Honeybee news

Honeybee news is produced by our own Jill Hill and contains interesting snippets and links to articles from around the world that mention the honeybee.
This page is updated approximately 4 times per year with previous years available in our Library.

2024 (Part Two)

Bees at risk from Fipronil being used in Australia

Although fipronil is banned for use on crops in many countries including the EU, China, Vietnam and California due to its toxic effects on pollinators, it is still being used elsewhere including Australia.
It acts as an insect nerve agent and can persist in the environment for years. It is also highly toxic to birds and may be harmful to humans.
A study in 2019 found it can transfer to foetuses and cause “infantile adverse health outcomes” and another study in 2020 suggested it can cause infertility in men.
Fipronil was used in sugar baits in New South Wales in a bid to eradicate the newly arrived varroa mite (a fight which has now been abandoned).
However, since January 2023, it has been injected into 35,539 fire ant nests in South-East Queensland and northern New South Wales.
Scientists have raised concerns about the toxic effects of the chemical on bees and other insects and the longevity of those effects.
Apparently, one bee can carry enough fipronil to kill an entire colony of bees.
A review of the chemical by the Australian Pesticides and Veterinary Medicines Authority was started in 2002 and is expected to be published later this year, 22 years after it began.

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Pesticide protection

The effect of neonicotinoids on the nervous system of bees has been well-documented.
Despite this, and the banning of their use by the EU, the pesticides are still used regularly across the world including the UK for “emergency treatment” of sugar beet since 2021.
Some small comfort can be taken in the research by Julia S Caserto and colleagues at Cornell University in New York, studying a method of protecting bees from the effects of these dangerous chemicals.
The results published in Nature Sustainability at the beginning of September showed that hydrogel microparticles fed to the common eastern bumblebee (Bombus impatiens) in syrup resulted in a 30% higher survival rate in treated bees exposed to lethal doses of imidacloprid.
The microparticles bind to the pesticide to neutralise its effect, allowing it to pass through the digestive tract and be excreted.
Scientists hope to test the treatment on honeybees.
Of course, it would be much better if countries stopped using neonicotinoids!

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Powys honey to be sold by Tesco across Wales

Hilltop Honey, based in Newtown Powys, has just announced a partnership with Tesco to sell its Hilltop Welsh Blossom honey in Tesco stores across Wales. The 227g jars will be priced at £7.
Hilltop Honey was started by Montgomeryshire beekeeper Scott Davies.
He began beekeeping as a hobby in 2011 after injuring his back and being out of work. Since then, his interest has grown into a hugely successful B-Corp certified company which supplies honey to shops across the UK.
Hope for us all then, if only the rain would stop so our bees can get out and about!

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How do foraging honey bees cope on hot days?

Scientists in Wyoming have shown that at high air temperatures, honey bees carrying nectar can avoid overheating by adjusting their flight behaviour.
Given the concerns about climate change, the research considered how increasing air temperatures could limit the ability of bees to forage. It was shown that honey bees could carry the same amount of nectar across temperatures ranging from 77 to 104 degrees Fahrenheit.
At high body temperatures, the lead scientist Jordan Glass noted “the bees increase flight efficiency by lowering their wingbeat frequency and increasing stroke amplitude to compensate, reducing the need for evaporative cooling”.
Put simply, the bees change how they fly as air temperatures rise, to reduce the heat they produce from metabolism.
This means they conserve water and avoid overheating.

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A fan of the Asian Hornet?

While the rest of us are concerned about the impending establishment of the Asian Hornet in the UK and its devastating effect on pollinator populations, it appears the insect may have one fan.
Chris Packham describes them as “beautiful and brutal bower buzzers” and wonders what all the fuss is about.
The European Hornet also devours bees, as does the Bee-Eater birds which now regularly nest in the UK due to climate change, yet these culprits are not demonised like the Asian Hornet.
Importantly however, he notes that there are far worse dangers to insect life and biodiversity, particularly from the use of pesticides, and laments that yet again the UK government has allowed the sugar-beet farmers to use a neonicotinoid which is banned by the EU.

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Old bees

As we come to the end of another busy beekeeping season of weekly inspections, swarm prevention, feeding, varroa monitoring and treatment, and cleaning kit, it is somewhat depressing to read of a man in Scotland who decided to start beekeeping in 2015 by finding his long-dead grand-father’s hives.
He located a very dilapidated hive in a disused quarry, untouched and with no human intervention since 2007, and found it still contained a healthy thriving colony of bees!
He now runs between 90 and 100 colonies, all split from that original colony.

