

# ethical consumer

## The product of forced labour?

The plight of the overworked honey bee

Your consumer guide to honey



 **friends of  
the earth**  
see things differently

# Helping the honey bee



Foreword from **Paul de Zylva** who leads Friends of the Earth's work on nature and its Bee Cause campaign to reverse the plight of Britain's bees.

The best things in life are free. Bees prove this time and again by putting food on our plates and keeping our gardens, parks and countryside blooming.

In return for these free natural services, we are abusing bees and risk losing them.

If bees disappear you'll still be able to eat. But it would be a pretty plain diet of things like porridge, toast, pasta, pizza and rice. Bees don't pollinate any of the ingredients of these staples, but they do top them off with tomato sauce, nuts, fruit, countless vegetables and, of course, honey. We have bees to thank for adding flavour, variety and nutrition to our diets.

Bees are the farmers' friend. Without bees they would have to pay the massive costs of pollinating crops by hand. This new cost, of at least £1.8 billion a year, would be passed on to shoppers.

Not all bees are the same. Different bees are needed to pollinate different crops and plants. Honey bees are the poster girls for the plight of bees, but spare a thought for our wild bumble and solitary bees too. Without them we'd really be in trouble. They don't produce honey, but wild bees are as important, if not more so, than managed honey bees for pollinating crops. Globally, research shows that if wild bees and pollinators decline they can't be adequately substituted with honey bees.

For many years, concerns have been mounting over the health of our vital bees. Now, there's the chance to turn around the situation.

Thanks to hundreds of thousands of people taking action to support Friends of the Earth's Bee Cause campaign, we've persuaded the UK Government to follow the Welsh Government's lead and draw up a national Bee Action Plan. This is a strategy to reverse the decline of our bees and other vital pollinating insects, from hoverflies to ladybirds.

It's not about stopping numbers of bees from dropping further, but reversing their decline and restoring their abundance. Fifty years ago the average person would have 12-15 different types of bee in their area. Now you'll see just five or six. In our busy lives, we may not notice this wholesale loss of wildlife and habitats that support them, but that's what's happening.

Saving bees is also about improving our relationship with the natural world. In our seemingly 'green and pleasant land', shockingly, three out of five UK wildlife species are in long-term decline, including many bees.

This steady degradation does not make front page news. It's not something we're told about when the Chancellor reports on how the economy is doing, although it should be. Yet this hasn't stopped bee decline from becoming the British public's prime environmental concern, ahead of climate change.

What would a bee-friendly Britain look like? If we get things right, it could mean species like the Great Yellow Bumblebee, now confined to north Scotland and so literally pushed to the edge of existence, returning to every part of the UK.

It would mean wildflower and meadow habitats becoming a common sight across the country, on roadsides, farms, in parks and new housing developments. Bees need habitat everywhere in order to move around.

It would mean proper scientific monitoring of how our bees are faring, so effective action can be targeted to help particularly vulnerable bee species. At the moment there are big gaps in our knowledge of how many species are doing.

People around the country are doing their bit, making gardens, window boxes and community areas bloom for bees. Knowing what we can do ourselves, and persuading the Government to act to save bees, is a start. We stand on the threshold of being part of the generation that saves bees once and for all. Let's grab that chance. Do we have any choice?

*Anna Clayton and Tim Hunt introduce our latest Ethical Consumer guide to honey.*

The production of honey is part of the symbiotic relationship between bees and plants. Flowering plants provide nectar which foraging bees turn into their foodstuff, which enables them to develop thriving colonies. While collecting nectar, bees fertilise the flowers so that fruit and seeds are formed, thus allowing the plants to reproduce. However, over the years this relationship has been exploited to meet a growing demand for honey, with intensive bee-farming methods leading to numerous problems for bee colonies.

The spread of pests and diseases, the use of insecticides (especially neonicotinoids – some of which are subject to a temporary ban in the EU) and loss of natural habitat, have in recent decades been a major factor in the decimation of honey bee populations, especially in Europe and the United States. In Europe 15% to 35% of honey bee colonies have been lost between 1985 and 2005, while in the US this figure is even higher, standing at 60%. Less is known about honey bee populations in the tropics, except that their decline appears to be happening at a faster rate.<sup>1</sup>

Despite this decline, demand for honey remains high. In the UK 25,000 tonnes are consumed each year. However just 1,500 tonnes can now be produced by British beekeepers as the number of commercial honey bees has declined by 45% since 2010.<sup>2,3</sup> The rest is imported from major honey producing countries such as Thailand and China (the world's largest honey producer). To meet the demand there has been a 45% increase in farmed colonies globally over the last 50 years.<sup>1</sup>

However there are those working hard to promote more bee-centred methods of beekeeping that are having a positive impact on bee populations. This includes a natural beekeepers movement that advocates a balanced beekeeping approach (as outlined on page 13), and community groups working hard to convert under-utilised land back into nectar-rich oases (page 20 provides more details).

Balance seems to be the key word when it comes to beekeeping and honey consumption. Balance in the honey left for bees and that taken for human consumption; balance between pest and disease management and letting nature take its course; balance in how much honey we consume, if any at all.

It is also worth remembering that bees are not the only insect or animal that humans rely on to pollinate crops, and it's not just the honey bee that's suffering. Three of the twenty five British species of bumblebee have become extinct and 50% of them are in serious decline since the 1970s.<sup>1</sup> The impact that pollinator declines may have for both the environment and our economy is not fully understood, but efforts are being made to try and quantify the pollinator services offered by insects. Attempts made at 'Valuing Bees' are explored in more detail in a special feature on Ethical Consumer's website.

In this report however, we'll be focusing on the plight of the honey bee and how your consumer decisions can help save them. We look at the most widespread honey brands and how the companies behind the labels fare in regard to their ethical policies and efforts in supporting bee populations.

## Sticky issues in certification

*Anna Clayton looks at the issue of organic and Fairtrade labelling in the honey market.*

**O**rganic certification normally acts as a simple navigation tool for consumers trying to identify more ethical food products. However in the case of honey this is less obvious if you hold environmental or animal welfare issues close at heart.

### Organic versus local

You cannot buy certified organic honey sourced from the UK due to strict regulations on bee foraging distances, which are particularly difficult for UK beekeepers to meet.<sup>4</sup> The Soil Association standards state that hives must be located so that a four-mile radius of organic crops and/or uncultivated land can be maintained to provide a source of nectar and pollen for honey bees. Sufficient distance must also be maintained between hives and potential contamination sources, for example: urban centres, motorways, industrial areas, waste dumps or waste incinerators.

The relatively small size of UK farms and the fragmented nature of uncultivated land, in addition to poor, UK-wide land management practices, mean that few British beekeepers could meet the organic honey standards even if they wanted to.

Buying certified organic honey in the UK therefore means importing honey with potentially high food miles compared to honey produced and bottled in the UK. This perhaps undermines some of the environmental motivations for buying organic in the first place. There is also some debate about whether honey can ever truly be organic due to bees' foraging activity being relatively uncontrollable. Furthermore, unless it is Fairtrade certified, organic (imported) honey may be linked to poor working conditions, depending on the country of origin and a company's supply-chain policies and practices.

Even though UK-sourced honeys are unable to carry the organic label,

many UK beekeepers still raise their hives on organically managed land and follow organic principles in regard to hive management, honey collection and processing. Buying local honey from a known source or contacting a local beekeeper directly and asking about their practices and honey sources will tell you more than a label which simply says 'English Honey'. Perhaps honey producers could be persuaded to provide more detailed information.

Although we haven't covered the hundreds of small UK beekeepers on the table on page 14, you can use the following local honey directory: [www.honeybeehive.co.uk/honey/suppliers](http://www.honeybeehive.co.uk/honey/suppliers) to find beekeepers close to you. This directory provides you with contact details for beekeepers by region and some information on honey sources. You could also contact your local beekeepers' association, [www.bbka.org.uk/about/local\\_associations/find\\_an\\_association.php](http://www.bbka.org.uk/about/local_associations/find_an_association.php), or natural beekeeping group, [www.naturalbeekeepingtrust.org](http://www.naturalbeekeepingtrust.org), who can put you in touch with local beekeepers too.

