

Why GMOs? Challenging anti-technology conspiracy theories

The [Common Reader](#), an online journal (with a December hard copy version) launched last fall at Washington University-St. Louis and edited by Gerald Early, is focusing on food and agriculture in its current issue. Here are excerpts from [GMOs, Yes! Why “Biotech 2.0” foods are safe, sustainable and critical to global food challenges](#), a feature report by the GLP’s Jon Entine:

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Do you like Ruby Red grapefruits? How about Italian pasta? Vietnamese rice? Ever try an über-delicious Osa Gold pear from Japan?

If you are a food devotee, and pride yourself on ‘going organic,’ you could more than likely pick up samples of each of these specialties at your local Whole Foods. And that way you could avoid the ‘taint’ of eating food that might have come in contact with ‘dangerous’ GMOs. You know, foods created in laboratories. By whitecoat scientists. Untested and unlabeled. Ticking health time bombs. Frankenfoods.

Oops. Better change your menu, because those four foods, often sold as organic, were created in laboratories. By scientists. In white coats, more than likely.

In fact, almost none of our foods that we eat today is the product of Nature’s way. Consider corn, which supplies about 21 percent of human nutrition across the globe. Scientists now believe it is the descendant of an ancient wild grass with relatives in Mexico today known as teosinte. It had kernels all right: inedible black ones that could crack your teeth. That was before humans intervened to bend Nature.

Beginning about 10,000 years ago, it is believed, our ancestors set up field labs—yes that ugly word—to randomly experiment on this odd grass with hard buds. Through trial and error, cobs became larger and slightly more edible over the centuries, and with more rows of kernels, eventually taking on the form of modern maize. Modern sweet corn yields 100 times more than teosinte, a testament to genetic modification.

Modern bananas, eggplant. Brussels sprouts, and almost every food we eat, have been generically altered in some way by humans. Over the centuries we’ve genetically modified thousands of foods. A scientist friend of mine, Pamela Ronald, a distinguished plant geneticist at the University of California-Davis, has developed flood tolerant rice by moving rice genes from one rice plant to another. The modified rice has led to a boom in yields in flood prone areas.

GMO critics seem comfortable with that kind of genetic manipulation. But when it comes to inserting genes from one species into another, she says, they go “yuck,” claiming that it is “totally different” than conventional breeding.

Well, it is and it is not. Nature itself has moved genes ‘naturally’ across species lines since the dawn of evolution. And we all carry within us the seeds of our ancestral past, which includes our genetic benefactors: bacteria, viruses, plants, fish, extinct dinosaurs and the panoply of life that we see today.

Indeed, we share 30 percent of our genome with the marigold, 60 percent with worms. And 99 percent with apes. All life is genetically tied together; we all have common ancestors reaching deep into prehistory. In Nature, genes are just genes; what makes them different is how they are expressed. So moving genes from one species to another is not very radical when one understands the course of evolutionary history.

Bt brinjal has been a huge success—much to the chagrin of the powerful anti-GMO lobby, which knows that its adoption could open the floodgates to new nutrition and health focused public sector GMO foods. To prevent that from happening, they have mounted a vicious public relations effort to scare farmers and the public alike that Bt technology—yes, the one used safely by organic farmers around the world—is somehow unsafe in Asia.

So the idea that someone should consider rejecting genetically modified food because scientists are “playing God” by “fiddling with Nature” is—let us use a gentle term—hogwash. Such facile comments are examples of what is called the “naturalist fallacy”—the silly belief that organic foods are somehow more “natural” than conventional foods, and superior/more nutritious/safer than genetically modified alternatives.

There is not one example in the publishing record of a study purporting to find health or safety dangers originating from GM foods that has been replicated in an independent, peer-reviewed journal. Not one.

The world economy hinges on innovation. Regulation that prevents The Next Big Thing is truly a lost opportunity—many once-touted biotech innovations have been killed in the crib by over-regulation: Triffid flax, NewLeaf Potatoes and almost the entire field of transgenic animals—possibly even AquaBounty’s GE salmon, which languishes in regulatory no-man’s land because of political intervention from the White House.

No longer can we expect breakthroughs in GE biorational pesticides, microorganisms to clean up toxic spills or transgenic animals.

Do we want to continue to thwart startups or university research projects? Or should we link science to regulatory sanity and revise the approval process to reflect what we have learned over decades of research and years of experience and trillions of meals?

Used appropriately, genetic engineering is a fantastic tool—to create new life-saving drugs and encourage cutting edge ecologically based farming techniques. We must increase food output to meet a burgeoning world population that is also becoming more affluent. No tools in our toolbox should go to waste.

The full, original essay can be read here: [GMOs, Yes! Why “Biotech 2.0” foods are safe, sustainable and critical to global food challenges.](#)

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For a contrary view, read in the same publication Roberta Millstein's [GMOs? Not So Fast](#). Here is a short excerpt (click on link for full article):

Let me put my cards on the table from the outset. I think there are good reasons to label GMOs. However, I am not “anti-GMO”—I don’t think GMOs should be banned or outlawed, and some applications are promising. Research should continue. But there needs to be stricter oversight of GMO testing. In short, I take a middle ground position which will no doubt antagonize both sides. But it is the middle ground that the arguments steer us toward.

It is a mistake to lump together climate change deniers, evolution deniers, and GMO critics, in part because the reasons for doubt in each case are different and in part because the so-called “precautionary principle” would incline us to accept climate change while rejecting GMOs, but also because (ironically) a proper understanding of evolution forms the basis for some of the concerns about GMOs.

People who would like to avoid GMOs, whether out of concerns for potential health harms or concerns over actual environmental harms, are not being allowed to judge the risks and make choices for themselves and their families. For these reasons—so that people can follow their reasonably held values—we ought to label GMOs as GMOs.