Perspectives & Opinions

Dominique Bergmann
HHMI-GBMF Investigator
Stanford University
It’s important to think about separating scientific from social and economic concerns. For example, there are people who worry about corporate ownership of biological materials; I think this is a legitimate concern, but we have to talk about such things in a separate breath from the actual genetic modification.

When I talk to people who are anti-GMO, I try to figure out their reasoning. If they’re concerned about safety or putting foreign genes in food, I ask them when they first tried quinoa or acai berries. Usually, they say not until adulthood. I then ask why they were willing to take the incredible risk of consuming something with upwards of 20,000 genes they had never before been exposed to. I follow it up with a little light history of how we’ve manipulated plants for thousands of years. I doubt that I’ve actually convinced my Palo Alto neighbors they shouldn’t fear GMOs, but I’ve at least taught them a little science.

Luis R. Herrera-Estrella
Senior International Research Scholar
Center for Research and Advanced Studies of the National Polytechnic Institute, Irapuato, Mexico
In the 1980s, papaya production in Hawaii was almost completely destroyed by the papaya ring spot virus. No natural resistance to this disease existed in papayas, and the immediate solution was to apply large amounts of insecticides. Using genetic engineering, researchers at Cornell University went on to develop genetically modified papaya plants that were resistant to the disease. These GM papayas saved papaya production in Hawaii; they also generated a cleaner product that was not contaminated by toxic insecticides. Consumers in the U.S., Canada, Mexico, and Europe have been eating GM papayas for the past 18 years and, to date, not a single health or environmental problem has been scientifically linked to this product, supporting the safety of GM crops.

Many other examples can be used to show that GMOs are not only safe, but they also help us develop sustainable agriculture with a less negative environmental impact.

Michael Eisen
HHMI Investigator
University of California, Berkeley
The simple answer is education. Opposition to GMOs is born largely of ignorance, and scientists should take every opportunity they can to explain the technology and motivation behind genetic engineering to the public.

But even if we do that, I think strong opposition to GMOs will remain, because people don’t see a good reason to “mess with Mother Nature.” So I think the most important thing we can do to promote acceptance of GMOs is to develop GMOs that offer something to consumers, not just to farmers. If citrus greening wipes out the orange, for example, I think consumers will embrace engineered, disease-resistant varieties, and resistance to the technology will begin to disappear.

Q&A
How can scientists help ease society’s fear of GMOs?
GMOs make many people nervous. They’re afraid of health risks, effects on the environment, and what could come of tampering with nature. But some of those fears may be unfounded. Here, four scientists suggest ways to ease GMO anxiety.

–Edited by Nicole Kresge

Steven Henikoff
HHMI Investigator
Fred Hutchinson Cancer Research Center
Quelling irrational fears of low-probability events, such as catastrophic meteor impacts and adverse health effects from GMO foods, puts science on the defensive. The debate over labeling GMO products pits science against anti-science disguised as consumer protection, when the unstated implication is that GMOs require a health warning like cigarettes. But the two major GMO technologies—herbicide tolerance and insect resistance—have had an undeniably positive impact on the environment. Herbicide-tolerant crops promote no-till farming that reduces erosion, water use, and pollution. Both technologies cut down on the application of toxic chemicals, and the accompanying improvements in yield reduce the acreage devoted to agriculture. Debating the ecological impacts of GMO crops might make it more difficult to promote deceptive economic and political agendas.