



September 2007

Furness

Flyer

A Newsletter for Furness Beekeeper Members

www.furnessbeekeepers.co.uk

Letter from the Editor

Its difficult to believe it's September and the season is almost over.

And what a season it's been, with the wonderful start in April and May with honey going in the hives vast quantities, we all thought that honey records would be broken; and then it rained, and continued to rain. And those of us that had taken early honey had some hungry bees to feed. Now suddenly it's stopped raining and the honey is going into the hives again!!

But for some of us it's going to be a season we would like to forget

Bayvarol /Varroa Strips

We have bulk bought the varroa strips again and can offer them to members at £14.00 per 5 hive pack or we can split packets at £2.80 per hive.

I am happy to post them to people that cannot come to the apiary on Saturdays to collect and will charge for the post at cost. Please phone 015394 721501 to arrange

Please Help

My appeals for some contributions for the news letter do not fall completely on stony ground, and thank you very much to the people that have made suggestions and sent along an article. I am always looking for something interesting to include so if you have an interesting hobby (other than beekeeping) done a different holiday or you would like a soap box to stand on, please contact me.

The AGM 2007

I have booked Greenodd Village Hall for Tuesday October 30th plus the pie and pea supper. Formal notice of the AGM and the agenda will be sent to members by post nearer the time.

Sunday 9th September

Evening sail aboard the steamboat Gondola on Coniston Lake and afterwards for a buffet at the Water Head Hotel Coniston

We still have places available. Please phone 01539 721501 if you would like to come even at this late hour !

Saturday 15th September

Last meeting at the apiary from 10.30

Because the bees are so active we will need to continue to go to the apiary on Saturdays for about 3 extra weeks /or longer if necessary.

Sunday 14th September at 2.00 PM

**Chris & Russ Sandham
14, Redmayne Avenue Barrow**

Have invited us to look at their bees in the garden.

It's a Jungle out there!



New House for Eric's Bees.

Eric Greens bees will be moving to a new home this winter.

New members Ross and Josie Baxter from Blawith took over some of Eric's colonies after his death and because they live very near to Eric's home the bees can not safely be moved until their winter dormancy.

The rule that you can move bees either six inches or three miles in summer applies !

To help, Mrs Green very kindly has allowed them to keep the bees in Eric's bee house and they have been so impressed with the use of it they decided to build one for themselves at their own home.

The photograph shows the house well on the way to completion and it will be ready in good time for the move.

Also you can clearly see the old bee boles built into the wall at the rear of the house, so obviously not the first time that bees have been kept on this site.



Ross and Josie's new bee house under construction

Frank Brooks

Some of our older members will remember Frank Brooks and will be saddened to hear of his death in August at the age of 78.

Frank had been a regular soldier in his youth and was also an ex Town Clark of Grange-over-Sands.

He was very supportive of the British Legion and fought tooth and nail to try and restore the old county boundaries, which he felt should not have been disbanded

Frank was a very active member of FBKA too and served on the General Committee and the Rose Show Committee with his wife Jan.

He reluctantly had to give up beekeeping about six years ago due to failing health.

We pass on our condolences to Jan and his family.

Furness Beekeepers New Web Site

The fee for hosting the original site generously provided by Richard had become uncompetitive, and with Richard's permission a new host had to be found because we were finding the number of enquiries about our group from the net increasing and it would have been foolish to loose this valuable proven facility.

Emma Martindale volunteered to build a build a new web site for us, changed hats from membership secretary to 'site builder' and has made a really good job of it for us.

The amount of space Emma has used in making the site is a fraction of what the package allows so we have lots of room for expansion and extra pages.

Please have a look and your comments will be very welcome or ideas for additional pages too.

Honey and Your Health

Did you know that honey is not only for sweetening your tea or favourite cake?

It can be used to boost your energy, support good health and sooth minor cold symptoms.

Hippocrates, the father of modern medicine, realized honey's healing powers in the 1st century BC and prescribed it regularly to his patients for such conditions as skin disorders, sores, ulcers, respiratory ailments and fever.