### Is buying honey good or bad for bee populations?

If you are concerned about bee populations, honey consumption in its modern form is arguably complicit in contributing to declining honey bee populations, especially if sourced from a business driven by profit. Buying organic honey may cast a vote for sustainable agricultural practices, but still maintains

an human-centred view towards beekeeping that often fails to put bee welfare before human desires.

Organic standards encourage the feeding of bees with organic honey rather than sugar water; limit the use of antibiotics; prohibit the clipping of a queen bee's wings and prohibit artificial insemination. But organic beekeeping can still include a number of practices that could be conceived of as 'unnatural', and as violating animal rights, and are argued by 'natural beekeepers' to be linked to a higher incidence of pests, disease and stress.<sup>5</sup>

Beekeeping practices lie on a spectrum between industrial-scale beekeeping and bee conservation. The further you move towards the bee conservation end of the spectrum, the more you encourage a colony to take control and produce a hive in its natural form and shape, without pre-set wax moulds and with minimal disturbance of the hive. Bees are allowed to swarm according to the colony's own impulses, and, rather than relying on man-made medicines which are often developed by the same companies that sell neonicotinoids, bees are encouraged to fight off pests and disease themselves in order to develop a natural resistance. Honey, if taken at all, is taken when there is true excess and in the spring once a hive has survived the winter.

Viewed from a perspective of sustainability, honey consumption by humans might be less frequent than it is now. It could be seen more as a special occasion product or medicine rather than a regular item of choice.

## A new hope – Natural Beekeepers

**T**here is a growing apiculture movement, known as 'natural beekeeping', that promotes a bee-centred approach to hive management: the beekeeper becomes a giver rather than just a taker. The chief proponent of this method is Phillip Chandler, aka the Barefoot Beekeeper. He defines six categories of beekeeping. These are:

- 1. Honey farming:** production-focused, intensive management of bees for maximum honey yield and/or for migratory pollination.
- 2. Sideline beekeeping:** a smaller-scale, part-time version of honey farming. The principal aim is profit, but your livelihood may not entirely depend on it.
- 3. Association beekeeping:** a miniature version of commercial or sideline beekeeping, as promoted and taught by most beekeepers' associations. Usually the intention is still to produce the maximum amount of honey, but from fewer hives and not necessarily for financial reward.
- 4. Balanced beekeeping:** the emphasis is on bee welfare and facilitating the natural behaviour of bees. Honey and other bee products only taken when plentiful and appropriate.
- 5. Natural beekeeping:** similar to 'balanced beekeeping', with the emphasis on 'do-nothing' approaches. Little or no management is attempted.
- 6. Conservation beekeeping:** bees for their own sake; no honey is taken and no inspections, treatments or feeding.<sup>5</sup>

Natural beekeepers report some interesting and hopeful findings: "Bee colonies foraging on predominantly organically cultivated land, and subject to husbandry orientated by the species-specific needs also exhibit better resistance to viruses and parasites. Winter survival rates are far better in colonies that have swarmed and overwintered on their own honey as opposed to sugar water or worse... [and there is] mounting evidence of feral colonies faring better than those kept by beekeepers".<sup>6</sup>

When bees are allowed to create their own shaped comb, they often create smaller cell sizes, or 'natural' sized cells. A number of studies have linked smaller cells to reduced Varroa mite populations.<sup>7</sup> Considering that the Varroa mite has been identified as the biggest single contributor to bee population declines, this observed trend is of paramount importance.

In addition, beekeepers motivated by honey yield will tend to select bees that produce higher yields of honey and are gentle to handle. Through selecting more docile bees, and those that are better honey producers rather than prioritising locally adapted bees, you end up with a bee population that is unsuitable for the local climate and vulnerable to pests. If it wasn't for beekeepers importing and exporting bees, we may not have ended up with such a prolific problem with an exotic pest – the Varroa mite.<sup>8</sup>

Tim Lovett, the Public Affairs Director for the British Beekeepers Association, says that "a balance needs to be struck between selecting bees for one characteristic and what is best suited to the local climate. A certain feistiness is needed in bees in order to fight off wasps and hornets and be capable of working hard and dealing with bad weather".<sup>9</sup>

Evidence presented from the natural beekeepers movement suggests that honey should be used as a special treat or medicine, rather than an everyday commodity, in order to reduce demand and create a more sustainable, bee-centred honey industry. Sourcing honey from a local beekeeper who practices balanced beekeeping would be the best honey buying option if you care about

animal welfare but can't resist honey. The Natural Beekeeping website, [www.naturalbeekeepingtrust.org](http://www.naturalbeekeepingtrust.org), provides a map with contact information of natural beekeeping groups around the UK.



Natural beekeeping.

References viewed September 2014: 4 [www.soilassociation.org/frequentlyaskedquestions/yourquestion/articleid/2408/is-there-such-a-thing-as-organic-honey](http://www.soilassociation.org/frequentlyaskedquestions/yourquestion/articleid/2408/is-there-such-a-thing-as-organic-honey) 5 [www.permaculture.co.uk/back-issues](http://www.permaculture.co.uk/back-issues) 6 [www.naturalbeekeepingtrust.org](http://www.naturalbeekeepingtrust.org) 7 [www.dheaf.plus.com/warreekeeping/do\\_small\\_cells\\_help\\_bees\\_cope\\_with\\_varroa.pdf](http://www.dheaf.plus.com/warreekeeping/do_small_cells_help_bees_cope_with_varroa.pdf) 8 [www.rhs.org.uk/advice/profile?pid=528](http://www.rhs.org.uk/advice/profile?pid=528) 9 Phone interview, Tim Lovett, 9/10/2014

### Is honey vegan?

The advice from PETA is unequivocal – "avoid honey". They, and fellow vegans, see the consumption of honey as 'theft' from bees who rely on honey as a winter food source and therefore we shouldn't consume it. There are also a number of arguments against honey consumption derived from the methods used in its production. Most of these issues are associated with industrial-scale honey production. See page 16 for more information. Alternative bread spreads and sweeteners include jams and jellies, soaked dry fruits or maple syrup.

**USING THE TABLES**

Ethicscore: the higher the score, the better the company across the criticism categories.

- = bottom rating,
- = middle rating,
- empty = top rating (no criticisms).

**USING THE TABLES**

Positive ratings (+ve):

- ★ = full mark,
- ☆ = half mark.

• **Company Ethos:**

• **Product Sustainability:** Maximum of five positive marks.

