



Beetalk

**General info and news about bees
December 2017**

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

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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" is 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.*

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

By the time you read this I will be most probably back in the Far East. Like the swallows I am not to keen on the English winters any more.

I would however like to wish all the readers and my many beekeeping friends in the UK and very warm and happy Christmas and that you have a peaceful time.

I hope the New Year will bring you much happiness and that your Beekeeping year will be a happy one. If you get any honey or not never mind has its keeping these lovely little insects that's to me is more rewarding.

Best wishes to you all. Michael

A step forward or a step back?

A recent piece in the BBKA news, "Old comb versus new comb" has triggered me into sharing some of my thoughts on comb. My background is in deep level mining and in that environment one learns quickly to accept nothing at face value. It seems as though this may be the reason why I've become cynical about much of the equipment that is currently hawked to the 21st century bee keeper.

There appears to be plenty of evidence to suggest that current pesticide and varroacide practices lead to an unhealthy build up of unnatural substances in beeswax. Therefore, I find it entirely logical that brood comb should be regularly removed. The question is what to replace it with.

The policy of recycling wax in foundation must compound the issue of contaminant build up. I also feel that the uniform pattern of foundation is an unnatural demand to enforce on our bees. Bees draw worker cells of differing sizes when allowed to. They are also happy to expend valuable resources on producing a much larger ratio of drones than foundation framed bee keeping allows. Although the reasons for this are not yet understood I am sure that after 120 million years the bees have very good reason to do so.

My other aversion to foundation is the size of the embossed pattern. A well known supplier is currently selling foundation with a cell width of 5.7 mm. I transferred a nucleus of bees from such foundation into a top bar hive this summer. The cell size in this hive has already regressed to an average worker cell size of 5.3 mm. Others have reported cell size variation as small as 4.8 mm. The imposed larger cell size is not only unnatural, but also has an impact on the laying space available to the queen, reducing it by as much as 35% and potentially leading to increased swarming.

I would prefer my bees to have clean wax and a cell size and drone ratio of their choosing. This may well reduce my honey harvest, but I am sure the bees will be far healthier and more contented. I find horizontal top bar hives time consuming in terms of returning the bars after inspection without any "fatals" and also the large lugs are cumbersome, so I decided to experiment on a National hive. In deciding to dispense with the foundation I found that, with sensible frame handling, I no longer needed wire or fishing line support within a frame.

Dispensing with wire then allowed me to dispense with expensive and overcomplicated frames, as no allowance is needed for wire expansion at the bottom of the frame.

I placed a narrow cedar top bar on one side of the brood nest and a frame of foundation on the other. The bees drew a perfect rectangular comb, which I could easily remove, and ignored the foundation. I repeated the process by introducing another cedar bar on the other side of the brood nest and again the bees showed their preference over the foundation.

Although I found no issue with comb being attached to the side of the brood box, I think this was luck and so in the new year I will use a simple top bar with 10 cm short sides. This will give me combs which can still be easily examined, enable vibration communication, are drawn as the bees desire and are a lot cheaper!

I intend to have a simple framed hive next to a traditional framed hive at several apiaries and look forward to reporting on results in terms of bee health, varroa numbers, cell size and honey produced. The next steps will be to assess appropriate frame spacing and also produce drone foundation for the supers, from the fresh wax I have recovered this year.



FOSSIL FIND 125 YEARS OLD.

Scientists from the United States and China have discovered the first intact fossil of a mature eudicot, (a type of flowering plant whose membership includes buttercups, apple trees, maple trees, dandelions and proteas). The 125-million-year-old find, described in the journal *Nature*, reveals a remarkably developed species, leading the scientists to argue for an earlier origin of the eudicots—and perhaps flowering plants in general. "This fossil named 'Leefructus mirus' opens up a new way of thinking about the evolution of some of the first flowering plants," said Indiana University Bloomington biologist David Dilcher, the *Nature* paper's American co-author. "We are also beginning to understand that the explosive radiation of all flowering plants about 111 million years ago has had a long history that began with the slower diversification of many families of eudicots over 10, perhaps 15 million years

