



Beetalk

**General info and news about bees
May 2016**

Hello and welcome.

Beetalk is a compilation of news from across the bee keeping word.

Its not affiliated to any beekeeping group so you wont get things like the next meeting and what we are doing and such like.

We hope that the articles provided will be useful to anyone interested in the a rewarding hobby and in some way we also hope that you may gain some pleasure in reading some of the article that are included.

Also we intend to include articles that may be helpful to anyone new to the hobby.

Being based in Lancashire it would be great for any contributions from Beekeepers from the county. But as stated above, please nothing about your association or group.

Hope you enjoy.

Editor

If you have any articles that you think may be useful to have included in Beetalk.

Please e-mail them to the editor

at

birt_192@hotmail.co.uk

**PLEASE SUPPORT THE
FOLLOWING.**

NORTHERN BEE BOOKS
OVER THE PAST TWENTY YEARS OR SO WE
BEEKEEPERS HAVE HAD
TREMENDOUS SUPPORT FROM NORTHERN BEE BOOKS. WE WOULD LIKE TO THANK
THEM BY
PUBLICISING THEIR WEBSITE
WWW.BEEDATA.COM
THE POSTAL ADDRESS IS:
NORTHERN BEE BOOKS
SCOUT BOTTOM FARM
MYTHOLMROYD
HEBDEN BRIDGE HX7 5JS
PHONE 01422 882751
BY THE WAY, THEIR
CONCESSIONARY RATE
www.beedata.com/beebooks.htm

UK Honey Labelling Regulations

*Below is our simple advice on honey labelling.
For more detailed information - go to the website
of the Food Standards Agency. www.food.gov.uk*

- 1. The Word **HONEY**'s required.*
- 2. The weight must be on the label - we will ensure it is the legal size and format.*
- 3. You can specify the area where the honey is produced. For example, Lincolnshire, Forest of Dean, Scottish Borders.*
- 4. You can specify the type of honey. For example, Heather, Borage. The honey must be at least 75% of that particular type.*
- 5. If you are selling the honey, you must have your name and address on the label. It does not need to be complete but you should be able to be found from the information.*
- 6. If you are selling the honey through a third party, you must have a lot number.*
- 7. New for 2003 You must have a best before date on the jar. We suggest 2-5 years from now.*
- 8. New for 2003 You must have a country of origin on the jar. For example - Produce of England, Product of Scotland, Harvested in Wales. Adding the country to the end of your address is not acceptable.*

E H Thorne (Beehives) Ltd disclaims all responsibility for all consequences of any person acting on, or refraining from acting in reliance on, information contained above.

*From EH Thorne's online catalogue 2010 -
other sources are available*

LEADERLESS BEES CAN ORGANIZE Science Daily

University of North Carolina Andrew Pierce's discovery, appearing in the behavioural biology research journal 'Ethology', has to do with detecting a significant new detail concerning the behaviour of the European honeybee -- perhaps the most studied and economically important insect on Earth. Beyond agriculture, the finding may also have key implications for understanding the dynamics of all social animals, including man.

Using an ingeniously designed experiment, Pierce and his co-authors were able to document details of bee social behaviour that fundamentally confirm the hypothesis that major colony activities are initiated by the cumulative group actions of the colony's older workers, not by the queen's individual decision.

What Pierce and colleagues found was that older workers gave signals to the queen and to the rest of the colony that it was time to swarm and leave the hive. Later, they were able to observe inside the swarm itself and see workers give the queen a signal, known as "piping" that tells her to fly. "Researchers have never reported worker piping being done on the queen before, so some of what we found was exciting," Pierce said.

"It was generally surprising to see the level of interaction that the older bees have with the queen. This doesn't normally happen in the hive," he noted. "It's interesting because it shows that though the queen has a tremendous impact on the colony, she's not the decision maker." "The colony is not a dominance hierarchy and, from a human perspective, this is unusual. Our human society is very dominance hierarchy structured -- we have centralized systems of control. But bee colony systems of control are very different -- they are totally de-centralized."

Like humans, honeybees are remarkable for living in large organized groups where highly developed social behaviours coordinate the efforts of thousands of individuals to accomplish complex tasks -- manufacturing, community defence, environmental control and maintenance, food production, brood-rearing and education. Like human civilizations, bee societies follow organizational principles, such as following social rules (like human customs and laws) and division of labour. But here the similarity ends. Bees do not have large brains and are not capable of complex thought like humans. Though the bee colony is centred on the queen and her reproductive capabilities, findings indicate that she does not exactly "rule." Instead, the colony appears to be controlled by the anonymous consensus of the colony's workers. Though it is of great interest to researchers studying social behaviour, a great mystery still remains regarding how bee societies effectively direct and coordinate complex operations without a central controlling intelligence.

Pierce's finding is part of an ongoing research effort aimed at understanding the mechanisms of leaderless societal management -- in particular, the importance of two communication-related behaviours known as the "vibration signal" and "worker piping." Different from the famous "waggle dance" that foraging worker bees perform to tell other bees where to find a food source, the vibration signal appears to be a more general, multi-purpose form of communication. Schneider has concluded that this signal, which consists of one bee grabbing another bee (worker or queen) and then vibrating its body, does not convey a specific message, but instead is a form of "modulatory communication" that alters existing bee behaviours (making bees perform their jobs more actively, perhaps) or changes bees response to other signals.