BRAND	Ethicscore (out of 20)	Environment					Animals					People					Politics					+ve		COMPANY GROUP
		Environmental Reporting	Nuclear Power	Climate Change	Pollution & Toxics	Habitats & Resources	Animal Testing	Factory Farming	Animal Rights	Human Rights	Workers' Rights	Supply Chain Management	Irresponsible Marketing	Arms & Military Supply	Genetic Engineering	Boycott Call	Political Activity	Anti-Social Finance	Company Ethos	Product Sustainability				
Equal Exchange [F&O]	17																	★	2	Equal Exchange Trading Ltd				
Equal Exchange [F]	16																	★	1	Equal Exchange Trading Ltd				
Tropical Forest [F&O]	16																		2	Tropical Forest Products Ltd				
Essential [O]	15					○				○								★	1	Essential Trading Co-op				
Tropical Forest [F]	15																		1	Tropical Forest Products Ltd				
Raw Health [O]	14.5	●								○								★	1	Windmill Organics Ltd				
Essential	14					○				○								★		Essential Trading Co-op				
Tropical Forest	14																			Tropical Forest Products Ltd				
GfM [O]	13.5									○		●							1	General Food Merchants Ltd				
Littleover Apiaries [O]	13	●								●		●							1	The Littleover Group				
Littleover Apiaries English [O*]	13	●								●		●							1	The Littleover Group				
Traidcraft [F]	13	○		○	○			●					○				★	1	Traidcraft plc					
GfM	12.5									○		●						★		General Food Merchants Ltd				
Suma Wildflower	12.5	●				○				○		○								Triangle Wholefoods				
Rowse [F] or [O]	12	●								○	○						●	1	CapVest Ltd					
Baxter's	11.5	●								○		●								WA Baxter & Sons Ltd				
Rowse	11	●								○	○						●			CapVest Ltd				
Tiptree [O]	11	●	○		○			○	○	○		●							1	Wilkin & Sons Ltd				
Bonne Maman	10	●								○		●			○	○	○			Andros Group				
Duerr's	10	●	○		○			○	○	○		●								F Duerr & Sons Ltd				
Tiptree	10	●	○		○			○	○	○		●								Wilkin & Sons Ltd				
Gales	7.5	○	○	○	○			●	●	○		○							○	Hain Celestial Group				
Co-op Fairtrade [F]	6.5		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	☆	1	Co-operative Group				
Duchy Originals	6	●	○	●		○	○	○	○	○	○	○	○	○	○	○	○	★		Prince's Charities/Waitrose				
Waitrose [O]	6	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	☆	1	John Lewis Partnership plc				
Co-op	5.5		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	☆		Co-operative Group				
Waitrose	5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	☆		John Lewis Partnership plc				
Morrisons [O]	4.5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		1	Wm Morrison Supermarkets				
Morrisons	3.5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			Wm Morrison Supermarkets				
Sainsbury's So Organic [O]	3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		1	J Sainsbury plc				
Tesco [O]	3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		1	Tesco plc				
ASDA [F&O]	2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		2	Wal-Mart Stores Inc				
Sainsbury's	2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			J Sainsbury plc				
Tesco	2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			Tesco plc				
ASDA	0	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			Wal-Mart Stores Inc				

[F] = Fairtrade, [O] = Organic, [O\*] = product does not meet organic certification standards but hives are managed according to organic principles (see page 12).  
See all the research behind these ratings together on [www.ethicalconsumer.org](http://www.ethicalconsumer.org). Free to subscribers.



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## Choosing ethical honey

For the purpose of this report, we have covered the most widely available national honey brands on the table, including supermarket own brands. However, there are hundreds of small-scale honey producers within the UK, which we have not been able to cover for reasons of practicality and space. This does not mean that local honey will not be a better buy, especially if you can get more details about beekeeping practices. See page 17 for more details on the bee welfare policies, if any, of the bigger companies on this table.

## Choosing local honey

As mentioned on page 12, an excellent local honey directory can be used to locate your nearest honey producer, and a few key questions can help you ascertain whether they hold bee welfare issues close to heart. Does the beekeeper comply with organic guidelines? What is the bee's primary pollen and nectar source? (Uncultivated land or organically cultivated land would be preferable). Where do the beekeeper's practices lie on the industrial to conservation beekeeping spectrum? (See page 12 for more details on what this entails).



Eating honey as a special treat, and reducing consumption, is likely to support a more sustainable approach to beekeeping.

Buying local honey from a known source (ideally organic or uncultivated land) and produced by individual beekeepers, who practice balanced beekeeping, is recommended. Check the local honey directory (see page 12).

Buying Fairtrade and organic honey is also a Best Buy. **Equal Exchange organic Fairtrade honey** (£5.35) is the best scoring brand on our table.

Next best is **Tropical Forest's Fairtrade and organic honey** (£3.19).



## Company Profiles

**Equal Exchange** is a workers' co-operative and vegetarian company and so scores positively under Company Ethos. All of their products are organic and GM free, and all of their honey products are Fairtrade certified.

**Essential Trading** is also a workers' co-operative and vegetarian company and also scores positively for this.

**Tiptree**, owned by **Wilkin and Sons**, have some worker ownership. The company website states that, "through an EBT (Employee Benefit Trust), employees today own almost half the voting rights of the shares in the Company".

**Littleover Apiaries** has a turnover of less than £8 million and offers a number of environmental alternatives. All of the company's hives are managed according to organic standards, even the English honeys that are unable to achieve organic certification due to the issues highlighted on Page 12.

**Baxters** is a family-owned, UK-based business that produces a number of food products including honey, jam, soup and

mayonnaise. The company scored worst for both environmental reporting and supply chain management due to a complete lack of information on both topics. The **Andros Group**, owners of the Bonne Maman brand, also scored worst in these categories for similar reasons, as did Duerr's.

Despite farming to organic standards, **Duchy Originals** also scored worst for their environmental reporting and supply chain management. In 2009, Duchy Originals (which is owned by the Prince's Charities Foundation) made an exclusive deal with Waitrose to make and sell Duchy Originals products in the UK.

**Gales** is owned by **Hain Celestial Group** which also owns the vegetarian brand Linda McCartney and vegan milk substitute Rice Dream. The company also sells meat products, however, and scores a worst mark for their supply chain management.

**Raw Health organic honey** is sold by **Windmill Organics Ltd**. Windmill used to sell BioFair Fairtrade organic honey, but sadly this product is now delisted. Windmill Organics scored worst for its environmental reporting as the company did not produce an independently verified environmental report and did not present dated environmental reduction targets.

# Factory-farmed bees

*Bee welfare issues in honey production.*

There are roughly three types of honey production: the collection of wild honey, small-scale production and industrial-scale production. The latter is the most widely criticised type of beekeeping and is akin to other types of factory farming. With industrial honey production, bees may be subject to a variety of processes and procedures. These include artificial feeding regimes, artificial insemination, treatment with antibiotics, inhumane transportation conditions and culling. Here are some of the main issues regarding honey bee welfare.

## Culling of hives

One of the most brutal aspects of industrial-scale bee farming is culling. This occurs once the honey is collected (usually in autumn). In some cases it is cheaper to kill off entire hives rather than feed the bees through the winter. In cases where bees are not culled they are sometimes fed sugar water as a replacement for the honey taken for human consumption.

## Short live the queen!

In wild hives a queen bee may choose to lead part of the colony to a new hive. A new queen then takes her place in the old hive. This is basically how the species reproduces. However this needs to be prevented in industrial beekeeping as it can leave a hive without enough bees to produce a financially viable amount of honey.

One tactic used by beekeepers (in both large- and smaller-scale farming) to keep production high is clipping the queen's wings. This helps to prevent swarming. Because the queen is not able to fly, the swarm simply masses next to the hive. They are then collected by the beekeeper and returned to the hive. A second tactic used by beekeepers is to periodically kill and replace the queen. In wild colonies the queen is selected by the worker bees and specially fed in order to become sexually mature.

In factory farmed hives the beekeeper selects the queen and often replaces

her every two years. This is because as a queen gets older she produces fewer pheromones. These pheromones are essential to stop swarming as they act as a magnet to the worker bees. Once the queen's pheromone excretion begins to slow down the workers are more likely to swarm and, as described above, commercial beekeepers argue that they cannot 'afford' for this to happen. Queens may also be artificially inseminated using drones, who are killed in the process.

## Transportation

In some instances bees are transported thousand of miles to pollinate crops. For instance, in the USA, honey accounts for only a small percentage of the total income generated from honey bees. Most comes from the rental of hives to help pollinate fruit and vegetable crops. Commercial bees are used in the production of about 100 foods, including almonds, avocados, and broccoli. Over a million honey bee colonies are moved around the US, going from crop to crop as they come into bloom.<sup>1</sup>

This transportation occurs all year round meaning that bees get no chance to hibernate as they would do in the wild. The transported bees are fed a diet of high-fructose corn syrup (and/or culled in winter) as their honey is removed for sale. Poor husbandry and breeding practices have reduced their genetic diversity and left them susceptible to large-scale die-offs.<sup>2</sup>



Moving spring bees in the USA for blueberry pollination.

