Convention. There were very good lectures on research issues but the ones I attended had a common message, looking for the causes of viruses in honey bees needs time and money, as the problems that researchers are seeking to overcome are extremely complex.

In the past month my attention has been drawn to two initiatives to help honey bees, one by Warwick and Leamington Beekeepers the other in the City of Newcastle where universities, councils, volunteers and beekeepers have come together to look at habitat and conservation issues. This coupled with the National Trust's offer to house hives at their properties not only helps raise the profile of the honey bees and the problems they face but offers practical methods to help.

A few days ago it was reported that a beekeeper in my locality, who had kept bees for over sixty years had lost all his eight hives. The reporter said on the phone that these bees had been in recent years treated with strips but pre-winter 2009 the beekeeper (not a BBKA member) had 'some new stuff' in trays and it had not worked. I rang the beekeeper up and found that he had used Apiguard in late September/early October after he had taken off his heather honey and in North Northumberland it is beginning to get rather cold at that time of the year. The point of this story: the beekeeper not being a member of BBKA had no knowledge of other alternative methods of control. Until this gap in knowledge for beekeepers outside associations is addressed problems of lost colonies will continue.

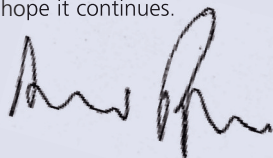
In my last letter I noted some of the tasks we were undertaking this year. Adopt a Bee Hive launched well, seemed to meet with the approval of most members and has continued to draw support from the public. We have made leaflets, posters, free post labels, and a draft press release, available for associations. If you have not already collected your pack from Stoneleigh please contact them so they can post out the information to you, please see what you can do to help attract more members to the scheme, which will make for a different birthday or (I know its early) Christmas present.

The members' working group looking at website development is making strides, completing the tendering documents with a due date for completion for responses from interested companies by end May.

We have not had an opportunity to meet within the Healthy Bee Plan Project Board as the election has delayed the first meeting but a meeting is being planned for May.

I attended a local association meeting where someone was selling full Commercial hives at £250 each which I thought was not a bad price and said so, I drew attention to an advert for a Labradoodle dogs I had seen that evening at £450 each and remarked that it would not give honey at £3-£4 per jar. The association Chairman brought the meeting to the point of collapse when he said on the other hand you would get more affection from the dog

As I write this, the sun is beginning to shine, rape beginning to flower, let us hope it continues.



Brian Ripley,
BBKA Chairman

In the Apiary



Classes for beginners are popular, but what comes next, when the class has finished? If you have had some experience it would be helpful to spend some time in someone else's apiary giving a helping hand, and giving confidence to new members of your association. This may be done informally or through a mentoring system, but please do it soon and help to reduce the loss of keen new people who find difficulties when they come to handle full-size colonies in the next month or two.

As you enjoy the summer (we hope) remember that winter will follow later, winter when most of us suffer losses. So when the opportunity arises make up a nuc, or several. A nuc will replace lost stocks next spring, or be of value to one of the new members. Depending on your beekeeping ability a nuc can be made up from one or more colonies with a queen cell taken from a colony which is attempting to swarm, or you could try splitting the colony into two so that one part raises a new queen. Some thought is needed to do this well so do some reading and thinking first. Alternatively, use any of the well known methods to raise queen cells. Associations might consider raising queen cells for distribution to members who bring their own queenless nucs to a branch meeting.

No doubt varroa will continue to be a problem. This year we have ApiLifeVar available; this uses thymol as a principal ingredient so is not significantly different from Apiguard. Formic acid is different and effective, so I hope that members who are confident in handling such substances will experiment with its use in UK conditions. Likewise I hope that some readers with only a few colonies will try using lactic acid to control the varroa levels in their bees. Both of these organic acids are found occurring naturally in honey.

While supers of honey for extraction are on the hive the most suitable methods for reducing the number of varroa are dusting with icing sugar and drone brood removal: it seems that these are only effective if repeated regularly. As with other aspects of beekeeping, different people have different views and there is little hard evidence.

Some of our routine manipulations can be adapted to help with the varroa problem and these are certainly worth the extra effort. For example, if you perform an artificial swarm to control swarming there comes a time, after three weeks, when the worker brood in the original brood chamber has emerged but the new queen has not been around for long enough for her brood to be sealed and so all the varroa must be on the bees; if another healthy colony donates a frame with some unsealed brood then many mites will be attracted to this frame which can be removed when most of the cells are sealed. In my experience swarms do not carry large populations of varroa but the number can be further reduced in the same way.

Continue to look out for queen cells; we are still in the swarming season. On going to the apiary look around the hive entrances and make a point of having a good look at any where there is much less activity; it may be full of workers who have filled their honey crops ready for their 'holiday' and so are not foraging.

At each inspection, especially if you have taken off an early crop, perhaps from the autumn sown oil seed rape, then do check for adequate stores. A large colony consumes a great deal and will shut down brood rearing if it becomes hungry. For many of us the bee eggs laid in June become the foragers on the main crop in July, so keep them fed if they seem short. Let us hope for 'proper' July weather this year.

Brian Gant, Devon BKA

My First Visit – BBKA Spring Convention 2010

As a small time beekeeper, taught by my stepfather, I had never seen the relevance of going to the BBKA Spring Convention, on the assumption that it would be aimed at the professional end of the market and therefore too specialist and probably over my head.



The Swarm Catchers - perhaps not the best advice!

However when my son-in-law and grandson, who both took up beekeeping last year (after capturing a swarm, advised by me over the phone!) suggested we should all meet up at Stoneleigh, I jumped at the chance. When we arrived we were guided to a fairly

distant parking spot, which enabled us to walk through the earlier arrivals in the car park. We were both alarmed and impressed to see some of the early birds staggering back to their cars with arms full of new equipment. Large estate cars and vans were already filled to the roof with flat pack, frames and foundation. That was when we realised we were in the presence of some serious beekeepers with large apiaries compared with our modest set up.

As we booked in, read our programmes and got our bearings we discovered that the three day convention is carefully structured. The Saturday, when we went, is billed as Public Day and is the main commercial selling day. There was also a wide range of lectures and courses on offer, with something to learn whatever your level of expertise, thus dispelling my earlier preconceptions. The day's programme ranged from Deformed Wing Virus to Reading the Comb and even cooking with honey or Japanese Patchwork lessons. First, we tried to get into the lecture on Reading the Comb, which we felt was relevant to the experience and skill's level of our three-generation group. We were unable to get into this lecture because late arrivals for lectures are not admitted. Whilst we were disappointed at the time, it obviously makes sense to restrict audience disturbances and lecturer

distraction by introducing this discipline. Now that I know the high standard of lectures available I will plan my next visit with greater



Photos: Steve Turner

care to make sure I arrive in time to attend the lectures I am interested in. We certainly learnt our lesson from being rejected from the first lecture and consequently found ourselves queuing half an hour

early for a lecture billed as 'Beekeeping Problems in Paradise' by Dr Steve Martin. Given the title I obviously assumed this must be about beekeeping in Yorkshire – God's own country. And my assumption was further reinforced when I learnt that Dr Martin was from Sheffield. In fact, Dr Martin spoke about his research work in Hawaii (well, someone's got to do it) in relation to the early stages of the spread of varroa in this remote archipelago. I expect many readers know or have heard Dr Martin lecture over the years. His delivery, style, slides and content lived up to the enthusiastic billing given by Ivor Davis who was organising the lectures this year. As yet, there are no published conclusions of Dr Martin's work in Hawaii, but we were given a fascinating preview of the immense amount of detailed work that goes into bee disease research programmes.

After a good lunch at the on-site Farm Shop we headed back into the fray to look at what the commercial stands had to offer. There was something to suit everyone, from bee, honey, and wax themed gifts to amateur and professional equipment of every sort.

We were intrigued to see the wide array of plastic based equipment on offer. It would in fact be possible to buy hardware made entirely from plastic including moulded polystyrene hives, plastic queen excluders, to all-plastic frames fitted with plastic foundation. If these products are tested by experienced beekeepers over several seasons, and receive positive reviews for ease of manipulation, longevity, and acceptance by the bees themselves, it may be that plastic components eventually become a more regular feature in this diverting hobby.

After packing our purchases away, we lingered, re-living the day. I had learnt a lot; not least that if I had made the effort to go to past Conventions I might have been a better and more successful beekeeper for it. I am sure we will go to the Spring Convention again next year, but with better planning to get the most out of a packed and stimulating day.

John Cook, York BKA

Education

Supporting Education is one of the core aims of the Association

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The Forager

Asking All the Right Questions (and in the right order!)

Some years ago, when Andre Previn suggested that Eric Morecombe was playing all of the wrong notes in Greig's Piano Concerto, Eric responded that he was playing all of the right notes but not necessarily in the right order*. This reminds me of some of the beekeepers I have come across over the years. Many of them do ask the right questions but not necessarily in the right order.

Take as an example the (established) beekeeper who lost all of his bees last winter and who casually asked me, several weeks after he had discovered this, why he had lost them! I told him that diagnosis by remote control was rather difficult but I would try to help and asked him if he could check whether there was any brood present and whether I could see his colony records from last year. At this point the prospects of diagnosis took a turn for the worse as, a) he had no records and b) he had cleared everything out and burnt it. If only he had asked me the question at the time of his discovery we may have been able to make some sense of this situation.

Then there are the beekeepers who are actively advocating the use of top bar hives even before they have any experience of beekeeping. Most seem to know exactly why they want to use top bar hives but I doubt that they have even thought about how they will examine their colonies, carry out swarm control, extract honey, carry out varroa management or deal with any possible brood diseases. Here is a situation where they have clearly thought about some of the questions but are, probably, blissfully unaware that there are other rather important ones also to be addressed.

There are yet another group of (potential) beekeepers who do not even know what questions to ask. Recently I took a call from a person who wanted to know where to go to talk to beekeepers and where to buy a queen. The call did not seem to make a lot of sense so I pursued it to find out more and it transpired that this was an individual who wanted to keep bees, did not want to join an association yet wanted to talk to beekeepers, did not want to join a beekeeping class as he felt he would not learn anything but did want to know where to buy a queen to put into the hive he already had – so that she could develop a colony!! I felt that I was losing touch with reality after that conversation.

But the really worrying thing is that these are not isolated cases – at the Spring Convention dinner this year, one of the speakers recounted that, on a recent visit to a beekeeping supplier there was a prospective purchaser, obviously new to beekeeping, trying to decide how many hives to buy. After some deliberation, this new 'beekeeper' decided that, as he had lots of bees in his garden, he probably needed two hives!

This raises a further issue. The extensive publicity which beekeeping has received in the last couple of years has resulted in many more people wanting to take up beekeeping. But are all of these prospective beekeepers really suited to beekeeping? Attitudes vary significantly from 'well all you need is a hive at the bottom of the garden – you don't need to do anything' to 'it's just like having lots of pets all at the same time'. How many of those new to beekeeping understand that they are dealing with livestock and that bees are feral creatures who will work to their own rules? Some even attend beginners' classes and then complain that nature does not conform to their view of the world. Yes, really! On one beginners' course a student wanted to know why bees did not get pollen or nectar from the green parts of plants! So we should encourage all beekeepers to practice logical thinking, to observe what is happening, put these observations into a logical context and understand what they have observed. Without this understanding, it is not always easy to know what the next question should be. And it is probably the answer to that next question which is the key to the issue.

The rapid influx of newcomers into beekeeping is certainly placing a strain on the established beekeepers. Not all existing beekeepers want to be involved in helping newcomers develop their skills; not all existing beekeepers realise that just teaching newcomers is not enough, we need to be sure that they achieve an understanding of the craft. With perseverance, these short comings can be overcome but it does need significant effort from many of the established beekeepers to help the newcomers understand what questions need to be asked and in what order.

*This performance can still be viewed on Youtube.

The Forager





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The Dance of the Bees – Part 2

Continuing the Study of Bees Dances

Transition Dances

Although the round dance and the waggle dance are often described separately, they are not completely independent dances. For instance, there is some suggestion that some directional cues analogous to the waggle run are occasionally incorporated into the round dance. Bees do not dance one dance up to a given distance and indicate food at the next flower by doing a completely separate dance. The dances gradually change with distance from the round dance, through an intermediate 'sickle' dance and into the waggle dance. There are also racial variations in this aspect of bee dance with some Carniolan bees having a different intermediate dance resembling a figure of eight. This is thought to be largely mediated by a single gene. Studies into the speed of the waggle dance indicate that rate increases exponentially as the distance reduces to about 100m. Perhaps bees have to do a different dance so close to the hive as they cannot dance any quicker for very close food sources and would not have the time in their waggle run to do any wagging?

The Bee Dance Controversy

The dances of the honey bee seemed so fantastic that many doubted that they could be a

means of communication. Indeed, it was noted that some insects perform a 'cooling down' ritual after flight and components of that ritual correlate with the duration of their flight. Furthermore, other insects have a preference for moving in specific directions relative to the sun and, like the honey bee, if they have no indication where the sun is and the surface they are moving upon is made vertical, they move in the same way relative to vertical as they would relative to the sun. Could the dances be a product of these habits? Could it be that the observing bees do not register these components to the dance and simply recognise that there is forage available? Indeed it was pointed out that bees still take some time to reach the goal, and many never find it, so has the message really been received? It was suggested by some American researchers that bees primarily use their sense of smell to find forage and this may involve both the location bees marking the site and the forage itself. This hypothesis has been abandoned by most workers as bees can be trained to separate feeders and go to the feeder that the dance they observed predicts more than chance would predict. Also, by using an adjustable light within the hive, bees could be guided to location as their dances were orientated to the light within the hive, excluding odour as the primary means by which bees find forage (although it does have a role).

