

Contrary to what you may have heard, there is no "bee-pocalypse." There is lots of alarmist talk about colony collapse disorder (CCD), people are blaming pesticides and talking about hundreds of billions of dollars at risk. But a closer look tells a very different story.<sup>1</sup>

Yes, honey bees have are dying in above average numbers, but the most likely cause is the Varroa mite and associated viruses.<sup>2</sup>

Moreover, if you look at the actual numbers, they undermine much of the catastrophic rhetoric. In the US, where we have good data, beekeepers have adapted to CCD. Actually colony numbers were higher in 2010 than any year since 1999. The beekeepers are not passive victims. Instead, they have actively rebuilt their colonies in response to increased mortality from CCD. Although average winter mortality rates have increased from around 15% before 2006 to more than 30%, beekeepers have been able to adapt to these changes at fairly low cost and maintain colony numbers.

Honeybee deaths are also nothing new. The Breakthrough Institute reports that in 1853, Lorenzo Langstroth, the 19th century beekeeper who invented the modern hive, described colonies that were "found, on being examined one morning, to be utterly deserted. The comb was empty, and the only symptom of life was the poor queen herself." In 1891 and 1896, large clusters of bees vanished in a case known as "May Disease." In the 1960s, bees vanished mysteriously in Texas, Louisiana, and California. In 1975, a similar epidemic cropped up in Australia, Mexico, and 27 US states. There were heavy losses in France from 1998 to 2000 and also in California in 2005, just two years before CCD was first diagnosed.<sup>3</sup>

Yet, scare stories abound. We are being warned that "bee deaths may have reached a crisis point for crops",<sup>4</sup> and some commentators go as far as invoking an impending "beepocalypse" or a "beemageddon."<sup>5</sup>

Others have also prominently employed a quotation attributed to Albert Einstein: "If the bee disappeared off the surface of the earth, man would have no more than four years to live." The implication seems to be that if the smartest guy on the planet was alarmed, we should be too.

However, the quote seems to have been made up, first appearing in 1994 in a pamphlet distributed by French beekeepers, protesting the high cost of sugar for feeding bees and opposing a proposed reduction of tariffs on imported honey.

Many have pointed towards pesticides as the main reason of colony collapse disorder. The 2-year EU ban on neonicotinoids was justified as a way to tackle CCD. It is perhaps worth pointing out that France banned the neonicotinoids already in the 1990s, and it has seen no marked reduction in CCD.<sup>6</sup>

Recent science articles instead point clearly to mites and viruses: "Varroa mites and viruses are the currently the high-profile suspects in collapsing bee colonies."<sup>7</sup>

Overall, the CCD is a problem we need to tackle, but it is not by any stretch of the imagination as bad as it is made out.

It will bring about higher costs for beekeepers that have to replace more colonies, though this is mostly offset by higher pollination fees. In the end, it will lead to a price increase for consumers. But even for the worst affected commodity, almonds, the price increase for consumers will be a paltry 2.8 cents per pound. Researchers consider that all other cost increases on fruits and vegetables will be much, much

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<sup>1</sup> <http://perc.org/sites/default/files/ps50.pdf>

<sup>2</sup> <http://link.springer.com/article/10.1051%2Fapido%2F2009076>

<sup>3</sup> <http://thebreakthrough.org/index.php/journal/past-issues/issue-1/an-environmental-journalists-lament/>

<sup>4</sup> <http://www.npr.org/blogs/thesalt/2013/05/07/181990532/bee-deaths-may-have-reached-a-crisis-point-for-crops>

<sup>5</sup> <http://qz.com/101585/everyone-calm-down-there-is-no-bee-pocalypse/>

<sup>6</sup> <http://risk-monger.blogactiv.eu/2013/02/06/the-european-commission%E2%80%99s-plan-bee-attack-of-the-killer-bureaucrats/#.UjCWdj-ND4c>

<sup>7</sup> <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0057540>

lower.

Finally, the much-quoted value of pollination of \$200 billion is likely vastly exaggerated. It assumes that all bees would disappear, which they clearly are not. And it assumes that everything bees pollinate is lost if bees disappear. Yet, studies show that the actual risks are much lower. Even if all bees were to die (which they are not), other insects would step in and take over a large part of the pollination. At the same time farmers would switch to more self-pollinating varieties. In total, even at this extreme scenario, the loss would be less than \$10 billion.<sup>89</sup>

Panic is rarely the way to confront problems, so let's get real. We have a bee-problem, but not a beepocalypse.

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<sup>8</sup> <http://www.sciencedirect.com/science/article/pii/S0921800908002942>

<sup>9</sup> <http://www.sciencedirect.com/science/article/pii/S092180091100334X>