earlier." The fossil shows the above-ground portion of a mature plant. A single stem leads to five leaves, and one leads to a fully developed flower. The entire fossil is about 16 cm (6.3 in) tall. Leaves are innervated by branching veins, and the small, cup-shaped flower has five petals. "I think *Leefructus* had attractive flowers to advertise for pollinators to visit," said Dilcher, when asked to speculate. "There were no bees at this time, so I think that flies, beetles or extinct types of moths or scorpion flies may have been involved in its pollination. *Leefructus* was found in the volcanic ash beds of an ancient lake. I think it was living near a lake, perhaps in a wet or marshy

area much as buttercups do today." Like the branching relationships of the tree for this group, the *Ranunculaceae* is at the end of several branches going to the other families, such as the poppies. As a result, the scientists believe that prior to 122 to 124 million years ago, several families of flowering plants had already begun to diverge. How much older the eudicots are we do not know yet, but this fossil suggests their origin certainly goes further back in the Cretaceous, perhaps even into the Jurassic. The profusion of flowering plant species in the second half of the Mesozoic Era, the age of dinosaurs, eventually led to flowers' domination of other types of plants in all but Earth's harshest climates. Evolutionary biologists believe the diversification of flowering plants also supported the radiation of a wide range of animal species, particularly pollinators and seed eaters, from beetles and bees to hummingbirds and bats. Until now, most fossil information about the earliest eudicots has come from fossilized pollen, the plant equivalent of sperm. Despite pollen's small size, pollen grains have provided crucial information to paleontologists. But pollen can only tell scientists so much. What scientists know about the earliest eudicots comes from a few pollen records off the coast of West Africa and the lower Cretaceous sediments in southern England about 127 million years before present. They know that much can be learnt from pollen, but the *Leefructus* fossil shows that there is no substitute for a megafossil record if we are to understand the evolution of early flowering plants.

eat

The age of the *Leefructus* fossil was determined by analyzing the ages of surrounding rock via Argon 40/39 and Uranium-Lead dating methods.

This research was supported by grants from the Chinese Ministry of Education, the "111" Project, China's National Natural Science Foundation, and Shenyang Normal University.

Do you remember .

When your grandmother did her spring cleaning or her laundry and used a fine white granular substance which was not soap powder?

It is likely that she was using soda crystals or, to give them their technical term, sodium carbonate decahydrate ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ for the scientists amongst us). These are a derivative of Soda Ash and dissolve really quickly in water (hot or cold). They have many uses around the house, in the garden and, as they are free of bleach, enzymes and phosphates, are just perfect for cleaning up around our bees.

Soda crystals have been used for generations to clean, loosen dirt, cut through grease, limescale and soap scum plus they soften hard water. As beekeepers we are surrounded by all the above in various forms if you consider beeswax, propolis which sticks to everything and general grubbiness surrounding our beehives whether they be in the garden or a field, on a law loader or on the top of building, the children, cows or pigeons! Beekeeping suits and overalls can be washed in the washing machine in the usual way. If you add a handful of soda crystals to roughly half the quantity of your usual detergent, you will find that any sticky propolis is removed, your suit will come up nice and clean AND you will lessen your environmental impact by reducing the detergent used as the soda crystals soften the local water. Less limescale deposit on the inside of your washing machine and pipes leads to a reduction in repair bills, so a big thumbs up all round to soda crystals!

Propolis gets everywhere in the summer months when it is warm. We find our gloves, hive tools, smokers and bee-suits covered in this marvellous substance, but how to remove it? A good soak in a solution of soda crystals will dissolve the propolis and any beeswax that has come with it (1lb:1gallon / 500g:5litres of water is an approximate ratio which gives an antibacterial pH of 13 so I am told). Adding a squirt of washing up liquid will help disperse any scum. Do please wear appropriate protective clothing including rubber gloves as the solution will be mildly corrosive and do not use anything made of aluminium as the soda crystals solution will attack the metal, pit it and ultimately eat their way through. Soda crystal solution is ideal to disinfect your hive tool(s) between apiaries or between hives – best to keep it in a plastic container, an ice cream tub or a bucket with a lid. You will find that the Association tools are kept in such a way at. The solution should get changed every fortnight or so to prevent re-spreading the deposit.