DVAV

Dorsoventral abdominal vibrations (DVAV), sometimes known as vibration dance are another dance that has been described in detail. In essence the bee moves its abdomen up and down (or dorsally and ventrally). It has been shown to have two different functions and, like the waggle dance, the messages conveyed are context-specific. In many cases the message conveyed means something along the lines of 'there's foraging to be done: wake up!' It induces foraging bees to move to the area of the hive

where waggle dances are performed, the 'dance floor'. It is also done more during peak times of foraging, both on a seasonal and a daily level.

In the colony preparing to swarm, the dance is often done to the queen, more so whilst queen rearing is occurring and ceasing in the hours before the swarm is about to depart. In this context, it is thought that the message to the queen is an instruction to behave. Firstly to accept that other queens are being reared, and then as the swarm is due to depart, dance cessation may allow the queen to depart the hive with the swarm. Similarly, after the swarm has left such vibrations occur on the sealed queen cells, ceasing again as soon as the first virgin queen leaves the hive. It is thought that this may exert some influence over the emergence of these queens.

Tremble Dance

The tremble dance is a dance that was first described by von Frisch, but the function has continued to remain completely obscure until relatively recently. This is a complex manoeuvre consists of the bee shaking herself; principally from side to side but also front to back, whilst moving slowly across the comb and changing direction. In common with the waggle dance there are also associated sounds and the dance also consists of pauses and occasional thrusting into other bees whilst generating the sound. Thomas Seeley investigated this dance at some length and found that foragers that managed to unload quickly did a waggle dance whereas those that experienced delays in unloading were more likely to do the tremble dance, which may be continued for some time (around half an hour on average). The colony was able to decrease unloading time again once this dance had occurred and hence he reasoned that the dance is a message to the other members of the colony that more unloading bees are required and observed that younger bees unloaded nectar from the foragers. In more recent work, Thom found that tremble dances may be done

if food source restrictions cause crowding at the feeder. She observed no difference between unloading times between bees that waggle danced and those that tremble danced and noted that many bees started dancing before they unloaded their nectar. She reasoned that in this context the message conveyed by the dance may relate to the forage source and therefore suggests that the message conveyed in the tremble dance, in common with the waggle and DVAV dances may be context-specific.

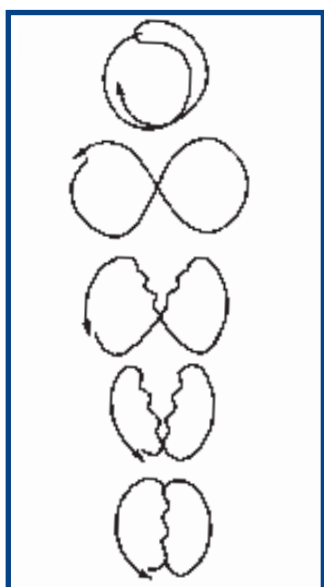
Other Dances

Many of the dances of honey bees remain poorly understood, although several others have been described. Dancing is part of a complex behaviour pattern and the importance of sound has already been stressed. In fact, some of the noises that honey bees make might be considered part of a dancing pattern, a good example being the piping of queen bees where the queen presses herself against the comb whilst piping. The buzz-run consists of bees running through the hive, bumping into their nest mates and increasing overall activity and this occurs prior to swarming and culminates with the high level of activity that is necessary in a swarming colony.

A jostling dance was described by von Frisch and is performed by successful foragers. The function of the jostling dance is thought to encourage other bees in the quest for food. A spasmodic dance, which contains wagging of the abdomen from side to side, may have a similar effect to the jostling dance. The shaking dance is when a worker bee moves her abdomen from side to side very quickly and this induces surrounding workers to groom her. Some honey bee species and subspecies have been shown to indicate a migratory swarm through dance, although only communicating a direction as none of the bees will ever have been to their eventual location.

Dancing in honey bees is celebrated as one of the marvels of the natural world. Although our

Continued on Page 6



The sickle-shaped transition dances used by most bee races (redrawn from von Frisch, 1967a.)

Credit: The Biology of the Honey Bee, Mark L Winston Harvard University Press

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The Dance of the Bees - Part 2

understanding of it is constantly being furnished by the results of new research, it has opened our eyes to an incredibly complex communication system within honey bees that involves olfactory, behavioural and auditory cues that interact in complex ways. We still have to learn much about the many dances and their function in both different colony conditions and different honey bee groups. No doubt the dance of the honey bee will remain one of the most intriguing aspects of honey bee biology and a prolific source of ongoing research.

Richard Bache, Somerset BKA

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Course in a Case

...cont

from the Adopt a Beehive Scheme sponsored by Saga will help to take the project forward. To make it easy to identify the different levels the courses are colour coded in durable plastic cases - using the colours for queen marking.

by the BBKA is a comprehensive mechanism for formally assessing capabilities. Whilst the two are not integrated, the CiCs do link to the examinations system. As an example, once the first two have been completed ('Beginners' and 'Novice') students will be



The courses are based on delivering competencies that students will self assess. Each course will include about one hundred competencies to be learnt and will include materials appropriate to the nature of the course. For instance, the first one (Beginners) has material that is delivered in a classroom with very few practical competencies. Later ones focus more on practical competencies and provide learning materials to illustrate various beekeeping management techniques. These will be delivered as short videos encapsulated within the overall course. The competency will only be gained by firstly understanding the technique and then practicing it. It would be wrong to suggest that attendance at courses based on the CiC is all that is necessary to become a competent beekeeper. This will only come with understanding, practice and reading.

As noted, the CiC concept will not replace the examination system. The examination framework run

ready to take the Basic Assessment. After the second two CiCs 'Improver' and 'Proficient' students will be ready for the General Certificate in Beekeeping Husbandry and should be ready to take three or four modules. The links are not direct but implied in the materials.

The first CiC 'Beginners' was launched at the Spring Convention in April 2010 and work is progressing on the second 'Novice'. This should be completed by mid summer and will be available at the National Honey Show in October 2010. Outline planning for the third 'Improvers' and the fourth 'Proficient' has started and they should be available in 2011.

Each Member Association has been given the first CiC free of charge and you can inspect this copy on request. Branch Associations and Divisions can purchase their own Beginners CiC for £50 plus P&P provided the order is place before 1 October 2010, after which the price will be £95 per case.

Ivor Davis, NDB

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Morphometric Assessment of Honey Bee Colonies

For Breeding Purposes to Improve Performance

After a few years of keeping bees, I have collected bees from various sources including swarms of unknown origin – one's own bees may have swarmed and mated with local drones.

Gradually one begins to realise how different each colony is in terms of behaviour and honey production, etc. It is then time to begin to assess one's stock over a period of a couple of seasons. Queens should be reared from the 'best' colonies and the 'bad' ones culled and replaced. A knowledge of queen rearing is obviously required and this should be obtained from reading the appropriate books (your association library may contain suitable titles) or, better still, attending a queen rearing course.

Although the indigenous British black bee (*Apis mellifera mellifera*) was not completely wiped out by the *Isle of Wight* disease during the first quarter of the last century, the strain has been much diluted by the importation of foreign bees since that time (and before). Apart from the risk of importing exotic diseases, the importation of foreign species of honey bees dilutes the genetic pool. However, evidence based on mitochondrial DNA demonstrates that stocks of honey bees unique to Britain and Ireland survive to the present day'. It is important to rear bees able to survive and prosper in our fickle climate, which the British bee evolving over millions of years was able to do. Bees have survived conditions as bad if not worse than we have experienced during the last few years. It would be interesting to know which 'type' of bee survived and which 'type' succumbed. My own limited

experience (and information from other beekeepers) suggests that the yellow Italian type bee was worst affected and the black native type bee was least affected. Certainly one should not lament the loss of bees from disease or harsh seasons. It is part of the natural selection of evolution that culls unsuitable bees but the reasons for the increase in colony losses in recent years have yet to be established.

In considering the qualities required by our bees, many would list honey production of paramount importance. Even after a bad season we are always optimistic – next year will be better! But honey production depends on a number of factors: disease resistance, longevity, ability to winter on minimum stores, etc.

Old beekeeping books suggest the British bee could winter on minimum stores compared with today's figure of 40lb. Honey production was often high, but this was probably the result of greater forage – the reduced background forage of recent years and the introduction of crops such as oil seed rape must be accommodated by the evolutionary process. Besides factors affecting honey production, other factors must be considered. Unlike the skeppists of yesteryear, we do not want our bees to swarm excessively. It is increasingly important in this litigious age that we do not annoy the public with our hobby. We know the benefits of bees to pollination, but the public does not welcome Kamikaze pilots in their gardens! The *BBKA* campaign to increase government funding for research generated much positive information resulting in greater understanding and appreciation

of honey bees.

Pictures of beekeepers of the past working without protective clothing suggest that bees today are much more aggressive. This no doubt results from having hybrid or cross-bred bees – the African x Brazilian ('Killer bees') cross is a case in point. Although modern bee suits give excellent protection, their use can isolate the beekeeper from the mood of their bees and lead to an acceptance of aggression. But few of us have hides like leather, are masochists, wish to be cured of rheumatism, or want to dress like space astronauts! We may develop some immunity but we do not want to be attacked every time we examine our bees – and our neighbours certainly don't. It is not true that bad tempered bees are necessarily better at honey production (although they may be better at guarding). Conversely, docile bees are not necessarily better at honey production. But docility is one of the qualities to breed into our bees.

The *Bee Improvement and Bee Breeders' Association* (BIBBA) has for many years encouraged the breeding of native or near native bees. The following is extracted from a *BIBBA* leaflet.

Principles of Selection.

- It is a waste of time breeding from racial hybrids as they are incapable of reproducing their qualities with any degree of consistency. It would take many years of selective breeding from such bees to make any significant progress.
- Well-selected strains of bees of pure race out perform even the best racial hybrids.

Assessment of breeding stock is made as follows:

Performance. Here one must be wary of being influenced by performance resulting from hybrid vigour which would not be reproduced in succeeding generations.

Behavioural Characteristics. Bad temper, following, swarming, etc.

Morphometry. Measurements can be made which will indicate whether they are true for their race, capable of reproducing their desirable qualities, or whether the bees are crossbred, only capable of reproducing their qualities by remote chance.

These three aspects of selection together provide the basis for successful breeding.

The native British honey bee is identified by its dark colour, narrow thorax, long abdominal hair, short proboscis and wing venation (Cubital Index and Discoidal Shift or Angle). Of these, CI and DS are perhaps the easiest for the amateur to give sufficient information for an assessment to be made. In recent years, DNA analysis has been used to reveal the ancestry of honey bee stocks, but is outside the scope of the average beekeeper.

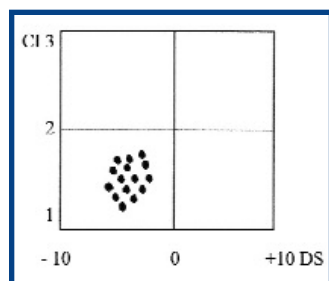
Nowadays, there are computer based methods for wing venation analysis:

DrawWing: www.drawwing.org

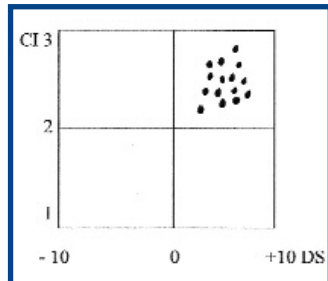
Beemorph: www.hockerley.plus.com (free for 30 days).

CBeeWing: www.cybis.se/cbeewing/download/index.htm (free trial version).

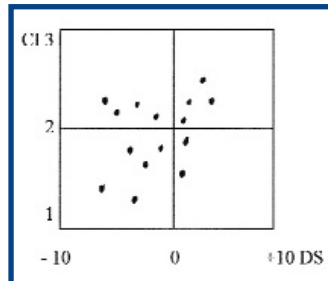
A sample of thirty bees (workers) is required. These should be taken alive from the hive and killed in the freezer. A wing from each bee is removed – either the left or the right wing, but they should all be the same. These are mounted on 35 mm glass photographic slides using strips of double sided tape.



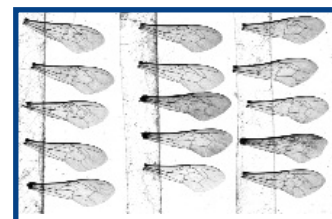
Dark European -
Apis mellifera mellifera



Italian - *A. m. ligustica*



Hybrid



Wings mounted on glass slide

Morphometric Assessment of Honey Bee Colonies

Three rows of five wings can be mounted on one slide (i.e. half a sample). To use the computer program, the mounted wings are scanned using a slide scanner and saved in a computer file. The file is opened and the cursor is positioned sequentially over the vein junctions on each wing and the mouse clicked on each point. When all the wings in a sample have been recorded, the two wing indices will be plotted as a graph.