The current paper documents how workers use the vibration signal to prepare the queen for swarming by making intrusions into her "court" and vibrating her hundreds of times an hour. She responds by changing her behaviour -- reducing her food intake, slowing egg laying and becoming more active. At this point, the workers begin to send a second signal that researchers call "worker piping" at a fevered pitch. Piping, which consists of bees making contact and vibrating their wing muscles rapidly, appears to be a general instruction to fly. The workers stop using the vibration signal when the queen flies and leaves the nest with the swarm. Piping, however, continues in the swarm, as the bees need to make the queen fly again once a new nest site has been selected.

Contrary to the popular conception of a colony controlled by instructions from its breeding queen mother, the research shows a picture of the queen as a passive egg layer whose own behaviour is programmed, with changes dictated by signals delivered by older workers. This does not mean, however, that the colony is controlled by a key group of experienced bees either. The worker bees that deliver the critical signals have short life-spans and tiny brains incapable of managing the colony the way a human village might be managed by a council of elders. Instead, critical strategic choices, such as the assessment that it is time to divide the colony and swarm, appear to be decided by the dynamics of the group itself. Social interactions, environmental pressures or group dynamics in some still-unknown way initiate a string of behaviours that effectively manage complex group activities. It is a real challenge to understand how bee colonies work, but it is also fascinating because they are so different. Evolutionarily, they got to the same point as humans -- living in these highly organized societies that function with remarkable efficiency -- but they are organized so differently when you start digging into them. It's interesting that these major differences can result in the same emergent social properties. It may tell us something about ourselves.

MAKING UP YOUR OWN NUCS

If you are interested in making your own nucs to increase your numbers, it is not difficult. You do need to have the basics of beekeeping down, and you do need a hive or two with lots of bees and brood. It is also good to have a source for new queens. At present, queens for sale seem to be in short supply (unless you ordered early), but typically later in May the demand slows and the supply increases.

You need to have your queen in hand before making up a nuc (or, if you have queen cells available, see the section below). I do not recommend making up nucs and depending on the bees to make a new queen by inserting a frame with eggs into the nuc. It has been my experience that this method is not always successful and can result in a queen of inferior quality. When making nucs for increase, I always purchase a quality queen from a queen producer.

I prefer to make up nucs on nice warm days, when the bees are flying well. This reduces the number of bees in the hive (since the foragers are coming and going) and makes for friendlier bees. It can make finding the queen easier as well.

If you're purchasing queens for nucs, try to plan your nuc making for the day the queen arrives or the next day. Also make sure (again ahead of time), that the hive you intend to use as a source of bees and capped brood is strong enough to supply the nuc without weakening the parent hive. I never take bees and brood from a hive unless it has both brood boxes full of bees (all brood frames covered with bees) and has at least six deep frames of capped brood present. I always want to leave at least four frames of capped brood in the parent hive.

Nuc boxes

You can use either nuc boxes or standard hives for making up nucs. A nuc box is simply a smaller version of a standard hive and typically holds four or five deep frames. I prefer five-frame nuc boxes, but nuc box sizes are a matter of personal preference. You do not even need nuc boxes to make a nuc; a standard hive with a deep hive body works fine. Most beekeepers make their first nucs in them, and some continue to do so. A nuc box is just convenient because it can be more easily moved and handled.

Finding the queen in the parent hive!

When you make up a nuc, you **MUST** guarantee that you do not remove the queen from the parent hive. This normally requires the beekeeper to find the old queen in a very strong hive. Newer beekeepers often find this difficult. However, there is a simple method for making up a nuc without finding the queen. You can first go through the hive to find her, or you can search for her as you make up the nuc. If I find her first or run across her as I make up the nuc, I will normally place her, along with the frame she is on, in a separate nuc box for safe keeping. Another method is to leave her in one deep and remove the frames for the nuc from the second brood box. The system you use is up to you but keep track of her and do not accidentally move her.

The bees will not normally free your caged queen if there is a queen present. Or they may free the caged queen and then kill her. So make sure you don't remove that existing queen.

Making up the nuc

I usually just start removing frames from the parent hive, examine them and make up my nuc. I also select a frame with lots of honey and some stored pollen, and place it, along with the bees on the frame, into my nuc box. I normally do not look for the queen first but examine the frames for her as I go. If I run across her, I store that frame; if I don't, I'll look for her later to guarantee that I did not move her. I then examine and move at least two frames with lots of capped brood, along with the bees on the frames. I try to select frames that have nice big ovals of capped brood. I prefer frames from which I see new worker bees emerging. This allows my new queen to quickly lay in these cells when they are empty, and the emerging bees will reinforce the bee population in the new nuc. I try not to move uncapped brood. Uncapped brood must be fed and cared for by the bees in the nuc and I prefer the bees in the nuc to concentrate on drawing comb and caring for the eggs the new queen will lay. Plus the older capped brood will result in additional bees sooner. If I did not see the queen as I removed the frames to the nuc, I will look through the hive for her. While I'm pretty observant at seeing the queen, I want to make sure.