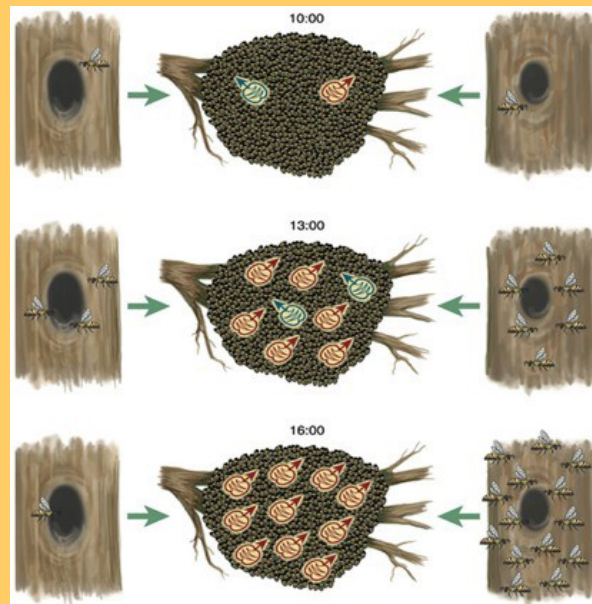
Try not to get the soda solution on your hands as it might irritate – there are plastic inspection gloves available if you need them. The use of a nylon scrubbing pad will not scratch your hive tool and will help remove any deposits. This same mix can be used to clean all the parts of the hive too. Brood and super frames, when stripped of their foundation and comb, can be soaked in the solution to remove the old wax and propolis and a gentle scrub with a cheapo washing up brush will complete the job. After soaking the frames, rinse them in fresh water and hang them up to dry. Excess soda will be absorbed by the wooden frames and as they dry a white fluffy dust might appear, especially on the exposed ends.

Soak the frames in diluted white vinegar and the soda will be neutralised. Wooden floors and crown boards can be given a good scrub with the soda solution and then scorched with a blow torch. Polystyrene and plastic hives can also have a good scrub down with the soda solution, but don't scorch these ones! Your smoker can also be given the same treatment, but keep the bellows clear of the liquid. Put plastic queen excluders in a hot mix, it will bring them up clean and spotless as they clearly cannot be flamed like the metal ones. Make a point to clean seasonal equipment like bee escapes, mouse-guards and super frames as soon as the items are removed and scorch wooden parts (after a good disinfect if required or a good scrub down with your soda solution).

Do not store dirty equipment, it is not worth it and you may need it sooner than you imagine! If, like me, you manage to deposit honey in the strangest of places when extracting, or if you use a hot air gun to uncap your supers and those small melted dots of white wax fly around the room, a hot soda solution will clear it all up in no time and clean the floor at the same time – not recommended for waxed floors though, as the wax finish will be stripped off. Vinyl or ceramic tiles will clean up beautifully and you could give the grouting a good going over with an old toothbrush at the same time! The kitchen sink will gleam as grease, fat and wax will just disappear with a soda crystal solution rub over and a hot mix flushed down the drain will keep the pipes clear of blockages and fresh(er) smelling.

Talking of smells – you can take a strong soda solution to your dustbin (good idea to do this before the summer..) to loosen and remove dirt, grime and sludge – good for the inside of water butts too. The deposits from a melted beeswax candle on a favourite table cloth or item of clothing can be removed with an overnight soak (check washing labels first though) and the wax will be removed without damaging the material by scraping, scrubbing or using a hot iron and brown paper. There are plenty more ways to use these magic crystals. We use them for cleaning paintwork in the house, cleaning windows, glassware, the barbecue gets a good going over before it is first used in the summer and mopping over the porch floor with a hot solution brings it up beautifully. Old fashioned maybe, but our grandmothers definitely knew best!

Swarm site Selection



Scout bees tune their strength of waggle dancing in relation to site quality, which accelerates the reaching of a quorum at the best available site. Here, scouts locate two potential nest sites, one with a large opening (*left*) and one with a more desirable small opening (*right*). Each scout bee then returns to the swarm (*green arrows*) and performs a waggle dance for her site (*top centre*), but the scout from the superior right tree performs more waggle dance circuits (*red symbol*) than the scout from the left tree (*blue symbol*). The result is that three hours later, the number of bees committed to the right tree has increased six-fold, whereas support for the left tree has increased only threefold, and the majority of dances favour the right tree (*middle*). After three more hours, the number of scouts at the right tree has ballooned, and dances in support of this site have excluded the left-tree site from the competition (*bottom*)

STARVATION IN THE HIVE.