When all (or most) of the points lie below the 2.0 cubital index line and are in the negative discoidal shift area, the sample is of *Apis mellifera mellifera*. Morphometry does not distinguish between true native bees and bees of the *mellifera* subspecies that have been imported – DNA analysis would be required. When the points are widely dispersed, the sample shows a crossing of two or more sub-species of bees. A sample of the Italian bee (*Apis mellifera ligustica*) would have points above the 2.0 CI line and in

the positive DS area.

This can only be a brief outline of morphometric measurements. Attending a practical morphometry course is worth a thousand words². It should be emphasised that such measurements are not used in isolation, but always in conjunction with an assessment of performance and behaviour. Assess your colonies over a period of time, cull the worst queens and breed from your best. It is essential that a written record of colony performance is kept. Morphometry will enable you to decide whether the qualities you want in your bees will be reproduced with a degree of consistency. Work with other beekeepers in your area on a breeding programme – in this way, some control over matings can be achieved. Do not introduce foreign strains of bees. Remember, if you buy a hybrid queen you will always need to buy replacements from the supplier. Even more important is the effect of cross-matings on temper. We should not tolerate

bad tempered bees - and the public will not.

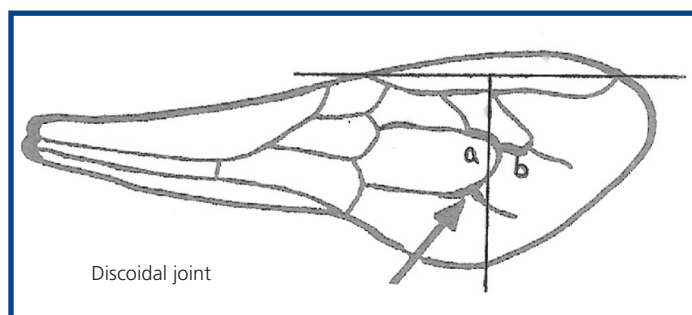
I recommend reading *Breeding Techniques and Selection for Breeding of the Honeybee* by Friedrich Ruttner³. Much of the information about morphometry comes from Germany and a detailed account of the methods is included in this book. Many years

ago, Germany faced the same problems that we now experience and bee breeding has undoubtedly brought about significant change.

Brian Dennis, BIBBA

References:

1. Honey bee conservation in the 21st century by Dr Dorian Pritchard: Bee Craft March 2006.
2. BIBBA runs morphometry courses: www.bibba.com
3. Published by BIBBA.



The cubital index is the distance 'a' divided by 'b'. A figure below 2 indicates a native-type bee.

The discoidal shift is measured by the position of the vein joint in the lower right hand corner of the discoidal cell in relation to the perpendicular line. When the discoidal joint is nearer to the point of attachment of the wing it is negative. When the discoidal joint lies on the perpendicular it is classed as zero and when it is on the other side, towards the tip of the wing, it is classed as positive.

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Developing and Approving Bee Medicines

The discovery and development of pharmaceuticals has changed greatly over time. In the earliest of days remedies frequently plant derived, were developed empirically, often based on folklore.

The search for modern drug substances is based on an ever-improving understanding of disease aetiology, assisted by sophisticated predictive organic and analytical chemistry. The huge demand for human pharmaceuticals to deal with man's ailments ensures that an economically viable market exists. This is largely true of veterinary medicines too. However, the honey bee medicines sector and the consequent research effort that goes into it, is severely limited by its small size and low value. Many veterinary medicines are derived through applied research and development of known substances, often originally targeted at human diseases. When it comes to bee medicines the substances used are often derived not from other medicines at all, but from pesticides e.g. the synthetic pyrethroids used to treat Varroa. The return on investment for novel, basic research and development effort is inadequate which has led to the current paucity of the list of medicines that we have to treat varroa, nosema, foul-brood and the exotic threats of Small Hive Beetle and Tropilaelaps.

The cost of new medicines is not limited simply to the discovery process. There is the development cost to turn a new substance or even one 'borrowed' from other human or veterinary medicines, into a fully-fledged product which can comply with the three key criteria of quality, safety and efficacy and which must be satisfied in order to gain a marketing authorisation. This cost is further increased because a maximum residue level (MRL) has to be established for all drugs used to treat honey bees because they are classified by the European Commission as food producing animals.

As discussed in a previous article, once a pharmaceutical company has developed a veterinary medicine, before it can be placed on the market, it must obtain a marketing authorisation, in accordance with UK veterinary medicines legislation which is aligned with the EU Directive. The authorisation process is designed to decide whether or not the benefits, ie efficacy, of veterinary medicines developed by the pharmaceutical industry outweigh and risks, ie safety, and that their quality is consistent.

Each EU Member State has a regulatory body responsible for the authorisation of veterinary medicines. The Veterinary Medicines Directorate (VMD) is the regulatory agency responsible for the authorisation of veterinary medicines in the UK. Applications for Marketing Authorisations submitted for approval are assessed in the UK by a team of scientists in the VMD eg pharmacists, chemists, veterinary surgeons, toxicologists, environmental toxicologists, virologists, immunologists, who evaluate the scientific data, relating to the quality, safety and efficacy of the veterinary medicine, against European legislation and guidelines. The VMD scientists assess the scientific data presented by the applicant taking into consideration factors such as the ingredients present in the product, the way the product is to be administered to the animals eg oral, topical, duration of the treatment

and the possible side effects that the product may cause to the animal, the persons administering the product and the environment. The possibility of the presence of residues in food ie honey, is also evaluated.

The legislation allows for a reduction in the data required to support applications for use in minor species, such as bees. However, it is worth noting that whilst bees are considered a minor food producing species in the EU any veterinary medicines authorised for bees are required to comply with the requirements of EU medicine legislation for food producing animals.

There are four routes to obtaining a marketing authorisation (MA) and each is designed to ensure that products authorised in several EU countries are harmonised in their use and safety requirements.

Veterinary medicines authorised only in the UK have been assessed and approved on a national basis only, ie there has been no interaction with other EU Member States. The VMD may under certain circumstances seek advice of the Veterinary Products Committee, a multidisciplinary advisory committee completely independent from the VMD, during the assessment process. The MA is obtained on a national basis.

A centrally authorised product is one that has been assessed and approved at a European Community level involving all EU Member States' experts in the assessment process. Successful applications permit a product to be marketed in all EU Member states, including the UK, once the MA is granted by the European Commission.

The mutual recognition procedure is a European authorisation route by which an EU Member state recognises the marketing authorisation already granted nationally by another Member State. It differs from the decentralised procedure as the product is already authorised in the first or so called Reference Member State. This procedure was used to authorise Apiguard Gel in the UK using France as the Reference Member State.

A Decentralised Procedure is where a new veterinary medicine is authorised in a number of Member States at the same time with one country taking the leading role in assessment.

All authorised veterinary medicines are subject to constant monitoring (pharmacovigilance) to ensure that they remain safe and efficacious and that any problems are detected and promptly dealt with. The reporting of suspected adverse reactions by the MA holder of a product to the regulatory agencies (in the UK, the VMD) is a legal obligation for the company marketing the product but anyone can report a suspected adverse reaction to the VMD on a voluntary basis.

In the next article we will review in a little more detail the various elements required to make up the data for a successful application for a marketing authorisation, with a particular reference to bee medicines.

Martha Spagnuolo-Weaver and Tim Lovett

For further information on the issues discussed follow the links:

<http://www.vmd.gov.uk/General/VMR/vmgn/VMGNote02.pdf>

<http://www.vmd.gov.uk/General/VMR/vmgn/VMGNote13.pdf>



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Pheromones - Part 1

The life of honey bees is dominated by pheromones and without these 'magic' chemical signals it would not be possible for a honey bee colony to operate effectively.

Most animals use pheromones as a means of silently communicating between their own species although animals with other effective communications techniques do not rely on them as much. Even so, humans are affected by pheromones. We use the phrase 'being able to smell anger or fear' and literally we give off pheromones specific to these emotions. Often we are not aware of the smell but are still influenced by it. When we fall in love we give off pheromones to attract our partners and these help to make them feel amorous.

The first pheromone to be isolated was the sex attractant given off by female silk moths to attract their male partners for mating. This was in 1879 and since then many other pheromones have been isolated. Moths that harm our plants were trapped by pheromones and there is work developing to use pheromones to lure small hive beetles rather than have them enter our hives.

Alarm Pheromone

This will be the first of a series of articles focussing on specific pheromones and their transmission and receipt.

We will start with a simple one. The alarm pheromone produced by workers. This pheromone is produced from the mandibles of guard bees and other mature bees. This single chemical is 2-Heptanone and smells a bit like bananas. It is deployed by the workers when it appears that the colony is under threat. In effect, it is a call to arms for other workers to be ready to help if an invader attacks. When this pheromone is released you will notice the bees are far more active and they might start buzzing you. Normally the bees will not sting at this stage but attempt to drive you away or frighten you.

The pheromone is known as a releaser pheromone. This is because it is a volatile chemical and has an immediate effect on the activity of other bees. Once the danger is over the worker will stop releasing this chemical and the bees will go back to their normal duties. The pheromone is detected by plate organs on the antennae of the bees. There are many thousands of these organs and some suggest that specific plate organs react to specific pheromones or their chemical components. The plate organs are triggered by extremely low concentrations of the pheromone; maybe down to one molecule!. Because the bee has two antennae it is possible for the bee to recognise where the pheromone is being released and track towards the bees giving the distress call.

It is amazing that these little creatures are able to work together and repel an attack just by releasing a few micro-litres of a chemical that smells of bananas!!

Ivor Davis, NDB



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BEEKEEPERS PROTECTIVE CLOTHING

Using Dusts for Varroa Control

For many years it has been suggested that fine powders such as icing sugar can be a useful tool in the battle against varroa.

The principal behind dusting bees is that the fine dust particles adhere to the feet of varroa mites preventing them from clinging on to their host and so falling away. It is also considered that fine powders have the effect of blocking the mites respiratory passages, clogging mites together and encouraging the grooming habits of adult bees. Techniques have been developed to assess mite populations in hives by caging a sample of about 200-300 adult bees dusting them with fine powder and shaking to dislodge the varroa mites carried. These have generally proved to be accurate assessment tools often removing 90% of the mites in the sample. Many beekeepers are now using open mesh floors as part of their integrated pest management of varroa infestation as it is now considered that a smaller proportion of viable mites enter brood cells to reproduce. This therefore slows the mite population growth by a small amount. A combination of an open mesh floor and dusting bees may cause varroa mites to 'drop' off adult bees, fall through the mesh floor, and be unable to return to the colony. I have tried an approach with varying degrees of success that you may like to try.

Equipment Needed

Bee colonies in hives equipped with open mesh floors. Some means of monitoring mite populations before and after dusting. Icing sugar and a suitable applicator such as an icing sugar shaker used by cooks.

Method

Firstly assess the mite population in the selected hive(s) by assessing natural mite mortality, using a tray under the open mesh floor, or making an assessment of the proportion of varroa infested pupae. Further details can be found in the CSL NBU Leaflet 'Varroa jacobsoni: monitoring and forecasting mite populations within honey bee colonies in Britain'. The hive is then parted in

the same way as for a normal brood examination. Each brood frame is removed and the bees on each side are dusted with icing sugar, using the applicator, and replaced into the brood chamber. A total of 15 grams of icing sugar is used for dusting each colony. With double brood chambers and larger hives such as Dadant a total of 25 grams of icing sugar may need to be used. It should be noted that if the weather is wet or humid the fine particles cling together so the technique becomes considerably less effective and should be delayed. Dusting is repeated for a further two applications at intervals of about three days. A week or fortnight later the mite population should be assessed to check efficacy. More information on this was published in BBKA News 169 in February 2008 in an article by Marion Ellis and Nicholas Aliano at the University of Nebraska.

When I have monitored mite populations in hives that I have dusted and those of friends who have tried this system it has resulted in an apparent efficacy of between 0% and 60%. This type of mechanical removal has no effect on mites that are enclosed in brood during the reproduction phase of their life cycle. The difficulty of using this idea in hives of bees clearly relates to adequately coating the adult bees with icing sugar and the unsuitability of shaking bees in a hive to dislodge mites.

An alternative method

Another technique that some beekeepers are using is to apply about 125 grams of icing sugar to cover the top bars and then brush it down into the seams. It can be refined using a mesh grid with masking tape stuck to the grid to coincide with the top bars. In this way the dust can be brushed across the grid so that it only falls into the bee way seams.

Developments

Two systems that have been developed in an effort to increase efficacy are firstly to introduce the powder as a mist, realistically this is not practicable for everyday beekeepers, but some are using a smoker like device with an electric fan which can effectively blow the

dust up from underneath the mesh floor. It is often used by beekeepers with top bar hives. Secondly is to isolate the adult bees from their brood frames. This later system has been developed by Nicholas Aliano and Marion Ellis at the University of Nebraska has been published in the Journal of Apicultural Research. They developed large cages and drove adult bees into them from the hive using a bee repellent. When in the cage icing sugar was brushed into the cage coating the bees, which were then shaken to dislodge mites. After about half an hour the bees were returned to their hive. With the development of this system they achieved an efficacy of about 74% that is as good as some varroacides. However few beekeepers would I believe use such an intrusive method of varroa control.