Fill out your nuc box or brood box with empty frames or frames with good quality drawn comb if you have them. You'll probably need to leave one frame out in order to install the queen cage between the frames. If you're using a nuc box, in addition to the frames of brood and a frame of honey you may wish to install a division board feeder (this type of feeder occupies the space of a frame). Or fill out the box with an additional frame with foundation or comb. If using a standard hive, you can go ahead and fill it out with additional

Installing the queen

Now you are ready to install the queen. This is the same process we use when installing a queen in a new package. It can be done immediately, but I prefer to wait a while. I like to give the bees in the new nuc a minimum of a couple hours to realize that they are in a queenless state. I believe that I get a better rate of acceptance this way. I sometimes make up nucs and then return later in the afternoon or even the next morning to install the queen. When you're ready, place the queen cage between the frames of capped brood, candy end up, with the plug removed from the candy end. I NEVER directly release queens, nor do I remove any of the candy or punch a hole in the candy. I leave that up to the bees. I give them all the time they want to free the queen, believing that this increases the chance of her being accepted. But if you wait more than a matter of hours to install the new queen, you need to check to make sure that the bees have not started a queen cell. If they have young larvae and start an emergency queen cell, they may ignore your new queen or worse. I've never had that problem when I waited as long as 16 hours (afternoon to the next morning). If you do check back after a couple of days and find the bees are ignoring your new queen, look for a queen cell or even a queen. Sometimes, in the spring, hives contain multiple queens as a result of queen production. If you have a queen, a queen cell, or even a virgin queen walking around in a nuc, the bees will probably ignore your new queen and not attempt to free her.

Moving the nuc to a different location versus leaving it in the same apiary

Some directions for making nucs will say that you should always move the nuc to a new location, but I don't consider this necessary. If you leave [he nuc in the same apiary, older bees on the frames in the new nuc will return to the old hive after they exit the nuc to forage. I prefer this since it does not remove foragers from my parent hive and reduces any loss in honey production. It also leaves only younger bees in my nuc, which helps ensure acceptance of the new queen - younger bees more readily accept a new queen. Plus me young bees are at the proper age to make wax, care for the queen and raise new brood. These arc the activities that I wish to see going on in the new nuc. Since I feed the nuc, foraging for nectar is not important initially. Later, as the nuc grows, the young bees I moved will age and begin to forage for themselves.

However, if you wish to maximize the number of bees in the nuc, you can sea] it, then immediately move it to a new location at least a mile away. Then, when the foragers leave the hive, they will reorient and return to the nuc. So whether to move or not is up to you. If you wish to move them - perhaps to a location where it is more convenient to care for them - but do wish to leave the foragers behind, just move them the next day. By that time the foragers will have flown and returned to the parent hive.

Adding extra bees

I often will shake the bees off an additional frame or two (again from capped brood - that is where the young bees are) to add young bees to the nuc. If you do leave the nuc in the same apiary where it was made up, you will most likely see a decrease in the number of bees in the nuc the day after it was made up. This is due to the field bees returning to the parent hive

Making a stronger nuc, making more nucs, mixing frames of brood and bees

Two frames of brood is the standard for making up nucs, but you can make them stronger. Let's say you have an existing hive with 10-12 frames of capped brood. You can easily move half of those frames to make a single, stronger nuc. You could also make up two nucs, or more, from a single, strong hive. You can even mix frames of brood and bees from different parent hives to form one nuc without weakening any of the parent hives too much. Why does this not result in a lot of fighting? Most of the bees on brood frames are young bees and will not fight when combined. However, when mixing frames from different hives you have to be especially careful about accidentally moving the queen. You can imagine the problem if you accidentally moved the queens from two different hives into one nuc.

Concerning parasites and diseases the buyer should ask the nuc producer to show him a certificate of inspection from a Bees Officer saying the colonies belonging to the producer have been inspected and found to be free of AFB. A certificate might say that the colonies are under treatment and being managed to keep parasitic mites and small hive beetle populations below economic thresholds. But this is very little consolation, since the buyer will have to continue treatments as needed.

The Beekeeper admires his daughter for the first time

She lies in my arms moments after her birth
This latest edition to man on earth
Blue eyes stare up, puzzle what they are seeing
Her first glimpse of home and another being
But how to prepare you for the years ahead
And this fickle world face without undue dread
To teach you the skills you'll need throughout
life

Then one day, perhaps, to be a loving wife.
But first you must be tutored to stand and walk
To feed yourself and sleep and then learn to talk
To read and to write and with friends you should
play

Your childhood happy, adding new skills each
day

So when you have reached that defining moment

One dreaded by every loving parent
Will you be confident to stand on two feet
Alone in the world, fresh challenges to meet
Could you work a computer, cook a good meal
Could you comfort the dying, tell how you feel
Help the sick, give orders and change a nappy
Take orders and still be willing and happy?
Could you fight your corner with passion and
verve

And calm others who seem to have lost their
nerve

Could you work with figures to balance accounts
And sort a fresh problem as complexity mounts?
Could you travel across the earth's endless lands
Build a wall, write a poem and dirty your hands
Dress an animal to eat that's just been killed
And know how to pray to feel peace and fulfilled?