## Treatment with antibiotics

Treatment against mites has become an important part of large-scale honey production as bee colonies become increasingly susceptible to them. However the treatments against Varroa mite in particular are increasingly found to be ineffective, as the mites develop resistance. A key natural defence for honey bees against Varroa is for the bees to groom one another and become 'hygienic' and able to remove the mites from larvae and their bodies.<sup>3</sup>

Antibiotic treatments can be passed from bees to humans via honey. One of the most dangerous antibiotics, that is used outside the US and EU, is Chloramphenicol. This is known to cause aplastic anaemia, a sometimes fatal disease which affects the ability of bone marrow to produce red blood cells.<sup>4</sup>

This antibiotic has been found in honey imported from both China and Thailand. In fact, honey from China, the world's largest honey producer, was banned in the European Union in 2002 (the ban was rescinded two years later).<sup>4</sup>

In more humane methods of beekeeping, pests are less of a problem.

In commercial farming, beekeepers will have hundreds or even thousands of hives and, as with all agricultural systems, high populations are linked to increased pest and disease issues.

## Bee welfare policies

Only three companies that responded to our questionnaire had a bee welfare policy. These were Littleover Apiaries, Tropical Forest and Rowse. Littleover Apiaries are 100% chemical free in all their hives and operate to organic standards even when the product is not intended as organic. As we explain on page 12, organic standards do contain some criteria for bee welfare. Other companies in the guide offering certified organic honey include Windmill Organics which sells the Raw Health brand.

Another company to have a policy was Rowse. While this policy lacked any specific detail it did begin to address the use of antibiotic treatments. The policy stated that, "we are passionate about looking after the health of bees and for nearly five years we've been one of the largest contributors to the Sussex Plan for Honey Bee Health & Well-Being. The funding we have given has been used in several project areas. One is on a form of natural defence to diseases called 'hygienic behaviour'. LASI research has shown that this reduces the build-up of two important honey bee pests and diseases, the Varroa mite and the deformed wing virus."

The Tropical Forest policy was also vague and only stated that, "On my own bee farm I have found that I am able to maintain the health and number of my beehives through careful husbandry. The most important aspects are careful selection of queens and bringing on a large proportion of new stock each year in the form of small, nucleus hives."

## Supermarket greenwash

Public-facing bee campaigns have been run by a number of supermarkets on the table on page 14, including the Co-operative's 'Plan Bee campaign', Waitrose's bee app, and Sainsbury's 'Operation Bumblebee'. All focus on planting pollinator-friendly plants, promoting biodiversity or building 'bee hotels'. However, companies failed to address or identify the role of the honey industry and its practices in supporting bee populations. This is despite the economic and environmental importance of bees, and other pollinating insects, being widely recognised (see our special report on the 'Value of Bees' on Ethical Consumer's website). Bees are also omitted from supermarkets' animal welfare policies.



## Processing honey

Once taken from the hive, commercial honey can be processed in a number of ways including filtering and heat treating. This is done to stop the crystallisation of honey, remove visible impurities (bees legs, wings, wax particles), and ensure long shelf life by removing yeast.

There is some debate over the consequences of the various treatments with many believing that some interventions, especially the pasteurisation process, reduce the nutritional value of honey and alter its taste.

However recent research by the National Honey Board analysed vitamins, minerals and antioxidant levels in raw and processed honey. The study showed that processing significantly reduced the pollen content of the honey (which can lead to crystallisation), but did not affect the nutrient content or antioxidant activity. The study did, however, state that heat treatment should be kept to a minimum as the issues around raw honey "remain poorly understood."<sup>5</sup>

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# The Bee Cause campaign so far

Tim Hunt asks Paul De Zylva from Friends of the Earth about their bee campaign.

## When did it start?

We launched the [Bee Cause campaign](#) in April 2012, creating a pop-up wildflower garden on London's South Bank to raise awareness of the plight of British bees, who've lost 97% of their wildflower meadow habitats in the past 60 years.

## How many people have joined the Bee Cause campaign?

People have got behind the campaign really enthusiastically, with around 300,000 actions taken over the past couple of years. They've shown their support for bees in all sorts of ways, from backing a national Bee Action Plan to calling for bee-harming pesticides to be banned.

## What has been its greatest achievement?

Our aim was to convince the Government to introduce a national Bee Action Plan for all bee species, not just honey bees, and to fully tackle all the threats bees face, especially habitat loss, toxic pesticides and how land is developed. By building a coalition of hundreds of MPs, businesses like B&Q, and groups like the Women's Institute, as well as huge public support, we persuaded the Bees Minister to agree to this in June 2013.

Since then, we've been working hard to ensure that this Bee Action Plan, known as the National Pollinator Strategy (NPS), is robust enough to reverse the decline of all species of bee and pollinator. It launched at the end of 2014.

## What has been the most interesting action that campaigners have undertaken?

People have been able to have a lot of fun with the Bee Cause campaign. Our giant bees have created a buzz on high streets around the country and at events like Wimbledon and the Chelsea Flower Show. Our local volunteers have run popular awareness-raising community events, such as 'bee walks' examining their area from a bee's perspective, and 'bee teas' where only bee-pollinated food is served (think strawberry jam, Bakewell Tart).

## What do you think about the Government's new action plan on bees?

It's great that the Government has committed to a National Pollinator Strategy. Now the test is whether it will be strong enough to do the job, especially on supporting farmers to manage their land in ways that are beneficial to bees and pollinators, and reducing the use of bee-harming pesticides. 70% of UK land is farmed, so getting this right is pivotal to protecting bee health. And without bees, UK farmers would face a £1.8billion annual bill to hand-pollinate crops.

## Is the campaign about honey bees?

In the UK we have 267 bee species including the honey bee. There are 24 species of wild bumble bee and the rest are solitary bees. Aside from enjoying honey, it's important to remember that other bee species play a crucial role in keeping our parks

blooming and putting food on our plates. Many crops would be off the menu without cross-pollination by a diverse range of bee species.

## What's the problem with pesticides and the best way to tackle its rising use in the UK?

Pesticides are designed to kill insects. The system for testing pesticides before they get licensed for use on crops and in gardens has been found to be flawed, because products aren't tested on a wide enough range of bees and other pollinating insects. For example, testing on honey bees won't reveal the potential risk to wild bumble bees. In addition, although the average arable field in the UK is applied with a cocktail of at least 20 different chemicals, pesticides aren't tested for their combined effect.

## You recently conducted a Great British Bee Count, tell us about your findings.

This citizen science project aimed to help scientists build a nationwide picture of bee health. More than 33,000 people downloaded our free smartphone app and logged sightings of more than 800,000 bees over the summer giving a big picture of where different species are to be found. We've been impressed by the massive public appetite to learn more about these fascinating species. We hope to make the Great British Bee Count an annual event so that over time comparable data can help to answer key questions about bee health.

## What is the most important thing that people can do to help protect bees?

Make sure there are enough different types of pollinator-friendly plants in your garden or community all year round, from crocus in the spring to ivy in the autumn. Even if you only have a window box, you can help bees by growing tasty herbs like chives, marjoram, basil and thyme – they'll be great in salads too. The RHS Perfect for Pollinators list is a good place to start. Kick the pesticide habit, if you have one.

## What are your future plans for the campaign?

We will track how well the Government's National Pollinator Strategy is working. And we'll continue to encourage people, communities and businesses to create more Bee Worlds across the nation. Working with local groups and other organisations, we hope to see lots of positive action, such as councils making sure they plan developments and manage public spaces and road verges in bee-friendly ways.



# Other bee campaigns

## BEE Protective campaigner

The Center for Food Safety and Beyond Pesticides launched the BEE Protective Campaign.