The Physicians of Ancient Rome prescribed honey to their patients who had trouble sleeping. Even today, we might have a glass of warm milk sweetened with honey to ensure a restful sleep.

Perhaps one of the most ancient uses of honey as a healing agent, (as early as 2,500 BC), was for wounds, burns and cuts. Honey is now being used again as an anti-microbial agent in the fight against new strains of bacteria which do not respond to conventional treatments.

It is also suggested that hay fever sufferers can help their immune system by eating local honey.

Some Honey and Beeswax recipes with winter in mind

Honey and Sage Cold Syrup

Relieve a sore throat and other cold symptoms with this home remedy infused with sage.

1 teaspoon chopped sage

1/3 cup, plus 1 tablespoon honey

1/4 cup apple cider vinegar

Method: Steep sage in a cup filled with-boiling water for 10 minutes. Strain out sage and allow the mixture to cool. Place honey in a jar and add vinegar and sage. Shake well. Dose 2 teaspoonfuls hourly.

Citrus & Honey Sore Throat Remedy

4 table sp honey, Juice of large lemon,

3 tea sp. Vegetable oil, ¼ tea sp. Ground ginger.

Method: Mix all ingredients together in a small jar. Hourly, gargle with one tea spoon and then swallow

A Hand Lotion for chapped skin

This recipe for chapped skin may be appropriate for the coming cold and raw weather. It can be used on face and neck as well as hands and feet and is very soothing and effective.

Dissolve 1 dessertspoon (soup spoon) of honey with 1 of glycerine, two table-spoons of witch hazel, two tablespoons of vegetable oil and a little warmed water. Shake up everything well and bottle ft.

It will keep for months and is said to be better than anything you can buy.

Rich Honey Lip Balm

2 tsp of coconut oil and 1 tsp of beeswax plus 1 vitamin E tablet.

Melt the ingredients gently together, stir well and allow to cool.

Apply to affected area.

Sweethearts Chocolate Honey Scrub.

6 tbsp of unsweetened Chocolate (grated)*
2 cups of honey, 2 cups of kosher salt and half a cup of grape seed oil.

* Can be substituted for dry cocoa powder. In rubber mixing bowl, combine honey and grape seed oil. Stir in chocolate and salt mixing completely. Consistency should be grainy and thick. Apply scrub to skin and gently massage all over the body. Remove with warm damp towels or rinse in shower.

Benefits: Increases circulation and aids in ridding body of toxins; very warming on cold winter evenings./ anytime!!!!

What signals are you giving to your bees when you smoke them?

I ask this question because it occurs to me that few of us really understand why we smoke our bees, what smoking achieves and how, or what is the best fuel to use.

Conventional wisdom tells us that, in addition to masking the alarm pheromone, smoking bees causes them to gorge themselves with honey.

That makes them more contented and hence more amenable to handling. It goes on to tell us that smoke should therefore be gently puffed into the entrance a few minutes before opening the hive to allow the bees to become content with honey. Other sources however will tell you that, rather than creating contentment, the purpose of smoking is to "create a chaotic situation in which defensive behaviour is momentarily suspended" (Dadant).

As with so many aspects of bee husbandry we are satisfied, often, merely to know that something works without having a need to fully understand exactly how. Many books on beekeeping advise that the correct use of the smoker is one of the most important techniques to master, and then they often go on to advocate practices which, in my opinion, are potentially harmful to the colony as well as downright bad practice.

Just one source that I have found reports that "it is used to sedate the hive, but if used too enthusiastically may well make the bees become extra aggressive" As this last source goes on to say, that is just the result that you don't want. I believe that smoke should be used for two purposes only - moving bees and pacifying them with the latter action being needed only on rare occasions.

Smoking at the entrance only warns the bees that you are about to open the hive.