And if the worst happens and your luck runs out
Then die gallantly with a defiant shout
Remember my daughter an insect you're not
So specialisation is not your lot

The Queen admires her daughter for the first time

She lies on my the comb moments after her birth
This latest edition to Apis on earth

Black eyes stare up, puzzle what they are see'n
Her first glimpse of home and a noble Queen
But how to prepare you for the weeks ahead
And this fickle world face without undue dread
Develop the instincts we need in the hive
And work each day to keep us all alive.

But first you must be tutored to stand and walk
To follow me, feed me and learn how we talk
To keep house and clean cells in which I may lay
A servant you'll be, adding new skills each day
So when you have reached that defining moment

One dreaded by every loving parent
Will you be confident to stand on six feet
Fly into the world, fresh challenges to meet
Could you build a wax cell, test the walls by feel
Dance a figure of eight and a zigzag reel
Feed the brood, cap full cells and plug all the
holes

With propolis when you survey fresh bee boles?
Could you fight your corner with passion and
force

And guard the entrance against even a horse
Could you swarm with your sisters at my command

And spend a long winter shut up on remand?
Could you travel across the earth's boundless
fields

Find flowers, gather pollen to increase our yields
Fan a sugar packed cell that has just been filled

And remove a dead drone now useless and killed?
And if the worst happens and your luck runs out

Then die gallantly with a defiant shout

Remember my daughter a human you're not
So specialisation is your sole lot.

Varroa biology

Mites are highly adaptable and changing all the time despite only having brother/sister matings. Inbreeding, for mites, is apparently the norm and is good for them. The predominant, Korean, strain of *V. destructor* has changed so much that it is now unable to infest *Apis Cerana*.

There is a biological cost to the mites for adapting to Pyrethroids and when these are withdrawn the mites revert to being sensitive in about 3 years. This means that we might be able to use them again in the future but only for short periods, perhaps for severe infestations.

'Bite' marks, i.e. the dents sometimes seen in the carapace of dead mites are probably a natural post mortem change due to the big muscles under the carapace shrinking but let's keep an open mind on this one.

The Varroa genome has been decoded and this may well lead to new treatments in the future.

Varroa and Viruses.

About 18 different viruses have been found to cause disease in honeybees. The ones most likely to occur in the UK are; Sacbrood, Deformed Wing, Cloudy Wing, Black Queen Cell Disease (also associated with Nosema) and the two Bee Paralyses. Acute Bee Paralysis kills bees quickly and has frequently been the ultimate cause of death for severely Varroa infested colonies. Slow Bee Paralysis causes masses of crawling and 'shivering' bees mid season. Individual bees die but the colony can often shake it off and recover.

Viruses have always been transmitted naturally by the faecal-oral route and also, apparently, from drone to queen during mating. However Varroa, being a blood sucker, is a very much more effective vector in the same way that dirty needles transmit AIDS and Hepatitis in humans. Many viruses are found in perfectly healthy colonies. Not only do the mites transmit viruses, the virus is sometimes able to replicate in the mites as is the case with Deformed Wing Virus.

Lateral flow devices (like Pregnancy testing kits) are being developed, for virus testing, similar to those now in use for AFB & EFB.

Chemical control of Varroa

Dr. Max Watkins of Vita Pharmaceuticals made the sobering but undeniable point that chemical treatments will remain the mainstay of Varroa management for the foreseeable future, much as we like to project the 'Organic' nature of beekeeping.

He outlined the problems of bringing a new chemical to market, testing it for safety, efficacy etc. and then registering it for general use. This would cost at least £100 million per product and as beekeeping is a small niche market, we are unlikely to see any new chemical treatments for Varroa in the near future.

He said that there was no sign of resistance to Thymol yet as it is a generalist poison, attacking cell membranes and protein and it would be more difficult for the mites to become resistant. It certainly seems to have little or no harmful effect on bees if used correctly.

He made the following useful points; Monitor Varroa levels regularly, treat with at least two methods, rotate treatments to discourage resistance, follow the directions and treat all hives in one area.

Integrated Pest Management

IPM is a theory of pest management, attacking the pest at different stages with different methods, the object being to keep the pest level low enough not to cause economic damage without necessarily aiming to eradicate the pest. Different levels of control are applied depending on the level of threat and different times of year. IPM is NOT anti-chemical. The introduction of chemicals into beekeeping however has brought us problems once the worry of other sectors of agriculture such as pest resistance and chemical residues in wax.

IPM if used correctly can be almost as effective as single chemical treatments but inevitably takes up more time. It involves a lot of judgement and compromise and is often a case of two steps forward and one step

Biological control of Varroa

Some of you may be familiar with the work of David Chandler and Gillian Prince at the University of Warwick with their beautiful pictures of dead mites covered in green mould. This involves infecting Varroa mites with common soil fungi. *Metarhizia* & *Beauveria* are the most promising types of fungus and are present in every garden. Varroa mites are highly susceptible to these fungi and the bees' brood nest has the optimal temperature and humidity for the growth of these fungi. The problem as yet has been to design a system that will deliver the spores to the mites in sufficient quantity. Some of these fungi are distasteful to bees, ruling out putting it in feed. This idea seems quite promising but so it did 7 years ago when I first heard of it. I think we (probably the Americans) need to throw a lot more money at the problem to get a usable product, the analogy being converting Penicillin from a laboratory curiosity into a wonder drug.

