

In this Issue

Chairman's Letter	2
In the Apiary	2
Speaking up for Honey Bees	3-4
Is Oxalic Acid a Safe Chemical?	5
Spring Feeding	6
The Honey Bee is not Enough!	6
Bailey Comb Change	7
Flowers and Honey Bees	8-9
Bee Funding	10
Mel Asks the Experts	11
Nosema Ceranae Problem	12/14
Spring Convention	13
Research Campaign	15
The Magic of Beekeeping	16
Virtual Hive	17
Annual Delegates Meeting	18-19
Modern African Beekeeping	20
Examination Successes	20
Varroa Biology	21
Your Letters	21-23
Varroa Resistant Bees	21
What about the Bees!	22
Diary of a Lazy Beekeeper	22
Drones & Queen Pheromone	23
Business Corner	21/23
Breaking with Tradition	21
New BIBBA Website	23
Website Update	23
Chelsea Flower Show	24
News Flash	24
Diary of Events	24

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Bee Health Inspection Priorities in 2009

Colony losses

Over the last couple of years there have been numerous reports of heavy colony losses with the losses often attributed to colony collapse disorder (2007) or nosema ceranae (2008).

Whilst the evidence collected by the bee health inspection team, and included in Beebase (beebase.csl.gov.uk), has confirmed that losses have been steadily rising in recent years, the rate of increase, shown in Figure 1, does not correlate with major colony losses. However, we know that data recorded in Beebase under-rates the loss problem because often the beekeeper has cleared all of the evidence away before the bee inspector is able to visit. This also makes a scientific diagnosis as to cause near impossible as most of the evidence is no longer available. Clearly, it is in everybody's interest for the recorded data to be as accurate and representative as possible. Only by having such accurate and complete data can we expect funding bodies to show interest in researching the causes of colony losses.

Working together

With this in mind, we hope to be commencing our inspection programme earlier in 2009 so that inspectors can get first hand sightings of any problems beekeepers have experienced, as well as collect sample material for analysis if necessary. Under current legislation, routine inspections are

not permitted – we have to have “cause” to make an inspection. Visits can be made if we have cause to believe that notifiable disease is present in an area or to carry out educational inspections or *if we are requested to visit by the beekeeper*. And this is where you, the beekeeper can help.

The timing of first inspections will vary from place to place according to weather conditions and beekeeper practice but if, on making your first inspection, you feel that colony losses are running at a higher level than you would have expected, contact the National Bee Unit, either at Sand Hutton or through your Regional Bee Inspector. This will enable us to visit, assess the situation with you, and take any samples necessary. Seasonal Bee Inspectors are likely to be under contract from around mid-March – you may wish to call your local inspector directly but please note that several have retired since last year.

Are your bees starving?

Whilst thinking about first inspections of the season, it is worth noting that, often, you can monitor the condition of your colonies without even opening the hives. And at this time of the year the most important check you can do is to heft the hive to see whether the stores are sufficient until that all important spring nectar flow comes along. This will be particularly important this year as so many colonies did not

manage to get adequate stores from natural forage during last autumn. Many of the inspection team noted cases of starvation and were able to alert beekeepers to the need to supplement stores through feeding. However, many beekeepers appear to be unaware of the difficulties which their bees may suffer.

Other causes of loss

One possible reason why recorded losses appear to be lower than anecdotal evidence would suggest is that some beekeepers record their losses in the autumn rather than in the spring. Colonies which are either queenless or which are headed by a drone-laying queen are often united because they will clearly not survive the winter on their own. Some beekeepers indicate that there has been a higher incidence of these phenomena in recent years, yet colony reductions of this type have often not been recorded as losses.

Varroa continues to be a significant cause of colony losses and to many beekeepers this is a puzzle since they have often carried out varroa control using one or other of the several products now available. Unfortunately, we have all enjoyed around a decade during which our varroa control products have achieved near 100% efficacy and many of us now find it difficult to understand the implications of

Continued on Page 4

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Chairman's Letter

One of the biggest challenges that we face this year as existing beekeepers are bees. This is not as stupid as it sounds. We know that the losses last winter were around 30% and the losses this winter are predicted to be similar.

At the same time we face the challenge of being able to provide bees to a lot of people who have been enthused by our campaigning to take up the craft. Local association courses are almost all full – and many are now doubling up to cope with the interest. These new people will want to get started and will need both support and importantly a trusted source of bees. The temptation will be to purchase bees from outside your local area to satisfy the demand. We cannot stop the free movement of bees around the country, but if you are bringing bees into your area from an area that historically has had high levels of disease then it is your duty to think carefully about what you are doing. Insist the bees are on new comb and have them checked immediately on arrival by either a bee inspector or a suitably experienced member of your local association. Bear in mind that introducing bees from outside your area will change characteristics of the queens that get mated during the subsequent season. Your drones have influence! You may start with docile bees, but the first crosses of your nearest beekeeping friends may not be so calm. If there is a way of obtaining bees from your locality this has to be the best first option.

You will see a full summary of the Annual Delegates Meeting on page 18, but I wanted to report briefly on the main business here. You will recall from my comments in the last two editions of BBKA News that the Executive were putting a series of propositions to the delegates to set out our relationship with the agro-chemical industry. These were designed as a series of 'hurdles' to ensure that the executive got a clear sense of the will of the membership. The first two votes on whether the BBKA should firstly 'engage' with the industry and secondly to discuss specific products were passed overwhelmingly. This provides a very clear message that you want us to continue to talk to companies – to understand their products and make representations to ensure that they understand the needs of beekeepers.

The second two propositions were concerned with whether to grant a license to use our logo (paraphrased as endorsing) and whether to receive funds to the granting of such a license. These were debated in detail with reasoned arguments both for and against being made by the delegates. It was clear that most associations had held detailed debates at both local and area levels and their delegates had been given very clear instructions. Both of these propositions were passed, but not overwhelmingly as with the first two. It is clear that a significant minority of the membership is uneasy with this policy and this is something that the Executive will have to consider in its future dealing with these companies.

The final proposition in this series dealt with how the funds received should be allocated. The proposition that the funds be ring fenced for research was defeated with the meeting hearing arguments that it should be left to the Executive to decide on how the monies could be best used for the benefit of bees and beekeeping.

The debate was good tempered and I think all parties went away feeling they had a chance to make their feelings known. It has been a long time since we have stressed so strongly the importance of local input into ADM resolutions as we wanted the membership to be given as much opportunity to contribute towards the debates as was possible. I hope people feel that this has been achieved and even if the votes went against their personal wishes they are satisfied with the eventual outcome.



Martin Smith, Chairman

In the Apiary



When you read these notes the daylight will be increasing and the brood in the hives will be increasing.

The larvae will be fed by the winter bees who use their own fat bodies and the pollen stores to provide the protein needed by the young. So at this time of the year the weight of the hive decreases quickly.

Ensure your bees have enough food

Last spring a survey in Devon suggested that many of the winter losses were due to starvation. The reason for this is not clear although it seems to coincide with the arrival of pyrethroid-resistant varroa. Perhaps the presence of the mites irritates the bees who then use their stores more quickly? Last November remained warm enough for the bees to forage on ivy later than usual and the cold spell in December should have kept the bees quiet but the possibility of starvation in the early spring is one which needs attention from all of us and is discussed elsewhere in this issue.

Make preparations early

As we approach the active season make sure that winter jobs are completed; hive bodies, which need repair or a treatment with wood preservative should be dealt with now before they are needed. My preferred treatment is Cuprinol Red Cedar, now only available from Builders' Merchants.

Look over your records from the last season and decide what you will do to improve this year, perhaps starting with your record keeping. This is particularly important if you are proposing to take the Husbandry Assessment.

In the apiary now is the time to finish any hedge cutting etc. Better still, it is time to start working with the bees; all hives should have a clean, disinfected floor soon and this is an easy job preferably done in the middle of a relatively warm day when some bees are flying. The roof and the mouse-guard should be removed, blow some smoke into the entrance to encourage bees to move off the floor, use your hive tool to loosen the brood chamber and put it on the upturned roof, substitute the new floor and replace the hive. Quicker still, if help is available, lift the hive enough for your colleague to take out the old floor and insert the clean one. Put in a clean entrance block to help the bees keep the brood warm and to repel any robbers.

Lifting the hive at this time is a good way of assessing the stores available, if it feels light then you need to investigate further. Then have a look at the used floor, the debris provide clues as to what is happening in the colony. This floor is then scraped, washed and treated with bleach solution. When dry it will be ready for use on another hive unless it needs repair.

Look for signs of foraging

If you are able to get to the apiary on a warm day in March look for early pollen being brought into the hive. If you do not see pollen, or if the hive feels light, then open up quietly and check the outer combs by removing the first one and then sliding the next one towards you so that you can see both faces. You are hoping to see adequate stores, continue with the next comb until you see healthy sealed brood, then close up, removing any old, empty combs.

Look for signs of disease and laying

If you do not find healthy brood then a thorough examination is needed to determine the reason. If the colony is queenless and has no signs of disease then make use of the workers by uniting them to another stock. If they have no brood because they are starving then feed them, if necessary by sprinkling warm syrup onto the bees. If the colony is dead and the flying bees at the entrance are robbers then close the hive up at the end of the day, your RBI may wish to check it before you clean up.

Brian Gant

Speaking up for Honey Bees

Part 2: Does the honey bee compete with other bees?

Having established beyond all reasonable doubt in my last article that the honey bee is native to the British Isles, and that a number of populations of the native sub species *Apis mellifera mellifera*, the dark European honey bee, still exist, it is now necessary to discuss the possible conflicts between honey bees and other bee species.

It seems self-evident that if honey bees are introduced to areas where they are not native, they may compete with the local bee fauna for floral and other resources.

Evidence for Competition Between Bee Species is Sparse

Many studies of competition between bee species have been carried out, mainly in Australasia and the Americas, and there have been several recent reviews. Probably due to the inherent difficulties in carrying out such studies, the results have, however, generally been inconsistent. Butz Huryn⁷ concluded that: "experiments have not shown competition for nesting sites between honey bees and native fauna. The presence of honey bees, however, alters the foraging behaviour and abundance of some native fauna on flowers, but no studies have shown detrimental impacts of honey bees on population abundances of any native animals or plants. Anecdotal and quantitative reports of increased honey bee abundances on flowers compared with native fauna are often confounded with habitat changes induced by man". More recently, Goulson⁴ concluded that: "Research to date has focussed mainly on *A. mellifera* and has largely been concerned with detecting competition with native flower visitors. Considerable circumstantial evidence has accrued that competition does occur, but no experiment has clearly demonstrated long-term reductions in populations of native organisms. Most researchers agree that this probably reflects the difficulty of carrying out

convincing studies of such mobile organisms, rather than a genuine absence of competitive effects".

In Europe, where the honey bee is native, the situation is even less clear, and few studies have been carried out. Steffan-Dewinter and Tscharnkte⁸ studied the interactions between honey bees and solitary and bumble bees on grassland in Germany and found no significant competition effects. Walther-Hellwig *et al.*⁹ studied the effect of introducing honey bee colonies into an agricultural landscape on the density of bumble bees. They found little effect on short tongued bumble bees such as *Bombus terrestris*, but observed a shift between plant species in longer tongued bees such as *B. pascuorum*. In seemingly the only significant study carried out in Britain, Forup and Memmott³ sampled bee abundance on lowland heaths in southern England and concluded that: "the impact of honey bees on bumble bees is complex. Although competition between the two species cannot be ruled out, it is perhaps equally likely that bumble bees decline in response to other factors, and that honey bees move independently of this decline".

Did Darwin Start The Rumour?

So if evidence for competition is so sparse, how has the idea become so widespread? Interestingly, it seems to have been Charles Darwin who first suggested the idea. In the fourth edition of the Origin of Species² he wrote: "In Australia the imported hive bee is rapidly exterminating the small stingless native bee". Examination of his papers and notebooks has so far failed to cast any light on where he obtained this information from. It is possible that he was told this when he visited Australia on his voyage around the world, but it seems more likely that an Australian reader of an earlier edition of the book wrote to him and he then used it as a good example of conflict between species. In the ensuing 140 years, despite the debate mentioned

earlier, there is no evidence that the honey bee has actually exterminated any species of stingless bee in Australia.

Coexistence Can Cause Changes For Good And Bad

So does this mean that we do not need to worry about introducing exotic bees into new areas? As with most biological systems, things are very complex. Apart from direct competition for food or nest sites, exotic bees may have other effects. For example, exotic bees may transmit parasites or pathogens to native organisms. There is for example, growing evidence that imported bumble bee colonies may be transmitting diseases to their wild relatives. The reverse also may be true; transmission of parasites or pathogens from native organisms to non-native bees can certainly take place. We must not forget the eastern hive bee *Apis cerana*, which peacefully coexisted with a

parasitic mite *Varroa jacobsoni* until the balance was upset when European *Apis mellifera* were introduced to south east Asia. Who can say in hindsight that this introduction was a wise move? Exotic pollinators may also have more indirect effects. For example, they may cause changes in the seed set of native plants (either increases or decreases) or cause increased pollination of exotic weeds. There is good evidence, particularly from Australasia, that these last effects do occur. In a recent review, Hanley and Goulson⁵ concluded that: "Although few studies have been carried out, we show that those reported so far all point to increased seed set when introduced plants are visited by non-native bee species. There is a clear evidence for a positive link between the spread of weeds and the presence of introduced bees".

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Speaking up for Honey Bees

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Historical Decline Of The Honey Bee

The present agricultural landscape of Britain is very different from that which existed before the Neolithic period. Honey bees are woodland creatures, nesting in cavities such as hollow trees. Whilst the prehistoric "wildwood" would have contained many ancient trees, traditional woodland managed in the historical period for timber and wood production contained few trees of any great age, since ancient rotten and hollow trees had no monetary value. We cannot know at what density honey bee colonies existed in prehistoric woodland, but in terms of nest sites, the agricultural landscape that replaced it was far less accommodating. Wildwood would have included abundant flowering trees and shrubs, but arable land replacing it traditionally contained many flowering weeds, and similarly, traditionally managed grassland contained many herbaceous species yielding nectar and pollen. Due to their generalist nature and ubiquity, it seems inconceivable that honey bees did not play an important part in the evolution of our major ecosystems during man's "traditional" agriculture over the last few thousand years and up until the Second World War.

