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Pesticide Use Proliferating With GMO Crops, Study Warns

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GMO crops need more and more pesticides to fend off weeds and insects, according to a new study.

Scott McAllister remembers well the meeting with the Monsanto salesman.

The third-generation Iowa farmer questioned the agricultural giant's peddler about his merchandise -- a new seed genetically engineered to withstand Monsanto's own Roundup brand herbicide. "Down the road, are we going to experience resistance in weeds with the continued use of Roundup?" he recalls asking.

He remembers, too, the response: "Oh no, that'll never happen."

Monsanto's combination of genetically modified seed and Roundup herbicide was supposed to ensure that crops across America grew tall while weeds were laid low. Some 15 years later, most of the corn, soybeans and cotton cultivated in the U.S. stems from these Roundup Ready seeds. But a growing number of these crop acres are also reluctant hosts of Roundup-resistant "superweeds." Repeated application of the herbicide has literally weeded out the weak weeds

and given the rare resistant weeds the opportunity to take over. The situation, according to a [report](#) published last Friday in the peer-reviewed journal *Environmental Sciences Europe*, has driven growers to use larger quantities of Roundup, more often and in conjunction with a broader arsenal of other weed-killing chemicals.

Overall, the new study estimates that the engineering of crops immune to the same chemical compound that poisons weeds, and of crops capable of producing their own insecticides, has resulted in an additional 404 million pounds of toxic pesticides doused on U.S. fields between 1996 -- when genetically modified organisms (GMOs) were first introduced as farm crops -- and 2011. That's about a 7 percent increase.

Many agricultural pesticides, including [Roundup](#), don't limit their harm to the target insects or weeds. Research has pointed to [health risks](#) for animals, beneficial insects, and people exposed to pesticides via [air](#), water and food. More chemicals, experts warn, mean more hazards.

"It's been a slowly unfolding train wreck," said Charles Benbrook, author of the study and professor at the Center for Sustaining Agriculture and Natural Resources at Washington State University.

Benbrook, who served for many years as the chief scientist for [The Organic Center](#), calculated a jump of 527 million pounds in herbicides only partially offset by a drop of 123 million pounds in insecticides over the 16-year period. He further projected that the herbicide situation will get worse and that the GMO-induced insecticide decrease is only temporary. Pests will continue to evolve resistance to older technologies, said Benbrook, as well as to new technologies developed to protect crops from greater use of older, generally more toxic pesticides such as 2,4-D.

McAllister said that he has witnessed biotech's ongoing arms race with nature first-hand.

"Before biotech came on the market, we had one airplane in the county to do all the aerial spraying," said McAllister. "Now they bring in seven or eight. We've got the same acreage of crops. They're just spraying more." He added that he's seen a rise in the number of children with autism, allergies and cancer around his hometown of Mount Pleasant, Iowa. [Most of the air and rain samples](#) recently collected in Iowa as part of a study contained glyphosate, the active ingredient in Roundup.

Meanwhile, Monsanto and other biotech companies maintain that GMOs have cut the use of pesticides. The [claim is highlighted by a Big Agriculture-funded campaign](#) opposing California's Proposition 37, which would require the [labeling of genetically modified foods](#).

When asked about the new report, Tom Helscher, director of corporate affairs for Monsanto, said the company is "aware of the study and will review it thoroughly."

Graham Brookes of [PG Economics](#), a U.K. consulting group specializing in biotechnology, is critical of the new study. He suggested that Benbrook, who has been critical of GMOs in the past, used methods to fill gaps in incomplete U.S. Department of Agriculture data

that served to overstate pesticide use on GMO crops and understate their use on non-GMO crops.

"He's perfectly entitled to make his assumptions. But I'd say they are biased and inaccurate," said Brookes, whose own [industry-funded studies](#) using what he says are more thorough [market research data](#) have concluded that GMOs reduce pesticide use. (Unlike the USDA information, the database used by Brookes is not publicly available.)

Benbrook said he thinks his assumptions were "conservative," if anything. Other experts interviewed were not surprised by the conflicting findings and suggested both approaches had their limitations.

Many also shared Benbrook's concern that, regardless of the volume of pesticides deployed to date, GMOs could trigger greater chemical dependency in the future.

Alex Lu of the Harvard School of Public Health pointed to GMO seeds resistant to multiple pesticides, including 2,4-D, which are likely to be approved in an effort to save farmers from Roundup-resistant superweeds.

"It will only kick the can down the road," said Lu. "I'm afraid that we're going to see the same problem, maybe even more severe, in the near future."

The same warning has been issued for decades. At least as far back as [Rachel Carson's "Silent Spring."](#) scientists have referred to the "[pesticide treadmill](#)."

[Weeds resistant to 2,4-D](#) are already popping up. Benbrook estimates that if 2,4-D-resistant corn is released, use of the chemical compound will increase 30-fold by 2019 from 2000 totals.

Ken Ostlie, an entomologist at the University of Minnesota, also sees the pattern unfolding with a Monsanto corn designed to fend off the crop's biggest foe, rootworm, by producing its own [Bt toxins](#).

"It had a lot of potential. Initially, we saw insecticide use decline remarkably," said Ostlie.

However, within six years of the GMO corn's arrival, superbugs that could withstand Bt appeared. They spread dramatically [this summer](#), added Ostlie. Growers are now applying insecticides to supplement the failing GMO trait, which some studies suggest could pose its own [health concerns](#) despite industry claims of safety.

Yale University's John Wargo said that agricultural companies control the studies that are the basis for licensing a new technology. "What that means is that industry has the opportunity to shape the image of a chemical," he said.

The power of biotech and pesticide companies -- typically one and the same -- goes further, according to McAllister, who lost \$1 million to Monsanto in a settlement years after confronting the company and then being accused of stealing its seeds, which he denies.

"Monsanto has control of what we plant," he said. "It is out of control."