Other dusts

Some beekeepers have used other fine powders such as talcum powder, powdered rice, mineral meal (Rock dust), etc. These must be selected with care as if the powder is not fine enough it can damage the bees as well. Some have the advantage of not clogging when humidity raises. This can be a problem with icing sugar. One advantage with icing sugar is that if you collect all the hive debris including the icing sugar from a tray set at least 12 cms. below the mesh, place in a washing up bowl and add water the sugar dissolves and I find the mites float on the surface and are easy to count.

Contamination

One problem with using dusts is that when you apply them from above, or with gravity effects, some of the dust will fall into open cells, which of coarse slope upwards so will hold the particles. When the cell is used for the storage of nectar it will probably be moved into the supers along with the particles deposited. Little

is known about contamination by this method so it is inherent on the beekeeper to ensure that the powder used will have no ill effect if consumed by humans or bees for that matter. Certainly as a bee inspector I have observed the movement of dyed sugar based treatments into supers, so beware.

Other dusts are being commercially developed some of which contain organic chemicals to enhance their efficacy. 'Exomite Apis' is an example that many beekeepers know and may have tried. These should be used following the manufacturers instruction to ensure that you have no contamination problems.

Efficacy check

Whatever methods are being used it is important to check the efficacy. During the active bee season mite populations double each three to four weeks, so if you are obtaining a treatment efficacy of 50%, which I would say is a good result with dusts, the mite population will return to your starting point in less than a month. It is I believe important therefore not to assume that dusts will work well. You must monitor and assess following your treatment and plan appropriate further controls depending on the time of year.

Legality

It must be stated that the use of dusts that are not approved for use as a bee medicament can be construed as illegal. Responsibility for any chemical residues within the hive will lie with the beekeeper unless the product is approved and used in accordance with the instructions. As icing sugar is pure sugar and carries no risk of chemical contamination in bee colonies it would seem logical to include it as a method to reduce varroa populations especially if colonies are at risk with high varroa mite populations during the honey season.

Richard Ball, National Bee Unit

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Ted Hooper MBE, an Appreciation



I am sorry to say I cannot recall when I first met Ted. I started to keep bees in Sheffield sometime in the mid 60s. Filled with enthusiasm I attended association meetings all over the place, much to the amusement of the beekeepers in Sheffield. 'There's naught you can learn from southerners'.

Well there was one southerner who did impress me. Not by forcing his ideas across but by gentle reasoning. He did not advocate 'a best bee' or 'a best hive' but gave his opinions and left one to make a choice. It was not always in his formal presentations that you learnt but through meeting him informally; at meal times and in the bar. There were many occasions when a group of beekeepers used to sit up well into the small hours of the morning, in a smoke fug talking bees (Ted smoked in those days and he had a stained moustache).

It was when I attended the National Diploma in Beekeeping courses at Sparsholt College in Hampshire that the opportunity arose to witness Ted's skills in handling bees and microscopy. Fields in which he excelled. Apparently his school boy fascination of butterfly collecting developed into his lifelong interest in plants and entomology. He was an avid insect collector and very knowledgeable about the hymenoptera. I well remember the fact that he always carried a small hand lens with him which he would use whenever I brought a specimen to him for identification.

W E J Hooper was born on 21 September 1918 in Devon. In 1942, he married, Joy Sweetland, a Devon girl who has been his lifelong companion. In World War II Ted served with the Royal Artillery in the Eighth Army serving in the Middle East. After the war he went to work for David Rouse, a commercial bee farmer in Hampshire running around five hundred colonies. As a teenager he learnt to work with timber in the family woodworking business near Colton. This skill stood him in good stead. I have seen his work in Hampshire where he constructed an external timber stairway to David Rouse's house.

With his experience gained in commercial beekeeping and his wider studies Ted seemed to sweep through the BBKA exams and eventually gained the National Diploma in Beekeeping. He became the County Beekeeping Instructor (CBI) in Essex, based at Writtle College in 1962. It was only after he became a CBI that I got to know him. During the 21 years in which Ted was in charge of beekeeping education in Essex there could be few beekeepers in the area who have not been through his hands and benefited from his presence. I list the job description of a CBI so that people can appreciate what the job was all about.

In 1946 he joined the BBKA. He was elected to the BBKA Executive in 1978 where he also chaired the BBKA Husbandry Committee for several years and served as Chairman in 1989 and President in 1991. I was also on the Executive during Ted's reign. His quiet manner and sound judgement did much to keep us hothead's feet on the ground. He never suffered fools gladly yet he always remained polite.

Ted served on the BBKA Exam Board for eighteen years and was its chair from 1972 to 1988. It was during this time that the basis of the present syllabi were discussed and written. Ted was also active on the National Diploma Board. When I took the exam in the 1970s there was no prospectus or ridged course outline other than 'you can be asked anything in the field of beekeeping'.

Ted retired as CBI in 1983 and I was extremely proud when I was chosen to replace him. It was with much trepidation that I arrived in Essex to follow

a man who I had admired for so long. However, Ted was a great help, allowing me to make my own way. He never interfered, even reducing his speaking activities in the county. For this I owe him a great deal. It could not have been easy for him to observe and be told of what 'that young northern whippersnapper was doing'.

Ted lives on in his three books. I always recommend his 'Guide to Bees and Honey' as the one to get. It is a great introduction for beginners and full of sound management for a bee farmer. His 'five points' are my starting points whenever I deal with colony inspections. Ted also co-authored two other books 'The Illustrated Encyclopaedia of Beekeeping' with Roger Morse and 'A Beekeeper's Garden' with Mike Taylor.

Ted will live on in many people's memories. Certainly I would have been proud if he would consider me a friend. A visit to Ted and Joy latterly was always a pleasure. Our discussions generally ranged over the characters, many now also gone, that we had known. Margaret Thomas and I had planned to call in and see Ted on the last Sunday in March. We were both lecturing in Durham and decided to make a detour to visit the Hooper's on our way into Kent for the annual inspection of Bee Farmers' colonies hired out for pollination in Kent. We knew he had been ill but heard that he was back at home. The letter was written but sadly we were too late to see Ted. However we did call in to see Joy.

My final comment must be 'If you have a friend you value and have not seen for some time, arrange a visit while you can'. Ted's funeral was on Wednesday afternoon, 31 March. The turnout from beekeepers in Essex and nationally was impressive.

Clive de Bruyn, NDB

The Work of a County Beekeeping Instructor

Job Description:

To promote beekeeping and teach efficient and effective honey bee management and marketing of hive products throughout the county of Essex.

Breakdown:

The initiation, organisation and teaching of beekeeping classes; Block release, weekends, dayschools, and evening classes.

Dissemination of information: Writing articles, Lectures, radio, TV

Advisory Work: Beekeepers, Farmers, General Public. by letter, telephone or visits.

Assistance Locally: Advice and participation at Schools, Museums, Institutes.

Managing the college bees: Extracting, Processing and Marketing the Crop, Queen rearing, Migratory Beekeeping, Pollination.

Hive making: Organisation and running of classes.

Full Time Teaching: Pollination, Conservation to full time students.

Investigative work: Testing Pollen collection apparatus Nuclei Management, Artificial Insemination, Hive materials, Pollination, Honey Analysis.

Talks: Bees, Beekeeping, Bee Products etc. to Farmers, WI, Schools, and the general public.

Staging of Examinations: BBKA Basic, Intermediate & Senior, NDB.

Liaison Work: With Beekeeping Associations, BBKA, Bee Farmers, Local Government, MAFF, Conservation and Marketing Organisations.

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Do Bees Smell? Part 1

Well yes they do and they can! So in the first article we will consider theirs and the hives, personal smell and in the second the biology of how they detect chemical odours.

From an anthropomorphic point smell brings 'BO' into focus, especially when you consider up to fifty thousand bodies all beavering away in a small room (hive) at 35°C. However, bees are ectotherms^a which is a better term than saying they are cold blooded because they do regulate both their body and hive temperature, by flexing their flight muscles, akin to us shivering, but they do not sweat! So why do they smell?

Well all living organisms consist of a 'soup' of chemicals and so have some body odour but in addition bees during foraging will encounter many odorous chemicals in the environment; the most obvious being floral ones. These will be transported back to the hive and mixed with the BOs to make a unique cocktail - the hive odour.

Odours are a vital communication tool in maintaining the cohesion, functioning and foraging dynamics of a hive so where do we start? – with a list of some of their functions:

- The identification of nectar sources.
- Nest mate recognition.
- Guard recruitment.
- Hive location and orientation.
- Hive cohesion
- Swarming.
- Mating.
- Undertaking.
- Worker policing.

So now let us look at each in more detail.

Karl Von Frisch¹ in his work centred on the investigation of the sensory perceptions and the language of the bee's dance was able to train bees to visit dishes with a particular scent and later Ribbands² found that a bees olfactory acuity was similar to man's but ten to one hundred times greater in sensitivity for biologically significant chemicals. So when a bees dances in the darkness of the hive it is followed by several receptive nest mates of foraging age who are 'recruited'

to fly out in the direction indicated in the recruiter's dance. But how accurate is that information? Well the direction is very good and most foragers fly out in a direction within 1° of the true one. However, the distance part of the dance, the tempo, is not so good and recruits fly to within 2-10% of the distance of a resource³. This is due to variations in the dance tempo between individuals and also that older bees dance more slower – next time you are at a wedding observe the human age dance speed distribution! Once bees have visited a nectar source for the first time then they make a 'bee-line' for it in subsequent visits. Given this inaccuracy in the distance information how do they find the source? While being recruited the follower bees antennate the dancer and so pick up the scent of the flower they have visited. So on leaving the hive they fly off along the correct path with a rough idea of the distance and once within sight they use the acquired smell to find the actual location.

Without this odour clue foraging would be much less efficient and waste vital fuel in the search. Pollen gatherers also use the floral scent but how is a water collector guided? The water is marked by the first bee, the recruiter using the Nasonov glands secretions³ which is also exposed at the hive entrance, swarm surface or new home to attract fellow bees.

Nest mate identification is needed by the guard bees and one might be forgiven for thinking as this takes places at the entrance in the light then sight would be the most important sense. However, the bee's visual acuity is only one hundredths of a humans⁴ but due to the mosaic construction of their compound eyes it can detect the slightest movement which is why flapping arms attract more stings! So hive visitors can be detected but sight will not determine friend or foe. Body odour is important now because each member of a hive will carry a cocktail of chemicals, the hive odour, on their bodies which will vary due to genetic factors and also the flowers that the colony is working as we said earlier. So each colony

will have its own whiff and so foe, whether a robber bee or wasp, will be identified when the guards antennate it. Beekeepers use this process when they spray bee units (swarms, nuc, etc) before uniting with syrup, often lightly scented, so that it masks the individual odours. Also the newspaper uniting method allows odours to mix slowly and become homogenous to prevent fighting.

Guard recruitment is one of the perils of beekeeping because as we know once one bee stings then others are attracted to the site – one reason for washing your bee suite regularly and not using leather gloves! This is due to pheromones^b released, by the setose membrane at the base of the sting apparatus, when the bee everts the sting and fans or when it is torn from the body. The chemicals released are a complex mixture but contain isoamyl acetate³ and they work in concert with 2-heptanone released by the mandibular gland to alert and recruit more defenders.

The queen is a complex factory producing many chemicals (pheromones) concerning reproduction and the regulation of hive behaviour. Her mandibular glands are the main source of her pheromones which permeate the hive to maintain it as a functional unit. Their transport through the hive is by scent, contact or trophallaxis^c. One is 9-Keto-(E)-2-deconoic acid (9ODA) which with 9HDA (same as 9ODA but with a hydroxyl in front!) inhibits queen rearing and worker ovary development, attracts drones for mating, stabilizes a swarm cluster and allows a colony to recognise their queen. They even stimulate workers to collect more nectar and pollen. All this explains why when a queen is lost or removed the colony soon knows and will degenerate into a disorganised and purposeless unit, unless a new queen is raised.

Even dead bees smell and this is how the small band (1%) of undertaker bees find and recognise them before dragging them out of the hive to be deposited ten to one hundred metres from the entrance. Gould & Gould⁵ found that if oleic acid

was applied topically to live bees, even the queen, then they would be seized and removed from the hive only to be allowed to return once the acid had evaporated.

Finally even brood and eggs smell! A queenless colony will not produce laying workers until 21 days – the time taken for all the brood to emerge - after the queen was lost because the brood pheromone inhibits the development of the workers ovaries as well as stimulating foraging. It has been postulated that queen honey bees mark their eggs with a queen specific pheromonal label, providing the proximate cue for worker discrimination between queen laid and worker laid eggs. However, neither the source nor chemical nature of this postulated label has yet been identified. Remember that even in a queen right colony there may be between 7 and 45%⁵ of workers that lay eggs so policing, when worker laid eggs are eaten, is vital.

So bees, brood and eggs do smell and that this is vital to the colonies survival and in part two we will see how these scents are detected.