20th Century Decline Of The Honey Bee

Honey bee populations in Britain have undoubtedly declined during the 20th century. It has been suggested that there may have been a million managed colonies of honey bees in England and Wales in 1910. As well as the outbreaks of the "Isle of Wight disease" already mentioned, major losses subsequently occurred due to American and European foulbrood, which only came under statutory control in 1942. Since its discovery in Britain in 1992, *Varroa destructor* has also seriously reduced colony numbers, in particular by destroying wild colonies living in trees and other places. As well as disease, the popularity of beekeeping has been affected by social and economic factors. After a boom period at the time of the Second World War when sugar was rationed, the number of beekeepers entered a long period of decline, from which it only now shows some signs of recovery. Changes in land use since the Second World War have seriously reduced the availability of bee forage plants, and hence the viability of beekeeping. In 2008 there are estimated to be approximately 250,000 managed honey bee colonies in England and Wales, a reduction of 75% over the last century. If a very rare insect or plant had suffered a 75%

reduction over this period, it would rightly be a cause of great conservation concern, yet because the honey bee is considered as "domesticated", and is still common, it is rarely (or never) mentioned by conservationists.

How Best To Preserve Native Honey Bees?

So are there honey bee populations that require conservation effort? As we have seen, there are a number of genetically distinct populations of *A. m. mellifera* remaining in Britain and in Tasmania. Mating in the vast majority of honey bee colonies is entirely uncontrolled. For this reason, the distinctiveness of the remaining populations of pure *A. m. mellifera* could easily be threatened by the thoughtless introduction of other strains of honey bee nearby⁶. Considerable controversy has arisen surrounding attempts to preserve the population of *A. m. mellifera* on the small Danish island of Læsø⁷, and similar problems may yet occur in Tasmania. There is thus a need for strategies for conserving rare or endangered bee species to recognise that local strains of honey bee may be equally endangered, and may be equally deserving of conservation effort. It must be recognised that all species of bee are worthy of conservation, that management decisions need to be made on a case-by-case

basis, and that they must be based on a sound understanding of the underlying biology of the ecosystems involved.

Norman Carreck NDB

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Bee Health Inspection Priorities in 2009

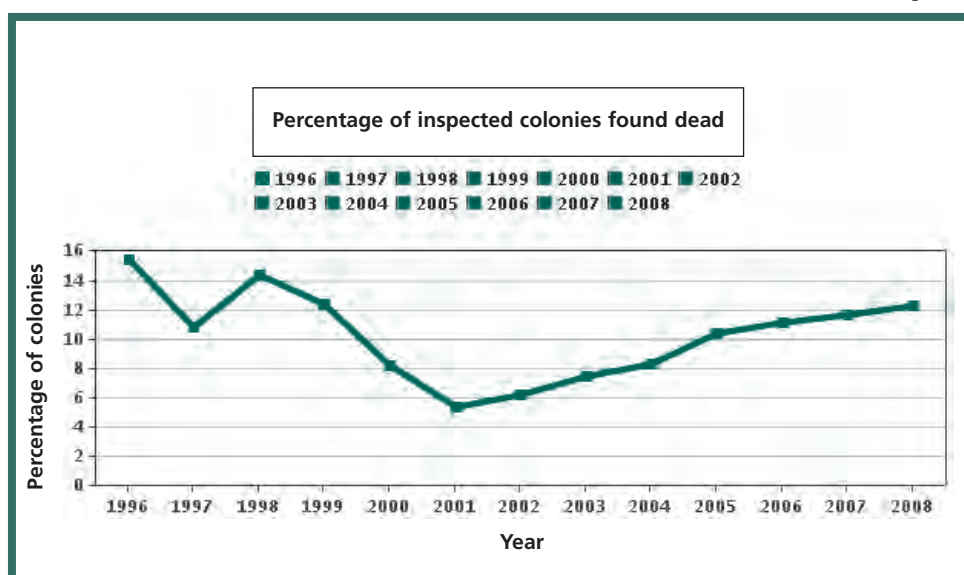
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lower efficacies. The lower the efficacy the less time your control mechanism will buy you. Whereas a control having an efficacy of 99.5%, applied to a colony with a population of 1000 mites, will give a breathing space of around nine months before the population reaches the 1000 mite threshold again, a method having an efficacy of 95% will "buy" only 4½ months and one with 80% efficacy will need another control in just nine weeks.

Remember that when carrying out any form of varroa management, it is the mites that are left in the colony, rather than those that are removed, which are the critical ones.

Ian R Homer
NBU Regional Bee Inspector,
Southern Region

Figure 1



Is Oxalic Acid a 'Safe' Chemical for Varroa -Mite Control?

It seems a popular misconception among beekeepers that chemicals such as formic and oxalic acids, acids that can naturally be found in a bee hive, are 'safe' because they are natural.

This relationship may be true but when common chemicals are concentrated, as we formulate them to be effective pesticides, negative consequences must be considered. Such is the case with oxalic acid for varroa mite control, widely used in Europe and Canada due to its high efficacy (> 90%) and low risk of hive contamination.

During my discussion of methods of controlling varroa mites in my CCD (& Heavy) Bee Losses talk at the National Honey Show this year, I indicated that oxalic acid was one of the weapons that is useful to beekeepers but the MAAREC (Mid-Atlantic Apiculture research and Extension Consortium – see website: MAAREC.psu.edu) was not recommending it. This is because there is evidence that it damages Malpighian tubules of adult bees (the bee equivalent of kidneys in humans) and also that it is toxic to bees, especially brood, and potentially dangerous to us. In fact it is only because varroa mites are considerably smaller in size than their host worker bee, that we can use this chemical at all.

Natural products can be made toxic

In using oxalic acid, a natural ingredient, the old adage 'the dosage makes the poison' certainly applies. Let me give an example of dosage and harm. Following the National Honey Show, I flew off to Bolivia, South America, where my wife's family lives. In Bolivia, coca leaves are commonly 'chewed' by the indigenous population. A wad of leaves is stuck between gum and cheek and with a pinch of cinder ash; the cheek wad is chewed to release the alkaloids of the leaves. It is a habit, a hunger suppressant and an aid to handling the high elevations of the alto Plano of the Andes. But there is another use

for the leaves - drug traffickers treat the leaves with kerosene and acids to release the same alkaloids, which is collected as cocaine paste and then further refined into cocaine. The leaves progress from relatively non-toxic to deadly.

With proper mixing and use oxalic acid can be a powerful tool in control of varroa mites. It fits well as a late autumn treatment as it can be integrated in a co-ordinated Integrated Pest Management approach to mite control. The BBKA has a highly informative and useful leaflet B13 called 'Oxalic Acid Cleansing' that anyone using or contemplating use of oxalic acid should consult. This leaflet emphasizes that only prepared oxalic acid solutions should be used and oxalic acid administered as a drip (trickle) and never used in a vaporiser. It is precisely because beekeepers do not follow such advice, and in the case of USA beekeepers where oxalic acid has not been registered for use, that we end up with 'problems'.

For information on long term negative effects of oxalic acid see the Spanish article in Apidologie 1999 by Higes *et al* http://www.apidologie.org/index.php?option=article&access=standard&Itemid=129&url=/articles/apido/pdf/1999/03/Apidologie_00448435_1999_30_4_ART0004.pdf. For the best review of oxalic acid, including the alternatives of spray and evaporation applications, see Apidologie 2006 article by Rademacher and Harz <http://www.apidologie.org/index.php?option=article&access=standard&Itemid=129&url=/articles/apido/pdf/2006/01/M6010.pdf>.

What are the issues we need consider in the safe use of Oxalic Acid?

Oxalic acid has been shown in several studies to effectively kill mites when a 3% solution is applied. It will not kill mites sealed in pupal cells but will kill bee brood so it should never be used when bee brood is present. When overdosed, adult mortality has been noted and repeated applications have been shown to

be harmful to colonies (according to Marion Ellis, of University of Nebraska). In our examinations of CCD we feel colony stress may be a factor so our MAAREC website contains this caution in use of oxalic acid in varroa mite control: 'Do not use oxalic acid or other 'hard' chemicals, such as fluvalinate, coumaphos, or amitraz, which may further stress the bees.'

Danger to brood and adult honey bees

Using oxalic acid when brood is present seems to pose the greatest risk. In a study reported in December 2005 Journal of Apicultural Research, Hatjina and Haristos examined the effect of a 3%w/v oxalic acid mixed into sugar solution on brood. Both young and older brood (</> 3 days age) were removed by bees after oxalic acid treatment at higher rates than the control (non-oxalic acid treated) and total brood development was arrested for the next two months. The authors concluded 'Combining the detrimental effect on brood development with the low relative effectiveness on varroa removal, oxalic acid application by the trickling method when open brood is present is not as safe as has been regarded in the past.'

In addition to brood, adult bees may be poisoned by oxalic acid. It is known to penetrate the bee exoskeleton but in drip application, adult bees will normally ingest some of the oxalic acid-sugar solution. If tissues with glutathione S-transferase (GST) activity are damaged, a possible effect could be a lowering of the level of GST activity, an important group of enzymes for eliminating toxic substances. A study from Slovenia, reported in Apidologie 2007, found necrotic cell death in 69% of mid-gut cells after oxalic acid use. Using radioactive

tagged oxalic acid, Italian researches found a high spike of oxalic acid in the bee intestinal area of adults shortly after oxalic acid application but it degraded rapidly (as reported to Apimondia Bee Pathology Standing Commission, 2004).

In a study on queen cells, oxalic acid and Imidacloprid were used by the North Carolina student/faculty researchers. They concluded 'Our results show that oxalic acid and imidacloprid significantly reduced the number of accepted and successfully reared queen cells. This could have a negative effect on the natural re-queening process that occurs in the hive, thus weakening the colony.' [see: www.harvest.cals.ncsu.edu/folio/files/dwoverma/honey%20bee%20poster.ppt]. And finally, University of Nebraska graduate student Jeremy Wagnitz has demonstrated a negative effect on egg viability by dosing queens with a 10X higher dose (3%) of an oxalic acid solution. This was not found at the recommended dosage (0.3%).

Although the BBKA leaflet advises using only prepared solutions, it is common knowledge that beekeepers are buying and mixing their own oxalic acid solutions and even more dangerously some are applying oxalic acid by other methods than dripping. This raises the risk of harm to both beekeeper and bees. If you are using oxalic acid prudence is suggested - use with care – for the bees and for your own health. Carefully read the 'fine print' (in the BBKA leaflet this information is under the heading 'How Oxalic Acid Operates'.)

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Should You be Spring Feeding?

Many questions in beekeeping have more than one correct answer. This question certainly does.

To guide you in making a decision about this try hefting your hives by lifting the back of the floor, preferably without the roof on. Experience is helpful here, but if it feels very heavy then you probably do not need to feed - but see below. If it feels very light then, provided that there is a live colony inside, you do need to help them along. Do not depend on seeing some flying bees - unless they are clearly bringing in pollen they could be robbers plundering a dead stock. Occasional observation of the tray under your varroa floor will give a good indication of what is happening in the brood area, especially if you are able to compare different colonies in the same apiary. Course crumbs of wax on the floor suggest robbing.

Get to know how much your hives weigh

It is well known that our bees use very little of their stores in the closing months of the year but use much more as the brood area grows from January onwards, so you may want to heft your hives more than once. Weighing the hives will give you a less subjective result but you may be misled if the woodwork has absorbed any of the winter rain.

Reasons for feeding are many-fold

There are other reasons for wanting to give a spring feed. For many beekeepers a main crop comes from the autumn sown oil seed rape which flowers early in the spring. Getting a good crop requires having a large number of foragers available and these must have come from eggs laid a month or more earlier. Early feeding will encourage the queen to lay and the colony to build up ready for the flow. This is obviously much better than having them build up during the flow.

If you are intending to start queen raising early in the season then you will also want to feed the colonies concerned so that there will be plenty of young house bees to feed the selected larvae and then plenty of suitable drones to mate with the queens.

Now that we have become used to the idea of changing many brood combs each year we will also want strong colonies to draw the foundation quickly into good combs early in the active season, but do take out the old combs before the queen has been able to lay in them. Unless there is a good natural flow on, the bees will need some feed to get the new combs drawn well. This will also be the case if you are performing a Bailey frame change or a shook swarm, which can also be used as part of your Integrated Pest Management for varroa control.

Popular feeds

Some people like to feed full strength sugar syrup, about 60% sugar, but for spring feeding my inclination is to feed a weaker solution, traditionally 1lb of sugar to 1 pint of water, about 44% sugar. At this time of the year our aim is to encourage the bees to use the sugar to develop the colony, not to store it. For rearing brood our bees need protein as well as the carbohydrate from sugars. There is usually plenty of stored pollen topped up from the ivy in the late autumn but ideally the bees need a good supply of fresh pollen from a variety of sources. In some years it may help to feed a pollen supplement or substitute, but this is unusual in my experience. Some colonies, particularly weak ones, may be helped by feeding with one of the new 'feeds' on the market, but I have no experience of using these and will be interested to hear of your experience with these new feeds.

If you are helping a small, struggling colony then a good way to feed is to give them a disinfected comb of stores, preferably including pollen as well as honey. If you do not have such a comb to hand then pour some warm syrup into the empty cells of a spare comb and put this close to the brood nest. Early in the year it is better to feed the bees with fondant, either home-made or baker's fondant bought from your

local baker; this can be given by packing it into an empty margarine tub which has one or two holes in the lid large enough for the bees to get through; the tub is then inverted directly over the cluster or over one of the holes in the crown board near to the cluster. In a cold spring the bees are reluctant to go up and over to reach the syrup in a Miller or Ashforth feeder so a contact feeder is more likely to be used. As always be careful with these, avoid spilling syrup and if the colony is small then do use a small feeder since if the weather warms up the feeder may discharge syrup onto the cluster beneath.

Once you have decided to start feeding then do continue it until natural sources of nectar are available and the weather is suitable for the bees to be able to feed themselves.

A word of caution

Finally, the usual warning applies in the spring, as at any time, take care not to start robbing in the apiary, do not spill syrup or fondant, if possible feed late in the day, and give the colony a restricted entrance which they can defend easily.

Should you be thinking of spring feeding? Only you can decide what is right for your bees in your situation, with a guess as to what the weather will bring in the coming months.

