

ISSUE 4 · MAY 2022

# THE BUZZ

Newsletter of the British Bee Veterinary Association

## Welcome!

CHRIS PALGRAVE, EDITOR

It is with great pleasure that I welcome you to the May 2022 issue of The Buzz. After a long winter, the hedgerows and cider orchards here in Devon are in full bloom and blankets of golden oilseed rape (canola) are abuzz.

This month, BBVA President, John Hill, reviews the very successful spring webinar series, Norman Carreck fills us in on the important and far-reaching work of COLOSS (Prevention of honey bee COLony LOSSes) and Dr David Heaf, a world expert on the Warré hive, describes keeping bees using this more natural husbandry system. James Fearnley, who is at the forefront of global research into propolis, discusses the exciting potential of this resinous antimicrobial substance, which is collected and modified by bees, as a sustainable medicine of the future. He recently chaired a conference of the [International Propolis Research Group](#) (see [page 9](#)); all the talks are available [online](#). I was particularly interested to learn how we can encourage bees to construct a propolis envelope and its benefit to the health of the colony.

We also meet one of the solitary bees, the red mason bee, discuss the humble dandelion in our plant file, and briefly review Richard Taylor's delightful 'The Joys of Beekeeping'.

Scottish Expert Beemaster, Ann Chilcott, who featured in last month's issue, also produces an excellent blog: [The Beelistener](#). I would strongly recommend that everyone signs up for their weekly dose of bee wisdom and inspiration. This month, I had the honour of being invited to contribute an article on [honey bee health and welfare](#) (6th May).

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## Review: Spring 2022 Webinar Series

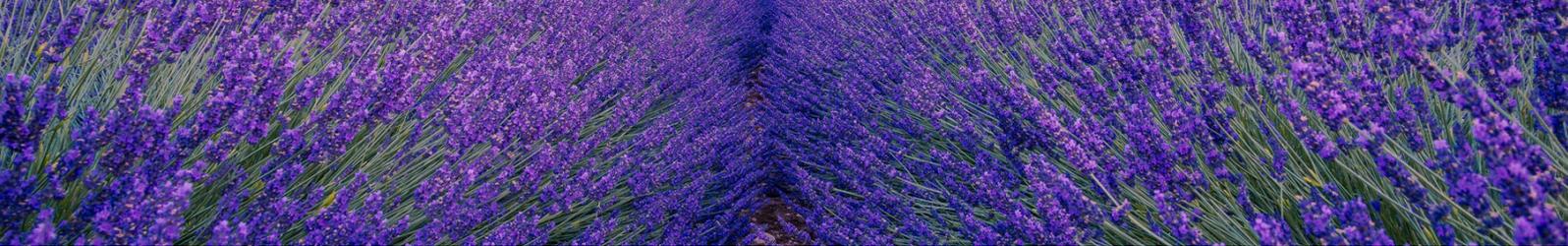
JOHN HILL, BBVA PRESIDENT

The British Bee Veterinary Association ran a very popular series of three webinars during April. These were chosen to cover the science and practice of beekeeping, as well as improving knowledge of pollinators more widely. The webinars were watched live by attendees from around the world and the recordings are freely available on the BBVA website: <https://britishbeevets.com/resources/>.

"How to Vaccinate a Beehive": Professor Dalial Freitak of Graz University, Austria, described developing the first ever insect vaccine against the bacterial bee disease American Foulbrood (AFB). AFB is a highly virulent and Notifiable disease of honey bees, *Apis mellifera*. It is a global problem and kills large numbers of colonies annually. Many European countries have a compulsory cull policy to control this disease whereas in the US, beekeepers rely on antibiotic treatment which can be much less effective. Prof Freitak uses a process called Transgenerational Immune Priming to immunise the queen. This is achieved by having workers feed the queen with sugar syrup containing macerated killed AFB bacteria, *Paenibacillus* larvae. The queen's immune system generates immune factors (chemicals) against AFB and these are incorporated in vitellogenin, a complex lipoprotein saccharide, which is passed into the egg ready for the queen to lay. The effect is that the new larva will develop into a worker adult and ideally be immune to AFB. Trials are proceeding in the US in pursuit of a veterinary licence and if successful, work will proceed to obtain a licence in Europe. The significance of this vaccine is huge as trials are already proceeding against other bee diseases and, if successful, could prove vital in controlling disease in other insect species, including those farmed for protein production. We were fortunate that this is the first time this lecture has been heard in Europe.

