14 Frankenfood or Doubly Green Revolution: Europe vs. America on the GMO Debate

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If the science, safety and benefits of biotechnology seem so clear to U.S. government officials, industry, and most scientists, then why all the controversy over genetically modified (GM) food?[1] Where and how did the genetically modified organism (GMO) debate start? Not in a biotechnology laboratory or a company boardroom in St. Louis, Missouri, but in the election booths of Europe.

It is difficult to understand the GMO controversy and the public's reaction to agricultural biotechnology without examining the context of Europe's last four years of political change and the continent's shift to the left. After almost 20 years of Thatcherism, Tony Blair's more liberal and environmentally sensitive Labour government was elected in Britain in 1997. That same year Socialist Party Leader Lionel Jospin unexpectedly won a solid National Assembly majority in France. He went on to form a government composed primarily of socialist ministers, but also with some Green Party members. In 1998, after 16 years of conservative rule under Helmut Kohl, the Social Democratic Party came to power in Germany under Chancellor Gerhard Schroeder. This established the country's first "red-green" coalition, bringing the Green

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Party into a national government in Germany for the first time. All three leaders were beholding to environmental constituencies and committed to environmental concerns in ways their predecessors were not. All three took over when Europe was seen as lagging far behind the American technological and economic Goliath.

The Cold War, which created post-World War II trans-Atlantic cooperation and consultation between Europe and the United States, was over. The United States was perceived by French leaders and European publics as the globe's only superpower, driven by corporate behemoths like Microsoft and McDonald's, with little interest in European sensitivities or welfare.

While Europe wobbled politically, science moved steadily forward and on to local grocery store shelves. In 1990, the first genetically modified organism, a modified yeast, was used in food, and approved in the United States. In 1992, the first food made from a genetically modified ingredient, a vegetarian cheese, went on sale in the United Kingdom. In 1996, Sainsbury's and Safeway supermarkets in Britain introduced genetically modified tomato paste. Also in 1996, the European Union approved the importation of genetically modified soya, and the first shipments from the United States arrived in Europe.

Under normal circumstances none of this would have attracted much attention. But in the area of food safety, these were far from normal times. For Britain it was clearly the worst of times. Beginning in 1988, government officials and politicians emphatically claimed that mad cow disease was under control in British farm animals and posed no risk to humans. Then in 1996, government ministers started to do a dramatic about-face. They admitted that eight people might have died from eating beef from cattle infected with BSE (bovine spongiform encephalopathy). They conceded the failure of government actions to protect livestock and public health. And they acknowledged that the government had misled the public and misrepresented what was known and not known scientifically about BSE. By the time the European Union got into the act, it appeared both to the public and the European Parliament that EU decision makers had dragged their feet and ignored the danger.

Today, after the slaughter of millions of animals, and after herd losses in the United Kingdom totaling $5.5 billion, the number of reported new cases of infected cattle in Britain is small. The European Union in the face of continued French defiance has lifted its major export ban on British beef. But the BSE controversy in Europe is far from

over. BSE has been discovered in German cattle and is more widespread in French cattle than previously documented.

At a midnight Brussels meeting in early December 2000, EU agricultural ministers agreed to a set of emergency steps that may cost as much as $4.4 billion.[2] These are aimed at combating mad cow disease on the continent, reducing consumer panic, and repairing public confidence in European governments' health and food safety regimes.

But similar anti-BSE measures instituted in Britain did little to repair the public psyche. According to a new parliamentary report released in February 2000,[3] BSE created a serious "crisis of confidence" in both science and government. People in Britain are now more likely to trust only science that they see as "independent." For them, Greenpeace appears more trustworthy than what the public believes is a secretive, often misleading, British government. Scientific research there is viewed as increasingly commercialized, and the peer-review process as not screening out financial conflict of interest. These public attitudes of suspicion, mistrust, and fear are fed by the British popular press, which seems more worried about circulation figures than about quality science reporting.