Bob Gilbert BSc. Master Beekeeper, Warwickshire BKA.

a. **Ectothermic**, from the Greek *ectos*, "outside" and *therme*, "heat," (sometimes confusingly known as "cold-blooded") refers to organisms that control body temperature through external means. A **poikilotherm** is organism whose internal temperature varies along with that of the ambient environmental temperature. Most, but not all, ectotherms are poikilothermic. The opposite of poikilothermy is homeothermy, referring to animals that maintain a constant body temperature. Humans are endotherms (endo – within) as they generate heat internally by the respiration of carbohydrates.

b. A **pheromone** (from Greek *φέρω* phero "to bear" + hormone from Greek *ὥθησις* - "impetus") is a secreted or excreted chemical that initiates a response in members of the same species. They are capable of acting outside the body of the secreting individual to impact the behaviour of the receiving individual.

c. **Trophallaxis** is the transfer of food or other fluids among members of a community through mouth-to-mouth movement but in addition vital chemical communication signals are transferred.

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Meet the Researchers

This month we have invited Dr Juliet Osborne from Rothamsted Research to tell us how her interest in bees started and something about her current work.



'I have always been a curious person' – something I said to a TV interviewer who was asking about my background as a scientist. Now, this statement could obviously be interpreted in two very different ways and I will let the reader choose! But what I meant was that, since I can first remember I have always been driven by my curiosity. I wanted to know how things work, what makes animals do what they do, and what is the advantage for flowers in being so astoundingly intricate and beautiful. Big questions for a little girl – but my curiosity was encouraged and fuelled by my parents, both of whom had been questioning minds. My mother worked as an entomologist for MAFF and my father was a physicist working for the National Physical Lab, on flight dynamics and aeroplane wing design. My grandparents were also active beekeepers in the Twickenham Association. Now I look back, it is hardly surprising that I ended up studying bee ecology - and tracking their flight behaviour with radar too! Although it was not deliberate that I followed in any family tradition. I just always stuck with my key interests, and I have been lucky enough to be employed doing what I find most rewarding: and that is research to find answers to interesting ecological questions with relevance to practical issues like conservation, agriculture and beekeeping.

I grew up in Twickenham

following butterflies, bees and beetles around the garden. I was lucky enough to go to an excellent girls' school which encouraged its pupils to do well in the sciences. After my A levels, I went to Clare College, Cambridge University to study Natural Sciences with the intention of specialising in zoology or botany; and there was the problem. I could never choose between them, and in the late 1980s there were few Universities that offered 'ecology' courses which covered both. My tutor said I had to choose between Zoology and Botany in my third year but I disagreed and instead, I took the less popular third year course of 'Applied Biology' – a wonderful mixture of insect and plant ecology, agriculture, pest management and wildlife management. My inspiration and mentor during that year was Dr Sarah (Sally) Corbet. She is an expert in insect-plant interactions, and particularly pollination and bumblebees, so here I found my niche. I started studying bumblebee behaviour and pollination. Finally I had found an area which fed my joint interest in animals and plants. The mutually beneficial interaction that occurs between a bee and a flower is so complex and rich that I have not stopped studying it for the last twenty years. I can see why Darwin found it so fascinating!

When I finished by first degree with a top First Class Honours, I took a year off with the idea of starting a PhD when I had spent some time in the real world. During my year out, I ended up being paid to study honey bee pollination of hybrid 'canola' (oilseed rape) in Canada and then I was really hooked. So, Sally Corbet invited me back to Cambridge and she supervised my PhD on pollination of borage, evaluating the effectiveness of honey bees and bumblebees as pollinators. It was then that I had my first real encounter with beekeepers, when I gave my first talk at Seale Hayne in 1993. I was invited by the late Peter Rosenfeld, a charming and intelligent man who hosted the meeting beautifully, and made me feel at ease. I gained so much from my discussions with the beekeepers that I continued to

give several talks a year to local and county groups. Enthusiastic beekeepers ask so many interesting questions – and can help fuel a scientist's motivation. Beekeepers' questions are usually based on detailed observations of their own colonies, or a precious long term overview that they have gained over many years. These can spark new ideas for projects and hopefully result in benefits to the beekeeper.

After I completed my PhD, I was offered a job at Rothamsted Research, a place at which I had aspired to work. After all, most bee scientists and beekeepers are aware of its rich and long history of bee research. As a primarily government funded research institute we perform research with real application to agriculture, which is also important to me. So I began my work with Prof Ingrid Williams who led the Pollination and Pest Management group. During my first year at Rothamsted we started a collaboration with Prof Joe Riley and his team at National Resources Institute, who were looking for entomologists to help them work on their 'harmonic radar' system for tracking individual insects. We ran the first pilot study of this technique using bumblebees and it worked! We managed to track them flying individually over hundreds of metres to forage and I will not forget the first time we got a track of a single bee in flight and, more importantly, when it returned to its colony. We have continued to study bumblebee and honey bee flight behaviour using the radar system, and have moved on to study butterflies as well. The system is now based at Rothamsted together with Alan Smith, the radar engineer.

Rothamsted has great facilities for doing laboratory and field-based work, so we continue to study bee behaviour and movement, and relate it to landscape-scale changes in habitats. This is linked to our studies of crop and wild flower pollination, and the dependence of pollination on wild and managed bee populations. The growth and survival of both bumblebees and honey bees, particularly in agricultural

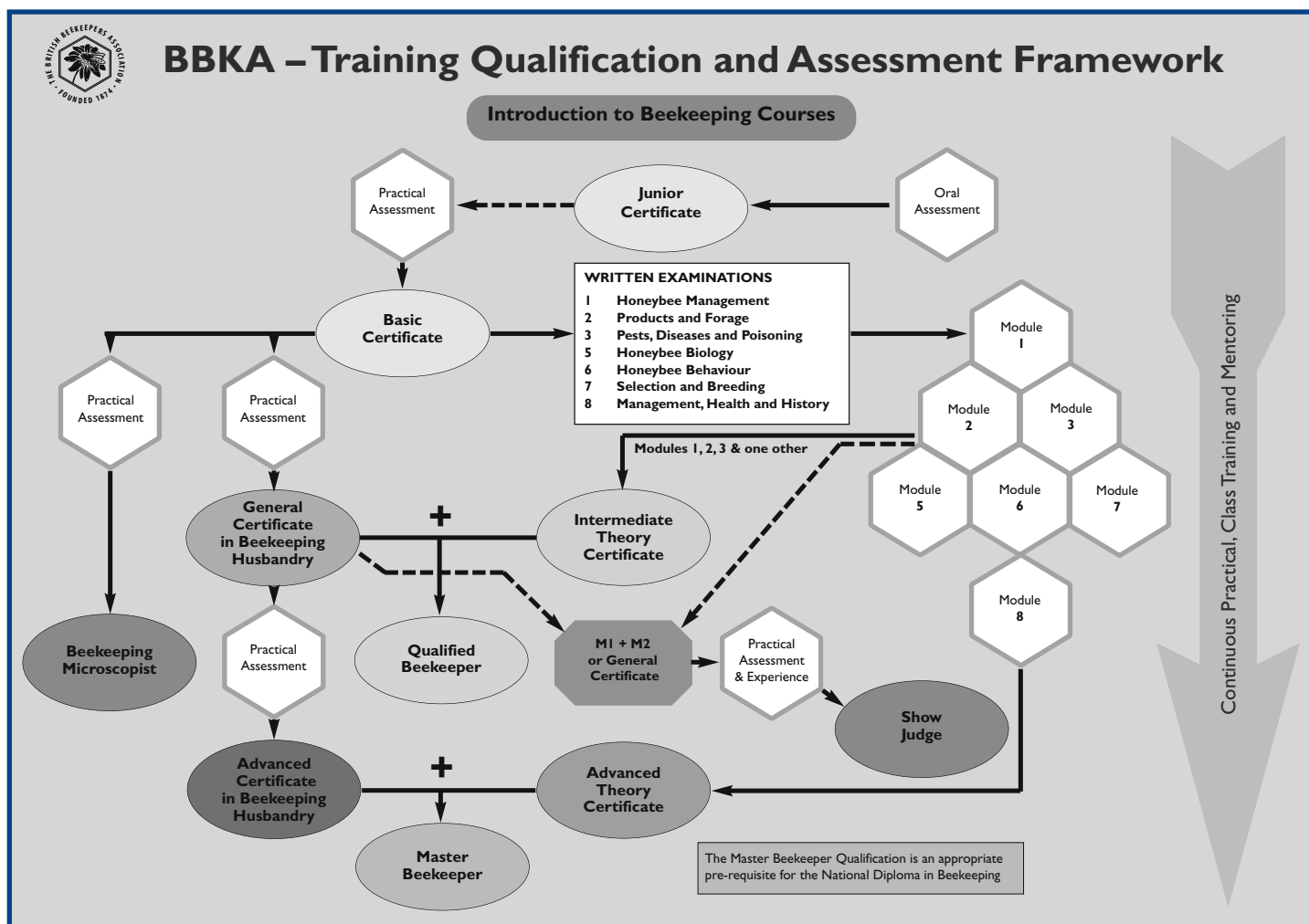
landscapes, is a key area of our work. It is essential to understand how bees move within the landscape and interact with the forage sources if we are to suggest useful and workable conservation options. Most recently, in collaboration with Dr Judith Pell at Rothamsted and Dr Dave Chandler at Warwick HRI, we have started a new project examining the interactions between disease and forage use in honey bees, and how this might affect the chances of a honey bee colony's survival. We currently have about twenty honey bee colonies on site, and a new bee laboratory.

For all of this work we rely on the interest and goodwill of farmers, beekeepers and the general public. The farmers allow us to use their land for experiments and surveys. The public have helped us with surveys of bumblebees, and the beekeepers are always keen to support our work and listen to our results.

To take this piece in full circle, one of my memorable moments was going to give the 'Rosina Clarke Memorial Lecture' to the Twickenham beekeepers. I was excited to be going back to the Association that helped my grandparents through the war. I was also excited to take my 70 year old mother with me: she was still living just down the road but, being virtually house bound; she had never seen me give a lecture. We managed to get her wheelchair into the beekeepers' hut and, just as I was about to begin, she piped up 'The Rosina Clarke Lecture? Well – she was my babysitter!' So, whilst my career has taken me to interesting countries and I have met a fantastic community of scientists and people fascinated by bees, there are occasions when I still seem quite closely connected to my roots. The final question you may be asking - am I a beekeeper? Well, not exactly, but by the time this is printed I will have just married one!

*Dr Juliet Osborne, Plant and Invertebrate Ecology Dept,
Rothamsted Research,
Harpenden, Hertfordshire
AL5 2JQ*

The BBKA Examinations Framework



The BBKA Examinations system is one of its star products. It is comprehensive and provides assessments and examinations that take a beekeeper from the 'Basics' right up to the status of 'Master Beekeeper'. The original procedures and qualifications were designed many years ago but, as the general approach to qualifications has changed, the system has had to be modified.

I can remember over ten years ago going to an ADM to propose that a new assessment now called the 'General Certificate in Beekeeping Husbandry' be introduced and a few years prior to that the written examinations were 'modularised'. Recently the concept of a bronze award for beekeepers passing the Basic assessment and the silver award for those passing the General Husbandry have been introduced and now there is another change to bring the system into line with beekeepers' busy lives.

The modular examinations have been amended. Module 4 - Basic Anatomy has been abandoned because fewer people were taking it and it did not sit happily with the other modules that are all assessed at the advanced level. We have revised Module 8 to become 'Honey Bee Health, Management and History'. It is designed to be the last module taken and includes elements in the other modules so that taking the assessment acts as a reminder of the previous modules. We have done this because it can take a long time to pass all the modules and at the end some of the important elements in earlier modules may have been forgotten.

The diagram above is the revised examination system and it can be seen

that the approach encourages further study and allows specialist interests such as microscopy and honey judging to develop from the core framework with the necessary pre qualifications. More details of the framework and syllabi can be obtained from the BBKA web site at (www.britishbee.org.uk/examinations_and_assessments.php)

It is hoped that these latest changes will encourage more beekeepers to study the practical and theoretical aspects of beekeeping and become better at the craft.

Ivor Davis, NDB

Gardeners' World Live

£2 Off Advance Tickets

A day at the BBC Gardeners' World Live has been described as the ultimate gardener's outing with plants to see and buy, gardens to admire, and the chance to meet many of the BBC's famous gardening experts.

This year the organisers are offering BBKA members £2 off standard tickets and 'any day' tickets for the show, but you must book before 10 June.

Taking place between 16-20 June at The NEC Birmingham to reserve your tickets log onto <http://www.bbcgardenersworldlive.com> or telephone 0844 0581 1375 and quote BBKA.

All tickets give access to the BBC Summer Good Food Show which takes place alongside the flower show. While you are there, do not miss the BBKA garden in Hall 20 next to the RSPB and the live bee demonstrations outside, weather permitting, at 11am, 2pm and 4pm.



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Suffolk Nosema Day

This was held in the Creting St Mary village hall, a central location for the county. One of our five associations which has its own microscopists had already independently decided to conduct its own survey; unfortunately results from this were not recorded.

Twenty eight people brought eighty samples; we found Nosema in ten apiaries, some of it heavy, and two samples showed amoeba. Overall the infection rate was 22.5%. The following day the microscopy team was at Peterborough at the request of the National Bee Unit; the infection rate there was 30%. Checks for acarine were conducted but we found none. We did not try and distinguish between *N apis* and *N ceranae*.

The day was a good one, well supported by interested beekeepers who willingly helped grind up the samples and pass round cups of coffee. They also enjoyed learning from the experts who came equipped with an impressive array of expensive equipment.

