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May 01 2000 **Genetic Gambling**
Media fail to present real issues of bioengineering
By [Karen Charman](#)

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If the mainstream media had been doing their job, most Americans would not have been eating genetically engineered food every day for the last six years without their knowledge or consent. Nor would we have allowed 70 million acres of our nation's farmland to be planted in bioengineered crops without significant public debate and honest scientific and regulatory scrutiny of their environmental impact. But they haven't, and so we did.

Ricarda Steinbrecher, a geneticist with the Women's Environmental Network in the United Kingdom, points out in a forthcoming book chapter from Zed Books that scientists actually know very little about genes, how they work and interact with each other, or how their characteristics are expressed in an organism. Yet molecular biologists and geneticists in the biotech industry are busily snipping, inserting and rearranging new genes into the genetic codes of various species. They then rush their creations out into the environment to grow, and then onto supermarket shelves for people to eat, with virtually no real monitoring of their environmental or human health effects.

Because genetically modified organisms (GMOs) are alive, once released, they grow, mutate, migrate and can't be called back to the lab. In a **New York Times Magazine** article (10/25/98), Harvard geneticist Richard Lewontin summed up the problem with genetic engineering this way: "There's no way of knowing what all the downstream effects will be or how it might affect the environment. We have such a miserably poor misunderstanding of how the organism develops from its DNA that I would be surprised if we don't get one rude shock after another."

Some of the very few scientific studies examining environmental impacts offer some clue as to the kinds of surprises that might be in store for us: altered bacteria that wipe out crop plants; GM plants with increased vulnerability to attack from viruses and fungi; genes that unexpectedly change their function, as when, for example, a field of 30,000 petunias engineered to be red inexplicably turned white when the weather warmed (**Plant Cell**, 1990/Vol. 2).

With very few exceptions, the mainstream media are not presenting the real issues surrounding genetic engineering to the public so it can have a say in whether to take this genetic gamble. And this pattern of media neglect has been in place throughout most of the technology's growth and development.

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In a 1980s paper, "How to Kill a Controversy: The Case of Recombinant DNA" (*Scientists and Journalists*, Friedman et al., ed.), Rae Goodell Simpson, an MIT professor who then specialized in analyzing science reporting, detailed how first the scientific community and then the fledgling biotech industry manipulated the press and molded its coverage. Early public soul-searching by a number of DNA researchers about the environmental and public health risks of their work led to disturbing stories in several major daily newspapers in the mid-1970s about scientists' fears of releasing dangerous germs. The controversy spread and sparked federal, state and local moves to regulate genetic engineering research.

By 1977, the scientific community fought back--closing ranks, lobbying against regulations and attacking publicly and privately any scientist who continued to express public safety concerns. Press coverage at the time shifted to reflect the new scientific consensus that public safety was a non-issue in biotech research, Goodell Simpson wrote, and the story faded. Soon after, industry activity picked up, and with "an impressive public relations campaign" the new story became "the blossoming of the genetic engineering industry."

Brian Tokar, a Harvard-trained biologist and longtime critic of genetic engineering at Goddard College in Vermont, says that media failure to report on major public policy milestones affecting the biotech industry has enabled it to grow unchallenged. "In 1986 when the attempt to come up with a new regulatory framework was scuttled by the Reagan administration, it really wasn't in the media. In 1992 when [Vice President Dan] Quayle's Competitive Council further deregulated biotechnology, it was barely mentioned. In 1996 when GM foods started coming onto the U.S. market in a big way, it also wasn't a story," he told **Extra!**.

The controversy over rBGH, the genetically engineered hormone injected into dairy cows to increase their milk production, generated a fair amount of press coverage in the early '90s--some surprisingly sympathetic to critics' concerns, Tokar says. But that issue has also largely faded from the media, despite the fact that, environmental health expert Dr. Samuel S. Epstein recently told me, there is "overwhelming" scientific evidence that rBGH milk promotes breast, colon and prostate cancer.

Growing public outrage overseas as well as at home, a laboratory study indicating unintended environmental impacts, and a series of lawsuits filed on behalf of farmers and the public against the bioengineering firm Monsanto and the U.S. Food and Drug Administration have combined to force the biotech story back into the media. "Since a year ago, there's been a fairly steady stream of articles in the national media covering the controversies," Tokar says. "But it's still no means proportional to the amount of opposition and concern that exists."

Bioengineering myths

Much of the coverage is riddled with myths perpetuated by the biotech industry and its supporters: that we need biotechnology to feed a spiraling world population; that genetic engineering is merely a more precise way to do what humans have been doing for the last 10,000 years in improving species for

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agriculture; that genetically engineered foods are the most tested--and therefore safest--foods in history; and that this technology will solve all the environmental problems with modern agriculture that environmentalists and health fanatics have been whining about for so long, to name a few.

Though uncritically accepted by most of the media, the pro-biotech claim that the technology is the only way to feed the world is "completely unfounded," according to Peter Rosset, executive director of the Institute for Food and Development Policy (Food First). On the contrary, he says, turning food into intellectual property and attaching patents to virtually everything everyone on the planet eats is likely to exacerbate world hunger. "People are hungry because they don't have the money to buy food or the land to grow it on, not because there is not enough food." In fact, he says, data from the Food and Agriculture Organization (FAO) show that over the last 35 years, world food production has increased 15 percent faster than the global population.

The assertion that modern gene splicing is nothing new and simply a "more precise" way to improve plant and animal genetics is equally flawed and unexamined by the media. Women's Environmental Network's Steinbrecher points out that up until about 15 years ago, breeding improvements were limited to the traits available within species and closely related relatives. Further, the current state of the art in gene splicing is far from precise because scientists cannot control where the introduced gene will show up in the target organism, which affects how the gene will behave. "Genetic engineering of crops, imprecision, and unpredictability go hand in hand," she writes in the as yet untitled Zed book, adding that a more accurate characterization of the technology would be "genetic gambling" or "randomeering."

The mainstream media too rarely challenge the often-repeated myth that GM foods are the most scrutinized foods introduced into the food supply in history. In fact, the FDA, the agency responsible for assuring the safety of foods on the market, relies completely on voluntary biotech industry data and has not required one independent food safety test, Food First's Peter Rosset says. Biotech critics are particularly concerned about the potential for toxic effects or allergic reactions to GM substances that have never before been part of the human diet. But because nobody is looking for them, they may already be occurring undetected.

The claim that biotechnology is good for the environment because it enables farmers to reduce the amount of toxic chemicals they use is also easily disputed; so far the opposite has been true. The greatest single contribution biotech has made to agriculture to date is to bring us crops that won't die when they are sprayed with specific weedkillers, notably Monsanto's best selling Round Up herbicide. An analysis last year of 8,200 agriculture university surveys revealed that farmers planting Monsanto's "Round Up Ready" soybeans used two to five times as much of the herbicide as farmers planting non-GM varieties. Meanwhile, the U.S. Environmental Protection Agency, which regulates pesticides, raised the allowable residue limits for Round Up on forage crops. Yet the biotech environmental benefit myth is still commonly found in media reports.

Twenty years ago, MIT professor Rae Goodell Simpson observed that science journalism was marked by particularly strong symbiotic relationships between reporters and their scientist sources. She also noted that one of the most



common criticisms of science reporting was its passivity. Unfortunately, in the case of agricultural biotechnology, her observation still holds true today.

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