It also has the added disadvantage that it tends to drive the bees upward towards the top of the hive - just the place where you will start your examination. Most colony examinations will be carried out perfectly well (and with less long-term disruption to the colony) if the colony can be kept as natural as possible. By being gentle but positive in your manipulations, most colonies will need only a little smoke to move bees away from the frame lugs to allow the frame to be picked up. I have to admit that there will be some (rare) occasions when a greater degree of pacifying control will be called for - particularly if your bees are defensive and you insist on manipulating them in a thunderstorm. But I can count on the fingers of one hand the number of times each year when I have had to resort to such dire action. So what fuel to use to have the greatest immediate effect and the minimum long-term effect? Again, reference to conventional wisdom tells that the best smoke is a cool smoke and definitely one that does not contain any added nasties such as insecticides or fire retardants. Corrugated card-board has served many generations of beekeepers well but in recent years much of the cardboard available has been treated to make it fire retardant. Not only does this make it difficult to light and keep alight but it also produces toxic smoke. Rotten wood, hessian bags and grass each have their own supporters with wood chippings being a recent starter in the stakes. Words of warning here though as these are often from unseasoned woods and have very high resin contents which result in a lot of tar. Several years ago there was a brief flurry of interest in so-called "liquid smoke". It certainly smelt like nicotine but the action of using it is rather different to the use of smoke and it cannot achieve the same effects. There is a role for using liquid sprays, particularly when uniting colonies.

Some act by masking the alarm pheromone (a very dilute solution of citronella essence in water) whilst others, such as a sugar solution, can keep the bees occupied during a potentially stressful time. Liquid sprays have the added advantage of not causing the bees to gorge but they are of little or no use for routine colony inspections.

Honey a source of AFB Honey, a Natural Food for Bees but Beware!

It would seem that honey is the best food for bees but honey is also a major vector for disease.

Honey from an infected colony can carry spores or bacteria, which will pass on the disease to the recipient colony. For example American Foul Brood

(AFB) spores, Chalk brood spores, and European Foul Brood (EFB) bacteria can be present in honey. Robbing from weak infected hives can spread these diseases throughout the apiary and beyond. Sometimes it is sensible to feed back oil seed rape honey that is solid in the comb or extracted honey that will not keep due to its high water content. You may need to mix a plug of icing sugar with honey to protect a new queen in her cage, or you might just want to give the bees a treat. Only feed honey if you are sure that it comes from healthy bees. Ideally it should come originally from the hive you are going to feed.

Honey from countries of more than one origin' is particularly suspect. If in doubt use sugar syrup or commercially produced invert sugar.

Sylvia Chamberlin, Bucks County BKA

BBKA News Aug 2005

Bees Attack Fisherman At Sea

A fisherman has been rescued after being attacked by a swarm of bees two miles out at sea off south Wales.

The man made a distress call from the wheelhouse of his boat as the bees struck. He had been stung several times before a lifeboat reached him and pulled him from the boat.

Steve Jones, watch officer at Burry Port Coastguard Station on the south Wales coast said, "The man was lucky when the swarm landed on the deck because he managed to dive into the cabin and take cover and call us on the radio.

"I have never heard of this sort of thing happening before. It is truly amazing."

A beekeeper was taken to the boat to smoke the swarm off the vessel. The fisherman, from Llanelli, suffered no serious harm.

Published courtesy of Manchester Bee News

The Story of Honey

Honey dates back to ancient history where it is mentioned in the holy scripts of India and Egypt and in Sumerian and Babylonian cuneiform writings.

The name originates from the English word hunig and was man's first and most used sweetener.

Legend has it Cupid dipped his arrow into honey before aiming at unsuspecting lovers.

Throughout the Old Testament in the Bible, Israel was often referred to as the 'land of milk and honey'. Mead, an alcoholic drink made from honey, was called 'Nectar of Gods'.

Honey was highly valued and often used as a form of currency, tribute or offering.



