



*'Neonics are not only considerably more toxic to insects than other insecticides, they are far more persistent in the environment.'* (photo: Alamy)

## America's Agriculture Is 48 Times More Toxic Than 25 Years Ago.

By Kendra Klein and Anna Lappé, Guardian UK 08 August 19

*A new study shows that the class of insecticides called neonicotinoids poses significant threats to insects, soil and water*

**M**ore than 50 years ago, Rachel Carson warned of a “[silent spring](#)”, the songs of robins and wood thrush silenced by toxic pesticides such as DDT. Today, there is a new pesticide specter: a class of insecticides called neonicotinoids. For years, scientists have been raising the alarm about these bug killers, but a new study reveals a more complete picture of the threat they pose to insect life.

First commercialized in the 1990s, neonicotinoids, or neonics for short, are now the most widely used insecticides in the world. They're used on over 140 crops, from apples and almonds to spinach and rice. Chemically similar to nicotine, they kill insects by attacking their nerve cells.

Neonics were pitched as an answer to pests' increasing resistance to the reigning insecticides. But in an effort to more effectively kill pests, we created an explosion in the toxicity of agriculture not just for unwanted bugs but for the honeybees, ladybugs, beetles and the vast abundance of other insects that sustain life on Earth.

What we now know is that neonics are not only considerably more toxic to insects than other insecticides, they are far more persistent in the environment. While others break down within hours or days, neonics can remain in soils, plants and waterways for months to years, killing insects long after they're applied and creating a compounding toxic burden.

The [new study](#), published in the science journal PLOS One, designed a way to quantify this

persistence and combine it with data on the toxicity and total pounds used of neonics and other insecticides. For the first time, we have a time-lapse of impact: we can compare year-to-year changes in the toxicity of US agriculture for insects. The results? Since neonics were first introduced 25 years ago, US agriculture has become 48 times more toxic to insect life, and neonics are responsible for 92% of that surge in toxicity.

Looking at this toxic time-lapse, another interesting detail emerges: there's a dramatic increase in the toxic burden of US agriculture for insects starting in the mid-2000s. That's when beekeepers began reporting significant losses of their hives. It's also when the pesticide companies that manufacture neonics, Bayer and Syngenta, found a lucrative new use for these chemicals: coating the seeds of crops like corn and soy that are grown on millions of acres across the country. These seed coatings now account for the vast majority of neonic use in the US.

Neonics are "systemic", meaning they are water soluble and therefore taken up by the plant itself, making its nectar, pollen, and fruit – all of it – toxic. Only about [5% of a seed coating](#) is absorbed by the plant, the remainder stays in the soil and can end up in rivers, lakes and drinking water with its runoff causing harm to wildlife and, as emerging evidence shows, to people.

This study comes on the heels of the first [analysis](#) of global insect populations, which found 40% of species face extinction, with near total insect loss possible by century's end, driven in part by pesticides, with neonics a particular concern.

For all of this harm, farmers get few, if any, benefits from neonic seed coatings. According to the [US Environmental Protection Agency](#), they provide "little or no overall benefits to soybean production", though nearly half of soybean seeds in the US are treated. Similar [analyses](#) have found the same for corn, yet up to 100% of US corn seeds are treated.

All this risk without reward has led some regulators to take action. The European Union voted to ban the worst neonics in 2018. But the US government has so far failed to act. Chemical company lobbying can explain much of this inaction. Bayer, maker of the most widely used neonics, spent an estimated [\\$4.3m](#) lobbying in the US on behalf of its agricultural division in 2017.

Not only has the EPA stalled scientific review of neonics, last year, the Fish and Wildlife Service [reversed an Obama-era ban](#) on use of these dangerous insecticides in wildlife refuges. Congress could change this. Democratic representative Earl Blumenauer's Saving America's Pollinators Act would ban neonicotinoids and other systemic, pollinator-toxic insecticides. The bill has 56 co-sponsors, but faces a major hurdle clearing the House agriculture committee given that the chairman representative, Collin Peterson, a Democrat from Minnesota, counts Bayer and the pesticide industry's trade association, Croplife America, among his [top contributors](#).

Beyond a ban, we need a concerted effort to transition US agriculture away from dependence on pesticides and toward ecological methods of pest control. We already know how to do this. Research shows that organic farms support up to [50% more](#) pollinating species and help other beneficial insects flourish. And by eliminating neonics and some 900 other active pesticide ingredients, they protect human health, too.

More than five decades ago, Rachel Carson warned that the war we are waging against nature with toxic pesticides is inevitably a war against ourselves. That is as true today as it was then. For the sake of the birds and bees – and all of us – this war must end.