The campaign pages contain lots of information on bee-friendly gardening including which pesticides are most harmful to bees. (Ethical Consumer will be releasing its own guide to gardening including information on this issue in the Spring.)

[www.centerforfoodsafety.org](http://www.centerforfoodsafety.org)

## Save the bees campaign

The Environmental Justice Foundation is asking people to contact Liz Truss, the UK Secretary of State for Environment, Food and Rural Affairs, to ask her to ensure that the European vote to ban certain neonicotinoids is fully implemented and monitored by the UK Government.

<http://ejfoundation.org/bees>

## Keep Britain Buzzing

The Soil Association has a host of information on its website to help you to garden organically. They also urge consumers to buy organic food as organic farmers don't use neonicotinoid pesticides. They also have more complex crop rotations, which means that there is a greater diversity of plants for bees to forage on.

[www.soilassociation.org/wildlife/bees](http://www.soilassociation.org/wildlife/bees)

## International campaigns

### SOS bees

Greenpeace are running an international campaign to get neonicotinoids banned world wide and promote more bee-friendly agriculture. At the time of writing almost half a million people had signed their online petition.

<http://sos-bees.org/situation>

### Bayer campaign

The Story of Stuff is petitioning chemical company Bayer to stop lobbying against anti-neonicotinoids legislation and stop producing products containing them. Campaigners stress that it's not just bees that are affected. The pesticides are also harming other insect pollinators, as well as fish and birds, as they leach into soil and water. They say that the most affected species are terrestrial invertebrates such as earthworms, which are crucial soil-enrichers. Bees and butterflies are next, followed by aquatic invertebrates, then birds and finally fish, amphibians and certain microbes.

<http://action.storyofstuff.org/sign/bayer-neonics-birds-bees>

### 3 million to save the bees

Avaz has an online petition aimed at pressurising world leaders to ban



© PeterWaters | Dreamstime.com

neonicotinoids. They say that last year, their "1.2 million strong petition forced US authorities to open a formal consultation on pesticides" and that their "2.6 million petition was pivotal in influencing European countries – now, if we reach 3 million, we can persuade leaders around the world to get rid of these crazy poisons".

[www.avaz.org/en/save\\_the\\_bees\\_global](http://www.avaz.org/en/save_the_bees_global)

Avaz demonstrates with beekeepers to welcome the EU vote for a 2-year ban on bee-killing pesticides.



© Eric Vidal / Avaz



## Campaign success from 38 degrees and Buglife

Over 60,000 emails from 38 Degrees members pushed eBay into removing a number of pesticide listings from their online market place.

The campaign began when Buglife found that there were a number of traders on eBay selling products containing imidacloprid, thiamethoxam and clothianidin, neonicotinoid insecticides which were banned across Europe in December 2013. The pesticides were available from sellers in America and the site failed to mention the fact that they're illegal to use in Europe.

Vanessa from Buglife started a petition to eBay on the 38 Degrees Campaigns by You platform which eventually grew into a full blown 38 Degrees campaign supported by their members. Vanessa said:

"After fantastic work from over 60,000 38 Degrees members, Buglife are extremely happy to report that neonicotinoid pesticides are no longer up for sale on eBay. We will be keeping a close eye on eBay to see whether they keep their promise and don't allow the sale of these illegal bee-killing pesticides in the future – bees can breathe a sigh of relief for now."

However 38 Degrees stress that "All this is not to say the banned pesticides will never go up for sale again... everyone keeping a watch out will help catch the illegal listings the next time they go up". Report anything you find – eBay want to hear it.

# The pollinating power of communities

*Anna Clayton explores the role of community groups in supporting pollinator populations.*

Grassroots groups play a key role in supporting the health of our broader environment. Ethical Consumer asked a range of individuals involved in community projects about their thoughts on the role of community groups in supporting bee populations. Responses tended to fit into three core areas: awareness raising, adopting under-utilised land and working with councils.

I live in Lancaster, and the city is buzzing with pollinator-friendly projects. Wildflower meadows, big and small, are becoming established on unloved land; organisations are building bee hotels and wildlife areas in school grounds, and wildlife-friendly plants are increasingly integrated into public-access gardens, allotment borders and council planting schemes. Quite simply, Lancaster has an array of inspiring projects which appear to be the norm in the UK, rather than the exception.

## Awareness raising

“Plant stuff, plant stuff, plant stuff – anything, anywhere! I hate to quote the evil T but every little bit does indeed count. I also think we could be doing a lot, especially with schools and community groups, to give bees a bit of an image overhaul. I know within certain circles they’re revered but many people are still scared of them and I think this is a big barrier to us moving towards more bee-friendly (and ideally beekeeping) community spaces. We should also be lobbying our local councils to adopt bee-friendly approaches such as that of Bristol. Their amazing flower embankments and even central reservations are absolutely beautiful and lower maintenance (much, much less mowing). I also think that sometimes we try to do too much in terms of land management and regeneration, especially weed-killing. One of my favourite images are those of buddleia hanging off derelict buildings which is also super insect friendly. Sometimes we need to leave the weeds to grow and let them bee!”

*Claire Drury, gardener in residence.*

Bungay Community Bees (BCB) is one example of how physically keeping bees can go beyond handing out leaflets as a means for raising awareness about struggling bee populations. The group

is based in Suffolk and was set up as a Community Supported Agriculture (CSA) project in 2010. The group now has roughly 50 members, each of whom pays an annual £20 membership fee to BCB. “Membership fees go towards paying for the scheme’s bees, equipment, beekeeper training and events. In return, members receive a share in any honey harvested and the opportunity to become as involved in the project as they want”.<sup>1</sup> BCB currently has three core focuses: encouraging beekeeping, promoting plants for bees and education and outreach.

A range of other bee-related CSAs can be found in rural and urban areas in the UK. City-based projects, such as Capital Bee, play an important role in not only connecting city folk with their broader environment, but in utilising the extensive bee

forage on offer within gardens in London. (According to Capital Growth’s website, www.capitalgrowth.org, approximately 24% of London’s area is comprised of gardens).

Capital Bee is a scheme dedicated to the establishment of hives and beekeeping communities across South London, which form part of the group’s broader campaign for bees, forage, and a pesticide-free city. However, beekeepers are debating whether the rapid influx of bees and beekeepers into urban areas, which has been observed with the Capital Bee project, can be sustained by urban forage alone.<sup>2</sup> A change in urban land use needs to accompany the growing enthusiasm for beekeeping, with or without knowing the optimum population of hives. John Chapple, Chair of London Beekeepers Association commented, “Stop parks from planting double-headed flowers, cutting back trees and shrubs before they flower, mowing dandelion-strewn lawns that provide vital nectar and pollen for bees and spraying with chemicals”.<sup>2</sup> Households converting sterile lawns or paved driveways into nectar bars could also drastically improve a city bee’s food choices.

## Adopting under-utilised land

“Adopt a cemetery and turn it into a wildflower/life haven. I have. Also set up a ‘Friends of...’ group – using community halls with growing space, or library space, railway stations, etc. or offer to help schools, retirement, care homes, etc.”

*Rita Gerrard, Morecambe Transition Group*

“Lots of national groups make it easy – Friends of the Earth’s (FoE) Bee Worlds is a really easy way for local groups to get a meadow sown”.