At the barbecue and Andre's bee house **Slovenian Holiday 2007**
 8 members of our group travelled to Slovenia and met up Geoff & Lorna Cooper and had a lovely holiday even though the weather was not as kind to us as we would have preferred

Highlight of the holiday was a visit to a bee house to meet a very personable young man named Andre, who was very proud to show us his bees and how he looked after them in his bee house. He marked a queen for us-No tipex here !! but a number professionally stuck on the bees head

Another very enjoyable visit was to the National Bee Museum near Lake Bled. Of course the holiday was not all bee keeping and other activities included boat trips, walks to visit the hay flower meadows and a wonderful barbecue in a nearby restaurant All of us enjoyed the holiday very much and can recommend Slovenia as a holiday destination that most people would enjoy.

Front Page: Andre's Bee House



Views of the Lake and Hotel and looking down the valley towards the lake Photo's DWalmsley

Might Climate Change Have a Favourable Impact on Bee Forage ?



Bee on Cistus

The changing climate is having a marked effect on our bees and on many of the plants in our gardens, parks and countryside. The bees are flying more frequently in the winter, have a shorter time with no brood and often the queen starts laying far earlier. These can all have an adverse effect because flying bees need forage and if the weather suddenly changes, there may be insufficient bees to keep the brood nest warm. Conversely, warmer winters and hotter summers can increase the forage for the bees and allow many plants previously at the edge of their range to grow far better and produce more nectar.

Gardening books with their recommendations for what is 'half-hardy' or 'tender' are rapidly becoming out of date!

The winter garden

Keen gardeners will already have several of the winter flowering shrubs, which can brighten up those short and dreary days between November and late February. Many of these are scented and may produce nectar as well as pollen. Bees will forage on these plants whenever there is a mild sunny day, but this did not occur very often! This winter has been remarkable for the number of days the bees were able to fly and forage. This has not gone unnoticed and even many non-beekeepers have been made aware that bees can fly in the winter!

This is an area where the small scale beekeeper with hives in the garden can really make a difference to their bees. In the short days of winter when the sun only has a few hours warmth, the bees will not fly far so if you can plant near the hives, it could make all the difference. Many of the shrubs are small enough for the smaller garden and even the tiny garden can find room for the early bulbs, including snowdrops, species crocus and aconites.

Snowdrops can produce nectar on a warm day and crocus and aconites are good producers of pollen. The importance of fresh pollen early in the year cannot be over-emphasized, because the growing brood needs copious supplies of pollen.

Shrubs visited regularly by bees that are easy to grow include Christmas box (*Sarcococca confusa*) and the various winter flowering honeysuckles (*Lonicera standishii*, *L. fragrantissima*, *L. purpusii*). They have the added bonus of a wonderful scent. There are several species of Mahonias, which flower from November to February and produce copious amounts of bright yellow pollen.

The best are *M. bealei*, *M. X Charity*, *M. japonica* and *M. lomarifolium*. This last one is normally regarded as tender and only recommended for the south and west of the UK; it is shrubs like this, which will be more reliable as our weather warms.

There are several *Daphnes*, which are attractive to bees and flower in the depths of winter. These are less easy to grow but well worth having - *D. bhuloa*, *D. odora* and *D. mezereum*. The fern leaved clematis (*C. cirrhosa balearica*) is a pretty undemanding plant and this year mine was visited by bees throughout February. These are only a few of the shrubs that can be of value in the winter.

Early spring

Early spring is traditionally a very treacherous time of the year and we have had a series of such years lately. This year, however, the weather has been far better and many of our native and common trees have provided quantities of pollen and nectar for the bees.



Pollen on a Hollyhock

Willows (*Salix* spp) are much under-rated. It is commonly thought that they are all large and only produce pollen. If the garden or apiary is too small for a goat or pussy willow (*S.*

caprea), there are many small species; some are dwarf or rockery species. All produce both pollen and nectar.

Good examples are *S. aegyptica*, *S. aapoda*, *S. hastata*, *S. lanata* and the Kilmarnock willow (this is a weeping compact goat willow).

The pollen from these plants helps the colony build up. The production of nectar by cherry plum and the slightly later blackthorn, like willows, is very dependent on the weather; only pollen is available unless it is warm.