The checks were carried out by members of the Iceni Microscopy Study

Group (IMSG) which started two years ago. Five members passed their BBKA Microscopy Assessments last autumn and this was their first 'official' engagement. The IMSG goes from strength to strength and is currently training another seven beginners - one of whom has an eight hour journey from Hampshire and back - that is real dedication to the cause!

We should like to hold similar surveys every spring and summer. Do you know if your bees suffer from Nosema? If they do, that might be why they did not exactly thrive last year. Come to the next survey and find out - you owe it to them or arrange your own survey locally. Many associations have microscopists that offer a testing service for adult bee diseases; a service that in most areas is still under used.

Jeremy Quinlan, Suffolk BKA

Taking a sample for testing for adult bee diseases is not difficult as Simon Jones explains below.

Taking a Sample of Adult Bees

To check for Nosema a sample of thirty bees should be put in a match box or similar porous container, (not plastic bags as the bees decompose very rapidly).

The bees that you sample should be older flying bees. Pathogens will have had more time to reproduce inside them, so this gives a better chance of seeing them if they are present. The number of bees is important, as a sample of thirty bees statistically gives a 90% chance of seeing a 10% infection within a colony.

To ensure you sample the older bees, take them from the outside combs in the brood chamber away from the brood nest (be careful not to sample the queen). Alternatively, the method I prefer is to temporarily block the entrance to the hive, when the bees are flying, and sample the returning foragers which naturally tend to be older bees. The bees should be scooped up with an open match box, which is then shut. You can

check the number of bees that you have sampled by opening the match box under a piece of glass or clear plastic.

If you do not have enough bees, take a second sample with a second match box, and amalgamate them once the bees have been killed.

It is important to label the sample so that you can identify the hive that it comes from.

Next, kill the bees by putting them in a freezer over night. They can then be checked for Nosema using a compound microscope. If you do not have the necessary skills yourself, then send or take them to your local microscopists as soon as possible. Most county beekeeping associations have beekeepers that have the necessary microscopy skills, and are prepared to offer this service.

If you put the sample in the post, the match box will usually stop them being crushed, ensure that the package is small enough to go through a letter box and that the

correct amount of postage is paid; failure to do this could create a delay, because the microscopist will have to go to the local sorting office to pick the samples up and pay for additional postage.

It is important to include a covering letter with your contact details. Some microscopists might make a small charge to cover their costs and ask you to enclose a stamped addressed envelope

should you want a written reply.

Taking the time to sample your bees and the cost of postage is a small price to pay to keep your bees healthy.

Any beekeeper in doubt about the health of his/her bees can always contact their local bee inspector for free advice.

Simon Jones, Seasonal Bee Inspector, South West Region

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News from the National Bee Unit

Tropilaelaps: Parasitic Mites of Honey Bees

Tropilaelaps mites are parasites of honey bee brood. Four species have been documented (*T. clareae*, *T. koenigerum*, *T. thaii* and *T. mercedesae*), all of which use the giant Asian honey bee *Apis dorsata* as their natural host.

However, it is now known that *T. clareae* and *T. mercedesae* also utilise the western honey bee *A. mellifera*. Parasitisation causes abnormal brood development and death of both brood and bees, leading to colonies declining, absconding or even collapsing altogether. In severe infestations up to 50% of brood dies, and there is a noticeable smell of decaying remains in affected hives. Adult bees damaged during development have reduced life spans, lower body weights, and wing and leg deformities.

First documented in the 1960s, *Tropilaelaps* mites were originally restricted to tropical or sub-tropical regions of Asia. However, there has since been a marked northward and westward expansion in this geographical range. To date, no *Tropilaelaps* have ever been reported in the UK or the rest of Europe, but should they be introduced and become established, they have the potential to cause major economic damage. *Tropilaelaps* are notifiable pests under EC legislation, so beekeepers are obliged to report any suspected presence to the NBU (England & Wales) or the relevant agriculture department (Scotland & Northern Ireland). The NBU inspectorate carries out surveillance for exotic bee pests, including *Tropilaelaps*, targeting 'at risk apiaries' close to likely points of entry, eg ports, container freight terminals. Beekeepers are strongly encouraged to monitor their hives for *Tropilaelaps* as part of routine colony management. All beekeepers should be aware of the mites' biology, and how to recognize them.

Adult *Tropilaelaps* are light-reddish brown and, depending on species, between 0.7 and 1.0 mm long, and ~0.6mm wide. They enter cells containing mature bee larvae, where reproduction takes place within sealed brood, particularly that of drones, 48 hours after cell-capping. Each female lays three or four eggs,

which hatch within twelve hours. Over the next five days mite larvae go through nymphal stages before becoming adults. *Tropilaelaps'* mouthparts cannot pierce the relatively tough body walls of adult bees, so they depend on softer brood for food. All stages of mites feed on the haemolymph (blood) of developing bees, depriving hosts of nourishment required for growth. When the adult bee emerges, the next generation of adult mites (and their mother) exit the cell to search for fresh hosts. Pregnant females will die within two days, so must quickly deposit their eggs in a new cell. Within the hive, *Tropilaelaps* readily move from bee to bee. Natural transmission between colonies is achieved by hitchhiking on adult bees, and occurs slowly through drifting, robbing, and swarming. However, the primary means of rapid spread for this pest is through the beekeeper, by relocation of infested *A. mellifera* colonies.

This life cycle is similar to that of *Varroa destructor*, but *Tropilaelaps* develop faster and intervals between successive reproductive cycles are very short. Consequently, when both types of mite are present in the same colony *Tropilaelaps* populations build up far more rapidly. Distinguishing between *Varroa* and *Tropilaelaps* is straightforward. *Varroa* is larger, crab-shaped, wider than it is long, and relatively slow-moving; *Tropilaelaps'* body is elongate, and adults run rapidly across infested brood combs; also 'hide' in brood cells rather than on adult bees. Detection techniques used for varroa can equally be applied to find *Tropilaelaps*. Regular collection and examination of floor debris, hive inserts, bees and brood, and the use of a proprietary acaricide as a diagnostic tool are all helpful approaches. These methods are familiar to UK beekeepers, but

further details are provided in the NBU leaflet 'Tropilaelaps: parasitic mites of honey bees', which is freely available through our BeeBase website:

(www.nationalbeeunit.com), or by post from the NBU.

Should *Tropilaelaps* be discovered in England or Wales, emergency measures will be implemented. The essential aspects of these are communication, assessment of the extent of infestation, eradication and containment or control. The approach taken for control would depend upon the extent of the infestation; if restricted, an eradication method could be used. Otherwise, a containment scheme would be implemented. Currently there are no products specifically approved for the control of *Tropilaelaps* in the UK, but acaricides employed for Varroa management are expected to be effective. In the event of an incursion, approval will be sought from the Veterinary Medicines Directorate for immediate use of existing varroacides against *Tropilaelaps*. The inability of *Tropilaelaps* to feed on adult bees, or to survive outside sealed brood for more than a few days, is the Achilles heel of their life cycle. Methods such as queen caging, the use of artificial swarms and comb trapping methods that create breaks in the brood, can all reduce mite populations.

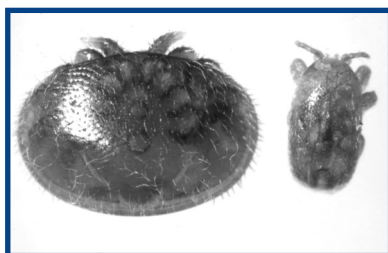
While *Tropilaelaps* mites are recognised as a significant and increasing threat to UK apiculture, the extent of the true risk posed urgently needs to be quantified. This will not only maximise the effectiveness of surveillance and control programmes, but will also allow more focussed research efforts into the development of appropriate diagnostic/preventative measures. The main factor currently limiting the survival and spread of exotic mites in the UK is their dependency on a continuous, year-round food supply of immature bees within infected colonies. Under existing climatic conditions, cold winters generally, although not always, prevent *A. mellifera* from producing brood, so any introduced *Tropilaelaps* are likely to starve. However, even slightly milder UK winters, as anticipated with global warming

will support more widespread uninterrupted brood production. With this in mind, the NBU is using the most up to date Climate Change scenarios to model the current geographic distributions of *Tropilaelaps spp.* with their honey bee hosts, to allow future distributions of this pest to be assessed and appropriate mitigation strategies to be developed.

Fera is also developing a formal Pest Risk Assessment (PRA) that will evaluate all available scientific and economic evidence to: determine the likelihood of *Tropilaelaps* species being introduced, establishing and spreading in the UK; evaluate the potential economic, environmental and social consequences of pest introduction; examine the options available to reduce the risks. Not all species of *Tropilaelaps* are known to affect *A. mellifera*, and thus the threat that this mite poses to UK apiculture is species dependent. The PRA will establish which of the four *Tropilaelaps* species pose the greatest threat(s) to UK beekeeping. The contingency plan for exotic pests and diseases will be also reviewed and, if necessary updated, to take account our findings. A review of control measures for *Tropilaelaps* will also permit identification of possible eradication methods, as well of practical pest management strategies in the event that eradication cannot be achieved.

If *Tropilaelaps* mites are introduced into the UK, then early detection will be absolutely essential for control and containment measures to be implemented and allow for any eradication attempt. If you find anything suspicious do not hesitate to contact the NBU in York or your local Bee Inspector for advice. All suspect samples should be sent to the NBU for identification – together with your name, address and apiary details (sampling forms and details are available on the NBU website). If you are going to import queens or bees make sure that you do so only from countries permitted under current legislation and from reputable producers (see also NBU website).

Gay Marris, Andrew Cuthbertson, Dominic Eyre, National Bee Unit



Varroa

Tropilaelaps

Beekeeping in the Yucatan

Novel Problems, Simple Solutions

First perhaps I should make a confession. I am not a beekeeper although I have enjoyed some beekeeping activities on a purely recreational basis.

I suppose you could say that I have used a smoker but I did not inhale!. My interest in bees stems from my professional interest in social biology, social behaviour and evolution, but my scientific interests have led me to many beekeeping meetings and even the odd apiary.

One thing that has always struck me about beekeepers is the straightforward problem solving attitude that most seem to possess. Beekeepers are the masters of invention and improvisation and these are valuable and admirable qualities. Although not something to mention in a police interview, there are few problems in life that cannot be overcome with some strong tape, a sharp knife, a hammer, some stout rope and a

pair of pliers, and this 'can do' attitude is not confined to the British beekeeper. Wherever in the world honey bees are native, or have been introduced to new places, the everyday pragmatism of the beekeeper can be seen in the solutions found to novel problems. Nowhere has this been made more apparent to me than in the Yucatan Peninsula, Mexico. The solutions employed by Yucatecan beekeepers in response to problems like army ants, Africanisation and a lack of funds for fancy equipment are straightforward, simple and highly effective (coincidentally, words that are often used to describe the typical British beekeeper...)

The introduction of honey bees to the Yucatan Peninsula

Apis mellifera is not native to any of the New World but was introduced in the early 1600s to produce honey for early European settlers. Wild and domesticated populations of honey bees,

together with subsequent introductions, led to a reasonably rapid spread of honey bees across North America and Central and South America. However, in the Yucatan Peninsula the native social stingless bee fauna had been a culturally and economically important source of honey for the native Maya and the honey bee was a late comer to this part of the Americas, only being introduced from the USA at the beginning of the 20th century (1911 being the commonly cited date). Native bees were (and are) well adapted for the local environment but newcomers (and new beekeepers) had, initially, to cope with a problem not experienced by European or North America beekeepers – army ants.

Army Ants

Around 200 ant species across the world have a mode of life that is described as 'legionary'. These species, from five different ant sub-families, form aggressive predatory foraging groups that attack prey (typically insects and other arthropods) *en masse* in, often spectacular, foraging 'raids'. As well as highly co-ordinated group-raiding behaviour, legionary ants do not construct permanent nests as in other ant species. Their foraging habits rapidly deplete areas of prey and consequently they must move from site to site, constructing temporary nest structures, or bivouacs, using their own bodies to form the 'walls' of the 'nest'. This legionary behavior has evolved a number of times in the ants and is a good example of convergent evolution – organisms independently 'converging' on similar solutions to problems via natural selection and subsequent evolution. In the New World, army ants of the genus *Eciton* are commonly called 'army ants', whereas members of the common genus in Africa, *Dorylus*, are usually referred to as driver ants.

In the Yucatan, the most frequently observed species of army ant is *Eciton burchelli*, which is also the best studied army ant and one of the best studied ants in general. *Eciton burchelli* is a polymorphic ant, with a number of different worker castes that vary in size, morphology and function. Of

particular note are the soldiers, which have large, spider-like legs and massive sickle-shaped mandibles. Workers are practically blind – they have a compound eye like honey bees but theirs has only a single facet – but colonies, which can comprise up to two million individuals, are well organized through a complex system of pheromones and related behaviours. The colony is a voracious feeder and raiding swarms in search of food are able to traverse small gaps and walk over slippery surfaces by using 'bridges' of living ants. A bee hive full of adults and brood is a perfect food source for army ants, which are common in the Yucatan, and early beekeepers struggled against their depredations.