Brian Gant

The Honey Bee is not Enough!

Farmers and gardeners throughout the world rely on honey bees to pollinate their crops, and usually they do a marvellously effective job.

However, it is not widely appreciated that, for some crops, honey bees are little or no use as pollinators. A prime example is the tomato. Tomatoes belong to the Solanaceae family, along with potatoes, and this family need to be 'buzz pollinated'. Unlike most flowers, where the pollen producing anthers are freely accessible, in tomatoes the anthers release their pollen inside a chamber with a hole in the bottom, a little like an upturned pepper pot. To get the pollen out, a bee needs to shake the flower. Although honey bees are

remarkably clever in many ways this is a trick they do not seem to have learned, but bumblebees and some solitary bee species are very adept at it. They grab the flower in their jaws and then vibrate their wing muscles, producing a very audible buzz of a higher pitch than that produced in flight. The vibrations are transmitted to the flower through the jaws and hey presto, out pours the pollen. For this reason, commercial tomato growers around the world buy in bumblebee nests to put in their glasshouses, and the tomatoes they obtain are bigger and are even said to taste better when pollinated by bumblebees!

There are other common vegetables that rely mainly or entirely on bumble bees rather than

honey bees. Broad beans and runner beans have deep flowers suited to the long tongues of particular bumble bee species such the garden bumble bee, *B. hortorum*. Although honey bees do sometimes try to visit them, they are not very effective pollinators, but bumble bees do an excellent job. This same long-tongued bee is also the main pollinator of flowers such as foxgloves, honeysuckle, delphinium and aquilegia.

If we wish to ensure a healthy ecosystem, good crops and thriving wildflowers, honey bees can go a long way but on their own they are not enough: we need to take steps to encourage other wild pollinators such as bumblebees, solitary bees and hoverflies, all of which have a valuable role to play.

Professor Dave Goulson,
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Bailey Comb Change Versus Shook Swarm

As part of 'good husbandry' the regular changing of brood comb is essential to reduce the disease burden within a colony of bees and especially the risks of contracting the foul broods.

The 'Bailey comb change' and the 'shook swarm' method are effective ways of getting honey bees onto all new comb. Each system is described in this article.

The most frequently asked question is: 'which one should I use'? However, it is difficult to answer as both have their advantages. My personal view is that 'shook swarm' is a more invasive procedure and must be used if foul brood is present in the apiary but if not then the Bailey comb change would be more appropriate. The table below gives the pros and cons, which should be considered before making your decision but please remember if you know or think that your bees are infected with foul brood you are legally obliged to inform the National Bee Unit or your local inspector.

Change	Bailey Comb Swarm	Shook
Changes all the brood comb	Yes	Yes
Is an effective control for European Foul Brood	No	Yes
Queen is able to maintain laying rate	Yes	No
Queen is stopped from laying	No	Yes
Can reduce <i>Varroa</i> infestation	No	Yes
Can be used at any time in the season	Yes+	No*
Time of use can affect honey yield	No	Yes*

* Timing of shook swarm, except in relation to foul brood disease control, should be considered carefully. By its nature the brood is destroyed so it is important that eggs laid at the end of April and the beginning of May are allowed to develop, as these are the bees that forage in the main honey flow. If carried out in mid June it is likely to increase honey yields but later in the season may weaken the colony going into the winter.

+ This system is best performed in early spring, often with clement weather March is also suitable, but remember to keep feeding so the bees can build comb.

Methods

Bailey Comb Change

- 1) Prepare a clean brood chamber filled with frames of foundation.
- 2) Place this chamber over the existing brood chamber. Unless there is a strong nectar flow feed with heavy sugar syrup (i.e. 600 mls. of water to 1 kg. of white granulated sugar) preferably using contact feeders ie bucket type.
- 3) When the bees have drawn out some of the foundation, find the queen and place her on this comb. Put a queen excluder over the old brood chamber and under the new, thus trapping the queen in the upper chamber. If possible arrange a new hive entrance between the two brood boxes and close off the old. (This helps to reduce the amount of pollen stored in the old lower combs).
- 4) After a further three weeks remove the old brood chamber. The brood will have hatched and the comb can then be rendered to recover the beeswax.

Shook swarm

This technique is best suited to larger colonies. 'The stronger the better'.

- 1) Prepare a clean brood chamber filled with frames of foundation, a clean floor, crown board and queen excluder.
- 2) Move the hive that you intend to shake to one side and place the clean floor on the original hive site. Put the queen

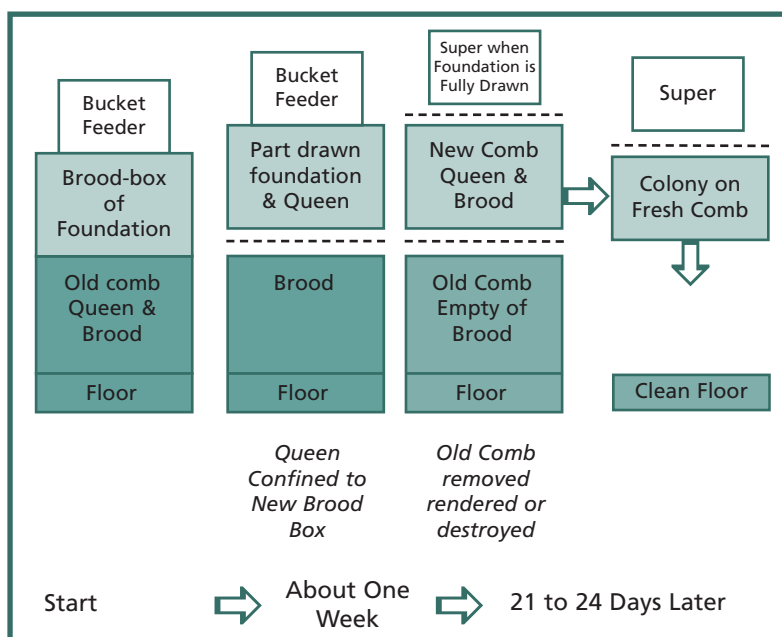
excluder over the floor and then place the clean brood box and foundation on top of the excluder.

- 3) Remove the centre four frames and put them to one side. Flying bees will arrive at this new chamber.
- 4) Examine the old brood chamber and find the queen. Place the queen between the combs of foundation in the new box, or temporarily place her in a queen cage, or matchbox, so that she can be released into the new chamber when you have completed shaking the bees.
- 5) Shake all the bees from the old combs into the new chamber. This is done by holding a frame of bees about one third the way into the gap left between the foundations in the clean chamber. The frame is then moved quickly downward and suddenly stopped. Avoid jarring the comb against the chamber. The bees will fall off the comb and any remaining on the comb can be brushed off.
- 6) Shake and brush bees remaining on the old equipment into the new chamber.
- 7) When all the bees have been shaken into the new brood chamber replace the frames of foundation removed.
- 8) Put the crown board in place.
- 9) Unless there is a strong nectar flow feed with 'heavy' sugar syrup (i.e. 600 mls. of water to 1 kg. of white granulated sugar) preferably using contact feeders, i.e. bucket type. In the case of control for EFB or other disease it may be beneficial to delay feeding for two days. In this way any contaminated nectar carried by the bees is used in comb building.
- 10) After about a week when brood is present remove the queen excluder.
- 11) Maintain feeding, unless there is a continuing nectar flow, until all combs are drawn out. Check carefully at this point as end combs may need to be turned around or moved one frame into the chamber. This is because bees find it hard to cluster and create wax on frames adjacent to the side of the brood box.

The old combs should be rendered for their wax content or destroyed. In the case of combs where EFB has been confirmed the combs and frames will be burnt. At the time of writing these 'EFB' combs are eligible for BDI compensation providing you have adequate cover and the case is dealt with by an authorised bee inspector.

Richard Ball
National Bee Inspector

Diagrammatic of Bailey comb change



Flowers and Honey Bees – Cues and Colours

The function of a flower is to be a conspicuous visual signal to a pollinator and so it must stand out against the background.

Honey bees (*Apis mellifera*) are used by many flowering plants as a means of getting their pollen transferred from one flower to the stigma of another flower on another plant of the same species. This ensures out-breeding and promotes genetic variation in the plant allowing natural selection to enable the plant species to adapt to an ever changing environment. The aim of this article is to look at some of the visual clues that attract honey bees to flowers to pollinate them.

Honey bee stimuli

Flower shape, size, colour, the plane of symmetry of the individual flowers, their odour, the site and height of the plant and the distribution of the flowers on the plant are all key stimuli to which the honey bee responds. Bees learn a 'package' of scent, colour and pattern cues presented by a particular kind of flower. This in turn is associated with the time of day at which nectar or pollen is available.

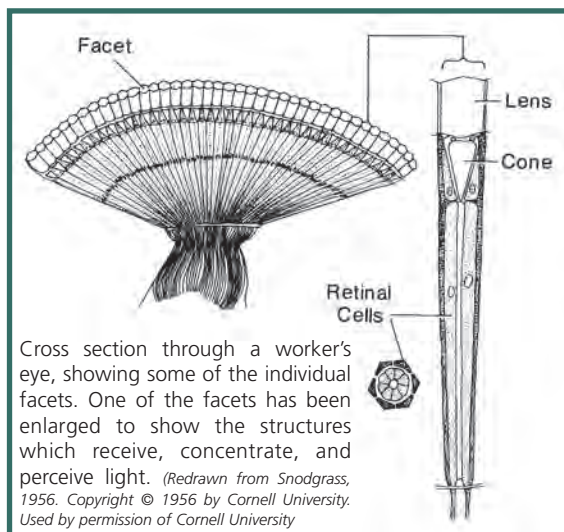
The general shape of a flower - and especially its colour - guide bees to it from a distance. However, when bees come close to a flower it is scent which stimulates a bee to alight on the flower.

Bee vision

Bee eyes have poor spatial resolution and because odours and scents from plants will become mixed at a distance from the flowers, the bee has to rely on colour and shape to recognise the flowers located in the forage areas to which she has been recruited during the bee dances conducted within the hive. Bee eyes are composed of several thousand functional units, called ommatidia, each containing its own lens and set of photoreceptors. Bees have compound eyes the resolution of which is about 100 times worse than ours. For example, in honey bees, the resolving power of the ommatidial array is approximately one degree. The spatial resolution of bee vision is limited, not only by the inter-ommatidial angle, but also by subsequent neural processing in the bee's brain. The

receptive fields of colour-coding neurons, as inferred from behavioural studies, are comparatively large, so that an arc of 15 degrees, equivalent to 59 ommatidia of the compound eye, is necessary for a honey bee to

primary colours for bees are similar to those of humans but with a shift of the visible spectrum towards the shorter wavelengths. The bee's visible spectrum is 300nm to 650nm, which compares with 370nm to 750nm for humans.



Cross section through a worker's eye, showing some of the individual facets. One of the facets has been enlarged to show the structures which receive, concentrate, and perceive light. (Redrawn from Snodgrass, 1956. Copyright © 1956 by Cornell University. Used by permission of Cornell University)

identify a flower by its colour. Thus, from a distance of one metre, a flower would have to be 26 cm in diameter to enable a bee to either recognize its colour, or detect it using colour contrast. But bees are able to use a different neuronal channel with a smaller receptive field when they are further away from a flower. When a flower is seen in an angle of at least 5 degrees (and no more than 15 degrees), bees employ green contrast for detection that is the difference in signal provided by the green receptor between background and the flower. This still means however, that a honey bee must be no more than 11.5 cm from a 1 cm diameter flower to detect it. This severely constrains the rate at which flowers can be found. This poor visuo-spatial resolution also means that some fine grained visual aspects of floral patterning that are obvious to humans may simply be invisible to pollinating bees.

Bees don't see red

So how do bee's eyes respond to colour? Bees are most sensitive to the short wave length end of the spectrum, and in particular to ultraviolet light. The bee primary colours are ultraviolet, blue and yellow. Trichromacy, or the three

Each ommatidium in a bee's eye is a complex structure containing cells that respond to light funnelled down the rhabdom (a rod of eight connected photocells) and differentially stimulate cells in the blue region of the spectrum (463nm), the green region (530nm) and at 340nm in the ultraviolet region. Bees appear to be red blind. Bee purple is a mixture of ultraviolet

and yellow, one colour at each end of the bee visual spectrum. Different flower species usually reflect light containing many colours and some will reflect ultraviolet light.

eye speedwell reflects ultraviolet the flower appears violet to the bee.

Red flowers appear different to bees, and the actual colours they see will depend on the presence or absence of reflected ultraviolet light. If no ultraviolet is reflected the flower will appear bee black because the bee's visible spectrum does not extend into the red, but if ultraviolet light is reflected as well then the flower will appear bee ultra-violet.

Green vegetation appears as a uniformly grey background to the flowers and so most flowers will stand out against such a background if they are to attract the pollinating insect.

Other visual cues given by flowers

Many flowers possess other visual signals to the bee, namely markings such as nectar guides. These lead the bee towards the location of the nectaries in the flower. Some nectar guides are visible to the human eye, as in perennial geraniums and foxgloves with their white bordered purple spots inside the corolla. Different colours reflect at different wavelengths. Bee eyes are

maximally sensitive at around 400nm to 500nm. Their ommatidia contain receptor cells particularly sensitive in the 330-350nm, 430-450nm and 520-540nm or the ultraviolet, blue and green parts of the spectrum.

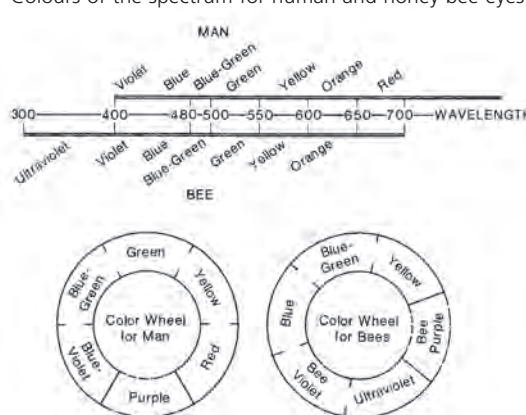
The spectral reflectance peaks of flowers pollinated by bees accords with those of the bee at 400 and 500nm and also at 600nm. The

reason for this is unclear but one explanation is that the flowers can use pigments such as anthocyanins that have both a red and blue reflectance peak, and this means the flower does not have to be a pure blue colour.