Could I ask you please to put out a reminder to all of the District Secretaries about members looking at the food levels of their bee colonies, and also highlight Varroa Management at this critical time. I have been out inspecting quite a bit recently and almost exclusively have come across bees which are starving, some to the point where their demise was only hours away - I have even taken to carrying syrup in the car with me, as, in general terms beekeepers have nothing in stock for contingency feeding. In some cases I have had to pour syrup into empty comb and onto the top bars for the bees to feed to get them going again as they were at that 'creeping' point which signs almost imminent demise of the stock. A very sad state of affairs I am sure you would agree? – These are not isolated incidents, but on some days are reflected in every site we visit. Also in many cases I am seeing increased levels of Varroa - this becomes more and more visually evident in colonies whom are short of food as the brood nest diminishes and the mites move onto the bees themselves. Again in some of the cases the Beekeeper had neither thought about, nor prepared to carry out any sort of Varroa controls, or doing much in the way of monitoring. Can I emphasise again that where insert boards are used with open Mesh Floors the boards must be made sticky before use, otherwise A consistently low mite count will be realized, as the mites will simply walk off! Often back into hive to continue their quest. I am seeing in lots of cases of people using icing sugar as a 'Varroa Treatment' it should be borne in mind that icing sugar is to be seen as a complimentary technique to other forms of Integrated Pest Management. As a standalone it rarely has sufficient knock-down to achieve the full controls on its own Unless it is done regularly, skillfully and with the correct open mesh floor In place, i.e.: with a sufficient drop beneath to ensure that the mites cannot return to the Hive, and sufficient cover onto the bees – the value of just sprinkling icing sugar onto top bars is very questionable, although in some cases it has helped to keep the bees alive by giving them something to eat. Again something else which rears its head regularly is where a beekeeper has taken delivery of a Nucleus – filled up the complement of the Brood Chamber with foundation and provided no supplementary feed – the bees are sitting there, just surviving on the drawn comb with no hope of expansion to survive the winter.

Please, Please – Heft hives to check for weight, Look inside and see what is happening. Feed now to ensure winter survival unless hives are so heavy you can hardly lift them. Keep an eye on the wasp situation and reduce entrances / set traps where necessary. We are now approximately three weeks into a dearth of nectar, unless you are within flying distance of a specific crop which is providing something of value, and from what I can see in most areas a minimum of 10 days before the ivy comes properly into flower to be of use.

The link below will take members to the Fact Sheets Section of Beebase where they will find information on many of the subjects outlined.

<https://secure.fera.defra.gov.uk/be...cfm?pageid=167>

Thanks

THE TRUE SIGNIFICANCE OF WINTER BROOD REARING

The recent scientific confirmation of winter brood rearing in the honeybee colony has real significance for the survival of over-wintering colonies in the present circumstances. Despite the fact that there are many beekeepers who either never questioned the accepted wisdom of a hiatus in rearing brood in the bee colony in the dormant period or who have rejected the concept out of hand; winter brood rearing in the presence of the Varroa mite takes on a whole new dimension.

The jury is still out on the causes of the massive bee colony losses world wide but there is increasing focus on the neuro-toxic pesticides such as Imidacloprid, Clothianidin, Fipronil etc, in the areas where crops like maize and OSR are grown and where the seed and development of these crops is treated with these suspect substances. There is little doubt that the nicotinoid pesticides are deeply implicated in colony losses, however the mystery of the losses deepens when despite the argument that pesticides are the culprit, heavy colony losses are also being incurred in areas well away from intensive agriculture. The issue of winter brood rearing becomes a critical factor when these late winter/early spring losses are addressed.

Recent information coming from Germany advocates that the infestation level in any colony infested with Varroa should not exceed 50 mites at the end of December. A drop of 1 mite/2 days on the floor insert at this time seems to be a good indicator that a mite population of between 35-50 has been reached. If a fall greater than this is registered the colony MUST be treated immediately. Even in Germany many beekeepers, up until the present time at least, still hold the popular belief that there is a hiatus to brood rearing in winter (personal correspondence), however notwithstanding it has been noted that colonies entering winter with low mite infestations have a greater survival rate than otherwise.