It is impossible to prevent army ants from discovering colonies. Their raiding patterns are very effective at searching areas for arthropod food and the habit of keeping bees in apiaries means that a single army ant raiding party could wipe out all a beekeeper's hives in one raid. If you accept that army ants will eventually find your apiary then the next step is to prevent them from entering the hive. Unfortunately, army ants are pretty much the same size or smaller than honey bees so strategies curtailing the entrance hole are not going to work. Also, through sheer strength of numbers if nothing else, an army ant raiding party can rapidly overwhelm the guards at a hive entrance. What beekeepers in the Yucatan do is to make a moat to keep the ants away from their bees and brood.

Beekeeping shops in the Yucatan sell all the usual paraphernalia associated with apiculture but they also sell wooden moulds for making what appear to be concrete washing-up bowls, somewhat wider at the lip than the base. If you make one of these concrete bowls and up-end into it a concrete building block (which can be found discarded pretty much anywhere near a road or a settlement) then you have the beginnings of a moat. The beehive is placed on top of the block and the concrete moat is then filled up with old sump oil. It seems that the



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usual trick of traversing gaps and even water by building a bridge of ants just does not work with this moat of old oil and so for the price of a few pence (mould can just as easily be made from discarded bits of building timber) beekeepers are able to protect their bees from army ants. I do not think I have ever seen a bee hive anywhere in the Yucatan that is not ensconced on a concrete block above its protective moat of sump oil.

Africanisation

The story of 'Africanised honey bees' is well known and has been retold in many beekeeping forums. Unfortunately it has also been told, with scant regard for the facts, in many non beekeeping forums leading to the widely held belief that 'killer bees' are unmanageable, psychotic creatures hell-bent on the destruction of all standing in their way. Whilst this viewpoint has doubtless been good for the more sensationalist members of the movie making industry it has not done bees too many favours and has led, especially in North America, to an enhanced fear of honey bees.

Africanised honey bees made it to the Yucatan peninsula in the 1980s and their increased aggression initially caused problems. Beekeepers were used to keeping colonies near to their houses and unused to using much in the way of protective equipment or smokers. The arrival of Africanized honey bees brought with it dangers, particularly to children. I have heard several beekeepers relate stories of colonies stinging children in large numbers and in one case the beekeeper destroyed all of his hives following a stinging incident involving his daughter and several hundred honey bees. This story has a happy ending though – his daughter was fine after a few days and the beekeeper in question became interested in stingless bees (for obvious reasons), going on to keep a number of *Melipona beecheii* colonies (the common native stingless bee in the region). Clearly, if the valuable local honey production was to continue then beekeeping practices would have to change.

The first thing beekeepers did

was remove colonies from villages and set up apiaries on land well away from where children and unsuspecting adults could accidentally wander. Frequently, groups of beekeepers gather to create a communal apiary, sharing transport and other costs, like fencing and warning signs. Secondly, it became necessary to use protective equipment. Older photographs of beekeepers show them wearing little more than t-shirt and shorts, occasionally with a 'veil' that looks suspiciously like an onion bag over a cap and appears more to serve the function of stopping bees 'bothering' the face than to protect against stinging. Now, on the other hand, beekeepers tend to wear full bee suits with rubber boots, gloves, veils, smokers and gaffer tape in evidence. Having seen a colony of Africanised honey bees in full flight I cannot say I blame them (they chased us five hundred metres or more down a road despite us being in an open sided camper van travelling at some pace...). However, getting this reaction from them (for someone filming

the bees for a documentary) required a number of stout kicks on the side of the hive – just tending the bees normally would not have led anyone to suppose that the bees were 'killer bees'.

The honey bee is tremendously important to the economy of the Yucatan and by finding simple, cheap, but effective solutions to some of the problems they face, the beekeepers that tend them have shown the same straightforwardness and pragmatism that I have seen in British beekeepers. While I am not sure that the concrete anti-ant moat would win any prizes at the National Honey Show for 'A Practical Invention by the Exhibitor directly related to bees or beekeeping (No live bees)' I know one thing for sure – unlike the strange device based on a vacuum cleaner I once saw there, it works!

Adam Hart PhD, MA (Cantab), FRES, PGCE Senior Lecturer and Course Leader in Biological Sciences, Associate Editor Ecological Entomology Department of Natural & Social Sciences University of Gloucestershire

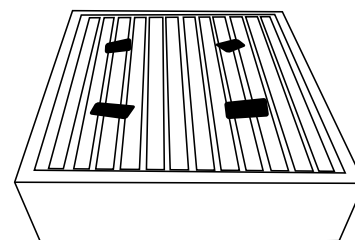
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Book Reviews

Guide to Bees and Honey – Ted Hooper

(published by Northern Bee Books)

ISBN 978-1-904846-51-2

£12.99 cash, 13.99 post paid

Few ordinary beekeepers aspire to having an obituary published in *The Times* after their death but Ted Hooper, MBE was no ordinary beekeeper.

He was a past President of the BBKA (1991), and was responsible for two of the most influential books on beekeeping published in English. In collaboration with Roger Morse, Hooper produced in 1985, *The Illustrated Encyclopaedia of Beekeeping*, but it is Hooper's *Guide* – first published in 1976 – that is his most significant contribution to the craft of beekeeping. This book has sold over 100,000 copies and has been translated into more than ten languages. The fourth edition, published in May 2010, has been updated by Margaret Thomas NDB, who was once a student of Hooper.

Hooper's obituary in *The Times* noted that 'few commercial beekeepers had his scientific knowledge and few scientific apiculturists had his practical experience'. When this range of abilities is combined with the fact that Hooper was the County Bee Inspector for Essex for twenty two years, it will come as no surprise to learn that the *Guide* is a masterpiece of precision and clarity. It is also an eminently practical book. The *Guide* was the first book on beekeeping that I purchased, and like many other beekeepers my copy is well thumbed; it has often been read and re-read through the years. One of the most outstanding features of all Ted Hooper's publications is the quality of the illustration and photographs – the *Guide* is a visual joy as well as being textually informative and helpful.

The *Guide* is divided into four sections:

- Introducing the honey bee.
- Getting started/the years' work.
- Handling bees/swarming/queen rearing/diseases.
- Flowers for food and the honey harvest.

Hooper makes no apology for devoting the first sixty pages to the natural history of the honey bee and the organisation and behaviour of the honey bee colony – 'this is not just an academic exercise ... for the beekeeper it is an essential part of his equipment, to help him plan his policy of husbandry and to make immediate decisions when he is manipulating his colony.' Hooper's personal philosophy and 'down to earth approach' is made clear when he says 'I do not believe it is possible to work colonies successfully by a series of rule of thumb decisions if there is no understanding of the basic reason for the rules.'

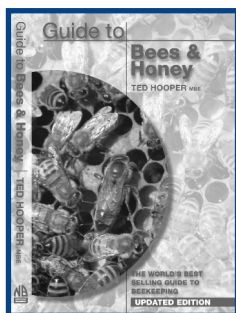
The second section of the *Guide* is concerned with many practical aspects of beekeeping and one word features a great deal in the text i.e. 'beginner'. Hooper is at pains to ensure that someone new to the craft should have all the advice necessary to make a successful beginning. New beekeepers are encouraged to join a local beekeeping association and to attend their meetings, although Hooper adds the caveat that 'sometimes, let it be whispered, you will see things which tell you how *not* to deal with the bees, and this can be equally valuable to the beginner.'

The third section contains a wealth of information about handling bees, swarm control and queen rearing – amply illustrated with photographs and line drawings. This section also contains the significantly updated chapter on pests and diseases. There is additional information on varroosis, *Nosema ceranae*, bee viruses, the latest management techniques for brood diseases, *Tropilaelaps* species and the Small Hive Beetle *Aethina tumida*.

The final section of the book provides a summary of the major floral nectar and pollen sources. There is also a concise, but sufficient for the beginner, outline of the honey harvest and other honey bee products.

I usually have an aversion of saying that something is 'a must' – but the case of Ted Hooper's masterly *Guide* there is no doubt in my mind that all beekeepers should keep a copy of this book well within easy reach for consultation and sound advice.

Dr Stephen Palmer FRGS FLS



Bad Beekeepers' Club

Bill Turnbull of BBC Breakfast fame is known to the nation as a beekeeper and one time dancer, having appeared with some credit on *Strictly Come Dancing*.

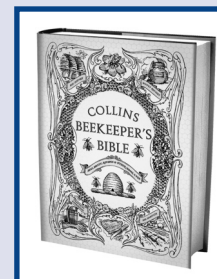
Now Bill has gone into print describing in his words; 'how I stumbled into the curious world of bees - and became perhaps, a better person'. Surely the last thing we need is advice on bad beekeeping, there is enough of that around already! But here is a most readable book from which we can all learn. Bill does not set out to teach or preach but in a humorous and self deprecating manner he simply looks at his mistakes, made along the way of becoming a beekeeper. And we can all learn from our mistakes, many or most of which the honest reader will recognise in this little tome. It will appeal to all levels of beekeeping competence (or should that be incompetence!) This is in fact a book for the non-beekeeper who is simply interested in the hocus pocus and facts of beekeeping right up to the aspiring master beekeeper; even he or she will not fail to smile! Bill's experiences are not restricted to the apiary as he relates the challenges he has met. There is even good advice to those tempted by beekeeping auctions and how £5,000 can be reached for a single jar of honey. This book is both enjoyable and thought provoking; all in all, Bill is not an altogether bad beekeeper and certainly no worse than most of us! This book could make us all a little better.

The *Bad Beekeepers' Club* is published by Little Brown Book Group. £12.99

Tim Lovett

Five copies of Collins Beekeeper's Bible to be won

The *Beekeeper's Bible* is much more than just a practical handbook. It does cover the practical essentials about caring for bees and safe hive management but it also contains a wealth of information about the culinary, medicinal, cosmetic and domestic uses of honey, beeswax and pollen.



It is beautifully illustrated with some unique historic etchings, practical photography and step-by-step illustrations and has over one hundred honey recipes.

To enter to win one of five copies of this book, answer the question below and send the answer by post with your name and address to The National Beekeeping Centre, National Agricultural Centre, Stoneleigh, Kenilworth, Warwickshire CV8 2LG by Monday 21 June 2010. Only postal entries will be accepted. Mark the outside of the envelope 'Book Competition' and do not include any other correspondence for the BBKA office in this envelope.

The winners' names will be printed in August BBKA News

How much does bee pollination contribute to the UK agricultural economy each year?

- A £20 million
- B £200 million
- C £2 million.

The first five randomly chosen correct entries will each receive a copy of *Collins Beekeeper's Bible* which costs £30.

The competition is open to all except anyone professionally connected with the book and their families. The editor's decision is final and no discussion will be entered into.

Business Corner

From the 'Desk' of the General Secretary

It was good to meet up with many of you at the Spring Convention which continues to go from strength to strength. I am always amazed at how many supers and brood boxes can be piled on one small sack truck and if the amount of equipment I saw being carted away is any reflection on the way the bees are performing them we need not worry over having any honey for tea!

This wonderful highlight of our BBKA season is however just a short but pleasant interruption to the work of the office. As your treasurer will confirm, we are head long in to the primary capitation process when we reconcile all the membership lists and generate appropriate invoices. With over 17,000 members in 65 Area associations this is an enormous annual task handled at all times with professional calm by Jan Davis and Margaret Anderson. How they keep it up is beyond me but somehow they do. Perhaps I can use this article to remind membership secretaries that despite the numerous letters I have written, to the contrary many still believe they need to wait for the capitation process to submit new member's names. Absolutely not the case and by leaving it until this time you are merely depriving your new members of their BBKA membership benefits and causing the office a short term workload problem. Far better to submit the names to us as they join your association and get them on the BBKA Register sooner rather than later. Thanks in advance.

Last year we received several complaints over the competency and performance of some of the people on the swarm co-ordinators list held on the BBKA website and to address this problem we will be revamping the list shortly with only names supplied by each association. There will be no limit to the number of collectors that each association can identify but all will have to be approved by the Association Secretary. So make sure your secretary is aware if you wish to be on the new list.

Finally, thanks to the continuing growth in membership and the many new initiatives we are now supporting such as co-ordinating national shows, handling and distributing Course in a Case and the Adopt a Bee Hive scheme we have recruited a further part time admin assistant to the office staff. We completed the interview process the day before the Spring Convention and I am delighted to announce that Julie Slegg will be joining the office team. I will introduce her more formally in the next BBKA News.

Let the swarming begin...

Mike Harris, BBKA General Secretary

EDUCATION AND HUSBANDRY



Firstly, many thanks to Pam Hunter for completing the library auction. It has raised about £1,100 for the BBKA general funds.

I hope that all those that participated in the 'Train-the-Trainers' event at the Spring Convention found it valuable. Please send in your feedback and watch out for follow-up ideas.

The first distribution of the 'Course in a Case' has taken place, more information is provided on the front page. Further copies will be available as soon as we take delivery of more cases, which will be in the next couple of weeks, so please place any orders via the BBKA office or BBKA Enterprises. A letter describing the pricing structure, which is subsidised from BBKA funds, has been sent to Area Association Secretaries and is also available from the BBKA office.

Finally, as a consequence of the Executive Committee's decision to rejoin the Fera Healthy Bees Plan, I attended the second meeting of the Education work-stream group. The meeting was welcoming and receptive to the BBKA / Education and Husbandry Committee views and activities, so I am hopeful we can make real progress this year.