"The All Ireland Pollinator Plan": Dr Una Fitzpatrick of the National Biodiversity Data Centre, Ireland. As in the UK, Irish pollinators are under serious threat from, loss of habitat, pesticides and diseases. This includes bumblebees, solitary bees, flies and moths as well as the honey bee. About one third of bee species in Ireland are under serious threat. The All Ireland Pollinator Plan (AIPP) focuses on educating all sectors of society on how to help conserve pollinators, including schools, farmers, local authorities, gardeners and businesses. Educational tools have been devised for each group and bring people together to think about insect conservation. The AIPP has produced a huge array of material and is in contact with Government and local councils. All this achieved on a shoestring. Their website is [www.pollinators.ie](http://www.pollinators.ie).

"Honey Bees Fighting Back Against Varroa": The series was rounded off in style with an excellent lecture by Prof Stephen Martin from Salford University. Varroa mites have been a major scourge of honey bees in the UK since 1992. Their main pathogenic effect is as a virus vector, especially of Deformed Wing Virus, DWV. Professor Martin showed how bees have started to develop strategies to fight back against this parasite. One of the most important developments is the ability of some bees to detect the Varroa mite in a cell containing a developing pupa. The bees remove the wax cap and disrupt the mite's reproductive cycle and, in extreme cases, may cannibalise the pupa. This was the culmination of many years work by Prof Martin and he adeptly brought all this knowledge together.



## Propolis: Medicine of the future?

JAMES FEARNLEY, APICULTURAL RESEARCH CENTRE & CEO NATURE'S LABORATORY

For most beekeepers propolis is a sticky nuisance, gluing down the frames and interfering with the main purpose of beekeeping, the production of honey. For the honeybee it's a different story. Propolis is produced when bees collect resin from plants and trees. In temperate climates they love to harvest it from the buds and growing points of the poplar tree. Taking these resins back to the hive they add wax and process it through their enzymatic system. This alters the chemical structure of some flavonoids and sugars making propolis a highly complex combination of around 300 biochemicals which vary according to climate, flora and bee species.

Bees use propolis in many ways. Most obviously they create and defend the entrance to the hive using propolis. They also use it as reinforcement, incorporating it into the cell walls and without which the comb would collapse.



LEFT: PROPOLIS ON A WOODEN BEEHIVE FRAME  
RIGHT: PROPOLIS AROUND THE ENTRANCE TO A WILD NEST  
(PHOTO CREDIT: ANN CHILCOTT)

If a mouse gets into the hive, the bees can kill it but cannot remove it. Instead, they coat the corpse with propolis 'sealing up' a potentially major source of infection. At a biological level, propolis does a similar job of 'sealing' up the protein coating of viruses and preventing infection. Propolis controls bacteria in a similar way. It is the flavonoids that disable, disconnect, and disarm, rather than destroy the bacteria. Unlike classic antibiotics, propolis does not directly target bacteria like a smart missile, rather it stops them by preventing them from multiplying and, most importantly, from combining to form biofilm like MRSA . It is biofilm which presents the biggest threat to human and animal health. Research undertaken at University of Strathclyde showed how propolis was effective against MRSA .

In effect, propolis provides the honeybee and the superorganism (colony), with an external immune defense system both physically and biologically. It is these immune defence properties which are exciting today's researchers, particularly the potential of propolis to help with the global problem of antibiotic resistance .

Research I am funding at Leeds Beckett University has shown that if you combine propolis with an antibiotic that is no longer effective like penicillium, it starts working again! Exactly why this is we have yet to discover. But 47 years ago, the Kazan Veterinary Institute published research showing that combining propolis with antibiotics increased the effectiveness of the antibiotic by between 10 and 100 times .

