

Scientists, journalists and farmers join lively GMO forum

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The current [Boston Review](#) hosts a discussion forum about genetically modified foods, offering several contributors the opportunity to share their research and perspectives on the GMO debate. The editors asked Pamela Ronald, professor of plant pathology at the Genome Center at the University of California, Davis and Director of the Laboratory for Crop Genetics Innovation to oversee the discussion. Ronald is a pioneering scientist in plant genetics, most recently noted for her research developing flood-tolerant rice.

Ronald is also the co-author of *Tomorrow's Table: Organic Farming, Genetics, and the Future of Food*, which she wrote with her husband Roal Adamchack, the head of the organic farming program at University of California, Davis. The two are committed to the belief that organic farming techniques and crop biotechnology are complementary rather than natural enemies, and [both together](#) can be a vital tool in sustainable agriculture, despite what many opposed to GMOs claim.

The *Boston Review* selected several professionals in agriculture, journalism and academia to respond to Ronald's [initial summary analysis](#). She argues that there are no unique health or environmental safety risks involved in consuming or planting GM crops, notes several successful GM crops that have vastly increased farmers' yields, and discusses practices used by uncompromising critics of crop biotechnology that have fueled consumer hesitance:

In spite of [the benefits of GMOs], genetic engineering is anathema to many people. In the United States, we've seen attempts to force labeling of genetically modified organisms (GMOs). In much of Europe, farmers are prohibited from growing genetically engineered crops and so must import grain from the United States. And "GMO-free" zones are expanding in Japan.

The strong distrust of GE foods is curious. Opponents typically profess a high degree of concern for human welfare and the environment. They want the same things that scientists, farmers, food security experts, and environmentalists want: ecologically sound food production accessible to a growing global population. But their opposition threatens the great strides that have been made toward these goals through deployment of new technologies.

Ronald stresses the need for an open, ongoing debate about the environmental and economic implications of this evolving technology. Her opening salvo sparked comments and in some cases critical responses from the expert virtual panel.

- Greg Jaffe, Director of Biotechnology at the Center for Science in the Public Interest, [responds](#) by arguing for greater regulation from government entities such as the FDA and USDA and calls for farmers to diligently follow steps to reduce the onslaught of pesticide-resistant pests.
- Rosamond Naylor, Director of the Center on Food Security and the Environment at Stanford University, [raises the importance](#) of GM food in places like Africa, where despite the looming severe droughts and flooding of climate change and the wide spread malnutrition, there is still a deeply rooted fear of GMOs.
- Nina Fedoroff, professor of biology at Penn State University, member of the National Academy of Sciences and current president-elect of AAAS, [highlights](#) the erroneous study conducted by French scientist Gilles-Eric Seralini, who reported that rats developed cancerous tumors when fed GMOs, and contradicts other popular anti-GMO myths.
- Jennie Schmidt, farmer and registered dietician, [contradicts](#) the popular anti-GMO claim that farmers oppose GMOs and advocates for GM crops, which she says have increased yields and profits on her own farm.
- March Gunther, editor at large of the Sustainable Business section of the *Guardian* (UK) and contributing editor at *Fortune*, [points out](#) that it's not just agricultural corporations that are out to make a buck – any brand that labels its products 'organic' are doing so because they know they can capitalize on consumer fear of GM food.
- Margaret Mellon, senior scientist at the Union of Concerned Scientists, [objects](#) to agriculture corporations claiming that GMOs are the best and only solution to the world's food problems and argues for a wider embrace of traditional breeding techniques to help solve some of these problems instead.
- Robert Paarlberg, a professor of political science at Wellesley University and Associate at the Weatherhead Center for International Affairs at Harvard University, [documents](#) the many GM crops that have been blocked from commercialization or have never been commercialized, such as melons and potatoes, and notes that these blockages are not due to the health or environmental

safety of the seeds themselves but of a successful fear-mongering campaign by anti-GMO activists.