A simple calculation might drive home the critical importance of low mite numbers in colonies in early winter:

- Every larva produced as a result of winter breeding will be a target for a female mite, which will live for around two months.
- The mite average reproduction rate is reckoned to be some 1:1 new mites per generation
- Consider a colony entering winter with a mite burden of 50; every 18 days the mite population will double; using mid December as a start date – best case scenario is that by mid January there will be 105 mites, by early February there will be 220, by the end of February 460, by late March 968 and by mid April 1800.
- The adult bee population is of course meantime being parasitised and debilitated as well. Believe it or not that is the good news.

Now consider a colony with a mite population level of just 200, which is quite low by the current accepted standards of the 'winter breeding hiatus' beekeeper advocate:

- Initially each developing winter larva will be 'multiple parasitised', every 18 days the mite population will increase dramatically and to boot each emerging bee will be a total loss to the colony:
- Using mid December as a start date – best case scenario is that by mid January there could be 500 mites, by early February there could be 1250, by the end of February 3125, by late March 7860 and by mid April – best case scenario 19,440.

The figures postulated could be questioned but the order of increasing magnitude is indisputable. By late April this hypothetical colony could be in real crisis or may have already succumbed.

It is unsurprising that many colonies entering the winter with mite burdens of over 200, especially in the possession of beekeepers who do not carry out their anti-mite treatments diligently or correctly, fail to survive past late winter or early spring.

The phenomenon of winter brood rearing in the honeybee colony will be ignored at beekeeper peril. If age-old dogma can be cast aside, who knows, we in Scotland at least could really begin to take control of our colony health and winter survival. By ensuring that the mite has as few potential hosts on which to do her wicked work and really getting to grips with the necessary work of winter mite control – which entails any treatment method, applied at the correct time, that kills mites in the brood cells. Formic acid is, to date, the only substance which does just that. Applied correctly around early April this treatment method could just be the tipping point to get your colonies through to summer to become an effective honey gathering force. The effectiveness of any late winter treatment will have to be closely monitored to ensure that the mite burden is as low or ideally lower than recommended. Thymol or oxalic acid treatment used correctly will achieve this aim.

Supers have two enemies over the winter; mice and wax moths. The first is easy to deal with by placing a queen excluder above and below each pile of supers. Wax moths are more difficult to control since PDB (par-dichlorobenzene) was banned so what can we do now?

Three methods are available to the hobbyist:

1. Place your super or individual frames into the deep freeze (ask first to avoid divorce!) for 48 hours and immediately place each super into a sealed bin bag on removal. Stack with an excluder above and below in a cold airy place. Wax moths like dark, humid places so even stacking supers outdoors so the wind can whistle through the pile can help.

I was suspicious of Hive 3 results so it was treated a second time on Day 2 in case I had not treated it properly the first time. What do the results show/prove? Unless I actually monitor drop, I have absolutely no idea what the mite population is. I had no idea which hives would benefit from treating. From the results Hives 1 and 2 appear to have been worth treating, Hives 3 and 5 showed so little mite drop that treating was almost a waste of time.

2. Spray each the face of each super frame with a solution of Certan®, a bacterial preparation which will help to control the moths.

3. Place a floor with a queen excluder on it on the ground. Onto this place a wheelie bin bag liner into which four supers can be placed. Take care not to put holes in the plastic. In the top super remove the two centre frames and place a glass container containing half a cupful of 80% acetic acid (now called Ethanoic acid Ed.) Seal the bag; place an excluder on top and leave to fumigate. This will kill wax moths in all stages of its life cycle, and also kills Nosema spores and EFB bacteria. Care must be taken, as acetic acid is corrosive to human skin, metal and concrete. Metal ends must be removed and metal runners coated with Vaseline. Its vapours are harmful so work in a well ventilated area. You can leave the supers like this all winter but must air them for a few days before use.

Now some queen introduction methods.

Dunking. Take your new queen and drop her into some lukewarm water for a few seconds. Then drop the bedraggled lady in between the frame containing brood of a well-smoked queen less colony. The colony can be made more receptive by spraying all the frame faces with water or light syrup – scented if you wish. Try a drop of vanilla extract in your mix. I have heard that in olden times a beekeeper would pop her into the mouth to cover her with saliva before being dropped in. I have not tried this but remember queens do not normally sting!