The chemical constituents of propolis vary according to climate and local flora. This does not seem to worry the bees, but does present a problem for those seeking a synthesised, standardised, formula that can be licensed. But perhaps we are beginning to realise that this may not be the only way for medicines in the future. As Professor Paradkar, Director of Pharmaceutical Engineering Science at University of Bradford, said recently "Bees are the real pharmacists. They are the best formulators. They instinctively know when their hives are infected by bacteria or insects... : It is not possible for us to make propolis, simply because it is made up of hundreds of different chemicals...., we will always need bees if we want to use it."



## COLOSS - Prevention of honey bee COLony LOSSes

NORMAN CARRECK NDB, CARRECK CONSULTANCY LTD & LABORATORY OF APICULTURE AND SOCIAL INSECTS (LASI), UNIVERSITY OF SUSSEX

The widely reported losses of honey bee colonies in the USA in 2006 due to “Colony Collapse Disorder”, led to worldwide interest in studying possible contributing factors. In 2008, a group of European bee scientists, veterinarians and bee extension specialists established an EU funded “COST Action” named COLOSS <https://coloss.org/>. The intention was to encourage information transfer. In 2012, the original funding ended, but COLOSS continued as a non-profit association based in Switzerland. Today, COLOSS has 1,865 members in 105 countries worldwide. Membership is free, but is restricted to those professionally involved with bees.

COLOSS holds an annual Conference, normally attached to another meeting such as the EurBee or Apimondia (see photo). A meeting in Belgrade, Serbia, is planned for September 2022. The main work of COLOSS is carried out through its three Core Projects and various Task Forces.

The first Core Project is “Colony Losses Monitoring”. A fundamental problem in 2006 was establishing whether the losses experienced in the USA were greater than in previous years, or differed from those in other countries, because existing data was neither consistent nor comparable. The annual COLOSS colony loss surveys now cover over 40 countries worldwide, using standardised protocols to ensure that the data can be analysed both spatially and temporally. This lack of standard protocols also led to the second Core Project, the COLOSS BEEBOOK, which has established standard methods for honey bee research. The first three volumes ran to some 1,500 pages and covered many thousands of protocols. Further volumes are planned. The third Core Project is B-RAP (Bridging Research and Practice) which aims to improve the translation of research results into beekeeping practice and understand why beekeepers are often reluctant to adopt innovations.



COLOSS MEETING HELD IN KYIV, UKRAINE IN SEPTEMBER 2013 (PHOTO CREDIT: ANNA GAJDER)

The current Task Forces deal with individual factors which may influence colony losses. These comprise: Apitox (interaction with pesticides); Nutrition; Research Network for Sustainable Bee Breeding; Small Hive Beetle; Survivors (bee populations which survive without varroa treatment); Varroa Control; Velutina (the Asian hornet) and Viruses. They will be joined shortly by “World Honey Bee Health”, which will maintain a global database of pest and disease incidence (<http://worldhoneybeehealth.com/>).

Since its inception, COLOSS has achieved much to improve our understanding of colony losses, with the publication of several hundred research papers and reviews, many of which have been translated into numerous languages. The most recent issue of Bee Word is an Open Access and devoted entirely to COLOSS, which covers its activities in greater detail: <https://www.tandfonline.com/toc/tbee20/99/1?nav=toCList>.



## The Warré Hive

DR DAVID HEAF, [BEE-FRIENDLY.CO.UK](http://BEE-FRIENDLY.CO.UK)

Abbé Émile Warré's (1867-1951) 'People's Hive' is a vertical format top-bar hive with eight fixed combs per box, topped with a cloth, an insulating 'quilt' and a ventilated roof designed to minimise insolation (see photo). It is popular with beekeepers who have turned to more natural or bee-appropriate bee husbandry. My wife Pat and I translated the 12th edition of Warré's book *Apiculture pour Tous* (Beekeeping for All) into English in 2007 publishing it free on the internet. Knowledge and use of the hive spread round the world. Hive manufacturers started making their own versions. Hive plans and guidance on Warré beekeeping are freely downloadable at [warre.biobees.com](http://warre.biobees.com).