Colour coding complexities

In the early 1990s, the question of how the bee visual system codes colour was believed to have been resolved and was explained by the colour opponent mechanism. It was thought that all ommatidia (except those in the dorsal margin area of the eye) contained an identical set of spectral receptor

Colours of the spectrum for human and honey bee eyes



Colour wheels for humans and honey bees.

(Redrawn from von Frisch, 1967a and Michener, 1974)

So how is flower colour relevant to the bee?

In the case of the dandelion the outer sterile florets strongly reflect ultra violet light with an outer circle of bee purple and the central disc area is yellow. Rape and field mustard flowers reflect different proportions of ultraviolet and so the two species look different to bees. The same is found in blue flowers. The forget-me-not reflects entirely in the blue region of the spectrum and so the flowers appear blue. Although the bird's

Cues and Colours ...cont

types, three ultraviolet, two blue and four green receptor cells. In this model, every ommatidium contained the equipment necessary to analyze a 'pixel' in the bee's visual field for its spectral input.

It now appears that colour coding in the bee visual system is more complicated. Each ommatidium contains six green receptor cells, which are the types of receptors that are responsible for motion vision and small target detection. However, the current opinion is that the sets of other colour receptor types vary, so that there are three types of ommatidia, which contain either two ultraviolet, or two blue, or one ultraviolet and one blue receptor. This means that two neighbouring ommatidia, looking sequentially at the same spot in space, might see it in different colours.

To code colour independently of intensity the nervous system has to compare the signals from receptors that differ in spectral sensitivity by means of so called colour opponent cells. Two types of such colour opponent neurons were identified in the honey bee brain in the early 1990s. However, this relatively simple and attractive view of colour coding needs to be revised because it is now known that at least seven different types of colour opponent neurons exist in the bee optic lobe. How the bee brain identifies colour targets, such as flowers, and processes the information in its brain remains to be determined. However, any combination of two colour opponent neurons can be used to code input from three types of colour receptor. It is thus possible that the precise mechanisms of colour opponent coding are not genetically determined but are 'learned' through experience.

Shapes and outlines

Bees not only respond to colour but also to shapes and outlines. Each ommatidium responds to successive intermittent light stimuli. This speed of response and recovery in preparedness for the next stimulus is called flicker fusion frequency. That is to say the point at which the rate of stimulus produces a complete fusion of responses shown by the photoreceptors. In humans this is 35Hz-40Hz (flashes / second) whilst in bees this is in the range 150-200Hz. So although humans do not see the individual flickers

produced by a television screen lit by a fluorescent tube, or a fluorescent light tube, the honey bee does see the separate flickers. The fact that bees have a high flicker fusion frequency is important as it means the ability to resolve objects as she flies across them even though as was mentioned earlier, the design of the bee's eye is such that it has poor spatial resolution and it is a way of compensating for the design of the compound eye.

Bees are able to distinguish wide angles more easily than narrow angles and closed shapes such as circles, triangles, and squares are not easily distinguished, although they can be distinguished from open shapes with wide angles. So as the bee moves in flight the flicker fusion response means that the bee eyes are more responsive to shapes with disruptive wide angles.

Fertilised flowers also give out cues to the foraging bee.

Once the flower is fertilized and visits by pollinating insects are no longer needed the petals wither and the scent and nectar production finishes. Examples of this can be seen in the young flowers of horse chestnut which have a yellow blotch on each of the lower petals. This changes first to orange and then to pink as the flower ages and visits from pollinating bees are no longer required. The forget-me-not has a yellow coronal ring in the centre of the blue petals which fades to white with age. In borage the central cone of blue-black anthers contrasts with the sky blue corolla and, when the anthers have dehisced, this contrast disappears. In the case of white clover the individual florets in the clover flower head droop when they have been pollination and fertilization has taken place.

So the next time you watch your bees foraging think about what cues and colours they are responding to as they visit the flower.

David Aston, NDB

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European Parliament in Talks About Bee Funding

It seems that members of the European Parliament (MEPs) have noted the sequential seasons of decline in Europe-wide honey bee colonies with some concern.

In November 2008 this issue was debated¹ and a resolution urging the European Commission to take action to address the problems of bee decline across Europe was adopted with a huge majority of MEPs. During the debate MEPs asked the Commissioner for Science and Research, Janez Potočnik, what efforts the Commission was prepared to make to:

- develop research into the parasites and diseases, which are devastating hives;
- set up ecological pollen- and nectar-rich recovery zones (like apicultural set-aside) and establish buffer zones, for example alongside roads;
- promote the necessary measures to combat the threat of inadequate pollination, i.e. a complete ban on pesticide treatment while crops are in flower and a reduction in the use of modified seed;
- monitor and control the quality of surface water, because bees react very swiftly to any environmental deterioration;
- provide financial aid to apiaries, which are in difficulty.

The responses, in brief, are summarised below.

Research

The Commissioner stated that findings from a study begun by the European Food Safety Authority on the mortality in bees and its causes in the European Union are being analysed 'to give a clearer picture of the epidemiological situation of bee colony collapse', and is expected to form the basis of further action. Projects the Commission currently funds include one on food quality and safety priority (named 'Bees in Europe and Sustainable Honey Production' or BEE SHOP), a support project ('Bee Research and Virology in Europe' or BRAVE) and an integrated project assessing large-scale environmental risks for biodiversity (or ALARM).¹ However, the Commissioner also

advocated setting up a European Research Area to bring 'the vast expertise of European researchers together'.

Recovery Zones

Under directive 1234/2007 there is some financial support 'for the efficiency of moving of beehives' that could be used to help enrich apicultural flora. This directive also states that beekeeping is eligible for aid for: technical assistance to beekeepers; controlling varroasis; rationalisation of transhumance (transfer of livestock from one grazing area to another); support for laboratories who analyse the physicochemical properties of honey; support for restocking hives in the Community, and co-operation with specialised bodies for the implementation of applied research (beekeeping and apiculture products) programmes.

Pesticides

The Commissioner explained that the current Council Directive 91/414/EEC² (under review) states that pesticides may only be used if shown to pose no significant risk of unacceptable effects to human and animal health, and the environment. The tests applied 'are based on standards developed by intergovernmental organisations such as, for example, the European and Mediterranean Plant Protection Organisation, in which 47 governments collaborate', he said. He felt legislation was effective in protecting 'the acute and long-term risks to honey bees and their larvae' but noted the importance of minimising risk of contamination. He outlined some ways in which the risk of harm to bees could be reduced: 'well adapted agronomic practices, appropriate rates and timing of the applications (for example in the evening after honey bee flight, or outside the flowering period of the crop and possibly other adjacent weeds), direct incorporation of the product in soil, uses in glasshouse inaccessible to bees or treatment of seeds in specialised facilities.'

Surface Waters

Legislation is in place to safeguard the quality of surface waters, and all the necessary plans

and programmes should be developed in Member States by 2009.

Financial Aid

Restocking of hives is on the list of eligible measures for aid in national beekeeping programmes, making it possible for some compensation to be given for bee losses, such as funds for promoting queen production, purchasing bee colonies and hives.

Although the Commissioner pledged support for beekeepers having difficulties he noted that it is the responsibility of Member States in the first instance to spend their budgets in an appropriate way. Interestingly, he stated that Member States currently spend around 80% of the money at their disposal (EU funds being EUR 26.3 million in 2008, which is doubled with the contributions from Member States) and urged them to address this. One way to ensure a future for the bee industry though, is to encourage consumption of EU

honey, which has been on the list of products approved for the internal market since 2004.

The information presented in this report was supplied to us by a MEP, who we understand has written to the Rt Hon Hilary Benn, Secretary of State for Food and Rural Affairs for his reaction to the claim that Member States are not making sufficient use of their Research and Development budgets and for information about what more the British Government can do to promote bee-related research. We await further developments with interest.

References

1. European Parliament. The debate script and some video footage can be viewed at <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=//EP/TEXT+CRE+20081119+ITEM-020+DOC+XML+V0//EN>
2. Information about the Council Directive 91/414/EEC is available at: http://ec.europa.eu/food/plant/protection/resources/publications_en.htm



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Mel Asks the Experts

Happy new year to all beekeepers – albeit belated! I hope everyone had a warm and happy holiday with lots of excellent food – and that includes your bees. It has been so chilly our bees will be huddled into very tight balls but I expect they will have been using up significant stores to maintain heat – so I hope you have been checking that your hives are heavy and your bees are not going hungry.

While we have been relaxing Tony Herbert of Salisbury BKA has been thinking of more fascinating questions to put to our experts. His question for this month is about mating – a subject that will be uppermost in our minds as soon as the weather warms up again (with respect to our bees I mean!). Tony asked: 'It is often reported that virgin queens will mate on the wing with up to 20 drones and that after each copulation the endophallus of the successful drone remains within the vagina of the queen. This can be seen as the 'mating sign' on returning queens and requires the assistance of the worker bees to remove it. Does anybody know therefore whether the endophallus from the previous successful drone is removed in flight before the next drone can mate – and if so by whom – queen or drone? If removed by the queen, as has been quoted by some, why does she return with the 'mating sign' still intact. If the endophalli are not removed, is the previous one pushed aside to allow penetration? Thanks for this very full question Tony.

Our expert, Professor Robert Pickard, replied: 'Remnants from more than one drone can be left *in situ*. This debris will help to frustrate further matings (but will not stop them all); it helps semen retention and helps the queen with semen relocation to the spermatheca. Some debris can be dislodged by a new suitor, but the workers will assist a returned queen.' A very interesting answer Professor Pickard – thank you. So, it seems that the 'mating sign' not only informs the workers that the queen has mated successfully, but is probably a stimulus to worker bees to help her remove remnants of her various matings, thereby indirectly assisting her with subsequent egg laying. Tony has posed a further question about mating that will be the subject of the next issue of BBKA News and his question in the December 2008 issue has prompted a series of questions about drone clouds from Joanne Webster, (thank you Joanne) which will also be researched for a future issue, but do read the letter from Ken Stevens, on the right hand side of this page, which I am sure you will find interesting.

I hope you have enjoyed the topic for our question and answer, and if you have a question that you would like me to put to experts on your behalf, then please do send or email it to me, Mel, care of the assistant editor and I will do my best to find an answer for you. If you are a beekeeper with a passionate knowledge of a particular aspect of beekeeping and are interested in joining our panel of experts do let me know and I will add you to our group.

I wish you and your bees a healthy and productive Spring.

Mel

Dear Ken,

Thank you so much for your very interesting and novel perspective on these subjects, which has given me (and I am sure the BBKA News readers) much food for thought. It does make sense that the worker bees could protect ripe queen cells at least until they have a returned, mated and laying queen. They would have invested a good deal of time and energy in these and leaving matters to chance could be a dangerous strategy. It is interesting that they can seal queens back into their cells and regulate their emergence – I had not come across this before.

Your experience as a pilot and clear, helpful descriptions of the principles underlying lift give us a valuable insight into how congregation areas develop – and potentially how these remain in roughly the same

Dear Mel,

Having read the questions posed in the December issue it struck me that scientists are always so careful with their answers that the value of years and years of experience sometimes passes them by. Although I passed my NDB way back in the 60's, my more than 70 years of beekeeping experience which despite other activities has always been of razor-edged keenness, might permit me to offer explanations for some of the well known but less understood features of honeybee life.

Ripe Queen cells and emerged virgin queens

As regards the actions of virgins following the emergence of a swarm, despite the many variables such as race of bee, weather and current state of a colony, it is usually seen that ripe queen cells receive much attention from house bees, even seeming to surround them at times. This leads to the conclusion that a freshly emerged virgin is given much freedom but this does not over-ride the needs of the colony. On one occasion I found seventeen dead virgins on the ground in front of a hive. The flow conditions at the time and the remaining colony strength would have influenced this behaviour. The sound of a piping virgin which is said to cause squawks from virgins still sealed in then-cells - books tell us guides the active virgin to them and she is able to kill the rivals before they emerge. Queen rivalry usually means that if through natural or man's interference queens of the same age are allowed to get into contact with one another then they will fight and their armour is such that only after successful grappling is the victor able to insert her sting. So there is only one undamaged queen as a result of the affair. The supply of spare food in a queen cell enables the house bees to confine virgins to their cells, sealing the cap of the cell as fast as the would-be virgin tries to snip her way out.

Congregation areas

Then on the subject of queen congregation areas, a subject on which Beowulf Cooper had much to say. It has come to me as a pilot with over 10,000 hours aloft and a keen studier of atmospheric conditions that because while copulating the pair may lose considerable height due to the conflict of their wings maybe or lack of attention to the need for them to remain airborne, the area which attracts the drones is where there are up-currents of air A warm surface below which gives rise to thermals is very likely to be the place where drones take advantage of 'lift'. They will have had time to find the location and it would not be stretching the imagination too far to say that a virgin can follow the path taken, way above the level where workers fly, to reach the suitors. Incidentally years ago when Dr. Butler made significant discoveries regarding what was called queen substance he came to the conclusion that drones always flew up-wind to the virgin. My navigational experience told me that by fastening the lure to a mast the scent (pheromone) would naturally travel down-wind. In free air of course the trail of a virgin might or might not be in line with the wind, consequently the drones might approach her from any direction.

Drones are often heard but not seen

Beekeepers of old often mentioned the sound of drones overhead. They can be heard more easily than seen, though a pair of binoculars would help to identify such a congregation and because of local geography the same-location might well be used year after year.

As I am approaching my 92nd birthday and still able to delve back into the past please accept what little help I can offer other beekeepers, (whose size and strength belittles my present capabilities), a few hints perhaps.

Ken Stevens, NDB
- best known for BBJ articles long ago.

location on consecutive years. I must confess I had not considered how a copulating pair might maintain height – but I did notice last year many pairs of copulating ants spiralling down towards the ground (although they would not have been using thermals). It also makes sense that the shape and extent of the pheromone cloud would be influenced by factors such as the number of drones present and the changing wind direction. I hope one day to be able to say I have seen a drone cloud – or at the very least to have heard one though.

Thanks again Ken; your letter is a real inspiration and I hope you have inspired other beekeepers to contribute to our discussions.

Kindest regards,

Mel

How Big a Problem is Nosema Ceranae

Could Natural Infection by Nosema Ceranae be the cause of Honey Bee Colony Collapse

The collapse of apparently strong honey bee colonies has been the focus of much recent research.