*Viv Preece, Incredible Edible Lancaster*

Underutilised land can cover an array of different scenarios: grass banks, brown field sites, closeley-mown front lawns, land without bee hives etc. Many community schemes and projects have established themselves to convert these underloved spots into pollinator-friendly havens. Landshare and ‘Hive Talking’, for example, can match landless beekeepers with beeless land owners. Kent Wildlife Trusts<sup>3</sup> and Sustrans<sup>4</sup> are running projects that create wildlife corridors along grass verges and national cycle networks, and groups such as Incredible Edible Todmorden have helped in the creation of a ‘pollinator trail’ that runs throughout the market town.<sup>5</sup> Friends of the Earth have supported the creation of over 200 [Bee Worlds](#)

throughout the UK and continue to do so by offering free wildflower seeds for sites up to 50m squared in size. All of this work has resulted in spaces such as parks, community gardens, churchyards,

cemeteries, schools, universities and even a castle being made suitable for bees and other pollinators.<sup>6</sup>

When it comes to discussing unloved land, the humble seed bomb plays a powerful and anarchic role in adding colour and nectar to unreachable areas.<sup>7</sup> The Fukuoka method recommends a mixture of clay soil (or potter’s powder), compost and seeds in the ratio 5:1:1. Good reliable seeds for bombing in the UK including teasels, cowslips, meadow cranesbill, evening primrose, oxeye daisy, poppies, forget-me-nots and calendula.

## Working with councils

“Councils look after large areas of land, often connected through corridors, verges etc. With a good Green Space / Green Infrastructure Planning in place, councils should have a good understanding of their green space, and what it does, or what it should do, for the community and wildlife. All opportunities ought to be used to maximise functionality (ie. make the green space work better for communities and the environment where this is possible). Bees and pollinators should be some of the beneficiaries of good management... It takes the politicians, the operatives and the public to move things forward together. Annual and perennial meadow projects are no longer ‘cutting edge’, the practice has been tested and rolled out widely in some places. Long-term this mostly results in savings, but short-term ‘invest to save’ decisions have to be made, for example, ground preparation, machinery, etc. As we are testing with the Pointer Roundabout project in Lancaster, communities can get involved with wildlife-friendly planting and management schemes. They can also help with education / public understanding of different planting schemes”.

*Lucia Marquart, Lancashire County Council.*

If your local authority fails to utilise its planting schemes for the good of communities and wildlife, there are a number of ways you can lobby for change. The Bumblebee Conservation Trust have pulled together a useful information pack for individuals interested in lobbying their local authority. The pack provides examples of what

local authorities can do to support bee populations, in addition to explaining and giving examples of successful projects that have been trialled.<sup>8</sup> Friends of the Earth have also created an information pack aimed specifically at local authorities, advising on what councils can actively do to [support pollinator populations](#).<sup>9</sup>

A number of local authorities have demonstrated what can be achieved with a little patience: in 2013, over 90% of Leicester City Council’s flower beds were pollinator-friendly and in Bristol the council are aiming for 30,000 square metres of urban meadows throughout the city. Meadow Bristol,<sup>10</sup> a project coordinated by Bristol City Council in partnership with Bristol in Bloom and the Urban Pollinator Project, aims to create this vast expanse of meadow with sponsorship money alone. At present a variety of individuals can support bees without getting muddy by sponsoring a 1m squared wildflower meadow for £2.50 per year, with a minimum donation of £15. Although primarily annual meadows, Bristol Council have expressed a desire to shift towards perennial planting, and community pressure can speed this process up.



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# Fighting back against the neonicotinoid lobby

*Syngenta and Bayer are two of the largest pesticide manufacturing companies in the world. In their lobbying against bans on their bee-unfriendly neonicotinoids, they appear to have gone to war against bees, science and democracy. Joanna Long explores the issues and asks what consumers can do to help.*

## Neonicotinoids

In January 2014, both companies were nominated alongside chemicals giant BASF for the Public Eye People's Award of Shame for 'toxic pesticides killing bees essential for environment, agriculture and global food production'. They received 20% of the 280,000-strong vote and ultimately came in second, behind Gazprom.<sup>1</sup>

The pesticides in question are neonicotinoids, a type of insecticide used in the last 20 years to control a range of 'pests', such as sap-feeding insects and root-feeding grubs, by blocking neural pathways in the insects' nervous system.<sup>2,3</sup> Neonicotinoids are systemic pesticides, meaning that they are taken up by the plant and transmitted internally to all parts of the plant, including pollen and nectar, and they remain active for weeks, enabling season-long protection.

Evidence has been mounting for years that neonicotinoids are responsible for alarming declines in bee populations due to their effects on bees' communication, homing and foraging abilities, as well as their flight activity; their ability to learn and discriminate by smell; and their immune systems.<sup>3,4</sup>

## EU ban

Among a long list of products sold by Syngenta and Bayer are three widely-used neonicotinoid insecticides – thiamethoxam, clothianidin and imidacloprid – some uses of which are currently restricted in the EU due to suspected links with declining bee populations.

The months preceding the ban on these insecticides were busy ones for Syngenta, which employed a range of tactics in an attempt to stop the ban from being implemented.

They began gently, blaming farmers for using their products inappropriately and then branding proponents of a ban as 'a small group of activists and hobby beekeepers'.<sup>5</sup> Syngenta's CEO then moved on to name-dropping the world leaders

he had lunched with at the G8, alluding to discussions about global food security and Syngenta's investments in Africa.<sup>5</sup>

When these attempts failed, Syngenta switched to attacking the European Food Safety Authority's (EFSA) study which provided grounds for the ban. They suggested that the process had been rushed and may lead to 'wrong conclusions'.<sup>5</sup> They also pointed to 'independent research' predicting dire financial and crop-yield losses to European agriculture if neonicotinoids were to be banned.<sup>5</sup>

## Gloves off

Syngenta made a last-ditch attempt to change the EFSA study on the eve of its publication, responding angrily to an advanced copy of the press release which they claimed was 'incorrect in a major and highly relevant aspect' and demanding changes, setting a deadline for those changes and threatening recourse to legal action if their demands were not met.<sup>5</sup>

When the press release went out without any of their requested changes, the company went into full attack mode, demanding all documents relating to the report, as well as the names of individuals involved, and suggested they would begin legal proceedings against these individuals and against EFSA's Director.<sup>5,6</sup>

The proposed ban was put to a vote of EU member states on 15 March 2013 at which it failed to secure a clear majority either in favour or against. The proposal then went to the European Commission Appeal Committee at the end of April 2013, which decided to press ahead.

## Rooting for the big guy

One person who was on the side of big agribusiness through all of this was the then UK Environment Secretary, Owen Paterson. He had been corresponding with Syngenta following the first vote of EU member states. In one of his letters he said that the UK government was 'extremely disappointed' in the decision to proceed with the proposed ban, reassuring the company that he had been 'very active in

calling for a better approach' and that his efforts would 'continue and intensify in the coming days' before the appeals committee meeting.<sup>7</sup>

## Down but not out

Once the decision had been made to ban the three neonicotinoids for two years, Syngenta and Bayer opted to sue the European Commission over the decision.<sup>8</sup> The case is still ongoing.<sup>9</sup>

On 25 June 2014 Syngenta resurfaced with an application to the UK government for an emergency exemption from the EU ban to use thiamethoxam on rape sown by mid-August and crops in areas under pressure from flea beetles.<sup>10</sup>

Syngenta's argument was that alternative methods of protecting crops would not be effective in these circumstances and there would be a danger to production if the banned insecticide was not used. However, Nick Mole of Pesticide Action Network UK described the application as 'a clear attempt by Syngenta and the NFU [National Farmers Union] to undermine the EU ban, which they so bitterly opposed, by the back door'.<sup>10</sup>

## Bayer AG

In the 150 years since it was first established in 1863 to manufacture and sell synthetic dyestuffs, Bayer has grown into a pharmaceutical, materials and agrochemical giant. In 2013 Bayer CropScience, the Group's 'crop protection' and pest control section, generated £7bn in sales, 22% of the Group's combined sales of £32bn.

## Syngenta AG

Syngenta is a much younger company, formed by a merger of the agribusiness arms of Novartis and AstraZeneca in 2000. Like Bayer, Syngenta specialises in chemical 'crop protection' in the form of fungicides, herbicides and insecticides, as well as producing seeds, seed care products and domestic garden products. Its sales in 2013 came to £9.1bn.