A huge number of plants succumb to a harsh winter. This includes those that are so tender they have to be grown under glass, except in places like the Scilly Isles, Isle of Wight and Cornwall, those that will grow in the open in the west and on the warmer coasts and plants that grow reasonably well in the south.

There are signs already that a number of these tender plants are spreading further up the country and are surviving better with less protection.

Acacias are examples of plants traditionally regarded as tender and needing winter cover to protect them when grown in all but the most favourable parts of the country. These are the beautiful mimosas and they are excellent bee plants in Australia.

A. dealbata often now survives outside and the slightly hardier *A. longifolia* needs less protection. It will be interesting to see if these plants can attract bees in mild weather.

Abutilons are popular conservatory plants, with their large mallow-like flowers and one, *A. vitifolium*



'Album', grows outside in sheltered areas.

I first came across Abutilon in the west coast of Scot-

land, a very mild area. It was about twenty feet high and covered with bees obviously foraging for nectar. I got a cutting and have managed to get it to survive in my cold Sussex clay by putting it in a very sheltered west-facing spot. It has grown and flowered well, but the bees rarely visited it (and just for pollen). The last two hot summers, however, the bees visited it far more and for nectar.

The Judas tree (*Cercis siliquastrum*), Tree of Heaven (*Ailanthus altissima*), Strawberry tree (*Arbutus unedo*), myrtle (*Myrtis communis*), bottle brushes (*Callistemon* spp), *Sophora* spp, and Hebes are all recommended for the southern and milder parts of the country and are often less reliable further north. All can be good producers of nectar but need good summer weather and do best when it is hot.

Hebes are excellent bee plants and, where they can be grown, they always

attract bees. Many species are rather tender and I have lost several over the years in a harsh winter.

The yellow bottlebrush bushes (*C. pallidus* and *C. salignus*) attract a wide range of pollinating insects when the weather is good and are a joy to behold.



Yellow Bottle Brush

What does the future hold?

The indications are that as we get more hot dry spells in the summer, and more mild winters, we might see a change in our bee forage. We will certainly be able to grow a wider range of plants that

were previously too tender to grow. It will be interesting to discover whether some of these shrubs and trees, most of which originate in hotter climates than ours, do produce more nectar. If you have seen any indications of bees foraging on plants they previously ignored, do make a note of it and let us know.

Pam Hunter BBKA Executive



Photo's by Anna Chambers

To Quote from E B Wedmore - A Manual of Beekeeping

Autumn feeding is best done quickly and finished at least three weeks before the first killing frost may be expected. The excitement of rapid feeding assists in the conversion, storing and sealing of syrup.

In Great Britain, feeding should be finished in September or as early as maybe. Autumn feeding should be practised if there is not a steady supply of nectar from minor but reliable sources after the cessation of the main harvest and not interfered with by bad weather. Bees bred at this time will be young in the spring and ready for the heavy duty of rebuilding the stock. Furthermore, by forced breeding, the old bees can be worked out and will die before winter, reducing the risk of disease.

Hornet & Honey. What Next ?

Edible Limited is a British company supplying high class London stores with a range of weird drinks and snacks.

Among these products is Giant Hornet Honey.

The Giant Japanese Hornet is the world's largest species of wasp with incredible stamina attributed to the special enzymes in its body.

The honey itself comes from a farm on a remote island in Southern Japan.

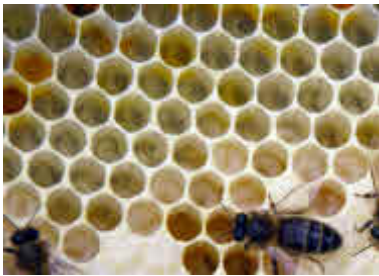
The small 125 g bottle of honey and also contains one giant hornet retails for a mere £14-95p.