95% of pest control in British commercial greenhouses is now biological. Biological control can be very effective but is more difficult and requires knowledge.

Breeding Honeybees for Varroa resistance

Now we were on my favourite subject but I have to say that I came away only slightly wiser and no clearer how to proceed than before! Norman Carreck whose articles you may have read in BBKA News was the speaker. He started by asking the question 'If left alone, do bees naturally become resistant to Varroa?'

They have had Varroa in Russia for 60yrs, in Europe for 40 and Britain for 20. Some strains of Russian bee do seem to show resistance although evidence for resistance in other places is sketchy. We don't fully understand the mechanisms by which bees might be resistant, let alone the genetics. The three mechanisms we know a bit about are;

HYGIENIC CLEANSING where the bees are able to identify a pupa that is infested with mites and abort it.
GROOMING; when the bees remove (and bite?) mites from each other.

REDUCED BROOD ATTRACTIVENESS possibly by giving off the 'wrong' pheromone or not giving off the 'right' one. Mites are unable to identify brood that is about to be capped and so unable to reproduce. The practical difficulties involved are huge;

Bee genetics and behaviour genetics in particular are poorly understood.

The stability of the strain and associated undesirable traits are unknown.

It is difficult to evaluate the progeny of a particular queen as she needs a full season in which to prove her Varroa resistant credentials. By this time, of course, she is past her sell by date in commercial terms.

The two biggest problems particularly for the hobbyist are ;

Drone selection and Heterogeneity

Our queens always have and always will mate with drones from the vicinity. We have NO control over this. OK, there is artificial insemination and remote mating areas but these are not relevant to most readers of *The Apiarist*.

Heterogeneity is a posh word for variety or outbreeding. This vital for honeybees as, for various reasons, inbreeding causes honeybees to die out.

So, here we are, we want to breed resistant bees but we can't choose our males and we can't inbreed. I am left with the only conclusion that I can see which is to look at the problem the other way round and remove the susceptible genes from our environment. This is what natural selection would have done without our interference. We should monitor all colonies to see which ones are 'martyrs' to Varroa and which ones don't seem to get it so much. We should raise queens from the more resistant stocks to requeen the martyrs.

As we all share our drones, we should not heroically treat and propagate strains that are susceptible. The 'James Bond' theory (Live and Let Die) whereby you allow martyr stocks to die was discussed at the meeting but if we did this now we would lose an awful lot of bees! Those with resistant stocks should be prepared to give eggs or sell queens to others. In York and W. Cornwall there are groups doing this already. I am, despite all this, optimistic. Some of my bees show some resistance, one is a martyr and is already in the process of being requeened. Varroa susceptibility, second only to bad temper, should be regarded as a bad trait and bred out.

SWARM QUIZ

Whilst the winter months are upon us it would be interesting for beginners to take this little quiz so that they are prepared so , see what you can remember about it in this lighthearted quiz. Easy one to start with.

1. When does an egg hatch? After 2, 3 or 4 days.

2. When is a queen cell sealed? After 7. 8 or 9 days.

3. When does the virgin queen emerge? After 15, 21 or 24 days.

4. Which bees emerge on the other days?

5. When does a swarm usually leave? a) Before any queen cells are sealed; b) When they are all sealed: c) When the first one is sealed.

6. If the first virgin to emerge is a) allowed to kill her rivals, what is her next important action?

b) If she is not allowed to kill them what will she do next?

7. True or False

- a) A young queen never swarms.
- b) The queen decides when the swarm leaves
- c) Clipped queens cannot fly so the colony never swarms
- d) There will be drones in the hive before swarming starts
- e) A swarm can be placed anywhere in its own apiary without much loss of flying bees

8. Which of the following best describes swarming preparations?

- a) Six or less good queen cells, on the face of the comb
- b) A dozen or so queen cells of different sizes, on the face of the comb
- c) A dozen or so good queen cells, mainly around the edges of the comb

9. What are the other queen cells?

10. Name three conditions that might trigger swarming

11. How often should you inspect the colony in spring to control swarming?

12. What are you looking for?

13. How may a colony be divided up for swarm control?

14 You are going on holiday for three weeks in May. Which of the following might stop swarming?

- a) Kill the queen
- b) Divide the colony in two
- c) Put a queen excluder over the entrance
- d) Give three brood boxes and three supers