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Banned pesticides are regularly used in Europe

Previous editions of The Welsh Beekeeper have reported that the UK government has again permitted the used of a non-authorised pesticide (the neonicotinoid thiamethoxam) on sugar beet crops as an Emergency Authorisation.
Agriculture has to balance increasing food production with the risks posed by pesticides.
The EU, through a process of risk assessment, has developed a list of substances which should not be used as the risk to humans and the environment outweighs benefits.
However, in exceptional circumstances an Emergency Authorisation to use a particular pesticide can be granted, within strict criteria.
Depressingly, a recent survey published in Science of the Total Environment has identified that EU member states are frequently granting pesticide Emergency Authorisations.
12% of these (3,173) were granted for longer than the permitted 120 days.
Like the sugar beet example in the UK, 37% of these Emergency Authorisations were renewed over several years to control the same “emergency”.

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2024 (Part One)

Bee Beer

Microbiologists from Cardiff University visited Namibia as part of a partnership for sustainable environmental development, and became interested in the Africanised honeybee (aka “Killer bee”)
Brewer’s yeast or Saccharomyces cerevisiae to give it its scientific name, is found in the gut flora of honeybees.
The yeast found in killer bees which had died naturally was harvested and used, with yeast from Welsh honeybees, to make beer.
Conventional beer manufacturers do not need to worry about a new competitor.
Small batches of the beer are produced, to be used along with other bee-related products, to produce compounds which can tackle challenges such as antibiotic resistance.

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Clustering is a stressful heat sink.

Research at Leeds University has proposed the clustering of honeybees in cold weather is not the behaviour pattern that beekeepers assume is normal.
Instead, clustering is a stressful survival behaviour induced by being housed in thin-walled wooden hives instead of the hollows in tree trunks preferred by wild honeybee colonies.
The thermal conductance of wooden hives can be up to seven times higher than tree hollows.
The clustering response described in layman’s terms is not like the wrapping of a thick blanket but more like a desperate struggle to crowd closer to the fire.

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Monster bees

When a 3-year-old child said there were monsters living in her bedroom, everyone attributed it to a vivid imagination.
However, after her father found a handful of bees in the attic, a pest control company was called in and discovered a large colony of honeybees living inside the wall of the girl’s bedroom.
Beekeepers removed thousands of bees along with about 100lb of honeycomb.
Unfortunately, the bees and their honey caused $20,000 worth of damage to electrical wires which was not covered by the family’s house insurance.

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Neonicotinoids……again

A spokesperson for the Dept of Environment, Food and Rural Affairs confirmed in December that it had received an application to use Cruiser SB on the 2024 sugar beet crop.
Cruiser SB is a neonicotinoid pesticide and despite being banned by the EU, it has been used in the UK every year since 2017 for “emergency use”.
A group of businesses which depend on pollinators has told the government this product should be banned.
The businesses include Neal’s Yard Remedies, Yeo Valley, Lush and The Body Shop.
They note that one teaspoon of neonicotinoid can kill 1.25 billion bees.
A third of the UK bee population has been lost in the last decade with 13 species of bee being lost since 1900.

Unfortunately for pollinators, sugar beet has one of the highest profit margins of all the crops grown in the UK.
This profit is at risk from viruses spread by aphids so there is a big incentive to use seeds treated with Cruiser SB to destroy them.

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Despite the concern, the use of thiamethoxam has yet again been approved, which Wildlife Trusts describe as a “deathblow to wildlife”.
The chemical reduces bees’ ability to navigate and reproduce.
British Sugar which produces 60% of UK sugar hopes to have commercially available Virus Yellow resistant crops by 2026.
Until then, as currently about 80% of sugar beet crops have been lost through Virus Yellow disease, putting about 9,500 jobs at risk, the use of a banned neonicotinoid continues.

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Underwater bumblebees

A disaster in a laboratory at the University of Guelph in Canada led to the discovery that hibernating queen bumblebees may be able to cope with the increase in flooding caused by climate change.
Four soil-filled tubes containing hibernating queen bumblebees kept in a fridge became accidently filled with water.
To the surprise of the investigator leading research into the common eastern bumblebee (Bombus impatiens), all the bees emerged alive when the tubes were drained.
She then submerged 21 queens in water for 7 days and found 17 survived.
Hibernating bees reduce their metabolism rate considerably, allowing them to require very low levels of oxygen which can be found in the air contained within their bodies.
As queen bees hibernate in the ground, the discovery that they are physically adapted to survive flooding is good news.

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Disappearing honey

Scientists have been investigating why honey yields are declining in the US.
Although overall honey production is stable, it only remains so because of a rise in the number of beekeepers and colonies managed across the country.
At an individual level, honey yields per colony have dropped by about 1/2lb.