- Tim Burrack, Vice Chairman of Truth about Trade and Technology, a non-profit organization that advocates for farmers, is another farmer [who grows](#) GM sweet corn and advocates for its wider embrace because it would decrease insecticide use and offer reliable and sustainable benefits for farmers and consumers alike.
- Jack Heinemann, lecturer in genetics at the University of Canterbury, New Zealand, [argues](#) that altering planting methods and improving soil nutrition and water systems will achieve what genetic modification promises to do, and that GM crops introduce more problems than they solve.

Ronald [concludes the forum](#) by responding to critical claims made by several contributors. Heinemann, she writes, “identifies serious problems with agriculture but not any that are specifically related to the process of genetic engineering.” Even though the low technology farming practices that he advocates might work on a small scale, Ronald argues that—in real-world situations—his proposals would not result in the increased yield offered by some GM crops and could lead to higher prices, which do nothing to benefit impoverished consumers. She also responds to Heinemann’s example of what he claims is GM gone awry: a leaf-blight epidemic that wiped out a Midwest corn crop, which he writes was “a result of powerful economic and legislative forces behind genetically uniform seeds.” As Ronald notes, this happened in 1969, decades before a single GM crop was planted.

Ronald also chastens Margaret Mellon, who appeared in her essay to take a moderate position about GMOs despite a history of strident opposition to the technology. “The Union of Concerned Scientists takes a middle ground,” Mellon had written, “Our major concern about genetic engineering is not its risks but that its over-hyped promises will divert resources from the pursuit of more promising technologies.”

But in a pointed response, Ronald calls out Mellon and UCS for duplicity. The three UCS pieces that Mellon cites that supposedly demonstrate the problems with crop biotechnology “have been [widely discredited](#), but UCS keeps churning them out without critical review.” She also notes that on its website, UCS never addresses any of the benefits of GM technology that Mellon alludes to in her essay but in fact demonizes it. The entire section on the UCS site dedicated to GMOs is headlined “Risks of Genetic Engineering.” It lists multiple alleged concerns, all of which have been discussed, evaluated and rejected by every major [independent global organization](#)—bar none.

In closing, Ronald stresses the importance of embracing GM technology – not as a cure-all but as a vital tool to address the world’s food challenges:

Genetic engineering is just one tool. Sometimes it is the most appropriate technology and sometimes it is not. Other approaches, such as marker-assisted breeding, mutation breeding, the release of sterile insects, and crop rotation also have a place in agriculture. In most cases

a combination of techniques will be most effective. Decisions must be based knowledge of a particular crop, the environment, and the needs of the farmers.

Update, 6:05 PM ET: In response to a friendly but critical email from Doug Gurian-Sherman from the Union of Concerned Scientists, Pamela Ronald elaborates on a specific point:

Doug Gurian-Sherman at the Union of Concerned scientists wrote me a polite email yesterday. He protested that one of the sentences in my response to Margaret Mellon's response to my recent Boston Review piece on "GMOs", was "not professional and far from worthy of my typical efforts". I appreciate his candor and civility and have concluded that he is right – the sentence was overly harsh and not specific enough to be meaningful. How can UCS respond to such a broad attack? For these reasons, please consider this sentence deleted:

"The three UCS pieces that Mellon cites have [been widely discredited](#), but UCS keeps churning them out without critical review."

and replaced with this:

"The UCS reports cited by Mellon were published and distributed without critical review. Since publication, several scientists have noted selective use of datasets and calculation errors in the initial report. Specifically, because the benefits of GE crops to neighboring farms, were not included in the UCS analysis, the conclusions of the report are not useful. Furthermore, the report focused only on corn and soybean in the US, omitting the extensive data available from cotton and canola in the US and abroad. Finally, the UCS claim that GE crops on the market have "failed to yield". This is highly misleading. One of the first GE traits developed, BT crops, was designed to guard the plants against insect damage and reduce the use of sprayed insecticides. A decade of peer-reviewed reports attests to the success of this approach in achieving these objectives. In addition, BT crops have reduced pesticide poisonings of farmers and their families and dramatically enhanced yields in developing countries.

Collectively, these omissions in the UCS report serve to distort the actual situation and confuse the public."

See the full, original post here: "[Update to Boston Review Forum on GMOs](#)"

Additional resources:

- "Buddhist Economics and A GMO rethink," [Biofortified](#)