Say no more



BEEKEEPERS and potential beekeepers seeking stocks are encouraged to source their bees locally whenever possible. Most local associations sensibly discourage their members from importing from afar for reasons of pest and disease risk and also the effects of introducing exotic bee types to new areas. Several associations are putting measures into place to assist the local supply of bees and this is very welcome. As a result of the discovery in 2009 of widespread European and American foulbrood, we encourage all beekeepers in Scotland to exercise caution when purchasing and moving both stocks and second-hand equipment in Scotland. AFB can occur anywhere and can also linger for many decades on used equipment, whereas EFB has a more local distribution but can also persist for years on equipment. Although destroying used frames and scorching the insides of boxes reduces the risk it does not eliminate it completely. Some sources of second-hand equipment are a particularly high risk whereas others may be known to have come from beekeepers with healthy bees. When in doubt seek local advice, but the best approach is not to purchase second-hand equipment unless its health status is well known. Anyone sourcing stocks of bees should ask the vendor when the bees were last inspected by the inspectorate, and what inspections the beekeeper has performed for disease. We also encourage all beekeepers to register on BeeBase to make your bees known to the inspectorate. Additional concerns apply to bees in the main EFB infected area in Tayside and Angus, even though the outbreak is now at least partly coming under control. We strongly urge SBA members not to purchase bees from Tayside and Angus in 2011 for movement outwith Tayside and Angus. Under the EFB Strategy for 2011 bee farmers in the EFB-infected area (which includes parts of S Aberdeenshire and the Lothians) have agreed voluntarily to go beyond the legal requirement and not to sell stocks to destinations outside that area. We now ask potential purchasers of stocks and also smaller scale beekeepers so far unaffected by EFB within Tayside and Angus, the worst affected area, with bees to sell in 2011 also to commit to help preserve the EFB-free status of much of Scotland by exercising similar restraint. Within Tayside and Angus, the area of highest risk of EFB, once traditional vendors of nuclei have been inspected in 2011 and found clear of foulbrood to the satisfaction of the inspectorate, we consider that the risk of spreading EFB to new areas within Tayside and Angus is low given that these areas have already been exposed to the disease. However EFB is a particular concern as the disease appears to have spread dramatically within the commercial beekeeping community in Tayside before its discovery in 2009. The disease can fluctuate over a season and it is difficult to be sure that a symptom-free colony will remain free of the disease. You can see an overview of where Inspectors found both AFB and EFB in 2009 and 2010 by using the following link to Beebase: <https://secure.fera.defra.gov.uk/beebase/maps/map.cfm> Select different criteria on the right hand side of the page. Bear in mind that most of the 2009 records were late in the season and in 2010 many inspections were done on the spring sites. The beekeepers affected migrate colonies from lowland wintering and rape sites to upland heather sites, so to obtain a full picture of the worst affected areas look at both years.

In summary:

- i) given the risk of spreading foulbrood, please exercise great caution in purchasing secondhand equipment,
- ii) please cooperate to reduce the risk of creating additional centres of EFB infection by not purchasing stocks from Tayside and Angus for other areas in Scotland.

Editors Note

Although this is an article relating to Scotland. The same applies to anywhere in the UK and you must be very careful from where you obtain your secondhand equipment

Thanks to Scottish BKA for the article.

Varroa Monitoring - *Monitor, Monitor and Monitor Again*

THE most important practice in the control of Varroa is monitoring. Always make sure that you know the Varroa load in the colony. If the load is low, there may be no need for treatment at that time. Varroa will likely have killed a colony, or made it unlikely to survive, when the levels approach 2,500 mites per hive. In the UK it is considered desirable to keep levels below 1,000. Monitoring should be aimed at finding out when this level is likely to be reached and applying an anti Varroa treatment prior to the population reaching this level, However it should always be kept in mind that the Varroa load in a colony could suddenly increase if deserter bees from a nearby colony that had become Untenable due to Varroa infestation arrived and were admitted into the colony. These deserter bees could be heavily infested with Varroa mites. There are two main monitoring methods:

1. Carrying out a count of natural mite fall through a Mesh floor onto a collection tray.
2. Recording the number of mites on decapped DRONE cells in Summer Of course with Varroa mites we must also take account of the season because of the varying bee population throughout the year. A smallish population of mites in midwinter when the bee population is small is much more serious than a small population in mid-summer. We therefore use tables to determine how serious is the load at any given time. Monitoring should be carried out at least four times in the season. Early spring, after the spring flow, at the time of the main honey harvest and late autumn. Ideally monitor all colonies.

Monitoring Method 1 – Recording Natural Mite Fall – Mesh Floor & Tray All populations of living creatures have natural death rates and a high recorded death rate indicates a high population. Recording the death rate of humans is a method used by population demographers to find out the size of the population – we can use a similar method with Varroa mites. Mites die naturally and fall to the hive floor, so, by having a mesh “Varroa floor” with a collection tray underneath, the number of fallen mites can be recorded over a period of days or weeks and the likely population of Varroa in the hive calculated from the formula: Number of mites counted, times Factor A, divided by the number of days monitored = Total mite population

Factor A varies according to the time of year, as follows: Factor A =

30 for the months of May to Aug,
100 for Mar, April, Sept and Oct and
400 for Nov, Dec, Jan and Feb.

Example – It is July, we’ve had the monitoring tray in place for a week and we’ve counted 40 mites.

Estimated Mite loading = 40 mites x 30 (Factor A) / 7days = 171 mites in the colony

Method 2 – Recording the number of mites on de-capped DRONE cells in Summer The drone larvae can be withdrawn from a sample of Capped Drone cells with an uncapping fork. The number of drone pupae with mites is then counted and the total hive mite count calculated using the following formula:

Number of drone cells infested, divided by the number of drone cells sampled, times the Estimated Total number of drone cells in hive x 10 = Total mite loading in the colony. We must now consider the Critical number of mites in the hive and the number of days to reach the destruction level of 2,500 mites

Numbers of mites per hive, below which, the bees would probably survive without treatment action this calendar year are:

Jan to May below 170
June below 300
July below 500
Aug below 1,000
Sep below 2,000
Oct to Dec below 2,400

However these numbers should be considered absolute maximums, I would be considering treatment at 50 to 60 percent of these numbers.

