

## Scientists' 'Open Letter' to NY Times' Public Editor brightlines Danny Hakim's 'misleading' GMO article

On October 29, *The New York Times* ran a [story](#) titled "Doubts About the Promised Bounty of Genetically Modified Crops," by reporter Danny Hakim. The response from scientists and farmers around the world was immediate and emphatic: The claims advanced in the article are wrong in just about every way they could be.

Hakim's thesis was that crops improved through biotechnology have failed to deliver what they had been alleged to promise: improved yields and reduced pesticide applications. But those who have followed this issue over the years recognized that there is nothing new in the claims; they are a straightforward recycling of [similar statements](#) that have been made for years by [ideological opponents](#) of modern breeding methods. The claims were [without merit](#) then, and they are without merit now.

An early response came from Andrew Kniss, a University of Wyoming weed scientist. He showed precisely how and where the *Times* article cited incomplete and unrepresentative data to buttress untenable claims. Kniss used a full data set—supported by [numerous papers](#) in the scientific, peer-reviewed literature—to show that even though genetically modified crops were not designed to increase yields *per se*, but rather to manage and mitigate some of the most serious and widespread causes of crop loss (weeds and insect pests), biotech-improved seeds have been so successful in delivering their intended benefits that [they have, in fact, increased yields](#), by an average of 37 percent globally.

Yale professor and neurobiologist Steven Novella followed with a thoughtful and wide-ranging [critique](#). Novella notes that the article does not consider the impact of biotech seed in developing countries—where 17 of the 18 million farmers worldwide growing biotech-improved crops farm. By neglecting them the article addresses only a fraction of 1/18th of the relevant data. Novella concludes that the reporter started with a case he found persuasive, and then cited data selected to confirm his presuppositions, rather than testing his thesis to make sure he wasn't missing something important. The same criticisms were echoed by [Grist](#) and [Mother Jones](#).

These and other errors in the *Times* piece have been sketched in an open letter to the paper's public editor from several experts in this area, including myself (the letter is included below).

It is also worth noting that many, if not most North American farmers would not have expected to see major yield benefits from biotech pest or weed control traits in any case. They had and were using generally effective control measures prior to the advent of biotech-improved seeds. What biotech seeds have done is provided a new generation of superior control methods with lower environmental impacts and other agronomic advantages, which were unfortunately outside the scope of the issues considered by the *Times*.

Setting aside the issue of yield, there are other significant benefits from biotech-improved crops unmentioned by the *Times*, particularly with respect to corn (maize). Contamination of the grain with

cancer causing fungal disease is a [serious problem](#), both in [Europe](#) and [around the world](#). It also happens to be a problem virtually [eliminated by biotech insect-protected maize](#). French plant biologist Prof. Agnès Ricroch has noted in an email that “France imports Bt corn from the US to mix American seeds with French conventional corn seeds in order to decrease the level of mycotoxins in the French corn. Indeed the [low mycotoxin] threshold allowed in EU is such that the French production shows a higher mycotoxin content than the authorized value in EU.” The irony that EU regulations on “genetically modified” crops, supposedly aimed at protecting against ([nonexistent](#)) health threats, actually have increased known and serious health threats by impeding the introduction of safer crops and practices, as has been [noted](#).

Farmers have also weighed in directly:

As an [Iowa farmer](#) reading these articles which claim biotech crops don't increase yields or benefit the environment, nothing I see here matches my experience or the experience of the other farmers I know who are reaping the benefits of this technology... these articles that position GM seed as not worth using are incredibly insulting to farmers... in today's business environment, where margins are tight and agricultural trade is increasingly competitive, every dollar counts. Farmers would never spend more on GM seed if there was not a clear business benefit. By saying that there is no benefit to using GM seeds, these studies and articles are insinuating that farmers can't make simple business decisions. Often these articles point to Europe, where growing GM crops is virtually completely banned. I've been to Europe many times – and have had many European farmers visit my farm in Iowa. Every one of them has told me that they want the technology. If there is no need for it, then why do all of these farmers want it? They know they are falling behind in a global competition. That's very telling to me.

Anyone who is familiar with GM seeds knows the environmental and economic benefits of the technology. When I first began farming, we used large amounts of broad based herbicides and pesticides, and today's technologies are safer and cleaner for the environment and for farmers. Yields have increased and we're better able to battle the elements, weeds, pests, and viruses. Healthier plants have meant greater yields, which has translated to more income for myself and other biotech farmers.