Chris Deaves, Chairman, Education and Husbandry Committee

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Business Corner

TECHNICAL & ENVIRONMENTAL

First of all a big thank you to all of you who were sent the winter loss survey forms and have returned them to the NBC. By the time this issue of the BBKA News is distributed we expect to have made our findings known. There is a great deal of interest in the figures.

Elucidating the potential sub-lethal effects of pesticides and other substances introduced into honey bee colonies is a difficult task. The Technical and Environmental (T&E) Committee continue to monitor research papers produced on such subjects and where appropriate we ask for comments from the National Bee Unit and the Chemical Regulations Directorate which is responsible for the licensing of pesticide products in the UK.

The BBKA has responded to a Scottish consultation on the residue levels of oxytetracycline in honey and the proposed sampling regime.

The BBKA attended the April meeting of the Healthy Bee Plan Science and Evidence Group during which the principal subjects discussed included the identification of parameters to measure the progress of the implementation of the Healthy Bee Plan; the latest position regarding the NBU Random Apiary Survey and the revision of the contingency plan for Small Hive Beetle.

Once we know about the research which will be funded by grants under the Insect Pollinator Initiative we will reassess the opportunities for the BBKA to support other research from its BBKA Research Fund.

David Aston, Chairman,
Technical and Environmental Committee

DIGITAL TECHNOLOGY



www.britishbee.org.uk

Forum News: Latest Forum Stats: Threads: 3,669, Posts: 37,207, Members: 2,325, Active Members: 421.

The most active section by far is the Beginners Questions forum with 1,115 threads and 11,544 posts. Topics include:

- Nosema
- When to remove mouse guards
- Varroa treatment
- Antihistamines
- Building a National super
- Badgers and beehives.
- What type of hive should I buy?

Any new beekeeper would find a lot of support by joining the forum. To read the threads and posts you will need to join/register on the BBKA discussion forum first. Click on the **Help** button/tab and select Discussion Forum.

BBKA Mailing List: Regular website updates and important BBKA news are posted on the BBKA mailing list, this is a private list mainly aimed at the member associations and their secretaries and other administration staff but there is no reason why regular members should not subscribe and receive this news. Do read the rules and only subscribe if you fully understand them. For details on how BBKA members can subscribe or unsubscribe to this mailing list, click on the **Members** button/tab and select *Password Protected Area and select Mailing List.

New File: Produced by the BBKA Examination Board this file shows how modules are set and marked. A sample mark scheme for Module 2 – Honey Bee Products and Forage. This can be downloaded from the Examinations and Assessments page from the **Members** button/tab.

Site Map and Search: The BBKA website has a lot of information about beekeeping in various sections and formats. To help you find what you are looking for there is a site map which defines the sections and its pages including a link to the public and members area global search page. http://www.britishbee.org.uk/site_map.php

* Password Protected Area (login details are on the back of your current BBKA membership card).

Steven Turner, Website Administrator

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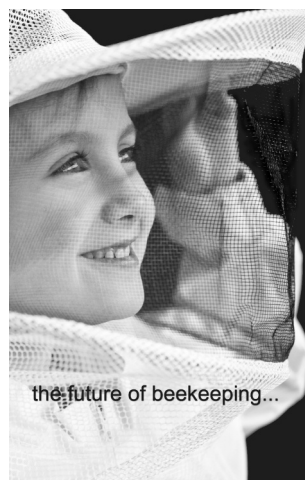
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And the Winner is.....!

The draw for the Research Fund Raffle was made on Friday 16 April 2010 during the Spring Convention dinner at Stoneleigh. The winners were as listed here:

1st Prize – Bottle of the Balvenie 30 year old whisky

Ticket Number 9963 - Alan Banks, Brighton

2nd Prize - £100 Thornes Voucher

Ticket Number 0628 - David Charles, Glastonbury.

3rd Prize - £50 M&S Voucher

Ticket Number 11648 - Mary Hunter, Enfield

4th Prize – Pollen; The Hidden Sexuality of Flowers

Ticket Number 11703 - Jeremy Withrington, St Albans

5th Prize – Drinks on the terrace at the House of Commons

Ticket Number 2080 – G R Munro, London

Runner-up Prizes – Free entry to the Spring Convention

Ticket Number 15596 - Ray Dowson, Ormskirk

Ticket Number 5561 - Joe Negus, Bristol

Ticket Number 6073 - Peter MacTaggart, Chard

Ticket Number 13261- Julian Routh, Sutton Coldfield

Ticket Number 0565 - Brian Ripley, Longframlington

Ticket Number 11069 - Matthew Barnes, Maidstone,

We are grateful to William Grant and Sons for donating the bottle of Whisky and of course to all participants who took part in the raffle. Overall the raffle raised in excess of £3,000 pounds, which goes into the BBKA Research Fund, which surely must be the real winner!

Tim Lovett, Promoter

(Gambling Act 2005 Reg No: WDCL00178).

Your Letters

Ivy Honey

I would be very interested in the views and experience of BBKA's readers about the merits of ivy honey, and possibly opinion from professional beekeepers and bee scientists.

In the February issue of BBKA News, The Forager comments that in the south some beekeepers do not need to undertake autumn feeding because of copious quantities of ivy nectar and pollen.

My experience of this has been a negative one. Last autumn, and also the previous autumn, some of my hives refused to take down sugar syrup, and concentrated instead on bringing in ivy nectar. This was successful, and they built up very significant stores. However these colonies perished despite at least two supers of ivy honey being present in each at the time I found them dead. Many of the dead bees occupied the frames containing the granulated stores, and some cells had been opened.

My other hives, which had taken down some sugar syrup and had mixed stores, survived. All hives had been adequately treated for varroa.

Information from the internet, and also textbooks, mostly concludes that ivy honey granulates so hard that it is not accessible to bees as winter stores. That seems to be my experience.

Have I misinterpreted these findings? Is ivy honey a problem or not?

And finally, what should I do with the combs of granulated ivy honey I am left with, as most people do not find it palatable?

Gordon Wilcock, Gloucestershire BKA

In Response

I have little experience of ivy honey in quantity, although there is abundant ivy around my hives and the bees work it avidly.

I have certainly never had supers full of it, mainly because I do not have supers on the hives at that time of year, although clearly some finds its way into the brood chamber. Many beekeepers are convinced that their bees overwinter well on it and, if it is compared to oilseed rape, which also granulates very quickly and hard, I know from practical experience that colonies use that as a winter feed quite successfully. A water supply is necessary to enable the bees to use it.

It is often difficult to determine why a colony has died out: there are several diseases which are not apparent but still kill but, in view of your experience with ivy as a winter store, it might be as well to remove it from the hive. To avoid potential problems, feed during the early part of September, before the ivy comes into full bloom. The bees should then store away the artificial food and this will avoid clogging up the frames with ivy honey.

Although the flavour of fresh ivy honey can be classed as unpleasant, if it is left to stand for six months or so, the flavour improves and it can then be melted down and blended with other honeys. Of course, extracting can be a problem as it granulates very quickly in the comb. The comb may have to be cut out and the whole lot warmed, to extract as much of the honey as possible.

Celia Davis, NDB

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News Round

Bee Part of It!

This summer BBC Local Radio in partnership with the National Trust are inviting the public to 'Bee Part of It' through a campaign to help save the UK's honey bees. The campaign will introduce two billion more honey bees into our cities and countryside.

Every BBC Local Radio station, as well as BBC Local Radio in Scotland, Wales and Northern Ireland, will adopt a hive on a local National Trust property. Each location will 'buddy up' with their Local Radio station which will broadcast regular updates from the hive through the summer.

The campaign was launched by beekeeper and Spring Watch presenter, Kate Humble, on 17 May 2010 and you can follow its progress now on BBC2's Spring Watch.

The local radio stations will also give listeners a chance to get involved, by giving away bee-friendly flower seeds, and organising beekeeping taster sessions later in the summer.

They will also be reporting on current beekeeping issues, the results of the winter loss survey and offer advice on bee-friendly planting at home, honey recipes and the health benefits of honey.

To help tackle the problem facing honey bees, especially the loss of habitats and forage, the National Trust is introducing forty new honey bee colonies at locations all around the country, thanks to funding from Innocent Smoothies who has teamed up with the National Trust to supply the beehives and beekeeping equipment for forty sites as part of their 'Buy One Get One Bee' campaign.

Martin Smith, President of the BBKA, said: 'To survive our honey bees need beekeepers to look after them and nectar rich flowers, shrubs and trees to provide their food. By introducing beehives into another forty properties and the beekeepers to look after them, the National Trust will be providing a lifeline of nectar rich forage for bees, increased yields for their crops and a very welcome additional source of local honey. More research into how we keep our bees healthy is vital and the BBKA is delighted that the millions of visitors to National Trust properties and listeners to BBC local radio stations will be made more aware of this message.'

Matthew Oates, Nature Conservation Adviser at the National Trust, said 'Bees are vital to sustaining our eco-system because they pollinate the majority of the fruit, vegetables and crops that end up on our plates. Without the honey bee, our environment could change dramatically. The plight of the honey bee illustrates perfectly the interconnectivity of living things.

We want to help more people understand and fully appreciate the crucial role bees have within our eco-system and food chain, so that more people are encouraged to act. Bee consciousness is vital, and we can all do something to help.

Simple things such as providing the right habitats by planting bee friendly plants, flowers and trees, will encourage bees into our gardens, and is something we can all do whatever size space we have available.

Approximately half of the National Trust properties involved with the project are new to beekeeping, and welcome the training and support provided by their local beekeeping associations to them or other National Trust properties with beekeeping experience.

Visitors to the National Trust properties involved in 'Bee Part of It' will be encouraged to do more to protect bees. Properties with café or tea room facilities will be serving an array of honey based recipes for visitors to enjoy.

Follow the progress of 'Bee Part of It' at

www.nationaltrust.org.uk/bees www.bbc.co.uk/springwatch
www.bbc.co.uk/england/radio; www.bbc.co.uk/scotland/radio;
www.bbc.co.uk/wales/radio
bbc.co.uk/northernireland/radio.

Christine Gray, Honorary BBKA Press Officer

The National Honey Show

For the past few years, the National Honey Show (NHS) has offered **FREE** full annual membership of the National Honey Show to new beekeepers. Once again, this offer is being repeated for all those who have joined local beekeeping associations since 1 August 2009.

This will entitle them to visit the Show and attend lectures and workshops (workshops must be pre-booked) throughout the whole three days of the Show. It will also allow them to enter their exhibits in the competitive classes **free of cost**.

The offer has proved to be so popular in the past, that NHS are having to make some important changes to the system this year:

- All information about new members must be sent by association secretaries to Rev Francis Capener showsec@zbee.com by e-mail by 31 July 2010. Only e-mailed information will be accepted, and receipt of e-mails will be acknowledged by return.
- The information required is the name, the postal address for NHS records and, most importantly, **the e-mail addresses** of the new members.
- An individual letter from the NHS Chairman will be sent by e-mail to each new member.



NB the absolute cut-off date is, as in previous years, 31 July 2010, and this year only e-mailed information will be accepted.

H F Capener

Honorary National Honey Show General Secretary

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Small Hive Beetle in Hawaii

Small Hive Beetle (SHB) *Aethina tumida* is a notifiable pest under UK and EC legislation and has not yet been found in the EU but it is a serious pest of honey bees and has recently been found in Hawaii. The significance to beekeeping in the UK being that honey bee queens can be imported into the UK from Hawaii. Only a small number of third countries are known to be able to meet the EC's requirements – Argentina, Australia, New Zealand and Hawaii. Imports from Hawaii are allowed under a derogation as imports from mainland USA are prohibited.

The importation of queen bees from Hawaii is under review by EC as it is not clear whether the certification requirements of the legislation can be met. If the derogation is removed, imports of bees from Hawaii will no longer be allowed to enter the UK or other member states.

Information about the situation has been posted on the NBU's BeeBase website (www.nationalbeeunit.com). So far this year, 570 queen bees have been imported from Hawaii and the required post import controls laid down in the legislation have or are being carried out. As a precaution, inspections will also be carried out at the importer's apiaries.

The UK imports a number of queen bees from third countries; 2808 in 2007, 3966 in 2008 and 4922 in 2009. Of these over 80% were from Hawaii.

From the Bee Health Policy, Fera statement

Bristol Open Honey Festival

At the University of Bristol Botanic Garden
on 28th, 29th and 30th August 2010

16 classes – Entrant gaining most points
will be awarded the 'Bristol Silver Queen'



Download a Schedule of Classes and entry form on our website:
www.bristolbeekeepers.org.uk

Closing date for entries 26th July 2010

For further information contact the Show Secretary, Phil Booth
tel: 07810 707807 or email: showsec@bristolbeekeepers.org.uk



Bristol Beekeepers
Bristol Branch of
Avon Beekeepers Association

Diary of Events

2010

10 - 12 June - Royal Cornwall Show, Wadebridge. Schedules available from Sheila Sleeman 01872 863842

16 - 20 June - Gardeners' World Live at the NEC, page 21

21 - 27 June - National Insect Week – 'Discover Diversity in the World of Insects'

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

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

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

28 - 30 October - National Honey Show

2011

15 - 17 April - BBKA Spring Convention, Stoneleigh

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It is said...

*That at each inspection during
the active season there needs to
be a minimum of 15lbs of stores.*