FERA (DEFRA) publish a valuable booklet called Managing Varroa, you can download a copy at

www.secure.fera.defra.gov.uk/beebase/downloadNews.cfm?id=93

**Do I have a message to all beekeepers regarding Varroa?
Yes! Monitor, monitor, monitor!**

Soon it may be harder to stop and smell the roses. Growing levels of air pollution from power plants and automobiles have reduced the potency of flower fragrances by up to 90 percent as compared with preindustrial levels in the United States, a new study has found. The trend is unpleasant for human noses, but may be life-threatening for pollinators such as bees and butterflies.

"Many insects find flowers by detecting the scent produced by those flowers," said Jose Fuentes, University of Virginia. "This pollution makes it increasingly difficult for pollinators to locate the flowers and feed on their nectar." Flowers also stand to suffer when this symbiotic relationship falters. If insects can't find enough flower-based food to survive, their movements won't pollinate plant species.

Flowers produce volatile scent molecules that bond with pollutants such as ground-level ozone, in the process breaking down the plants' sweet smell. With more pollution in the air, the aromatic molecules don't remain potent as long and travel shorter distances on the wind. The new study's model suggests that in the mid-19th century, when pollution levels were first recorded, scent molecules would have been able to travel some 1000-1200 metres. Today, in the polluted air found downwind of large metropolises, scents may only make it some 200-300 metres. The impact is especially pronounced during high-pollution "code red" days in summer. "Lots of vehicles are releasing nitrogen oxides," Fuentes said. "When the gases are in the presence of sunlight they are converted into these molecules that we call ozone -- one of the main pollutants that we find in the summer months. Fragrances are overwhelmed by it.

BEE'S' TINY BRAINS BEAT COMPUTERS

Researchers found that bees could solve the 'travelling salesman's' shortest route problem, despite having a brain the size of a grass seed.

Bees can solve complex mathematical problems which keep computers busy for days, research has shown. The insects learn to fly the shortest route between flowers discovered in random order, effectively solving the "travelling salesman problem", said scientists at Royal Holloway, University of London.

The conundrum involves finding the shortest route that allows a travelling salesman to call at all the locations he has to visit. Computers solve the problem by comparing the length of all possible routes and choosing the one that is shortest.

Dr Nigel Raine, from Royal Holloway's school of biological sciences, said: "Foraging bees solve travelling salesman problems every day. They visit flowers at multiple locations and, because bees use lots of energy to fly, they find a route which keeps flying to a minimum." Using computer-controlled artificial flowers to test bee behaviour, he wanted to know whether the insects would follow a simple route defined by the order in which they found the flowers, or look for the shortest route. After exploring the location of the flowers, the bees quickly learned to fly the best route for saving time and energy.

The research, due to appear this week in the journal *The American Naturalist*, has implications for the human world. Modern living depends on networks such as traffic flows, internet information and business supply chains.

"Despite their tiny brains bees are capable of extraordinary feats of behaviour," said Raine. "We need to understand how they can solve the travelling salesman problem without a computer"

Found in the Guardian Newspaper and via guardian.co.uk

I always knew the buggers had the edge on me.
Ed.

Varroa - A Brief Guide

Mites reproduce on a ten-day cycle. To breed, a mated adult female mite enters a brood cell just before the cell is capped over, where she remains in the brood food until the cell is sealed. About four hours after capping she begins to feed on the immature bee and, after about 60-70 hours of entering the cell, the mite starts laying eggs on the larva which hatch into several females and, typically, one male.

Spread

Mites can easily move between bees within the hive. They depend on adult bees for travel between colonies through the natural processes of drifting, robbing and swarming. Varroa can spread slowly over long distances in this way. However, the movement of infested colonies by beekeepers is the principle means of spread over long distances.

Mating

Mating between mite offspring (usually brother and sister) occurs within the cell. Mature female mites leave the cell when the host bee emerges. Males and any remaining immature females die, unable to survive outside the sealed cell. With heavy infestations numerous female mites may enter the same cell to breed. The mites have a preference for reproducing within drone brood (10-12 times more likely). In fact in their original host, *Apis cerana*, they are only able to reproduce within the drone brood, but are also well suited to infest worker cells of the Western honeybee.

Bloodsucker

The adults suck the haemolymph (blood) of adult honey bees for sustenance, leaving open wounds. The compromised adult bees are more prone to infections. In winter, when brood rearing is restricted, mites over-winter solely on the bodies of the adult bees within the winter cluster, until brood rearing commences the following spring. During the summer, female Varroa mites may live for two-three months. During the winter, or broodless periods, they can live much longer, feeding on adult bees. Mites cannot survive more than a few days without bees to feed on. As well as causing physical damage by weakening the larvae and adults by feeding directly upon them, they also act as a vector for a number of honeybee viruses and the feeding process may stimulate latent infections to become highly virulent to the bees they affect.