That's a real sting !!! ED

Pass the hornet sandwich

The Life Cycle of the Honeybee

The life cycle of a honey bee begins with an egg. In late winter, the queen of an established colony begins to lay eggs in individual cells in the honeycomb. An established queen probably mated the previous spring, and since she is able to store over five million sperm she has no need to mate again. If the eggs are fertilized, they will hatch into worker bees, which are all females. If the eggs are unfertilized, they still hatch, but the offspring are drones or male bees. For that cycle of the hive to continue, the queen must lay fertilized eggs to produce



Bees on comb photo Mike Luke

a strong hive filled with worker bees.

A bee egg is only 1.2 mm long, about half the size of a grain of rice. It would take 50 bee eggs lined up in a row to be as long as a chicken egg! As the queen lays eggs, her movements over the comb seem to be random, and she will put her head into the cells and examine them before laying an egg.

Laying an egg only takes a few seconds, and the queen can lay up to 1900 eggs a day during the early spring. The pattern of eggs laid by a healthy, young queen has eggs closely packed in cells next to one another.

As the queen ages, she may stop laying large numbers of eggs and the pattern of

eggs in the comb may become patchy. In general, eggs are laid in the centre of a frame and are surrounded by pollen stores with honey stores on the outer edges.

Each egg that is laid is attached to the side of the cell by a mucous strand. During the first stages of development before the egg hatches, the nervous system, the outer covering and the organs of the digestive system are formed. The egg remains in an upright position (with developing the head on top?) for three days then gradually leans on to its side. Each of the eggs will hatch into a new

larval bee, and the eggs and developing larvae are called "brood". In three days, the egg hatches into a larva, which lacks legs, wings, antennae and eyes. The larva resembles a grain of rice with a mouth, and its sole function is to eat and grow.

Bees in the hive called "Nurse Bees" usually feed the developing larvae a mixture of honey, pollen and glandular secretions known as "Bee Bread". A richer food known as "Royal Jelly" is made from special glands in the nurse bee's head.

If royal jelly is fed to a larva less than three days old, the larva will develop into a queen, although this usually doesn't happen unless the colony is going to swarm, or if something has happened to the old queen. As the larva grows, it passes through five instars or stages, and sheds its skin after each stage except for the last one.

During this time, nurse bees will visit an individual an average of 1300 times daily. The nurse bees spend all of their time checking on and feeding the developing brood. During this stage the larvae have 13 segments and a small head. The larval stomach is well developed and runs the length of the body.

The head contains disc-like depressions that mark where the antennae will develop. At this stage the mandibles and maxillae are developed as is the duct of the silk gland and the spinneret which will be used when the larva spins its cocoon. After six days, the larva reaches the fifth in stage, the cell is capped by the adult workers and the larvae spins a cocoon. In 8 to 10 days, the cocoon or pupa hatches into an adult bee.

The Bees Eyes Have It

Bees possess five eyes. The three ocelli are simple eyes that discern light intensity, while each of the two large compound eyes contains about 6,900 facets and is well suited for detecting movement. In fact, honeybees can perceive movements that are separated by 1/300th of a second. Humans can only sense movements separated by 1/50th of a second. Were a bee to enter a cinema, it would be able to differentiate each individual movie frame being projected.

It's a fact !!

* It takes one ounce of honey to fuel a bee's flight around the world.

* Honey bees must fly over 55,000 miles to produce one pound of honey

*A worker honey bee makes only half a teaspoon of honey in her life time

*To produce a pound of honey, bees must tap into two million flowers

*1 cell of honey represents a life's work of 60 bees

*Bees do not create honey;they are actually improving a plant product: nectar.

The Choice of Pollen

Use of pollen colour and odour cues and effect of reward quality in foraging by the honey bee

Understanding how honey bees use floral cues in pollen selection will help beekeepers provide better pollination services for growers. Currently, some services can be inefficient because bees often forage on plants other than the ones intended for pollination. A greater understanding of how pollen cues and pollen choice relate to pollen quality may also lead towards maximising bee health through good nutrition and enabling the formulation of highly attractive pollen supplements for bees.