A number of causes have been identified.
There has been a dramatic increase in the use of herbicides resulting in flower-rich meadows being converted to monocultural farmland.
There has also been a decline in soil productivity.
Climate change since the 1990s has resulted in warmer and wetter weather with more frequent extreme weather events.

Winter losses have increased.
A survey by The Bee Informed Partnership (https: beeinformed.org) completed by 3,006 beekeepers responsible for 314,360 colonies showed 37.4% of colonies were lost between 1st October 2022 to 1st April 2023.
The main cause was varroa, but adverse weather, starvation and queen issues were other important reasons.

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Reusing resources from pesticide-affected colonies

Research has shown that the use of pesticides has contributed to the widespread collapse of honey bee colonies in the USA.
As frames of comb are often moved between colonies by beekeepers, scientists from the University of Nebraska-Lincoln studied what effects of using honey and pollen from colonies affected by pesticides would have when used with new colonies.
Two groups of small colonies were established.
The colonies in the control group were supplied with stores from pesticide-free colonies.
The other colonies were given stores retrieved from colonies where the bees had died after being exposed to the sort of pesticides which impair honeybee development, function and fertility.
All the colonies were initially queen-less.
The pesticide-free colonies then raised an average of 5.9 queen cells whereas the pesticide-affected colonies just raised an average of 3.2.
Successful mating was also affected with 83.9% of the control colonies producing egg-laying queens compared with 32.6%.
The researchers concluded that even short-term limited exposure to pesticides can affect queen-rearing and recommended that if a colony dies from pesticide poisoning, its resources should not be transferred to other colonies.

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Another insect invader to worry about

Just as we are all getting to grips with the yellow-legged Asian Hornet incursion, another invading insect from Asia is looming on the horizon.
The red dwarf honeybee (Apis florea) has recently been discovered near the major cargo hub of Birzebbuga freeport in Malta, the first time it has been found in Europe.
A colony of about 2,000 individuals was found wrapped around a tree branch.
It was destroyed but researchers suspect the colony had already swarmed.
Although Apis florea does not attack our native bees, it has the potential to introduce novel diseases to them, as well as competing for nectar and pollen.

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Swarming in March?

Not, fortunately, in this country but given the concerns about climate change, we may start to be grappling with swarms as winter ends.
Carlos Alcaraz was playing Alexander Zverev in the Indian Wells tennis tournament quarter finals in California when a swarm of bees descended on to the court.
The bees were mainly clustered on the spider cam, a camera which moves above the court on a cable and are apparently attracted to the low frequency sound waves and abundance of blossoming plants in the area.
Luckily, the tournament has its own resident beekeeper who used a vacuum to collect the honey bees when the court had been cleared of players and spectators.
However, when the match resumed after a delay of nearly 2 hours, there were still a few bees flying around so the beekeeper returned to rapturous applause and high fives!
Alcaraz, despite being stung on the forehead, went on to win 6-3, 6-1

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Varroa becoming part of beekeeping in Australia

Two years have passed since Varroa destructor was discovered in sentinel hives in New South Wales.
Despite a huge biosecurity response costing in the region of $132m and the destruction of about 30,000 colonies, Australian beekeepers are coming to terms with the realisation that varroa is now established and will inevitably spread across the whole country.
The focus has moved from eradication to management, with 110 workshops planned across the country to educate beekeepers at all levels about the tasks we have been following in the UK since the mite was discovered in 1992.
It will be mandatory for all beekeepers with fewer than 10 hives to monitor them all, while those with 10 or more will be required to monitor 10% of them.
There are approximately 250,000 hobby beekeepers in Australia, producing about 10,000 tonnes of honey annually.
The increased workload and estimated cost of $55 per hive for treatments mean many are likely to give up.
Reinfestations are to be expected until feral honeybee populations die out, in about 5 years’ time.

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What to do with bees in your roof when it needs replacing

When the National Trust took over Plas yn Rhiw on the Llyn Peninsula, they gained more than a 17th century manor house.
The roof was home to a well-established colony of Welsh black honey bees!
The house was acquired by three sisters in 1938 who restored it to its former glory and bequeathed it to the National Trust in 1952 on the condition the bees should be left undisturbed.
This stipulation has been adhered to ever since despite honey dripping through cracks in the wall!
However, what to do when the slate roof needed replacing?
The bees were removed by a nationwide honeybee removal company called SwarmCatcher.
Their website (www.swarmcatcher.co.uk) states they can collect bees from locations across the UK including chimneys, roof spaces, walls and cavities.
The bees were rehomed in hives and moved to a temporary location 10 miles away but will be moved back to Plas yn Rhiw in the Spring, to the orchard where they may settle or find their way back into the roof.

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