One feature that distinguishes Warré's hive from practically all others is that it is extended by adding boxes at the bottom, underneath the growing colony of bees, a process known as 'nading', in contrast to 'supering'. This is done with almost no disturbance to the colony with a helper or a simple fork lift under the handles on each box. Failing that, the hive is disassembled and reassembled on top of the new box.

Top-bars, resting on rebates in each box are primed with starter strips of beeswax. The bees then build combs down as far as the top-bars of the next box, and so on, seven boxes being the maximum ever recorded. The combs attach firmly to the walls, as in a skep or natural colony in a hollow tree. However, the hive remains inspectable for brood disease by using an L-shaped knife to cut the connections to the box walls and by placing the comb on a support (photo of regional bee disease inspector at work).

Notwithstanding the hive's inspectability, Warré beekeepers generally like to keep intrusion into their colonies to an absolute minimum. Many, mindful that letting the colonies complete their full life cycle, including swarming, helps generate fitness in the bee population and, more importantly during these times of Varroa mite infestation, inserts a brood break in the life of the colony that leads to a reduction in the mite population, let their colonies swarm. Although swarm control is generally not practised, although it could be in the usual ways with colony splitting, swarm management is common. This comprises providing adequate numbers of bait hives (swarm traps) whose catches can be used to replace colony winter losses or give to other beekeepers, e.g. beginners.

Honey is harvested by taking a whole top box full of honey (15 kg) after checking it for absence of brood and ensuring there are enough honey stores for winter in the next box down. As comb is not built on artificial foundation and is not reused, honey yields are generally lower than in foundation and supering beekeeping. Honey is extracted by crush and strain using simple equipment.



TOP: WARRÉ HIVE 'EXPLODED'  
BOTTOM: WARRÉ COMB BEING EXAMINED BY BEE INSPECTOR  
(PHOTO CREDIT: DAVID HEAF)



# The Red Mason Bee (*Osmia bicornis*)

CHRIS PALGRAVE

Of the 270 species of bee in the UK, only one is the honeybee. In this issue, we are going to meet one of the solitary bees, the red mason bee (*Osmia bicornis*, formerly *O. rufa*).

Red mason bees are one of the most common solitary bees in the UK. They nest in a variety of places, including the soft crumbling mortar of old walls, holes within banks, hollow plant stems and bee hotels. Females collect balls of mud in their mandibles and use two prominent 'horns' on their face (*bicornis* = two horns) to mould it into the walls of their nest (hence 'mason' bees). They carry pollen on a patch of hairs on their ventral abdomen, called a *scopa* or 'pollen brush'.

The female enters her nest, lays an egg on a ball of pollen stuck together with nectar and then seals the cell with a mud partition. She repeats this process until the cavity/tube is full. The eggs hatch, the larvae feed on the pollen/nectar and then pupate. They hibernate over winter and emerge the following spring. Males emerge first and hover around nests waiting for the females to appear.

Red mason bees have a light brown thorax and dense red-ginger hairs on their abdomens. Females have dark hairs on their face and two facial horns. Males lack facial horns; they are also smaller with long antennae and a tuft of light hair on their faces.



OPENED RED MASON BEE NEST SHOWING POLLEN BALLS (YELLOW) IN CELLS WITH MUD WALLS AND PARTITIONS

BY TPJUNIER - [HTTPS://WWW.FLICKR.COM/PHOTOS/TPJ/145561450/](https://www.flickr.com/photos/tpj/145561450/), CC BY 2.0, [HTTPS://COMMONS.WIKIMEDIA.ORG/W/INDEX.PHP?CURID=17052296](https://commons.wikimedia.org/w/index.php?curid=17052296)



MALE AND FEMALE RED MASON BEES (ARROW = FACIAL HORN)

ADAPTED FROM: ANDRE KARWATH AKA AKA - OWN WORK, CC BY-SA 2.5, [HTTPS://COMMONS.WIKIMEDIA.ORG/W/INDEX.PHP?CURID=130945](https://commons.wikimedia.org/w/index.php?curid=130945)

"A bee amongst the flowers in spring, is one of the most cheerful objects that can be looked upon. Its life appears to be all enjoyment; so busy, and so pleased."