Smoking Give four good puffs of smoke at the entrance, open the hive and then puff 6/7 good blasts down between the centre frame spaces to drive the bees down into the gap, wait a few seconds and give another 5/6 good puffs across the frame tops. Once she has vanished between the frames close up and give 5/6 puff into the entrance. Leave the hive alone for ten days.

Artificial queen cells - for virgin introduction only? Take some 9/10 mm plastic tubing and cut a 25mm length. Seal one end with a plug of wax. Run your new queen into this and seal the open end behind her with tape. This cell can then be placed between the top bars of two frames containing brood of a well smoked (see above) queen less colony.

Newspaper brood frame Shake most of the bees off a frame of capped and emerging brood - if you leave a few young nurses behind then all the better. Now wrap the whole frame in newspaper, slip your new queen in and close the paper behind her. Prick a few holes into the paper taking care not to give the queen a body piercing! Place the whole frame into the centre of your queen less stock and leave for ten days. Bits of newspaper at the entrance are a good sign.

Remember with all these methods there must be no queen cell in the colony - so check!

A recent research article in IBRA's "Journal of Apicultural Research" found that the success of queen (virgin) introduction increased as the period of queenliness increased with the maximum success being at four to five days.

Beekeeping Tips: wasps and other predators

Depending on the type of Spring weather the first wasps may be seen around spare equipment and in the apiary from May onwards. They are seasonal pests as far as the beekeeper is concerned. Both the common wasp (*Vespa vulgaris*) and the hornet (*Vespa crabro*) will attempt to rob colonies and both often get inside the brood chambers after passing the guard bees. It takes several honeybees to keep a common wasp out of the hive and even more to keep out a hornet.

The first common wasps to be seen in the Spring are the queens, which are much larger than their offspring, but both have the same markings of yellow and black bands and therefore are easily distinguishable from the honeybee. The hornet, on the other hand, is a tawny yellow with pale brown antennae and at least 2.5 cm long. Once the latter are inside the brood chamber they will happily carry on robbing whilst the beekeeper handles the frame! The common wasp will attack the beekeeper on occasions but the hornet is rather docile towards humans. In recent years other types of wasps have been seen in this part of the southern UK.

These tend to build nests in bushes whereas the common wasp often builds its nests in lofts of buildings. However, they will build a nest at the base (at ground level) of an external chimneystack or in the base of a tree. So long as there are no naked flames in the vicinity they can be killed by pouring some petrol (about half a cupful) into a funnel pushed into the entrance to the nest. Immediately close the entrance with some earth and let the fumes kill the bees and larvae in the nest. **DO NOT IGNITE.** Hornets will build a nest in the corner of a barn or outbuilding as well as in disused house chimneys and often just under the chimney pot. If called upon to destroy a nest in a loft then do wear thicker protection than you have for inspecting honeybee colonies. That is to say, thicker gloves and maybe an old mackintosh over your bee suit. In a loft I would use a normal

wasp aerosol spray. If you cannot get to the nest because it is near the soffit then a wasp killing powder is a good idea, as they will take it into the nest from where they enter the roof. This will kill anything in the nest. Before wasp attacks get severe it is useful to make up a few jam or honey jars containing some sugar syrup. About 3 cm in the bottom is adequate. Cover with

a lid made from clear polythene sheet (the type that enclose magazines posted to you, so save some) and puncture it in the middle with a pencil size hole. String or a rubber band will secure the cover. You will discover that bees do not go down into daylight (They instead go up your trouser leg into darkness!), but wasps will. Once the first wasp goes into the jar it drowns and then ferments. They cannot find their way out. Within minutes you will find your first wasp in the trap. No honeybees will find their way into the jar. Place the jars adjacent to the hives being attacked and on the stands. The most important step the beekeeper can take to give the bees a fighting chance to defend their colony is to use a restricted entrance all year round. That

is to say, use an entrance only 8 cm wide. In other words keep your entrance blocks in all year. An alternative was to use the Gilbert louvre that was a design so that the entrance could be restricted down to just one small circular hole, or perhaps five or six such holes depending on the severity of the attacks. It is a misconception that the removal of entrance blocks give better ventilation. I have seen, in Australia, hives suffer complete meltdown when entrance blocks have been removed because the bees cannot control the ventilation. Honey and wax runs out of the entrance under air temperatures of 40°C to 50°C. With a narrow entrance the bees have complete control of the hive ventilation. Another pest commonly found inside and outside hives is the ant. Usually they do not seem to do any harm but I suspect they take honey to feed their own colonies. My approach to this problem is to put a ring of ant powder around the legs of the stands that the hives are on. This only works until the rain (what's that?) washes it away. As this places the powder 60 cm from the hive floor the bees do

