

AND IS THERE HONEY STILL FOR TEA? ... AND AT WHAT PRICE?



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Rupert Brooke's rhetorical question posed in his poem *The Old Vicarage, Grantchester*, back in 1912, still gets the answer 'yes' almost 100 years on, but only just! Few will have missed the raised public and media interest in the honey bee and its various vicissitudes over the last few years. Honey itself is the least of our worries as far as the honey bee is concerned. Although the UK honey crop was so reduced last year that supplies ran out around Christmas, the shortage of this wholesome and healthy sweetener is but an indicator of the greater threat to the UK and indeed world population of the European honey bee, *apis mellifera*. A reduction in honey bee populations represents a decline in this principal insect pollinator, said to be responsible for one third of the food we eat, and what's more, the rather more toothsome and nutritionally important part of our diet. Imagine your breakfast in a bee-less world; no honey on the toast, of course, no orange juice nor coffee and perhaps no butter too, from cattle fed on forage crops like alfalfa, which depend on bee pollination. Lunch will be little better, with the cereal derived pizza base looking rather anaemic minus its tomato passata and mozzarella cheese topping!

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The value of honey bee pollination has been estimated at many billions of dollars around the world, and here in the UK an ADAS study in 2001, updated in 2007, based on just 10 crops, produced a figure of some £165 million per annum. With some 240,000 hives in the UK, each has a value to the economy of more than £600 pa. So the honey bee plays an important economic role in our agricultural economy, diet and food security. Then, there are all those wild animals and birds that depend on bee pollinated fruits and seeds for their survival. The hard working honey bee thus occupies an important niche in our ecosystem and one that we can ill afford to put at risk. It thus behoves us to recognise the threats to this insect, to understand the challenges it faces and to help ameliorate its situation whenever we can.

Alarm bells began to ring in 2006 when massive unexplained losses of honey bee colonies of up to 70% were reported from the USA. Colony Collapse Disorder (CCD), by which the syndrome became known, is characterised by hives being left with massively reduced bee numbers without clear cause or reason. So dependent are various sections of US agriculture, eg the almond growers, who pay \$150 million

per annum for pollination services from beekeepers, that research funds were quickly made available by industry and by State and Federal institutions. A host of possible causative agents has been put forward, including mobile phones and climate change, but the smart money is on pest and diseases aggravated by other factors which might include insecticide misuse and, plain and simple, bad weather. The situation is complex and finding out what is wrong in order to put it right is proving difficult and expensive in research terms.

To date it is not thought that CCD as such exists in Europe or the UK, although rising colony loss rates and the presence of the same key disease elements as those in the USA suggest that a similar manifestation is occurring. Winter losses in the UK have risen from the typical 5-10% of earlier years through 20% in 2006-07 to 30% in 2007-08. These levels are unsustainable and the shortfall in last year's honey crop may indicate that we risk reaching critical levels in terms of pollination capacity too.

It is not the first time that devastating honey bee losses have been reported in the UK. The so-called 'Isle of Wight disease' of the early 20th century decimated the UK bee population and there have been recurrent outbreaks of foul-brood disease (beekeeping's foot and mouth disease) over the years. By far the greatest

challenge to bee health to hit these shores in recent memory has been the arrival of the parasitic *Varroa destructor*, first identified in the early 1990s in Devon and which has spread throughout the British Isles. The varroa mite originated in the Far East where it parasitises the Asian honey bee, *Apis cerana*, apparently without great damage. This clever little 'critter' jumped species a hundred years or so ago and spread west across Europe, eventually to arrive here. So adaptable is the varroa mite that it has also developed resistance to the key approved medications available to beekeepers, making its management all the more difficult. The realisation that the varroa mite had itself become infected with viruses which are damaging to honey bees (eg deformed wing virus, Israeli paralysis virus) which it vectors into honey bee colonies, has turned the debilitating varroa mite into a killer. Add to this the emergence of a new form of a fungus-like agent, *Nosema ceranae* which appears to be particularly virulent and one can envisage the toxic cocktail of disease that our honey bees face.

Whilst we are able to identify some of the potential key incriminated elements, we are as yet unable to put our finger on the exact causes of bee colony losses. Further, we need to define these in the context of UK beekeeping and the remedial steps that may be available to us in line with European veterinary medicines legislation. The honey bee is classified as a food producing animal under EU law just like cattle, sheep, pigs, poultry and fish, bringing the full (and disproportionate) weight of the Veterinary Medicines Directive down on this beleaguered insect.

Given the many gaps in our knowledge, there is a clear case for urgent research into honey bee health. The entreaties of beekeepers led by the British Beekeepers' Association (BBKA) fell on deaf ears initially at Defra. With the then Defra Minister, Lord Rooker, accepting the benefits brought by honey bees and the challenges they faced but refusing to contemplate making funds available, the BBKA undertook a campaign to get the Government to reconsider. Never let it be said that the British public is unable to grasp single issues and express its view! Huge media and public support culminated in the presentation of a 142,000 signature petition to Downing Street on 5th November 2008, supported by hundreds of beekeepers in their full kit, with smokers alight, marching down Whitehall. The programme of a parliamentary briefing, an adjournment debate and early day motion had revealed substantial cross party support for the BBKA campaign pushing the Government to fund more bee health research. The BBKA proposed a research programme during the campaign, costed at £8 million over five years, during which time honey bees would deliver more than £825 million in pollination benefit. This programme was formally published in January of this year under the title '*Honey Bee Health Research Concepts*', containing both pure and applied projects plus some desk-based activity to accelerate the availability of new medicines urgently required to confront the challenges being faced by honey bees.

Defra finally reacted, when Hilary Benn announced a £4.3 million package for honey bees, also in January. Of this, £2.3 million was to go into the

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National Bee Unit (NBU). Now part of FERA, the NBU has an important statutory role in controlling notifiable bee diseases fielding a team of Regional and Seasonal Bee Inspectors to help beekeepers identify and manage disease outbreaks. This new money has been predicated towards implementing the bee health strategy, published in March 2009, through building-up a national database of beekeepers, running a disease survey and improved education and training of beekeepers. Only the latter objective would figure high on the BBKA's list of priorities given that education is the key charitable objective of the BBKA, being responsible for the vast majority of beekeeper training. It believes it is best placed to bring benefit through any increased financial support that becomes available.

The remaining £2 million from Defra was destined to support honey bee health research and was joined by a further pledge of £8 million from the BBSRC, NERC, Wellcome Trust and Scottish Office in April. However, the prescription had changed and was now no longer for 'honey bee health' but for research into 'pollinator decline'. And here is the rub as far as beekeepers are concerned. They have identified the key areas of work to be undertaken listing 30 projects

under 12 programmes on honey bee health, only to see the Government put together a hybrid funding group interested in pollinators in general. Worthy, but not on target! The Women's Institute wasn't fooled either, recognising the change in approach of the Government at its June AGM, when it voted overwhelmingly for a campaign to press Government for adequate honey bee health research funding. What the shift in emphasis means in reality is that the honey bee will have to fight its corner against the bumble bee, the hover-fly against the moth and so on. Undoubtedly the cash available will prove to be inadequate to meet all the needs of these important creatures and so key elements will go un-researched. This in turn means that we will reduce the chances of finding the answers to the challenges we face, ultimately risking paying a high price for the failure to provide adequate bee health research funding. The campaign for funding thus continues and it is to be hoped that the imminent formation of an All Party Parliamentary Group on Honey Bees will provide further pressure on Government to come up with the modest funding still needed to ensure that there will indeed still be honey for tea!

For further information visit www.britishbeekeepers.com