But what is less known or discussed is the sociological impact on farmers' families. When I was growing up, I spent my summers in the soybean fields, weeding and working. Spending time off from school doing hard work on the farm was the norm for farm kids like me. We didn't have the typical childhood of lazy summers with lots of free time. Herbicide-tolerant soybeans have completely changed the need for hand-weeding and field work — meaning today's farm kids are spending less time working on the farm in the summers and are now playing baseball, competing on swim teams (or just enjoying the pool during summer) or taking dance lessons — and better yet, their parents are there, watching them.

And:

[From our POV](#), we have 18 years of side by side GMO, nonGMO production and include 7 years of certified organic simultaneously. Our GM crops have required fewer inputs, fewer tractor passes, which means less man hours and less fossil fuel to do those jobs. At the same time they have out yielded our nonGM crops and hands down beat our organic yields often by double. We decertified our organic acres 4 years ago for several reasons but yield was a factor as was sediment loss from tillage as the only feasible way to control weeds in the organic farming system.

Finally, the article uses the term “GMO” as if it has some real meaning or utility for risk management: [It doesn't](#), and we've [known this](#) for [decades](#). But this fallacious vocabulary has abetted a widely shared habit of imprecise thinking around the world, one which appears to have a particularly [unhappy history](#) at the *Times*. This is a fundamental failure of critical thinking, but it is one that [can be fixed](#).

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November 3, 2016

New York Times Public Editor  
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We write to make you aware that a recent Times story on genetically improved crops (“Doubts About the Promised Bounty of Genetically Modified Crops,” by Danny Hakim, October 29, 2016) erred in several important ways.

First, the article is based on a false premise: It asserts that genetically modified crops have not improved yields even though this is not what they were designed to do. They were designed to manage and mitigate some of the causes of crop loss, especially pre-harvest losses due to insect pests or weeds. Data and experience show they have been successful in this regard—and that by protecting against crop losses have in fact increased practical yields. The [most thorough meta-analysis](#) to date found that by safeguarding yields against well-known and frequently encountered threats, biotech crops have increased farmers' harvests by 22 percent, on average, while reducing pesticide use by 37 percent and increasing farmers' incomes by 68 percent. This is one of the reasons farmers have adopted GM seeds at rates not seen with any other major innovation in the history of agriculture, as [ISAAA has documented](#).

Second, the article misrepresents the scientific literature by citing selected papers on yield impacts summarized in a recent National Academy of Sciences review, but without including essential context. Specifically, the article claims the NAS report finds no yield gains from biotech crops, which comes from Chapter 4 of the NAS report, but it fails to mention the work cited in Chapter 6 which specifically describes yield gains from herbicide tolerant maize in South Africa. Moreover, the *Times* article fails to mention the [numerous publications](#) by Graham Brookes and Peter Barfoot and the extensive literature they cite documenting yield benefits of transgenic crops.

Third, the *Times* article relies on the use of selected (incomplete and unrepresentative) data and

inappropriate parameters in a way that distorts the picture. For example comparing the total use of pesticides in the US vs. France is inappropriate because the USA is so much larger than France. The correct parameter for comparison is not total usage but lbs/acre (or kg/ha). Wyoming weed scientist Andrew Kniss has used complete and representative data which document that biotech crops grown in the U.S. have contributed to significant declines in pesticide use, and that U.S. pesticide application rates remain significantly lower than in the EU, even in the (unrepresentative) case of France. The complete data also show clearly that the vast majority of European countries have seen significant increases in pesticide application rates during the relevant interval. Kniss' findings are strongly supported by the scientific peer reviewed [literature](#).

Fourth, the Times article ignores the verdict of the marketplace—namely that farmers, who must carefully weigh costs and benefits in buying inputs for their crops, continue to choose genetically improved seeds. If biotech improved seeds delivered no value to farmers, then why have 18 million farmers in more than 30 countries around the world adopted biotech improved crops at rates unmatched by any other agricultural innovation in history? And why would they continue to pay premium prices for them year after year? They do this because the seeds consistently increase their productivity.

At the end of the day, farmers adopt practices that maximize their profits, not their yields. Yields between continents are not expected to be the same given differences in climate and pests present in different growing regions, which require different management practices and thus affect the cost of production. Nevertheless, we find it impressive that Hakim considers corn yields to be equal on both sides of the Atlantic. The part that Hakim missed is that the US is getting equal corn yields to Europe, but is doing so with far fewer chemical inputs. That alone is a reason to celebrate GMOs.

These and other flaws in the Times story have been widely noted by experts in the field. (See Appendix A for a partial list.) We hope the Times will provide more accurate coverage of this issue in the future to avoid misleading readers.

Sincerely,

## **INDIVIDUALS (affiliation for identification only)**

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## **Appendix A –Critical Responses to the Hakim Piece**

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