Lifespan

The life expectancy of mites depends on the presence of brood and will vary from 27 days to about five months. During the summer mites live between 2-3 months, completing 3-4 breeding cycles. Developing mites pass through two juvenile stages, known as protonymph and deutonymph, before becoming adults. Development time from egg to adult for males is 6-7 days and, for females, 5-6 days. Each female lays 5-6 eggs, the first being a male followed by 4-5 female eggs laid at regular intervals of 30 hours.

Increase

Mite numbers can increase between 12 and 800 fold over a season. Researchers agree it is wise to try and keep Varroa infestation in the hive below 1,000 mites.

IT'S
TIME
FOR...

SUMMER FASHIONS IN BEE SUITS!

BROUGHT TO YOU
BY 'DEPUTY', A
SUBSIDIARY
OF SHERRIF™

THE
'TUX'

CAUTION:
DARK
COLOR
MAY
INFURIATE
BEES!

FOR THE BEE GUY
WHO'S ALWAYS RUNNING
LATE - ANNIVERSARY
DINNER, WEDDING OR
AWARDS BANQUET -
YOU'RE PREPARED!

BEEKEEPING ALONG
BUSY ROADS? LET 'EM
SEE YOU COMING WITH
OUR NEW FLUORESCENT
COLORS - HOT PINK,
YELLOW & ORANGE.

THE
'DAY-GLO'

REMOVING BEES
FROM HIGH
STRUCTURES?
WHY CLIMB
DOWN WHEN
YOU CAN FLY
LIKE A BEE
WITH THE NEW

'BASE JUMPER'

WING SUIT AND
BEE SUIT WITH
DETACHABLE
PARACHUTE!

COMBINATION
CRASH HELMET &
PROTECTIVE VEIL.

AGGRESSIVE BEES? THEN
YOU NEED THE NEW -

'GLADIATOR'

LAYERS OF
KEVLAR
PROTECTION
KEEP THE
STING OUT OF
APIARY
MAINTENANCE,
HOO-YA!

(BATMAN HELMET
SOLD SEPARATELY)

TIRED OF SWELTERING
IN A HOT BEESUIT?

'THE IGLOO'

SMALL FAN IN HAT
KEEPS HEAD COOL
WHILE REFRIGERANT
FLUID CYCLES THRU
PROTECTIVE SUIT!

HANDY
WRIST
CLIMATE
CONTROL
DIAL

KEEP COOL
WHEN THINGS
HEAT UP!

NEW
'CAMO
BEE SUIT'

NEW DUAL-
PURPOSE SUIT
FOR WHEN YOU
WANT TO MIX
BEEKEEPING
AND HUNTING.

HANDY LOOPS
HOLD SHOTGUN
SHELLS, HIVE
TOOL OR DUCK
CALLS.

GREAT FOR
KEEPING A
LOW
PROFILE
WHEN YOUR
HIVES ARE
'POACHING'
ON PRIVATE
PROPERTY!

WANT YOUR PET WITH YOU IN
THE BEE YARD, BUT DON'T WANT
THEM TO SUFFER FROM STINGS?

THEN CHECK OUT OUR NEW
'APETIARY' LINE OF PROTECTIVE
SUITS FOR DOGS AND CATS!

VELCRO FLAP
FOR EASY POOP
RELEASE!

'BOWSER
TROUSERS'

GOOD FOR
HOME USE, TOO!

'KITTY
SACK'

KEEP
FLUFFY
FROM
GETTING
UNDER-
FOOT!

QUIET
BEES
OR HIDE
YOUR SCENT
WITH THIS
HANDY PORTABLE
SMOKER...

POCKET CAN
ALSO CARRY
A COUPLE
OF BEERS!

FOR OUR COMPLETE CATALOG, CALL 1-555-BEE-SUIT TODAY!

LAD
609

Holidays

Tired with the noise and pollution and the same old Costa Holiday?????Then why not try a different Costa Holiday.

Come to Costa Geminiano

An Italian Rustic Farmhouse in the mountains of Emilia

Romagna Province of Parma

The property is situated at 650 metres above sea level on the edge of a small quiet village amid beautiful unspoilt Countryside. The nearest town Bardi is 12km away.

Accommodation comprises of 3 double bedrooms and 1 single bedroom. Self catering with meals can be arranged if requested. Guaranteed no Internet, no TV, no en suite bedrooms, no discos and frilly duvets- just the sounds of birds, cockerel alarm call and bees. Bring your own veil and walking boots for exploring the countryside.

Price per week 650 euros. Short stay B & B @ 30 euro per night

Interested, need to know more ring Jenny on 0039052576169



Respect your Neighbours

There are some sound reasons to be aware of and be respectful to your apiary neighbours. The first is disease; we all have a responsibility to avoid the spread of diseases. It cuts both ways, you don't want theirs and they don't want yours. Make sure your bees are healthy. Know about the location of neighbouring apiaries and try to be aware of the health of their bees. Treat swarms with great care; isolate them for a time until you are sure they are fit and well. The second reason is forage availability; with a doubling in our membership in two years there is an increased possibility of overcrowding of hives in an area. Again this cuts both ways, overcrowding disadvantages all parties. The only realistic way to find out about neighbours is through contact in your division and with neighbouring divisions.

Please use the network of contacts that exists in our association when you are setting up a new apiary and be particularly mindful of disease if you take swarms collected by another beekeeper