Once again the company sought to set its own terms, requesting a response to its application by the end of the month. Syngenta withdrew the application the following week, ostensibly because the Government failed to meet their deadline.<sup>11</sup>

## Challenging nature

As well as challenging regulation, Syngenta and Bayer also keep a keen eye on scientific developments.

In July 2014 Nature published a letter about a study by Dutch researchers into the effects of imidacloprid (a Bayer-produced neonicotinoid) on insectivorous birds. Their findings suggested that declining populations of insectivorous birds were more pronounced in areas with higher surface-water concentrations of imidacloprid and that these patterns had only emerged since the mid-1990s, when imidacloprid was introduced in the Netherlands.<sup>12</sup>

Bayer came out fighting. In their response to the Nature letter, they said that it failed to demonstrate a causal link between neonicotinoids and bird populations and made 'no proper attempt to account for other possible sources of the reported decline such as climate change or nutrition'.<sup>13</sup> They also lambasted the authors for referencing critical research into neonicotinoids that had recently been rebutted by 'peer scientists'.

Bayer do not say who these 'peer scientists' were and we ought to pause before assuming their independence, since both Bayer and Syngenta are financially involved with several 'independent' research bodies (Humboldt Forum for Food and Agriculture and the European Crop Protection Association, to name just two).<sup>5</sup> They also maintain research relationships with universities and Bayer even has its own educational initiative: Biotech Partners.<sup>14</sup>

## The next round

The EU ban expires on 30 November 2015 and before then the European Commission said it would review 'the conditions of approval of the three

## Consumer Action

The aggressive lobbying employed by Bayer and Syngenta are inappropriate interventions in the democratic process. Citizens wanting to encourage then to review this approach could consider avoiding some of their consumer-facing brands and writing to them to let them know why.

Sadly Syngenta, probably the more aggressive of the two, does not really have high profile consumer brands to avoid. Bayer however is different, with the following over-the-counter medicine brands clearly vulnerable:

- **Rennie** – indigestion tablets
- **Sanatogen** – multivitamins
- **ProPlus** – caffeine tablets
- **Alka-Seltzer** – antacid
- **Canestan** – thrush treatment
- **Germolene** – antiseptic
- **Redoxon** – vitamin C tablets

If you want to avoid these brands in support of bees, do let Bayer know why.

You can email them at: tricia.mckernan@bayer.com  
Tricia McKernan is the media contact for Consumer Care at Bayer.

Or write to their Chair:  
Dr. Marijn Dekkers, Bayer AG, 51368 Leverkusen, Germany.

neonicotinoids to take into account relevant scientific and technical developments.<sup>7</sup>

In the meantime, Syngenta and Bayer continue to pursue their legal challenge of the European commission's ban.<sup>8,9</sup>

NGOs that are fighting Syngenta and Bayer in court and at the companies' AGMs include Buglife, ClientEarth, Sumofus.org, Greenpeace, Pesticide Action Network Europe and Beelife European Beekeeping Coordination, some of which are covered in more detail in our article on page 19.

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# Pollen, GMOs and Chinese honey laundering

In a follow-up to an article we published in EC145, **Leonie Nimmo** investigates the implications of a change in the European Honey Directive.

In May 2014, the Council of the European Union changed the Honey Directive in such a way that now, when honey becomes contaminated with genetically modified organisms (GMOs), consumers will not have the right to know. This change involved reclassifying pollen from an ingredient to a constituent of honey, thereby eliminating any requirement which may arise to label honey as containing GMOs if the GM content of the pollen rises above 0.9%.<sup>1</sup>

## Context

European consumers have been provided with three key assurances with regard to GM food generally:

- Effective co-existence measures exist, so GM free will remain a choice
- GM labelling enables consumers to make informed choices
- Unless specific GM foods are approved as safe, consumers won't end up eating them.

This framework disintegrates when it comes to honey.

## 'Co-existence'

Bees are the species that render the co-existence of GM and non-GM crops in the same area impossible. In addition to the problem of GM crops spreading as a result of bees carrying GM pollen is the contamination of honey itself.

Bees travel considerable distances. It is estimated that hives should be kept 5-10 kilometres away from GM crops to prevent honey contamination, but the co-existence distance typically employed in Europe is tens of metres.

## Safety

Foodstuffs containing GM ingredients are usually tested for safety before they are approved for growing. There are significant problems with the testing regime (see EC 141), but safety testing of GM pollen and honey is non-existent.

Swedish beekeepers alerted the European Court of Justice to this issue in 2011: "None of the existing approvals for any GMOs in food and feed include an approval for placing pollen on the market. Nor have any food/feed safety or environmental risk assessments of pollen been carried out."<sup>2</sup>

This is worrying given the fact that GM crops are grown not only for human consumption but also for pharmaceuticals and industrial compounds.

China is the largest honey importer into Europe and the types of GM crops being developed there are, to some degree, unknown. The extent to which the change in the Honey Directive will impact on how rigorously honey imports are assessed and monitored is unclear.

According to Walter Haefeker, President of the European Professional Beekeepers Association: "The trickery by the Commission has created enormous uncertainty for the honey labs, because the Commission made assertions about how honey should be tested which are completely inconsistent with any other guidelines on GMOs. Labs have told me that they are no longer sure how to properly do the analysis."<sup>3</sup>

## Pollen and fraud

Pollen is unlikely to be more than 0.5% of the content of honey, but it is a crucial percentage: "Without pollen there is no way to determine whether the honey came from legitimate and safe sources", according to Food Safety News.<sup>4</sup>

Through traditional filtration of honey, bee parts, wax and debris from hives are removed. In the USA the process of 'ultra-filtration' is permitted, which can also remove up to 100% of the pollen content of honey.

This has led to a proliferation in the trade of 'fake' honey made, for example, from high fructose corn syrup.<sup>5</sup> The removal of pollen has also allowed China to allegedly dump millions of dollars



worth of (sometimes contaminated) honey on to the US market illegally,<sup>6</sup> laundering it through third countries to avoid import duties.

Food Safety News conducted testing in 2011 and found that up to 75% of honey sold in the USA was not real honey. They concluded that, "the main problem is that FDA [U.S. Food and Drug Administration] simply will not define honey as containing pollen and, therefore, make it traceable to its country of origin... FDA's 'guidance' says that honey is a 'single ingredient food'."<sup>4</sup>

## Seeds of deception

In Europe, ultra-filtration is not permitted, and honey without pollen is not considered honey. But the change in the honey directive effectively makes the legislative leap into American territory, transforming honey into a single-ingredient product. It is a serious erosion of our protections as consumers.

According to Liz O'Neill, Director of GM Freeze, "Every step that prevents consumers from knowing exactly what is in their food is a step nearer to having GM crops in UK fields. There is a concerted campaign to reduce resistance to GM in bite size chunks and it is more important than ever for UK consumers to stand up and say no."

References viewed September 2014: 1 For the background to the change in the honey directive, see EC issue 145 'Are there GMOs in your honey?' 2 www.gmwatch.org/latest-listing/1-news-items/12955-gmo-risks-for-bees-and-beekeeping 3 By email, 22/9/2014 4 www.foodsafetynews.com/2014/04/letter-from-the-editor-honey/#.VBq38FOTNSN 5 www.foodsafetynews.com/2011/11/tests-show-most-store-honey-isnt-honey/#.VBq\_6IOTNSN 6 westernfarmpress.com/blog/honey-laundering-trails-all-lead-china

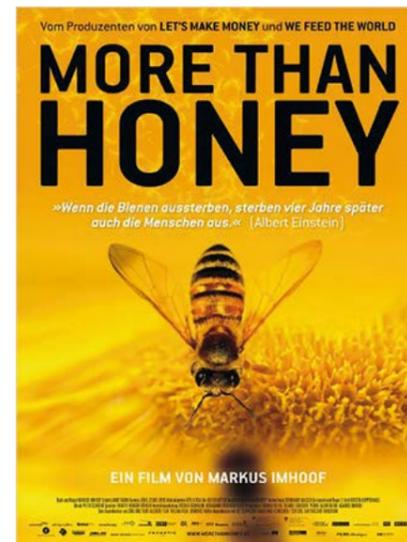


For a strawberry to fully develop it needs about 21 visits from bees.