This report summarises a paper produced by Higes and colleagues, a research team working on this problem in Spain.¹ A temporal relationship between the world-wide spread of the microsporidium *Nosema ceranae* (a single-celled, spore-forming organism) from *Apis ceranae* to *A. mellifera* and the increasing reports of unexpected colony collapses has been noted by this team. They therefore set about finding out, under controlled conditions, the effect of *N. Ceranae* infection on healthy *A. mellifera* colonies, how transmissible the infection is and how effective Fumidil B (fumagillin) is in controlling an infection.

The study hives were located in the Centro Apicola de Marchamalo in Spain – an area between Los Arenales and San Cristobal that contains no GM crops and where no insecticides are used. For full experimental details readers are referred to the original research paper, but briefly, *N. ceranae* was detected in one successful and productive hive through clinical monitoring on 25 May 2005. The hive was not treated so the infection could be studied until its demise on 11 December 2006. Monitoring included assessing colony strength, parasite burden, bee pathology and virology, forage and pesticide use. Varroa was

controlled in all hives during the study. Samples were taken of bees from within the hive and forager bees throughout the study for assessment.

In June 2006 the researchers placed 10 uninfected nuclei and one uninfected hive close to the infected hive. These were monitored for signs of infection and underwent similar assessments to the infected hive. Once *N. ceranae* infection was confirmed the nuclei were divided into two groups; one group was treated with Fumidil B to a total of 120mg/hive each week, given in four divided doses, the other group – the controls – were given 50% sugar solution (Fumidil B was made up in 50% aqueous sugar solution). The hives were treated from October 2006 to November 2006. Four additional uninfected hives were placed near to the infected hive (making 14 in all), but these were only observed visually.

A subsequent experiment was conducted using 50 experimental hives, located in three apiaries around 500m apart, to mimic field conditions. These were divided into 18 colonies with *N. ceranae* infection, which were treated with Fumidil B as above in November 2006, and the remainder, which were left untreated – 13 with *N. ceranae*, 2 with *N. Apis* and 17 that were microsporidia-negative.

Transmission of infection is rapid

The researchers found that within three months of detection

of *N. ceranae* in the first colony the infection was detected in an uninfected hive and 13 of the 14 uninfected nuclei – the final nucleus became infected after five months.

Health status of infected colonies

No classic symptoms of nosemosis were observed in infected colonies and the mean spore count fluctuated greatly in hive bee samples throughout the course of the infection. Forager bees had a higher spore count than hive bees and researchers found that the greater the proportion of *N. ceranae*-positive forager bees the fewer the number of brood combs and frames full of bees. In contrast with *N. apis* infection *N. ceranae* infection does not appear to be associated with crawling bees, faecal spotting on the hive indicative of dysentery, or supersedure of queens. No other adult or brood disease was identified in these hives and Israeli acute paralysis virus (IAPV), which has been proposed as a marker for CCD, was only detected in one hive and was the first recorded IAPV instance in Spain. No correlations could be made between the presence of any virus and colony collapse, and although low-level viral titres were found the bees were asymptomatic. Pesticide analyses confirmed there was no exposure to these and pollen analysis revealed the bees had access to a high diversity of forage.

Four phases of infection can be defined

In infected whole colonies, the researchers defined four phases of *N. ceranae* infection. Phase 1: the asymptomatic phase of the infection lasting around 5-6 months, where less than 60% of foragers were infected and the spore count was less than 1 million; phase 2: the replacement phase where the queens continued to lay during the winter and forager bee infection rates were at or above 65%; phase 3: colonies built up rapidly during the following spring and the queens laid heavily into the autumn suggesting that swarming was imminent but this did not happen. The forager bee infection rates fell to below 60% as in phase 1. This was named a 'false recovery' phase, and was followed by phase 4: the 'depopulation' phase in which the brood rapidly fell to 40% or less although those remaining bees were active. This might reflect high losses of adult forager bees and a recruitment of forager bees from younger than usual bees. Two months later (some 18 months after infection) the queens and remaining bees died, presumably of starvation, leaving small spots of capped brood, and stores of pollen and honey. Only in phase 4 were more than 40% of the hive bees infected along with an elevation in infection rates in forager bees at or above 65%. Infected nuclei

Continued on page 14



WANTED

Stewards for Stoneleigh Saturday 18 April 2009

To ensure the continued success of our Spring Convention, a number of additional stewards are required to compliment our winning team.

Free entry to the Convention, together with a duty rota that will ensure more than sufficient free time to enjoy the event, a free lunch and a small emolument towards your expenses will, I am sure, complete an enjoyable day.

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Chief Steward **Norman Hughes**
103 Coniston Road, Basingstoke, Hampshire RG22 5HU
01256 464280 e-mail: norman.hughes2@virgin.net

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See Programme or BBKA website for more information

Spring Convention

Pack your Bags

It is time to put some dates in that new diary and plan your trip to this year's Spring Convention at Stoneleigh. The event offers something for everybody, be they beekeeper or non-beekeeper, experienced or beginner, young or not so young.

The wide range of lectures workshops and courses over the three days means that you need to plan your trip carefully to take in all the events that you want to attend. The programme, available free with ticket purchase, has been revised with this practicality in mind.

The international lecturer is Jamie Ellis from University of Florida, (The Plight of the Honey Bee) and he will be accompanied by his wife Amanda (Pests & Pollination)

On the lecture front we have topical contributions from Giles Budge (Colony Loss Update), Graham Royle (Honey Bee Anatomy), David Aston (Proteins for Bees) and Claire Potter (Pollen & Aero-biology) which should satisfy your thirst for knowledge and let us not forget the ever-popular parallel interest in Bumble Bees on which David Goulson will lecture. But these are just the top-line acts and there is a further range of subjects from a team of superb lecturers covering Single Size Box Hives, Bees & Plants, Off-season Forage, Strategies for Reduced Chemical Use and what sounds quite risqué, Brian Sherriff's talk, Bras to Bee Suits - all in the best possible taste, no doubt!

On the workshops and courses front, the message is clearly book now to avoid disappointment! Clive de Bruyn repeats the Queen Rearing Course of last year and there will be two Microscopy for Beekeepers courses on Friday and Sunday. Want a hive on the cheap and be shown how to put it together correctly? Get onto John Hamer's Build Your Hive workshop and you will get a national hive; floor, brood, super, excluder, crown board and roof for just £65 plus all the advice you need! Not a beekeeper? Then why not try one of the four different patch-working workshops, the cooking with honey demonstrations or making beeswax candles. Do not miss the wild-life either, with static and flying displays of falconry on Saturday.

Sunday is Education Day and brings the opportunity to prepare yourself for the BBKA Basic Assessment or learn more about the BBKA General Husbandry programme. The National Bee Unit (NBU) will lay-on a disease recognition course and for those about to pay their debt of service by joining a local committee as Secretary, Treasurer, Membership Secretary or Exam Board Secretary, then Martin Smith's seminar 'So You Want To Be..' is a must.

But what so many delegates come for is to meet, greet, socialise and to find some bargains. The trade exhibition, open all day Saturday, is bigger and better. With the new season upon us do not get caught short of kit.

Tickets are now on sale at special rates for members via the BBKA web-site or by post from Christine Hayward - see the advertisement on page 12 for details. You will find contact details there for booking the courses and workshops through Mary Dartnall. With Members' Day on Friday 17 April, Public Day Saturday 18 April and the Education Day on Sunday 19 April, you will no doubt be thinking of making a weekend of it. So get in touch with June Hughes straight-away to fix your accommodation at special rates. If you cannot wait to see the programme and start planning your visit; then go to the web-site and down-load the pdf – it is free!

Tim Lovett, Spring Convention Chairman

progressed from phase 2 to phase 4, omitting phase 3, with depopulation occurring much faster than in whole colonies at around 3-5 months after infection.

Temperature influences

When colonies collapsed in the cold months more than 50% of the dead hive bees were heavily infected with greater than 10 million spores and the queens were infected. When colonies collapsed in the early spring the percentage of hive bees infected and the spore counts were lower and infection levels in queens was low. The authors suggest this probably reflects different quantities of young and old bees present; a larger proportion of newborn uninfected bees being present in the warmer months.

Pathology

At microscopy epithelial cells of the bee gut were found to be infected with spores, and intracellular germination was

found. Epithelial cells were degenerating and many were lysed. This pathology of *N. ceranae* infection was not subject to seasonal variation.

Fumidil B effect

Fumidil B controlled *N. ceranae* infection in whole colonies. Treated nuclei were also controlled and all over-wintered well developing into whole colonies. However, these colonies were re-infected the following spring, six months after the original infection.

Summary

These researchers have shown that infection with *N. ceranae* can lead to collapse of a colony. Transmission of infection can occur over at least 500m leading to spread of the disease to some hives within three months. This suggests that in addition to routine Nosema screening it might be

prudent to test bees within 500m of a confirmed *N. ceranae* infection for signs of transmission.

Infected bees do not show signs of dysentery, do not crawl, do not try to supersede the queen and do not typically show symptoms of viral co-infections. Indeed, the long asymptomatic phase makes it difficult to know that a colony is infected by observation alone. The asymptomatic phase is followed by a phase of increased infection rates in forager bees and increased spore counts, along with continual egg-laying through the winter months by the queen possibly to compensate for loss of infected foragers not returning to the hive and younger bees becoming foragers. Although such colonies can appear to be strong finding a queen laying actively into winter may be the first clue to infection, and should be investigated further. The only reliable way to

look for Nosema is by taking a sample of 30 adult bees, dissecting out their guts and grinding these in a little water, and then examining this solution under a X400 light microscope.² This will reveal the tell-tale signs of elliptical-shaped Nosema spores, but will not distinguish between *N. apis* and *N. ceranae*, which must be done using molecular genetic tests.^{2,3}

Fumidil B may be appropriate to treat an infected colony but beekeepers should be aware that it cannot prevent re-infection and they will need to remain on high alert. The picture looks bleak.

References

1. Higes M et al. How natural infection by *Nosema ceranae* causes honeybee colony collapse. Society for Applied Microbiology, Blackwell Publishing Ltd, 2008, epub: doi:10.1111/j.1462-2920.2008.01687.
2. Budge G. What is *Nosema ceranae*? BBKA News, August, p13, 2008.
3. Paxton RJ et al. *Nosema ceranae* spread. BBKA News, August, p12, 2008.

Special Offer for New Bee Keepers

Once again, the National Honey Show is offering FREE full annual membership of the National Honey Show to all those who have joined an Association since 1 August last year or are about to join during the course of this year.

This will entitle them to visit the Show and attend lectures throughout the whole three days of the Show. It will also allow them to enter their exhibits in the competitive classes free of cost.

All that needs to be done is for secretaries to send Francis Capener— either by post or E-mail - the names and addresses of new members. The National Honey Show will then write to each individual - but names and addresses have to be sent by 31 July 2009, after which it will be too late.

In addition to this offer, all first-time exhibitors and those who have not exhibited within the last ten years will not be required to pay any entry fees for the first four classes entered in this year's Show.

Francis Capener, National Honey Show General Secretary

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Research Campaign – What next?

With the arrival of the New Year, it is timely for us to evaluate what progress has been made in the research funding campaign and to consider the next steps.

A hard financial analysis might say - 'not much', with no change of heart on the Government's part and certainly no big cheque or promise of increased funding ... yet. Yes, Rowse Honey's enlightened investment on breeding hygienic bees at Sussex University, has shown the way things might go with industry sponsorship, but the provision of a fund by Government, for which institutions can bid still seems some way off. The Government accepts the risk to bee health and their huge economic and environmental value as pollinators. So why does it not act; why not close the loop and do the logical thing, namely commit the money needed to research? It is all too easy to buy the argument that the Government has no money. The current profligate approach to bank bail-outs shows that if the Government gets scared enough, the cash is there. So why not print a few more bank notes and do something really constructive, that the public would understand and applaud even? The truth is of course that it is not the money – it is the credibility aspect - the prospect that this Government above all others of late finds so hard, to admit it was wrong and

do a U-turn! That said, we should not be totally discouraged. Hilary Benn, asked in Parliament, following the presentation of our petition and the 'Smokers in Whitehall' demo, what he was going to do to address the problem, gave a mildly encouraging reply (see box) The National Audit Office (NAO) report on Defra's performance on honey bees is due out in late January and will trigger activity on all fronts. Let us hope that Mr Benn's words imply a change for the better.

**'...once we have the benefit of the NAO advice, I intend to respond on what else we might be able to do'.
Rt Hon Hilary Benn House of Commons 6 Nov 2008**

There can be no doubt that in other areas the campaign has been hugely successful. The sterling efforts of the membership delivered 142,000 signatures on the petition. In gathering the petition and the substantial media support we have had, it is clear we enjoy the public's support. A measure of this is the growing BBKA membership; more and more people want to get into beekeeping. Another indicator is the way that we are quizzed by friends, family, acquaintances and work-mates on 'what's happening with the bees?'

There have been other successes of note. Our contacts with the

BBSRC (Biology and Biotechnology Scientific Research Council), one of the major funding bodies, now includes honey bees as a distinct area for research in its application criteria. Just a few words; but of great significance. The Wellcome Trust has also expressed itself ready to receive grant application for honey bee research, following the 'Frontiers' meeting. Again, a most positive development from this 'well shod' funder.

I have noted previously in these pages that we enjoy wide cross-party support amongst MPs and Peers. It is the Government that stands alone on the issue. An early day motion (EDM), a parliamentary briefing and an adjournment debate have all helped to build awareness and understanding. A new EDM from Bill Wiggin (Shadow Agriculture Minister), No. 90 tabled on 3 December calling on the Government to think again and fund research, has already attracted ninety signatures. This again indicates the esteem our cause has in Westminster. And it is in Westminster that this battle must continue to be fought and will be won. Meetings are scheduled with the new Minister Jane Kennedy and Shadow Minister Bill Wiggin. There is the possibility of an All Party Parliamentary Group on Bees and other targeted initiatives. Much depends on the outcome of the NAO report in determining our

future tactics. Clearly with a new EDM afoot there is work for our members to do in writing to their MPs requesting an update on the issue and asking them to sign the EDM. Do not think that your letter makes no difference; it does and helps to keep our campaign in focus in the crowded minds of our MPs.