not come into contact with it. Other predators are the large and small wax moths and the former leaves tell tale trails across the sealed surfaces of the honeybee brood. The corner of the hive tool may be used to lift up this trail cover and then the wax moth grub can be picked out and destroyed. Tapping on the wooden frame with the hive tool often encourages the moth grub to emerge. If they are not controlled by the bees or beekeeper then they bore holes into the frames and this is often at the join between the lugs and the vertical sidebars. This weakens the frame and lugs break off, particularly if you are holding the lugs and shaking bees off for the purpose of finding queen cells. For this reason I would recommend always picking up the frames using fingers just inside the top of the vertical wooden bars. This is helpful also if the queen is under the lug as it stops you squashing her if your fingers are not there, but on the top bars themselves.

YOUR BEES IN 2018.

Yes I know it is still 2017, but it is now time to see which of your colonies will still be there next spring.

Bees are finding it more difficult to survive the winters. A while ago a loss of up to 5% was considered acceptable, now one sees losses of up to 25% being recorded.

It is more important than ever to make sure the colonies you intend to winter are in the very best condition.

The essentials are a sound hive in a good wintering position. The colony should be on good combs with a queen that is not past her best, and that they should be covering at least 5 frames, preferably more by the end of September.

There is still time to correct any of these conditions but not to delay as time is pressing. Many new beekeepers will be wondering why this is being considered at this time of the year. By leaving it much longer there will not be time to get your colonies into a good condition in the few weeks remaining.

Many beekeepers say that the beekeeping year starts at this time of the year.

The smallest colony which is likely to survive is one covering five 5 frames really well, anything smaller will be struggling. If you have a colony which is on the small side it can be helped. Assuming there is no disease in your apiary you can take a frame of eggs and open brood from the small colony, shake the bees back into the brood box, and exchange it with one of hatching brood from a colony which is much larger, again shaking the bees back into their brood box.

The small colony will immediately receive more young bees as they hatch and the queen will then lay up the areas of comb vacated.

I know what you did last summer!

In the summer season, forager bees face difficult decisions. The blooming time of various plant species is distributed unevenly over the summer months. While in April and May e.g. rapeseed and fruit trees are in bloom, herbs like thyme and lavender take over later in the season. However, even during a single day, diverse flowers bloom at different times, and the nectar content varies over the day. Honeybees have evolved an accurate time sense to cope with this problem.

Honeybee foragers can determine the time of day with an accuracy of about 15 minutes. An experienced forager has learned when it is worth flying to a certain flower patch, and which flower – depending on the time of day – to choose there. Even when the foraging bee discovers a novel patch of flowers, it can recognise the flowers worth visiting according to the time of day.

In order to discriminate between flowers, bees do not only use colour and scent, but also the shape of blossoms and whole plants. Bees can even identify blossoms according to abstract properties like central or axial symmetry [1] and the number of petals [2], and thus categorise them [3]. This ability enables bees to be flower-constant. Flower constancy is not only advantageous for the plant, because it is then fertilised with the correct pollen, but also for the bee, because she gets better in handling the blossom with each visit. Thus the foraging efficiency is increased, because the bee can extract nectar and pollen faster each time it visits.

All those cognitive abilities are facilitated by a 1 milligram pinhead sized brain. It permanently integrates visual, olfactory and tactile information, controls flight manoeuvres, navigates accurately over several kilometres and, simultaneously, memorises flower properties and recalls them at the appropriate time of day. The ability to remember a combination of 'what, where and when' is called episodic memory and was, until recently, believed to be restricted to mammals and food-caching birds. Honeybees are, so far, the only invertebrates in which this ability has been shown [4,5]. We are already taking advantage of the honeybee's learning aptitude: beekeepers mark their hive entrances with colours and shapes to help bees find the correct nest when many hives are close together in the same apiary. Behavioural scientists train bees to use colours, shapes and scents to navigate mazes, in order to learn about the bees' cognitive abilities. Not all bees are similar: some individuals are very clever and learn quickly, while others are forgetful and stubborn.

