



Bees, lies and evidence-based policy

Misinformation forms an inevitable part of public debate, but scientists should always focus on informing the decision-makers, advises Lynn Dicks.

Saving bees is a fashionable cause. Bees are under pressure from disease and habitat loss, but another insidious threat has come to the fore recently. Concern in conservation and scientific circles over a group of agricultural insecticides has now reached the policy arena. Next week, an expert committee of the European Union (EU) will vote on a proposed two-year ban on some uses of clothianidin, thiamethoxam and imidacloprid. These are neonicotinoids, systemic insecticides carried inside plant tissues. Although they protect leaves and stems from attack by aphids and other pests, they have subtle toxic effects on bees, substantially reducing their foraging efficiency and ability to raise young.

Whatever the EU decision, this vote will not be the end of the story. The proposed ban will buy some time for scientists and policy-makers to understand more about how neonicotinoids affect bee populations. For despite what both sides of the argument say, the link between bee declines and neonicotinoids is far from clear. I gave evidence to a UK parliamentary inquiry on the issue late last year, and my experience offers a useful window on how science informs public debate and policy-making — and, in the case of the public debate, how it does not.

There is no doubt that the proposed restriction on the use of these neonicotinoids on nectar- and pollen-rich crops such as oilseed rape will reduce a potentially serious risk to bees. It seems a crucial step towards reversing or halting observed declines in bees and other flower-feeders. But that is not enough for some environmental campaigners, who have framed the problem as one of the very survival of an unspecified number of bee species. Two and a half million people have signed an online petition telling EU decision-makers: “If you act urgently with precaution now, we could save bees from extinction.”

The assertion that a ban on neonicotinoids in Europe will save bees from extinction is absurd. There are bee species around the world in genuine danger of extinction, such as the once-common rusty-patched bumblebee in the United States, which has vanished from 87% of its historic range since the early 1990s. Diseases, rather than pesticides, are suspected of driving that decline. And although there have been dramatic falls in the numbers of managed honey bee *Apis mellifera* colonies in some countries, it remains a widespread and common bee, not in imminent danger of extinction.

Well-meaning exaggeration is common. *The Guardian*, a pro-environment British newspaper, mangled my parliamentary evidence on moths and beetles to claim that three-quarters of all UK pollinator species, including bees, were in severe decline.

There are startling claims in favour of neonicotinoids too. One headline widely reported

in the UK farming press is that, without them, UK wheat yields could decline by up to 20%. This is a disingenuous interpretation of an industry-funded report, and the EU is not proposing to ban neonicotinoid use in wheat anyway, because wheat is not a crop attractive to bees.

As a scientist involved in this debate, I find this misinformation deeply frustrating. Yet I also see that lies and exaggeration on both sides are a necessary part of the democratic process to trigger rapid policy change. It is simply impossible to interest millions of members of the public, or the farming press, with carefully reasoned explanations. And politicians respond to public opinion much more readily than they respond to science.

There is a precedent here. The 1987 Montreal Protocol that banned chlorofluorocarbons to protect the ozone layer is commonly held up as a shining example of a rapid policy response to emerging science. Yet it was agreed against a backdrop of wild stories of millions of extra cases of cancer and industry warnings that it would cost the US economy billions of dollars.

There is a risk, of course, that rapidly made, responsive policy changes will not turn out to be the most intelligent ones. We saw this in the European biofuels policy, which set a target of 10% renewable content in transport fuels by 2020, despite evidence at the time that this was not the best way to reduce greenhouse-gas emissions using renewable energy.

This risk means that communicating the science itself directly to appropriate decision-makers remains extremely important. Scientists must not be turned off by the rhetoric, but motivated by it.

We should engage with the debate throughout. It is important to get as near to the decision-makers as possible, providing clear and well-referenced information with an independent voice.

You can't switch off the lies and exaggeration. But don't worry about them. When I saw the exaggerated pollinator-decline claim attributed to me in *The Guardian* I did not seek to correct it, because the correct information, with references, will go into a forthcoming parliamentary-committee report. Unlike stories in the press, that report will definitely be read by officials who advise the politicians who, for the United Kingdom at least, make the final decision. And because of such reports, and a recent risk assessment from the European Food Safety Authority, we can be fairly sure that the decision on whether to restrict neonicotinoid use in Europe will not be made on the basis of avoiding 20% yield losses in crops, or saving the world's bees from extinction. ■

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