Previous work at Rothamsted Research showed, in laboratory experiments, that honey bees prefer oilseed rape pollen to field bean pollen. The basis for this preference is not completely understood. Oilseed rape pollen was found to have a higher proportion of nutrients essential to bees than field bean pollen so the preference could be due to differences in reward quality or due to associated preferences for pollen stimuli (colour and odours). However, although it was shown that honey bees could learn pollen odours the cues used in pollen selection remain largely unknown.

A new project at Rothamsted Research has been funded by the CB Dennis British Beekeepers' Research Trust to investigate the use of pollen colour and odour cues and the effect of reward quality on foraging decisions by free flying honey bees. An artificial flower will be used to assess the ability of bees to learn pollen colour and odour cues and their ability to discriminate between pollens from different species based on pollen colour and odour cues. The hierarchical use of pollen and

odour cues in pollen foraging and the effect of variation in reward quality on choice behaviour will also be tested.

Since it is difficult to separate pollen odour and colour cues from the reward (pollen itself), the use of pollen cues will be examined at first using nectar-collecting bees and sucrose rewards; the quality of which can be more easily manipulated than can pollen. The artificial flower comprises three feeders from which colours and odours can be presented individually or in combination. Each experiment will comprise a conditioning phase and a test phase. In the conditioning phase, bees will be trained to associate pollen cues (colour, odour, or both) with a sucrose reward, presented in the central artificial flower feeder of the artificial flower. In the test phase, the conditioning stimulus is presented in one of the two outer artificial flower feeders, and a novel stimulus or a control, is presented in the other. If bees choose the conditioned stimulus in the test, it indicates that the bees have learned it, and if chosen in a choice situation, that they discriminate it from the alternative. Various conditioning trials will be given (representing individual foraging trips of the bees to the artificial flower) and the test is unrewarded. Watch this space in future issues for news of the results!

Dr Samantha M Cook



Pollen colours Photo by Anna Chambers

Beginners Page **Prepare your bees for winter by ensuring there is sufficient stores**

In the hive.

Now is the time to get all colonies ready for the coming winter. It has not been an easy beekeeping season this year.

High rainfall has meant that many colonies have not collected sufficient stores to last them the winter.

This means that beekeepers will have to take extra care to provide enough stores.

There is always the temptation when preparing colonies for removal of honey, to take that extra bit of sealed stores and then replace it with fed syrup. This is all right provided it is done in sufficient time for the bees to ripen and cap it before the weather starts to cool towards the end of the month.

Colonies need about 20 kg of stores to survive the winter adequately. This can be estimated from the contents of each frame. It is reckoned that if British Standard frames are being used, a completely full and sealed super frame will hold about 1¼ kg honey and a brood frame about 2 kg. So, from this assumption the amount of sealed stores available for the winter can be estimated. The colony can then be fed accordingly.

Once the amount of stores has been estimated for one colony, the beekeeper should learn to raise the rear of the hive with one hand from the rear to get a 'feel' of its weight and then other colonies can be compared in a similar way.

The overall aim must be to avoid having to do any emergency feeding to a colony short of stores in March or April next year.

Biting back. Have the bees discovered that the mite is their enemy at last !!

Introduction

In this series of articles I hope to show how the bees that I help are dealing with varroa themselves.

The short title for this is 'biting back' as will become apparent as you read on.

Once varroa arrived in the early 1990's I realised the impact this would have on the bio-diversity of the local bees and upon the general environment. Having always favoured the dark native bee I deliberately expanded my colonies to try to create a living ark of these bees, whilst both they and I learnt to adapt to varroa.

My aim is to conserve the native bees and to ensure that they are equipped with the characteristics they need to deal with the intrusion of Varroa, other potential pests and disease.

We should all now be familiar with the principles of Integrated Pest Management (IPM) if not where have you been? But I hope to show here in these articles how IPM is practised by the integrated pest managers, the bees.