WILLIAM PALEY (1809)

WE ARE GRATEFUL FOR THE GENEROUS SUPPORT OF OUR SPONSORS:





## Plant File: Dandelion (*Taraxacum officinale*)

CHRIS PALGRAVE

The humble and ubiquitous dandelion is an important provider of nectar and pollen to a wide range of insects over its long flowering season, including honeybees, bumblebees, solitary bees, hoverflies, butterflies and moths - take a look between its delicate petals and you are also likely to find a host of small pollen-beetles. Sadly, rather than being celebrated in all its sunshine-yellow beneficent glory, the dandelion is often vilified as a pest, incurring the wrath of many a gardener when it encroaches on the perfect stripes of their carefully manicured lawn. Perhaps, instead, we could embrace this everyday hero of the garden, or at least provide it with areas of refuge where it can bloom in peace. Its common name is derived from the French 'dent de lion' (lion's tooth) - referring to its deeply-notched leaves. The Latin (*dens leonis*), German (*Löwenzahn*), Spanish (*diente de león*) and Welsh (*dant-y-llew*) names follow the same pattern.

The Genus *Taraxacum* is likely derived from the Arabic word *tarakhshagog* (or *tarakhshaqūn*), meaning a bitter herb. The Latin epithet 'officinale' is commonly used for plants with medicinal properties; it means 'of or belonging to an officina', the storeroom of a monastery where medicines and other provisions were kept.



DANDELION WITH ITS DEEPLY-NOTCHED LION-TOOTHED FOLIAGE

### Dandelion trivia...

The roots of dandelion and burdock (*Arctium* sp) were traditionally fermented to make a medicinal mead; however, today they are used to flavour a fizzy soft drink. Dried, roasted dandelion roots have also been used to make a drink since ancient times; today, this is considered a coffee substitute. Dandelion leaves are highly nutritious and young ones can be picked and eaten in a salad (as well as being a firm favourite of guinea pigs). The blossoms can be used to flavour a delicious country wine.

Traditionally, dandelion was used in various forms to cure a wide variety of ailments as well as purifying the blood and removing toxins. Although most commonly used for gastrointestinal problems, it is perhaps best known for its diuretic properties, hence the French colloquial name 'pissenlit' or 'pis-en-lit' (wet the bed).

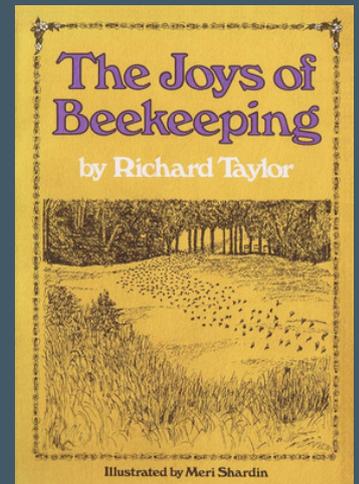
The pre-Christian Irish goddess Brigid (or Bride), and later St Brigid, is also associated with the dandelion. The Gaelic name for the dandelion is *beàrnan-Bride* (little notched plant of Bride). Her feast day is 1st February, coinciding with the Celtic festival Imbolc and the first day of spring - when we might expect to see the first golden blooms of the year.