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# Valuing Bees

*Anna Clayton questions: can the environmental and economic value of bees be quantified?*



**A**pis mellifera, the only insect that produces food eaten by humans on a commercial scale, has become an icon for other insects to aspire to. Sadly, a failure to understand the importance of this and other species within our broader ecosystem has resulted in a number of apocalyptic realities. Markus Imhoof's documentary 'More than Honey' depicts one such scenario: a blossoming apple orchard in Liaoning province in North-eastern China, with hundreds of workers taking on the role of the absent bees to hand pollinate flowers. Although this situation is not completely down to a lack of bees, but also the intensive monoculture of self-sterile fruit trees, it gives an insight into what the world could look like if bees were no longer around. In Markus's new book 'More than Honey', to be published in 2015, he comments on the Liaoning scenario:

"Of all the people we met, we eventually settled on Zhang Zao in the northern province of Liaoning because she herself was the bee: as there are only five days of apple blossom in the north, there is not enough time to harvest the pollen, process it and get it to the blossom, so she travels 2,000 kilometers to the south where the apples blossom a month earlier. She gathers the pollen there and travels back north in time to pollinate the apple blossoms. Her story illustrates the immense efforts and costs involved if bees were to vanish."

Bizarrely it is currently more economical to hand pollinate the apple orchards of Liaoning province rather than import bees or change the land use. This unusual situation raises the questions: are

bees really necessary? 'Which fertilises better. Man or bee?' And how can the ecosystem services offered by pollinating insects be quantified in order to raise their profile within decision making?

## Are bees necessary?

Without hesitation, yes. By pollinating flowers and contributing to the process of successful and 'full' fertilisation, bees allow for the formation of high quality fruit and seeds. This helps to maintain both high yields, genetic diversity and contributes to maintaining high biodiversity. By supporting greater biodiversity, bees are directly linked to supporting resilient ecosystems that are better equipped to dealing with traumas such as changes in climate.

Bees also help to maintain our varied diets. A pollinator-dependant meal is typically more nutritionally diverse than if comprised solely of wind pollinated crops such as cereals. According to the UN, 100 crops make up 90 percent of the world's food supply. 70 percent of these crops are pollinated by bees, the reliance of which will vary depending on the crop.<sup>1</sup> Crops pollinated by bees include almonds, apricots, apples, pears, rapeseed (also used for biofuels), and other important non-food crops such as cotton.

Bees are also far greater pollinators than humans will ever be. Although difficult to quantify and compare, a human can typically pollinate 5-10 trees a day depending on the size of the trees.<sup>2</sup> A colony of 50,000 bees can pollinate 500,000 flowers a day, and will make numerous visits to the same flower,

ensuring full fertilisation and a heavier and healthier fruit. (For a strawberry to fully develop it needs about 21 visits from bees).

Due to the wide diversity of bee species, bees are able to pollinate a variety of flowers due to their multiple different shapes and sizes. Bees also show consistency in maintaining species-specific forages, ensuring more successful fertilisation. The species of plant a bee forages from is determined and communicated by scout bees - a colony's forage experts who search for good pollen and nectar sources. The importance of a colony's social skills is perhaps not fully understood, but the knowledge bees gather about the location of good pollen sources and flower 'opening times' is known to contribute to efficient pollination.<sup>3</sup> Humans generally lack this skill without access to technology.

## The economic importance of bees

It is very difficult to identify and value all the ecosystem services offered by bees and other pollinators such as butterflies, moths, bats, flies, wasps and beetles. The UK National Ecosystem Assessment Analysis Report (2011), contains a chapter which discusses how biodiversity may be valued, and explores the benefits offered by pollinators:

"Roughly twenty percent of the UK cropped area comprises of pollinator dependent crops and a high proportion of wild flowering plants depend on insect pollination for reproduction. Pollinators offer an essential ecosystem service which maintains biodiversity and supports other vital ecosystem functions; including soil protection, flood control and carbon sequestration. There is strong evidence that loss of pollinators reduces crop yield and that the availability of a diverse pool of pollinators tends to lead to greater yields".<sup>4</sup>

A number of research groups have tried to quantify the economic importance of pollinators by valuing products, dependant on pollinators, that enter human supply chains. As a result, the majority of research has focused on honey bees due to their dual importance - their honey and pollination services. Little research has focused on the economic importance of the UK's other 266 wild bee species (or the 25,000-30,000 other bee species globally) that are important pollinators but don't produce honey for humans.<sup>5</sup>

In 2009 the National Audit Office valued honeybee pollination services for the UK at just under £200 million a year,<sup>6</sup> with the retail value of products pollinated by honey bees being valued at closer to £1bn.<sup>7</sup> This audit considered oil seed rape (used for vegetable oil and bio-fuels), field bean, broad beans, runner beans, apples, pears, strawberries, raspberries and other soft and orchard fruit in its assessment. A later study by the University of Reading for Friends of the Earth's Bee Cause campaign calculated that if humans were to pollinate these same crops by hand instead of bees, it would cost UK farmers at least £1.8bn a year.<sup>8</sup>

If pollinator populations were to be wiped out, a predicted 4% - 6% decrease in global agricultural production (by mass) would be observed.<sup>9</sup> However, pollinator-dependant crops tend to be of a higher economic value than non-dependant crops. This relatively small decline would therefore have greater economic implications than a similar decline in wind-pollinated crops.

On a global level, the value of pollinator services are predicted to be around £130 billion per year (approximately 10% of the economic value of agricultural production). This prediction does not account for the effect changes in food prices would have on the willingness of consumers to pay more for their food and commodities. (The value of fruit and vegetables dependant on pollinators would in theory increase if pollinator populations were to significantly decline). The financial loss that this may entail, is predicted to be between £160 to £260 billion.<sup>9</sup> If this value was to be added to £130 billion (the global value of pollinator services), the total global value of pollinators could be approximated at £290-£390 billion, 25%-30% of the economic value of agricultural production.

These studies demonstrate the two main approaches currently utilised by researchers trying to place an economic value on bees. The 'deficit model' tries to calculate the cost incurred by the reduced quality and yield of crops associated with declining pollinator populations. The 'compensation model' tries to calculate the costs incurred by mitigating against pollinator declines - by planting wild flower meadows or hand pollinating flowers. Although a step in the right direction, certain factors are not accounted for or incorporated into these models. For example:

- Pollinator declines will have varying economic impacts depending on the

dependence of a country or region on agriculture or, more specifically, pollinator dependant crops.

- More and more land is being used to grow pollinator- dependant crops. This demand is out-stripping by 4.9 times the number and variety of bee species needed to pollinate them.<sup>9</sup>
- With a decrease in crop yield and quality, product prices will theoretically increase and result in consumer's being less willing to buy pollinator-dependant crops regularly
- The impact of pollinator declines on nutrition and the associated health implications and costs are not taken into consideration
- The impact of pollinator declines on seed quality are not taken into consideration

At present, observed pollinator population declines do not seem to be having an obvious economic impact. When a range of pollinator-sensitive sectors (agro-chemical, food producers and retailers, luxury good and beverages) were interviewed by Rick Stather's, Schroder's head of Responsible Investment, about the impact of pollinator declines on their businesses, all generally agreed with Marks and Spencer's in saying 'there clearly was a cost but its value would only be recognised when the service was completely lost'.<sup>9</sup> However, the commonly quoted £130 billion a year figure is large enough to suggest the huge and unknown importance of pollinating insects for both humanity and our earth's terrestrial ecosystems, and will hopefully help focus the minds of economists, politicians and businesses on this issue.

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