New impetus will be added to the campaign with the publication of the BBKA Research Concepts, a document directed primarily at Government, Opposition, researchers and other groups in which we have fleshed-out our research 'wish-list' and given a lot more to chew on. The document will be available to the membership in due course via the web-site. With the threat of CCD very real here in the UK, growing winter losses and poor honey production we have to ask if we are about to reap the whirlwind through lost pollination capacity. We should all hope and pray not. The campaign continues and each one of us plays a role in keeping up pressure and awareness at whatever level. We have plans to take the campaign forward and we expect to put more emphasis on fund raising - so be warned. But we will not do that without the Government doing its duty, too. Perhaps the real question is one for the Government - Gentlemen, what next?!

Tim Lovett, President

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Beekeepers at Waitrose

The Abergavenny Waitrose Community Matters scheme has chosen Gwent Beekeepers' Association (GBKA) as one of its monthly three good causes to support.

It is widely known that the agriculture and horticulture industries throughout the world depend on bees to pollinate their crops. If there were no bees Waitrose recognises that as 40 to 60 % of our food comes from bee pollination of flowers, fruit and vegetables its shelves would be bare.

GBKA members are continually seeking ways to improve their expertise in beekeeping by running courses in bee husbandry, varroa control and disease elimination. They travelled to Westminster in November to lobby the government to give extra funding to the National Bee Unit for research into the health of bees.

Willie Stewart, Gwent BKA

The Magic Of Beekeeping

An Acrostic Tale

By Mary Ryan

The snowdrop heralds the start for me
of the magical beekeeping year,
Reminding me the "brooding-time"
of "her majesty" is drawing near,
Thank God the winter is over and
its dreary days long gone
The promise that the snowdrops brings,
urges me to move along.

Hasten to the apiary to check
that all is well,
I pray my bees will have survived
the long cold winters spell,
Oh the joy of seeing workers
flitting in and out at will,
To the crocus, yew and hazel, and
that dancing daffodil!

Every hive I must untie and the
mouse guards I will take,
And check they have clean water as
they sup at such a rate,
Lovely pollen's being collected for to
make some hive fresh bread,
Burnt orange from the "faithful gorse"
and some rich "deadnettle" red.

March means scented current blooms
and warmer longer days,
At last the time has finally come
and into the hive I gaze,
Thank God! Thank God! She's there
alright, and my heart begins to glow,
For over wintered well has she and
her family's begun to grow.

All samples I will send away to
the experts in the know,
Though no disease I spy within
leastways there's none that show,
Varroa mites I've counted and
what luck - there is less than three,
No swollen tums or shiny bums or
"k" wings can I see.

Get the supers ready, for the bees
if not the flow,
For the girls are in bee heaven
and their tongues are all aglow,
Their heads are stuck in dandelion
and their lust for rape's a sin!
I so love the scent of fresh drawn comb
and the liquids placed within.

In May they haunt the May bush
and it fills them with frustration,
And they watch the chestnut candles
with a great anticipation,
They beaver in my garden on the
plums and pears and cherries,
Good girls! Great girls! It's due to you
my autumnal store of berries.

Check for swarming, check for Queen cells
for mature and mating drones,
Watch them take off on the
flyways with excitement in their bones,
It's time to get the graft tool out
the time for love is right,
For rearing some more royal stock
is an absolute delight!

Out in the association apiaries
I meet up with my bee friends,
And we talk and talk and long debate
the poor insect to no end,
I love this warm embracing of our
daily lives and lot,
Such special kindred folk and souls
I'll ne'er forget them not.

Forward to the "June Gap" and
my girls are on honeymoon,
Weather gazing and appraising
and wishing summer would come soon,
While all the while I'm watching
as my brood frames grow and grow,
And I'm so proud and somewhat boastful
of eleven in a row!

But nothing that I've written of
compares to warm July,
When the main flow sure gets going
and the days go buzzing by,
Will it be five supers, six supers
seven or more,
Can I lie to my friends
that I have twenty four?

Every day I watch closely for
the sun to rise high,
Clover spreads in the meadow
and the brambles nearby,
I delight in the sight of
my girls pregnant crops,
As they fly by their thousands
in and out of the box.

Early in August and as things begin
to wane,
Ominous clouds in the sky
mean the onset of rain,
I carry in heavy supers dripping
in honey,
Imagining all the great things
I "might" do with the money.

Keeping a close eye on my Queens
till the end,
Though reluctant to replace them
in new ones I'll send
to head up the teams for the
cold months ahead,
Well done! Mothers all. I'm truly sad
you're now dead.

Early in September to the
heather I will go,
With my favourite three hives to
the place that I know,
The beauty and the splendour of the
clean mountain air,
Will always reward for the
effort to get there.

Even the bees seem rejoiced in
the move,
And it doesn't take them long to
"buzz" into the groove,
The scent of the "ling", lingers
long in my head,
and though summer's now ended
this compensates instead.

Pleasant September gives way to
October,
Preparing and feeding for winter
takes over,
Though some do delight as the
cycle now ends,
I myself am not happy "tying down"
my girl friends.

In fact I continue to watch day by day,
As they forage the ivy on banks by
my way,
God bless you - I say loudly - I stole
much from you,
But true to your form
you collect and renew.

Now as the darkening winter
clouds start to muster,
My girls and their mothers
gather tightly and cluster,
Though their brothers and
sisters have long since,
passed on,
The harvest they gave me is
a sure great "swan song".

Get out the new recipe for
warm honey cake,
And the dry honey mead I'm
determined to make,
Then I'll sip, and I'll dine,
and reflect with great cheer,
On a wonderful magical
beekeeping year!!

National Honey Show Essay Class

This was the winning entry in the 2008 Nation Honey Show essay class which is sponsored by BBKA.

For 2009 the title for the essay is 'The Art of Coarse Beekeeping'. The essay needs to be 'not more than 2,000 words, excluding references'. Now might be the time to start writing!

Have you Discovered the Delights of the Virtual Hive Yet?

Essex BKA has bought ten virtual hives, one for each of its divisions. Every division has reported favourably on its usefulness, and indeed in my own division, Romford, it is almost always with one person or another at a show, talk or other event. We also have a miniature National design hive, which is good in its way, but it does not compare with the full-size box with its life-size photographs of a real colony.

A recent outing for the virtual hive was to the Essex Honey Show. The photograph shows one corner of the marquee with a display including the virtual hive, along with some miniature hives, bumblebee nests, wasp nest, solitary bee nests, etc. Given the current public interest in bees, as you can imagine, this table attracted a lot of attention and the virtual hive was constantly being examined and explained.

Early in this year one of our indoor divisional meetings was billed as a *Mock Basic Assessment*. Our speaker was a BBKA Assessor, who came along to explain the Basic Assessment and encourage members to enter for it. For this occasion we made the virtual hive into a full hive by adding a real stand, floor, super, etc. It was perfect for the 'manipulation' part of the *Mock Assessment*!

Romford Division runs a Beginners Beekeeping Course each year. We start with theory sessions in April before moving into the apiary in May for practical sessions. This year we had the virtual hive available for the first time and it proved very useful in helping students visualise and understand the theory we were giving them.

In June we held an Open Day in National Insect Week. As well as sales

of honey and other products we had a microscopy table and, of course, the virtual hive along with displays relating to various types of bees. Seeing the virtual hive encouraged people to come to the open hive demonstrations we ran during the day to see the real thing – some being brave enough to come inside the tent and get hands-on (suitably kitted up of course).

Other uses of the virtual hive have been divisional stands at shows, individual talks by beekeepers to schoolchildren, and talks to adult groups such as the WI, Probus, Townswomens' Guild, and many more.

'But it is very expensive' I've heard said. Well my view is that it is difficult to put a monetary value on such a useful tool and the virtual hive has exceeded our expectations by a mile.

'Why can't we buy the frames alone?' is a question I have heard. But the frames must be stored somewhere, and where better than in a brood box? This brood box is new, which makes it pleasant to handle and attractive to the public.

I know from my own experience that it is very costly to print photographs as in the hive, and then there is the matter of setting them into the frames in a robust way – not to mention getting the life-size photographs in the first place! Provided it is stored in a dry, mouse proof place when not in use, there is no reason why it should not last for years. Our view in Essex is that the price represents extremely good value for money, and we eagerly await the planned development of frames showing bee diseases.

*Pat Allen, Secretary,
Romford Division of Essex BKA, Chair, Essex BKA*



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Annual Delegates' Meeting

The 2009 Annual Delegates' Meeting of the BBKA - held in the National Beekeeping Centre, Stoneleigh Park on Saturday 10 January 2009

How can I summarise a seven hour meeting in a few words? Hmmmmm. How about this:

"The routine business was executed and then the delegates voted to take as much money as possible from Agrochemical Companies, to permit the Executive to spend this money on whatever it chooses, to keep beekeepers' names and addresses away from Bee Inspectors, to set up the BBKA to control all beekeeping in the UK while applying rigorous censorship to debates on the BBKA Web forums, and to require smaller Associations to access the BBKA only through their County Associations."

Well, I am exaggerating again, but democracy, BBKA-style, threw up some interesting decisions.

57 out of the 64 Area Association Members were represented, although with more than the usual number of important policy decisions to be decided, this 11 % non-attendance is perhaps surprisingly high. Association members may wish to enquire if their Association was represented? There were some visitors - Hon. Members and representatives of Specialist Members. The meeting rattled though the more or less routine business in the morning session. Minutes were approved and some matters arising were discussed. The annual reports from the various sub-committees were considered, with surprisingly little comment from the delegates. The financial reserves policy was questioned-it is not clear why the BBKA would need financial reserves of approaching half a million pounds. The budget for the next year was approved, but there seemed to be an undercurrent that delegates clearly were not minded to accept any further increases in capitation charges at the present time.

One delegate made some positive proposals for improving the BBKA stand at the Royal Show by improving the "selling" of beekeeping to non-beekeepers. This valid concern was rewarded with a place on the Royal Show sub-committee for the delegate concerned. Clearly delegates need to be careful what they say at the ADM!

The ballot for the vacant positions on the Executive was held. There were six applicants for the four available places, and this is a welcome change from recent years where the applicants have just matched the places available. Chris Deaves, Brian Dennis, Pam Hunter and John Hendrie were the successful candidates. The Examination Board election was a nominal one as there were only four applicants



Becky Champion from Sussex BKA receiving her certificate to mark 50 years as a beekeeper

for the five places; the ballot was required only to allocate the vacancies for the different time periods. Given the great importance of education in beekeeping, and the frequently expressed need for improved levels of it, we need to be very grateful to the people who do come forward to serve on the Examinations Board.

The morning session concluded with a very well merited award of honorary membership to Ivor Davis, with more than a passing reference to the contribution to the BBKA by his wife Jan.

After only 35 minutes for lunch the meeting re-convened for what promised to be a tough session of debate and voting on new applicants for membership and the much trailed propositions-all sixteen of them.

The organisation BuzzWorks based in Hertfordshire was elected as a specialist member, but the Central Sussex BKA was refused entry as an Area Association Member. This latter decision was initially based on a card vote (one association-one vote), in which the application was defeated 22 to 18 with 17 abstentions. When a membership vote was taken-one vote per registered member but all voted one way or the other by the Association delegate- the result was 6380 to 2586 with 2622 abstentions. These numbers strongly suggest that larger County Associations with the greatest number of members were most opposed to this membership application.

One result of this is to leave the question of applications for membership of the BBKA by Area Associations completely up in the air, and apparently subject to the whim of the particular ADM at which the application is considered. At the 2008 ADM all four applicants were successful, including three associations with memberships of less than 50 each. Now in 2009 an application from an Association with 74 members is rejected.



Angela West, who is retiring later this year as BBKA Treasurer, being presented with a bouquet by Martin Smith, BBKA Chairman



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Annual Delegates' Meeting

The first proposition, to set up a new internet based membership records system, proposed by the Executive, who had researched the feasibility of this following the 2008 proposition to move in this direction, was heavily defeated; voting 48:8 against. The rather open-ended financial implications appeared to be an important factor. Rather strangely the Executive Chairman reported that he was happy with this rejection!

The key business of the day was next up, with the six propositions from the Executive concerning the BBKA interaction with agrochemical companies, the endorsement of their products, the use of the BBKA logo, the acceptance of money for the logo usage and the application of any funds received.

The original proposal was to cover suppliers of bee husbandry products as well, but this was rejected by an amendment proposed from the floor and strongly supported by delegates. These six propositions, now concerned only with agrochemical companies, were considered in turn. For each there was an orderly debate with various views being expressed. All views were listened to attentively by the delegates; there was no heckling or interruptions, nor was there any evidence that the Chairman or the Executive were exerting any undue pressure or censorship on the debates.

The proposition to keep engaged with the agrochemical companies was accepted 54:2 on a card vote, and exactly the same vote was recorded for the proposition to make representations to these companies and to the regulatory authorities for improvements in products. The debate on the proposition to permit the use of the BBKA Logo on agrochemical company products was the most animated of the six. Many shades of opinion were aired, and on a card vote this proposition was accepted by 35 votes to 21. A membership vote was requested, and on this basis the proposition was carried by 7255 to 4056, with 56 abstentions.

The debate on accepting money for the use of the BBKA logo was also lively, with reference to Judas money, and damage to the BBKA's reputation. Possibly the most telling view was that, having agreed to the use of the logo, rejection of the taking of money would mean free use or no use of the logo. In the event this proposition was carried 31:22 on a card vote and 6508:4530 on a membership vote.

The proposition to ring fence into the research fund any money resulting from endorsements was defeated by a card vote of 43:13; as a result of this vote the proposition to increase capitation by £1 per year was withdrawn.

After the intense interest in this group of propositions there was a distinct air of anti-climax around the remaining propositions. The proposal to set up a National Beekeeping Authority was agreed by 35:15, although one speaker suggested that while this was a nice idea it would be unachievable as a practical option. The proposition to require the BBKA to restrict the use of antibiotics for the control of European foulbrood was defeated by 42:10. The proposition to request the National Bee Unit to report foulbrood outbreak locations in 2 km squares was approved by 46:10.