## The bee bookshelf: The Joys of Beekeeping

CHRIS PALGRAVE

"Books on apiculture describe how to produce honey but they neglect to note how beautiful it is. They explain how to tend bees but they do not say how joyous this can be. They describe swarms but say nothing of how inspiring it is to behold one. It is omissions like these I have tried to rectify." These opening lines set the scene for Richard Taylor's 'The Joys of Beekeeping'. And a Joy it is. As both a successful commercial beekeeper and renowned Professor of philosophy, Taylor brings a rich, unique and deeply grounded perspective. His book is full of practical, down-to-earth advice on honey production whilst remaining humble in the face of nature. Through his love, respect and awe for these magnificent creatures, Taylor reminds us of why we keep bees and how fortunate we are to share our lives with them - and the many other creatures who visit the peace of our apiaries. A defining feature of his beekeeping philosophy is that "the beekeeper's craft is made better if he sees it, not as an assault upon nature, but as a pursuit that fits in with the total scheme". This is a personal, affirming, inspiring, warm hug of a book, perfect for the winter "dreaming season". Well, any time, really! The Joys of Beekeeping is available from [Northern Bee Books](#) (£10.45). Those with a subscription to [BeeCraft magazine](#) will find a more detailed and beautifully illustrated review by George Tonge in the December 2021 issue.



"Without bees my own existence would be a shadowy thing, like a world without flowers or without stars or without the song of birds."

RICHARD TAYLOR (1974)

## The British Bee Veterinary Association

The British Bee Veterinary Association (BBVA) was launched in 2015 in response to an increased demand for bee knowledge and expertise within the veterinary profession. We host multiple educational events each year and attend a number of veterinary conferences. The BBVA also runs the very successful [Bee-Friendly Practice Scheme](#).

For more information on membership or becoming a Bee-Friendly Practice, please visit: [www.britishbeevets.com](http://www.britishbeevets.com). All previous issues of [The Buzz](#) are available on the BBVA website.



## Editor: Chris Palgrave

Chris is a beekeeper and veterinary surgeon living with his family in the Exe Valley in Devon. He is a member of [Exeter Beekeepers](#) and writes regularly for the veterinary and beekeeping press, including a monthly column in [BeeCraft](#) magazine. Please send any comments, suggestions or contributions to [buzz@britishbeevets.com](mailto:buzz@britishbeevets.com).



# IPRG

International Propolis  
Research Group



Online Conference

May 5th, 6th & 7th, 2022

# Propolis

## A major contribution towards sustainable medicine



**"Propolis a Medicine for our Time"**, our 2021 conference, was a huge success. We had nearly 400 attendees and around 40 papers presented.



**Our success illustrated** the phenomenal increase in scientific research, including clinical trials throughout the world. Video papers can be viewed at <https://iprg.info>.



**Current research** is focussing on the contribution propolis can make alone or in combination with pharmaceuticals to the development of a more sustainable medicine.



**Sustainability** will be our focus for our 2022 conference.

- Sustainability of propolis as a medicine for humans
- Sustainability of the honeybee

**For further information and keynote speakers please visit the conference website at:**

<https://conference.iprg.info>

## Important News

**Molecules to publish selected papers from 2022 IPRG Conference in a special issue.**

**Molecules** is the leading international, peer-reviewed, open access journal of chemistry. The journal has agreed to feature selected papers from our conference in a special issue of the Journal.

- All participants may submit their papers for inclusion in Molecules
- Preference may be given to papers which develop new insights into propolis
- Please indicate when you submit your abstract whether you wish to submit your paper for inclusion in the Molecules publication
- Manuscripts recommended by the Organising Committee of the Conference will receive a 20% discount on the publication fee

### A Call for Papers

We welcome papers in the following areas:

1. Sustainable Beekeeping - the role of propolis within the hive
2. Sustainable collection, processing and quality control of propolis
3. Pharmacological, chemical and biological properties of propolis.
4. Clinical trials using propolis
5. Clinical and therapeutic use of propolis
6. The developing role of propolis in modern medicine

Abstracts (no more than 250 words) should be submitted by April 5th 2022 Scientific Committee by email to [info@iprg.info](mailto:info@iprg.info)



H I V E C H A T

The conference will be held online using Hivechat, an innovative new online conferencing and communications platform being developed by Nature's Laboratory.

[iprg.info](mailto:iprg.info)  
[hivechat.co.uk](https://hivechat.co.uk)