This article is not about modelling the dynamics of the varroa population; it is about understanding how the bees are dealing with the mite themselves and why mites come to be on the floor of our mesh-bottomed hives in the first place. There is a process of evolution and adaptation going on under our noses or natures very own 'work in progress'. So, when I see a mite on the tray I undertake a form of rudimentary forensics to see if this evidence can tell us about what is going on upstairs in the hive. So here I pose some questions for you to consider:

Why is the mite on the floor?
Has it lost its grip and fallen, if so, is there a possible cause?

Is the mite alive or dead?

Is it damaged in any way?

Are there significant changes in mite numbers?

Are there more mature adult mites or more young mites dead or alive?

Are there any patterns to the characteristics of the mite fall or any damage?

Do colonies display similar characteristics and behaviours?

Are these findings and patterns repeated in subsequent generations?

Do they relate to hive activities or actions by the beekeeper?

By posing these questions and looking for the answers it can be demonstrated how the bees are:

Responding to varroa.

How to identify these behavioural responses to varroa.

Provide an explanation of the diagnostic approach to gather field data and develop an evidence base.

Understanding the evidence for Grooming, Hygienic Cleansing and Biting Behaviour.

Collectively these act as part of the bees' response to the intrusion of varroa into the colony.

I am not claiming to have varroa tolerant bees yet but that I have identified key behavioural traits that form an integral part of their normal behaviour, which in this instance is specifically targeted at varroa.

It is really quite remarkable how they have been adapting to this alien pest that

we have introduced, in such a short space of time. It is their adaptability and collective efforts that distinguish their attempts to survive and as beekeepers we need to be prepared to 'risk' a little to assist them in their attempts, as we too can act 'collectively' by understanding the message they send to us.

'Biting Back' is part of the story, far more subtle and sensitive responses are also being deployed by the bees in their efforts to survive, often driven by their social cohesion and instinct to survive as a unit.

Facts we too as humans wrestle with in our relationships with each other and the planet.

Ultimately, (if we have the time to give to the bees, especially given the range of other environmental problems that beset the planet) this will lead to us assisting nature's development of bees that are able to tolerate Varroa and potentially equip them with the behavioural characteristics that will be essential for them to be able to deal with more exotic pests and diseases in the future.

Where and what are we looking for?

Some of the answers can be found among the debris on the mesh tray floor, but how do we unravel the evidence?

Like any science, getting accurate data is essential if it is to be demonstrated that what is being found and indeed potentially bred for, is worth the effort and

in the long run beneficial.

If you constantly treat your bees you will not see evidence of the stress that the presence of Varroa causes.

My treatment regime is limited to those colonies that need it to survive. Those which cope best and still produce honey etc and those which carry this perform-

ance through from one year to the next are the ones I target for research. I am not advocating that you stop treating your bees but you do need to see what they are doing. The behavioural adaptations to Varroa are centred upon three specific types:

Grooming Behaviour.

Hygienic Cleansing.

Biting Behaviour.

It is how these are deployed by the bees to deal with the Varroa, which is of interest.

Grooming Behaviours

There are two key aspects that you need to look for in respect of grooming:

Self-Grooming activity.

Social Grooming.

Hygienic Cleansing

Again two types of hygienic cleansing:

Targeted chewing out of pupae, which are infected with Varroa - especially breeding mites.

Removal of deformed and dying adult bees or pouncing on abnormal young bees as they hatch.

Plus one common behaviour, which links the two types.

Biting

Biting behaviour in response to intrusion in the hive.

Targeted biting of mites.

The question posed above and others will be addressed in part 2 in BBKA News 167, October 2007

Rodger D Dewhurst

BSc iHonsi DipTP MRTPI

These look as if this series of articles will be interesting and I will follow them. Ed



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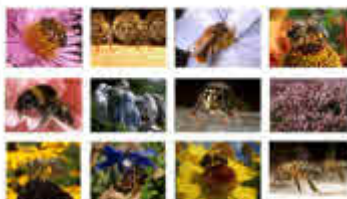
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People's Gardens

**BEES AND BEEKEEPING
CALENDAR 2007**



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