The proposition to prevent the BBKA removing adverse criticism from the website forums was not opposed by the Executive nor did any delegate speak against it. However, on a vote it was defeated by 26:14 with 14 abstentions. This was a strange outcome in view of the absence

of opposing views in the debate preceding the vote. Finally the delegates rejected a call to change the constitution to restrict entry to Associations having fifty or more members, and to require registered and partner members of the BBKA to be registered with the National Bee Unit's Bee Base scheme.

How was the meeting run? In general, very well. The administration was flawless, especially the tellers who, under much more pressure than usual, delivered accurate counts very quickly. Although the President in the chair put some pressure on Associations to refer their propositions to the executive to save time, all the propositions were given due debate. It was good to see that the abuse of process and the absence of debate meted out to two propositions at the 2008 ADM were not repeated this year. The presence of a standing orders 'watchdog' was generally helpful to the conduct of the meeting, and the meeting itself was helpful to the President when he lost his way a little in a long sequence of similar propositions late on in the afternoon.



Ludlow BKA presenting their plaque to Tim Lovett, the BBKA President

What was particularly good? The well tempered nature of the debates on potentially contentious issues. All delegates listened carefully to the views expressed and there were no attempts to shout down or to heckle speakers.

What was particularly bad? At one level the President could be criticised for speaking for too long on the details of the battle for funds from the Government. On a more general note, a few Associations (Kent, Staffordshire North, Devon, Cornwall West) spoke on many issues while the majority of the delegates and others said nothing. I found this silence on the part of the vast majority of attendees disappointing.

What was this year's novelty? Probably one delegate being requested to explain to the meeting why his Association was the only one voting against the adoption of the financial accounts and budget. Is there to be no tolerance for a lone view any more?

Overall a well run meeting. Only time will tell if the right decisions were made.

Mike Rowbottom, Harrogate and Ripon BKA



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BBKA Basic Certificate in Modern African Beekeeping

There is still great enthusiasm for the BBKA Basic Certificate in Modern African Beekeeping in the countries where it is used.

It is valued as an internationally moderated examination, which sets a standard for beekeepers in sub-Saharan African countries that do not have their own examination systems. The assessment is designed to be of equivalent standard to the BBKA basic but modified to be relevant to African conditions.

BBKA Basic Certificate in Modern African Beekeeping assessments are available as part of projects being carried out in Cameroon, Nigeria and Malawi. In these places they are used as a tool for the development of field trainers in order to structure their training and test whether they have sufficient practical skills to teach beekeeping in the field. In general, training for trainers schemes use the syllabus as a training guide and the assessment as a test of competence for field-based trainers who will be training

people in the villages. The practical and oral nature of the assessment means that local examiners can carry it out in local languages and that it is a real test of competence (rather than just attendance on a course as has occasionally been found to be the case). At present Brian Durk and Pam Gregory carry out assessments plus the people they have trained as assessors and nominated to the BBKA. Brian Durk examined one candidate in Nigeria in 2008 while Pam Gregory oversaw the assessment of four candidates in Malawi in Nov 2007. Long-term sustainability of the system depends on the UK-based assessors being able to train suitable local examiners. Pam Gregory trained two examiners in Malawi in 2007. Pam can now act solely as moderator. The system is not as well developed in Cameroon or Nigeria.

The assessment is not used in all sub-Saharan African countries that Pam has visited as some already have their own systems (although Pam has never seen one of these in practical operation or met

anyone who has passed an exam). Beekeeping training in developing countries is frequently done as part of an agricultural college syllabus, which trains agricultural advisers. Much of this seems rather theoretical and is not often available to ordinary bee farmers. However, the BBKA syllabus and marking schedule were sent recently to a contact in Kenya, where there is a reasonable system of private beekeeping education, as they are looking to develop a national exam system and felt that they would like to see what work had already been done since it may help to guide their own thinking.

This certificate could also be of unique value to European beekeepers who wished to help beekeepers in sub-Saharan Africa or for other people, such as VSO volunteers, to offer them the practical grounding they might need. At present provision for this kind of training seems poor. The barrier to this is that at present the training and assessment for the BBKA assessment is done in the developing country. African bees

are very defensive and require handling in a way that might surprise those used to working with temperate honey bees. It may be possible to offer a modified version of this African exam that covered the essentials while pointing out the limitations of doing the assessment in this country. Pam believes there would be a modest demand for it should it be made available in the UK.

Pam and Brian often get requests for a more advanced training course. It may be possible to do this over the Internet as a correspondence course, but to do it well would require an appropriate syllabus and significant development of training material, which would not otherwise be easily available for participants. The biggest difficulty with overseas candidates for module exams would be how to get a fair invigilation system. Pam thinks it is unlikely that this aspect could be easily developed in the near future.

Pam Gregory

More BBKA Examination Successes 2008

Junior Certificate

Alexandra Alpine, Wirral, Cheshire

Basic Certificate

Graham Allan, Bristol
Emma Allan, Bristol
Tina Alpine, Wirral, Cheshire
Fabiola Barahona, London, W3
Kirsten Barr, Bacton-on-Sea, Norfolk
Jonathan Best, Harrogate, N Yorkshire
Jayne Bevan, Hemyock, Somerset
Engin Bicer, London, N12
Rory Canavan, Ilkley, W Yorkshire
Philip Clemente, Clevedon, Somerset
David Colley, Minehead, Somerset
Tracy Collins, Epsom, Surrey
Mike Craythorne, Honiton, Devon
Sylvia Croke, Alderton, Tewksbury
Jeff Essen, Smallfield, Surrey
Jacquelyn Essen, Smallfield, Surrey
Lizzie Evans, Harrogate, N Yorkshire
Mark Fife, Pewsey, Wiltshire
Angela Findley, Colyton, Devon
Michael Forster, Gloucester
Paul Gardiner, Mitcham, Surrey
Leila Goss, Cotleigh, Honiton, Devon
Liam Greene, Greenford, Middlesex

Timothy Hall, Dorking, Surrey
Sam Hart, Longlevens, Gloucester
Richard Hunt, Ilkley, W Yorkshire
Margaret Jarvis, London, W9
Sandra Kinchin, Richmond, N Yorkshire
Tishi Kohli, Ealing, London
Malcolm Langton, Cricklewood, London
Dagmar Leonard, Harrogate, N Yorkshire
Graham Luck, Gothenington, Gloucester
Den Matthews, Neston, Wiltshire
Laurie McNeill, Minehead, Somerset
Margaret Minter, Epsom, Surrey
Rowland Molony, Beer, Devon
Jacqui Morris, North Walsham, Norfolk
Emma Norris, Colyton, Devon
Marie-Laure O'Shea, Kensal Green, London
Alison Payne, Mid Holmwood, Surrey
Celia Perry, Ashted, Surrey
Donald Power, London, W3
Adrian Reeve, Harrogate, N Yorkshire
Nigel Roberts, Greasby, Merseyside
Ailsa Roberts, Greasby, Merseyside
Pamela Saunders, Fetcham, Surrey
Angela Schofield, Long Preston, N Yorkshire
Colin Sherwood, Honiton, Devon
Susan Sidery, Dunkeswell Abbey, Devon
Janet Sparrow, Wirral, Cheshire

John Stevens, Cobham, Surrey
Anna Walker, North Holmwood, Surrey
Susan Wallace, Honiton, Devon
Susan Waton, Sutton, Surrey
Mavis Whitford, Box, Corsham, Wiltshire

Microscopy Certificate

Ian Butler, Otley, W Yorkshire
George Eames, Kelloe, Durham
Glyn Flowerdew, Nottingham
John Fuller, Goole, Yorkshire
Neil Goodridge, Linton on Ouse, N Yorkshire
Helen Howarth, Colne, Lancashire
Frank Jubb, Bingley, W Yorkshire
Maureen Jubb, Bingley, W Yorkshire
Margaret McCord, Richmond, N Yorkshire
Joanna Schup, Whixall, Shropshire
Maurice Vaughan, Warboys, Cambridgeshire
Sally Wadsworth, Chippenham, Wiltshire
Neil Wilmore, Redmire, Leyburn
John Winterburn, Harrogate, N Yorkshire

Congratulations to all these successful beekeepers

*Val Francis,
Exam Board Secretary*

Varroa Biology

Reproduction

The entire life cycle of Varroa destructor mites occurs within the bee hive.

It consists of a phoretic stage (transport phase) as a parasite on adult bees and a reproductive stage inside the sealed brood cells. To breed, an adult gravid female mite (carrying eggs) enters occupied brood cells just before the cell is capped over, where she remains in the brood food under the larva until the cell is sealed. Mites prefer to breed in drone brood (10-12 times more frequently), but will also breed in worker brood. About four hours after capping she then starts feeding on the immature bee and establishes a feeding site on the developing bee that her offspring can feed from as they develop. You will see if you look carefully spots of white faeces or feeding sign of varroa around this site, usually towards the hind end of

the developing pupa. These spots will also be seen on the cell walls. About 60-70 hours after capping the female lays the first of her eggs. For further details please see the life-cycle diagram.

Mating between male and female mite offspring occurs within the cell. Development of the mite is through two juvenile stages known as the protonymph and deutonymph before becoming an adult. Development time from egg to adult for males is 5-6 days and for females 7-8 days. Each female lays 5-6 eggs, the first being a male followed by 4-5 female eggs laid at regular 30-hour intervals. The varroa male emerges first, and the oldest daughter moults to adulthood 20 hours later. By laying only one male egg, varroa increases the number of females that can reproduce at the next generation. Since the males do not survive outside the cell, females must be

fertilised before the bee emerges from the cell, otherwise they remain sterile.

The duration of each reproductive cycle is limited by the development time of the bee, so not all reach maturity and mate by the time the bee emerges from the cell. Males and any remaining immature females die, unable to survive outside the sealed cell. With heavy infestation, two or more female mites may enter the same cell to breed, and female mites may produce more than one generation.

Mature female mites leave the cell when the host bee emerges. Some of these may produce a second or third generation of mites by entering new brood cells. The success rate of reproduction (new mature female mites) in worker brood is about 1.7 to 2 but increases to between 2 and 3 in drone brood due to the longer development period. The

development and status of a colony affects mite population growth, and depending on circumstances mite numbers will increase between 12 and 800 fold. This means that mite levels can return to a previous level 1 year after a high efficacy treatment has been applied.

Life-span

The life expectancy of varroa mites depends on the presence of brood and will vary from 27 days to about 5 months. During the summer varroa mites live for about 2-3 months during which time, providing brood is available, they can complete 3-4 breeding cycles. In winter, when brood rearing is restricted, mites overwinter solely on the bodies of the adult bees within the cluster, until brood rearing commences the following spring.

*From the CSL booklet
'Managing Varroa'*

Your Letters

Varroa Resistant Bees

It was good to read in BBKA news December 2008 about this valuable work to breed varroa resistant bees. However there is a lot that the ordinary beekeeper can do to encourage the development of varroa resistant bees.

In any apiary (assuming the beekeeper keeps a careful eye on mite counts) you will find that some colonies that consistently have a worse problem than others. One must be careful to exclude other mite reducing factors such as weak colony or gaps in brood rearing but even bearing these factors in mind, some colonies do seem to be more resistant to varroa than others. It seems sensible therefore to re-queen the most susceptible stocks with queens from the most resistant ones. After all we do this for bad tempered stocks.

It does not matter at this stage what the mechanism of resistance is (eg grooming or hygienic cleansing) just that some bees seem to be coping better than others. We can find out why later.

If there had been no treatments when varroa arrived in the early '90s there would have been a holocaust of bees with losses of 99% or more but somewhere there would be a few colonies with a full set of varroa resistant genes. These would have bred up and by now, we would have largely resistant bees. All we have done by treating with pyrethroids in the intervening period is to propagate susceptible bees. It is our duty now to breed them out in a controlled manner.

I have been reading Herrod-Hempsall's account of 'Isle of Wight disease' (Acarine) which he witnessed in the early part of the twentieth century and there are parallels.

It started on the IOW between 1905-8 and it arrived on the mainland in 1909. By 1918 it was present in all parts of the country and had wiped out an estimated 90% of bee colonies. In 1919 the Ministry of Agriculture encouraged, by subsidisation, the importation of Dutch and Italian queens into Britain which seemed to be more resistant. Nowadays Acarine is only an occasional problem.

Joe Dod, Harrogate and Ripon BKA

The Business Corner

EDUCATION & HUSBANDRY



Changes to the Regulations Regarding Fixed Sale Quantities

EU Directive 2007/45 came into force on 5 September 2007 following an EC consultation on specified quantities (SQs). The Directive deregulated almost all European-wide fixed pack sizes, wines and spirits being the exception.

Directive 2007/45 is due to come into force in UK Law on 11 April 2009. However, the UK trading standards central co-ordinating body issued advice in December 2007 that the law on fixed pack sizes be relaxed for all goods (other than those referred to above) in advance of the 2009 implementation date. That means that the fixed pack sizes for honey no longer apply although there is nothing to prevent a manufacturer from continuing to market honey in the customary sizes if they so wish. They may wish to do so, for example, because of continuing customer demand for the traditional pack (or, in this case, jar) sizes.

Prior to 11 April 2009 you would be wise to confirm with your local trading standards department that it is waiving current law in line with its central co-ordinating body's guidance. When the UK Legislation comes into force all current legislation relating to specified quantities will be revoked as part of the Act.

Further information can be found at: http://www.nwml.gov.uk/content.aspx?SC_ID=260

Strangely, you may only be able to access this indirectly, one route is via Google - once into the site go to:

Legislation & Guidance -> Weights & Measures Legislation -> Specified Quantities.

The BBKA was aware of the early consultation (prior to 2007) in this area and responded in such a way as to increase flexibility to honey producers and sellers.

Chris Deaves, Chairman E & H

Your Letters

What about the Bees!

I am still pondering the message of Professor Dewey Caron's talk at the North Devon apiary. He is an expert from the University of Delaware, and is involved with the authorities looking into the causes of CCD.

It is all so disturbing – but somewhere in this darkness there are keys to other doors. And I am not talking only bees but money markets and environmental ferment. The good Professor took us to the edge. We looked into the abyss. This is what I heard him pointing out.

Commercial beekeeping in USA is driven by such powerful economic pressures that it is inherently unsustainable. The more it encounters problems, the more it demands quick fixes that not only do not resolve the problems but create further problems. Thus the bees and the natural and cultivated environment are being destroyed by the agricultural industry's insatiable demands (more in the name of pollinating food crops than producing honey). And of course the industry is part of the whole web of manufacturing, finance, politics and our teeming greedy culture. All the old sustainable systems of cohabiting and cooperating with nature are being undermined and swept away and not slowly.