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

Sept 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!

A penny for your thoughts

A couple of weeks ago, I was stung by both a bee and a hornet while working in the garden. My arm swelled up, so I went to the doctor. The clinic gave me cream and an antihistamine. The next day the swelling was getting progressively worse, so I went to my regular doctor. The arm was infected and needed an antibiotic. The doctor told me, 'The next time you get stung, put a penny on the bite for 15 minutes.'

That night, my niece was stung by two bees. I looked at the sting and it had already started to swell. So, I taped a penny to her arm for 15 minutes. The next morning, there was no sign of a bite. We decided that she just wasn't allergic to the sting.

Soon, I was gardening outside. I got stung again, twice by a hornet on my left hand. I thought, here I go again to the doctor for another antibiotic. I promptly got my money out and taped two pennies to my bites, then sat and sulked for 15 minutes. The penny took the sting out of the bite immediately. In the meantime the hornets were attacking, and my friend was stung on the thumb.

Again the penny. The next morning I could only see the spot where the hornet had stung me. No redness, no swelling. My friend's sting was the same; couldn't even tell where she had been stung.

She got stung again a few days later upon her back---cutting the grass! And the penny worked once again.

I wanted to share this marvelous information in case you experience the same problem. We need to keep a stock of pennies on hand.

The doctor said that the copper in the penny counteracts the bite. It definitely works! Please remember and pass this information on to your friends, children, grandchildren, etc. *No record of origin. (The editor cannot vouch for the efficacy of this treatment and has been advised that it may be an 'Urban Myth'.....Does anyone have more information, or even*

My bees are OK with wombats?

Revisiting my beehive in my country garden was perhaps a risky business. Just a few days previously I had experienced their potential bad temper at this time of the year, receiving three painful stings about my head. However I needed to plant some garlic. Last year I discovered that garlic grows very well under a thick bed of leaves so my goal was to collect leaves. As luck would have it the best source of leaves was around the beehive. I was wearing my usual gardening outfit, dark and drab, not exactly a turn-on for bees. In deference to my bees previous bad behavior I had also decided to don my veil. Just as well for as my work took me closer to the hive several scouts circulated around my head.

In no time at all they had spread the message and I was being seriously attacked. Feeling safe in my veil I decided to battle on. I could see a particularly rich source of leaves near the hive entrance. I dropped down on all fours and with head lowered crawled slowly forward. Surprisingly the bees did not increase their state of agitation: on the contrary they seemed to quieten down.

I began purposely to mimic the behavior of an inquisitive wombat scratching amongst the leaves. My bees inspected me thoroughly once or twice in my new guise and then to my amazement seemed to completely lose interest in me. I was thus able to free their entrance and surrounds and gather ample quantities of leaves for my garlic, completely unhindered. My only explanation for this abrupt change in bee behavior is that I had changed my behavior completely from a threatening human standing upright with head bobbing and arms swinging to just another harmless wombat scratching leisurely around in the leaves on all fours.

Has anybody else tried being a wombat?

Chris Carden Wards River.

Courtesy ACT, Australia.

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 overwinter 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.

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A sting in time saves mind.

BEE venom has long been thought to help against arthritic swelling, and even offer a 'cure' for cancer. Now scientists claim it can improve our brain function.

A peptide toxin in bee venom called apamin can block certain central nervous system channels.

Apamin can make nerves in the brain hyper- excitable, causing convulsions and respiratory paralysis, but it can also lead to improved learning and memory.

Scientists have been aware for a while that certain bug venoms were effective in treating brain disorders like MS but now researchers at the University of Bristol say they have learned how to identify when the

apamin binds to particular channels in the brain. This may help to develop medications that can mimic what apamin does in the body.

"Drug design depends on knowing the target," Professor Neil Marrion of the University of Bristol's Physiology and Pharmacology department, said. "Our findings provide a new approach to designing a therapeutic agent that could help with the treatment of a number of conditions."

- Arthritis sufferers may soon be able to take their bee-sting medicine in the most delightful way, with no spoonful of sugar required.

Nelson Honey of New Zealand promises painless results with 'bee sting honey', selling 13 million jars in the past decade. Now the firm has applied for a licence to export the honey to Britain.

'Medihoney' is now used in wound dressings in the US.