I heard the professor say that some of the best brains of American Etymology and Epidemiology have been on the case for a year and a half and have no clear grasp of the causes of CCD. Is it varroa induced? Is it a virus? Is it from pesticides – particularly Nicotinoids? (all wax foundation is now found to be chemically contaminated) Is it from stress? Is it from feeding artificial pollen and inappropriate syrups? Is it from all of the above?

'Where there is man there is a mess,' said one of our wise beekeepers afterwards.

Somerset beekeeper Patrick Mouldsdales wrote this to me; *"Modern beekeeping has developed from a human perspective not a bee perspective. Bees have evolved and adapted effectively for 50 million years, yet in just 150 years of modern beekeeping we have driven them to the end of the line. It is now not possible for them to adapt and evolve; we don't let them. It is totally clear to me that CCD is just the bees not being able to cope any more, like the bloke who pops out one morning to buy the Daily Mail and is never seen again. We need to be bee watchers and bee listeners not bee keepers (as in jailers). We need to be more conscious of what they do and have done for so long. We need to treat the bee colony as the super-organism that it so obviously is."*

He then lists ten pointers to a more conscious, whole way of being with bees and a link to a website. Each reader will have their own further suggestions and reflections.

- Treat the colony as a complete organism not as separate parts
- Allow the retention of nest scent and heat
- Allow each colony to make all its own comb
- Only use swarm bred Queens or natural superscedure
- No suppression of the swarm process
- Over-winter bees with sufficient quantities of their own honey
- Maintain a colony density supportable by the local forage with good flower diversity
- Maintain a low colony density per apiary
- Use a locally adapted bee
- And finally use only natural, breathable materials for the hives.

<http://uk.groups.yahoo.com/group/warreekeeping/> "

Human consciousness is like an iceberg – nine tenths of it is invisible. Our unconscious drives are more influential than we like to think. Despite our best intentions the global markets will not stay in equilibrium, the well-being of the planet spirals into ruination and nations rarely learn to live together peacefully. The globe is showing us, it seems to me, that we need to be more conscious of our actions. Bees are an indicator species – the canary in the coal mine.

How do we become more conscious of our behavior? At this stage of history is that the most important question?

Consciousness, in my understanding, is not only another word for the stuff of the universe. It is also the self-reflective quality that only humans have that allows them to see themselves as body-minds that are born, live and die. In other words we can be the non-material watchers of the material body-mind.

My understanding is that only through a collective rise in human consciousness can there be a way through these crises. There are no technical fixes that will solve the problems that the old 'unconscious' mind has created. We have to question all the current and traditional assumptions and values – yes even us oldies – because we are so clearly on the road to chaos. And how do we become more conscious? By stepping out of our shoes. By looking at ourselves and our actions with detachment. It is as simple and as puzzling as that. There are not any quick answers – but there are a lot of questions that we need to ask ourselves. And we need to keep asking them.

I am looking into the abyss once again. Do we support the pursuit of profit or do we turn about and pursue the welfare of our earth and its inhabitants? Let us take the questioning and conscious route so that there will be a planet for our grandchildren to inherit.

Rashid Maxwell,
North Devon BKA

Diary of a Lazy Beekeeper

Clearly I am on a learning curve and beekeeping is a little bit more complicated than I thought when I decided to take it up.

However, beekeepers are always happy to give advice and inspectors are more than generously helpful.

A nearby beekeeper was found to have an outbreak of foul brood and my hives were inspected in case they had contacted the disease. Now I was told about BDI when I started and happily paid the small premium required but I did not realise that I had built up stocks from swarms so quickly that I had more colonies than I had paid for and if my bees had to be destroyed then I would not get compensation.

Nor did I realise that many of my combs had not been changed regularly enough and would not have qualified for full compensation. I was glad that my colonies were found to be healthy and that the inspector was so helpful.

I should have found the time to go to my local association meetings to discuss my problems more often. They always make me welcome and there is never any shortage of friendly chat. There are times when I get more than one point of view about the same problem but I have the confidence to try different things and decide which way suits me most.

The bees seem to thrive despite my interference and I am still relatively lazy but I am beginning to do the right things at the right time without too much extra work.

Brian Millward, Warwickshire BKA

Education

Supporting education is one of the core aims of the Association and we have an increasing range of material available from Audio Visual material to Training Manuals in popular formats.

Go online to order at www.britishbee.org.uk or call BBKA Enterprises Ltd., for information
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Your Letters

Drones and Queen Pheromone

I was interested to read the comments about the queen pheromone in Mel's 'Ask the Experts Column' in BBKA News 174. What Celia Davis actually said in her article was that the pheromone was 'not very volatile' which is quite different to 'is very short lived' as Tony Herbert reported.

I was privileged to have worked with Dr Colin Butler at Rothamsted during the 1950s and 1960s and after his work on identifying the queen pheromone he turned his attention to drone behaviour. He carried out many experiments to determine the attractiveness of the queen pheromone and the height and distance drones would fly to an artificial lure. At one time he tried flying such a lure from the mast of his sailing boat to determine how far drones could be attracted over water and was successful up to eight hundred metres, this is about the average flight range for drones, in trials in the East Anglia Fens he found that few drones ventured more than three kilometres from their hive. What was probably more interesting was that the mast remained attractive to drones for nearly four years afterwards!

Although drones are more active at a few metres from the ground they will investigate objects at a lower level. When working in the field Dr. Butler had a habit of regularly stroking his forehead and on occasion drones would be attracted to the queen pheromone he had unintentionally deposited there.

So based on this evidence it would appear that a 'congregation area' could be 'marked' but I think it unlikely.

There is a lot of contradictory information about drone behaviour. For example, Mark Winston claims in his book Biology of the Honey Bee that 'congregation areas are not found closer than 90 -120 metres from an apiary site' and yet at Rothamsted drones formed huge 'comets' at a lure which was flown in the middle of an apiary! I think that part of the problem in obtaining facts about 'congregation sites' is that much of the research is carried out in areas that have a high colony density which gives an unnatural drone population.

I think queens may play a much more important role in drone behaviour than we realise, Dr. Butler believed that 'once they (drones) had been attracted to a particular place by the odour of a queen's sex attractant they will continue to visit it for several days, probably, indeed, for the rest of their lives'.

Queens make several orientation flights over a five to eight day period culminating in the mating flights. One can imagine how many drones could be attracted to a particular area in this time. Then there is social facilitation, where drones would be attracted to other drones. Once drones are excited by the presence of queen pheromone they will investigate anything that is air borne in the vicinity, even a wellington boot thrown aloft!!

It is a great pity there are no longer funds available for this type of research as I am sure many mysteries could be solved using the Harmonic Radar Tracking Equipment based at Rothamsted, but I suppose there are more pressing issues at present.

Peter Tomkins

The Business Corner

DIGITAL TECHNOLOGY



New BIBBA Website

The Bee Improvement and Bee Breeders Association (BIBBA) have recently launched their new website www.bibba.com There are lots of features and there will be others introduced on a regular basis.

There is a list of lecturers for the U.K. and Ireland, which should help the organisers of beekeeping events to source lecturers and demonstrators of a good standard. Subjects cover all aspects of beekeeping, not just bee breeding. We welcome additions to the list, and the lecturers don't have to be BIBBA members, but do have to support the aims and objectives of BIBBA

BIBBA has been promoting the native and near native bees since its formation in 1964, and has a strong membership that covers the U.K. and Ireland. Membership which includes the excellent magazine "Bee Improvement" can be taken out online, or from Secretary Brian Dennis, 50, Station Road, Cogenhoe, Northants., NN7 1LU. 01604 890117

BBKA Website Update (www.britishbee.org.uk)

BBKA Discussion Forum 'Social Networking' for Beekeepers

There is no better place to meet other like-minded beekeepers and to get help from the more experienced members. Have you ever fancied writing a beekeeping Blog? Start one and let people follow your progress throughout the year. You need to enter the forum and register first. See Help on the site navigation.

This is what is currently being discussed in the forums and the number of replies.

- Intermediate and Advanced: Oxalic today 31
- Intermediate and Advanced: Computer bee modelling 12
- Intermediate and Advanced: Photo of heat escaping from a hive cluster 23
- Intermediate and Advanced: Apiary warning signs 44
- Intermediate and Advanced: Fondant 32
- Queen Rearing: Drone culling for Varroa and poor queen success! 25
- Queen Rearing: Stimulative feeding for queen breeding 29

BBKA Hosted Branch Website

This is a no frills facility perfect for a small branch or association wanting to attract new members and have all the normal announcements and meeting dates publicised. The system uses a standard template linked to a web content management system (CMS) which makes creating and updating web pages quick and easy. The South Gloucestershire Beekeepers' Association have recently taken the plunge and are now successfully managing their site:

www.britishbee.org.uk/local/southgloucestershire/

Summing up, the BBKA Hosting is great for a local association that want a free and simple remote updateable website using only a browser. For more details on how your branch can use this service. See Members Area Navigation / Host and Build a Branch Website.

Steve Turner, BBKA Web Manager

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News Flash

Recent BBC TV highlights featured Libby Culshaw of North Bucks BKA and Martin Edwards of North Cotswold BKA off showing their healthy colonies.

'Wild in The Garden', filmed the Gibbons family from Milton Keynes last May being introduced to beekeeping in Libby's garden apiary. BBC1 screened this on 18 December. Martin opened up his hives at the end of the season to explain to Alex James how a colony works for 'It's Not Easy Being Green' shown on BBC 2 on 15 January.

The BBC invited Chris Deaves into the studio on December 17 to take part in a local radio beekeeping phone-in. Chris spoke to Radios Humberside, Kent, West Midlands, Guernsey, Solent and Gloucester, while Libby did three interviews on Three Counties Radio on December 18.

Radio 4's 'Farming Today' looked back at the year's bee health issues on December 30 while Guardian Weekly Online on 22 December even speculated whether the end of the British honey bee was in sight.

Looking Ahead

The plight of the honey bee and the need for increased funding for bee health research is still at the top of our media agenda.

A major feature on endangered species will be appearing in The Sunday Times in February.

National Science and Engineering Week, organised by the British Association, *for the Advancement of Science* from 6-15 March, will be giving away packets of bee friendly seeds as part of their campaign, sponsored by Rowse and supported by the BBKA to 'Save our Bees'.

A monthly Beekeeping Diary is appearing in Kitchen Garden Magazine. More features are expected in the June 'Green' issue of Readers' Digest and June issue of Country Living, both on sale in May.

We are helping ITV with a major environmental countryside series which will be networked over a 36 week period from March.

And finally..... I would like to thank everyone who has helped me, often at very short notice, often during 'unsocial' hours to achieve such phenomenal media coverage.

Christine Gray, Honorary Press Officer

BUCKS COUNTY BEEKEEPERS' ASSOCIATION

13th ANNUAL SEMINAR

Saturday 7th March 2009 - 10:00am to 4:15pm

Wendover Memorial Hall, Wharf Road, Wendover HP22 6HF

Speakers: Prof David Warrell - Bee Venom

Dr. Robin Wootton - Insect Flight Systems

Richard Ball - The State of Beekeeping in Britain Today

Peter Tomkins - CCD - Colony Compromise Disorder

Cost for the day, to include refreshments and lunch, £12.

Pay at door, but please book in advance with

John Catton tel: 01494 726616

or: richard.catton@ntlworld.com

Chelsea Flower Show

Plans for this year's Chelsea exhibit 'Bees Need Gardeners', are already well underway.

We have decided to be very upbeat this time round. Everyone seems to know that bees are under threat, and people are asking the question 'What can I do to help?' Gardeners seem to me to be ideally placed to help bees, and the exhibit will demonstrate a number of ways that they can do this.

However, I need your help and advice.

- Can anyone suggest the best way to present a 'virtual swarm'? I need to have one hanging from a branch and have not yet worked out the best way to do this.
- I need good photographs of bee friendly flowers that will blow up to at least A2 size and still look great. Anything that we use will be credited.
- We need lots of lavender and other bee friendly plants to make the stand look attractive.
- We need help manning the stand, so if you feel like a day out at the show please let me know and I will put your name down on the list. The show runs from Monday 18 May to Saturday 23 May, so let me know if you have a preferred day.
- We need a few people handy with electric drills to help build the stand in the week 11 to 15 May.

If you think you can help with any of the above, please would you e-mail me at pipobrien@btinternet.com or phone me after 6pm on 07940 759 151.

Many thanks

Philippa O'Brien.

Diary of Events

2009

21 February – Somerset BKA Lecture Day, at Cheddar. Speakers Richard Ball, Glyn Davies, Keith Delaplane, Philippa O'Brien, Adam Vevers. Tickets: Caroline Butter, The Old Manse, Draycott, Cheddar BS27 3SF. Tel: 01934 742075

7 March – West Sussex BKA Convention, at Lodge Hill Centre, Pulborough. Speakers: Prof Francis Ratnieks, Dr Tony Williams, Mathilde Briens, Claire Waring. Also choose 3 from 7 seminars. www.wsbka.org.uk Details: Christine Stevens: 01243 533559, E-mail: wsbkaconvention@googlemail.com

21 March – Wisborough Green Division, West Sussex BKA, Beginners Day at Pulborough Village Hall.

Enquiries: Roger Patterson r.patterson@pattersonpressings.co.uk 01403 790 637 or 07976 306 492

17 – 19 April – BBKA Spring Convention – Page 13.

22 April – Somerset BKA Special Lecture at Hazlegrove School, Sparkford. Speaker: Jamie Ellis – 'Extraterrestrials in Honey Bee Colonies: How did They get There?' Details: Sharon Blake 01460 242124

17 May – Sussex BKA Annual Beemarket. Heathfield Community College TN21 8RJ on B2096. Auction, Demonstrations, Lecture and Trade Stands. Details at www.sussexbee.org.uk or from Harold Cloutt 01424 838302.

15 – 20 September – Apimondia in Montpellier, France

10 October – Devon BKA Buckfast Bee Day at Buckfast Abbey

29 – 31 October – National Honey Show at St George's College, Weybridge, Surrey

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It is said...

That old queens produce different ratios of pheromones to those of young queens