France suffers from the Gallic version of press and public mistrust of government and science as a result of its AIDS-tainted blood scandal. Belgium, home of the European Community, and perhaps the only country in Europe more fixated on food than France, has endured several highly publicized food, agricultural, and Coca-Cola scares. The most serious occurred in 1999, when Belgium farmers were sold animal feed tainted with polychlorinated biphenyls (PCBs) and furans that eventually cost the country's farmers $600 million. All this left Europe with growing concerns over the increased industrialization and "Americanization" of agriculture. On a continent used to mountains of butter, agricultural protectionism, and surpluses, these concerns fueled worries over unknown environmental and health consequences of GM products.

Add to this mix Prince Charles, a long-time organic food advocate, declaring that he will not eat GM food or serve it to his royal family, and calling on his loyal subjects to fight for the right not to eat it.

This is the caldron Monsanto and the U.S. government walked into in the late 1990s.

Traditionally focused on farmer needs, Monsanto led in Europe with products designed to help growers, not to benefit consumers. The first generation of genetically modified crops, like Bt *(Bacillus thuringiensis)* corn, are designed to create their own insecticides and to ensure herbi-

cide resistance. Most experts believe it will take another generation before consumers see products that will offer people enhanced nutritional and even medicinal advantages.

In both the United States and Europe, Monsanto followed existing regulatory procedures. When the European Union and consumers, prodded by Greenpeace and Friends of the Earth, began to balk at GM products, Monsanto and the U.S. government saw it as just another attempt to throw up non-tariff trade barriers against American agribusiness. To U.S. trade officials, the GM controversy looked a lot like the long-running EU-North American feud over hormone-treated beef, which the scientific advisory body of the United Nations World Health Organization and Food and Agriculture Organization declared safe.

In true American fashion, both Monsanto and the U.S. government took refuge in science and the law. They believed that if they made the case that GM is safe and beneficial, and that they had played by existing regulatory rules, then the public would side with them and the European Union would have to accept their products. Monsanto made this appeal in a European advertising campaign and in trade and international forums. But prior to this controversy Monsanto had little or no public profile in the United Kingdom. To the British, Monsanto looked like just another arrogant American multinational that they instinctively mistrusted. The advertising and outreach effort backfired. It culminated in October 1999, in a video conference appearance at a Greenpeace meeting by Monsanto's Chief Executive Officer, Robert Shapiro, in which he apologized publicly for not listening to the concerns of Europe's consumers. Two months later, Shapiro would effectively lose his company in a deal with what is now Pharmacia Corporation.[4]

In February 2000, Britain's Prime Minister, Tony Blair, a true believer in the importance of biotechnology who criticized the British media's "orchestrated barrage" against GM foods and who pledged to resist the "tyranny of pressure groups," took what the press called, a stunning "U-turn" on GM products. He acknowledged some potential health and environmental risks and, like the 2000 National Research Council (NRC) report,[5] called for and is committed to more research and tighter review. Blair, like the European Union, seemed to embrace the precautionary principal—what *The Economist* describes as a "fancy term for a simple idea: better safe than sorry."[6] He urged caution until scientific evidence showed that modifying crops and food was safe for humans and the environment. The year before, in the face of

public pressure, Blair's government required restaurants and supermarkets to identify products and meals containing GM food after several food producers and grocers voluntarily foreswore GM products. And the commercial planting of GM crops in Britain seems years away.

What now are the prospects for GM food in Europe? In over two years, no new GM products have been licensed by the EU. But in December 2000, according to the *Financial Times,* the European Parliament and European Union governments agreed to a deal threat opens up the possibility that Europe's *de facto* moratorium will be lifted in 2001.[7] The mood in London of government, industry representatives, journalists, and diplomats is surprisingly upbeat. There is a sense that they have weathered the worst. Blair's new Food Standards and Safety Agency was launched in April 2000, promising the kind of transparency, openness, and confidence-building measures the British public clearly wants.

The mainstream British science community, with an even weaker tradition of being involved in public policy debate than its American counterpart, seems to be waking up to the need to become more engaged in public dialogue. There is a hope by some (overly optimistic in my view) that the public is growing tired of Greenpeace rhetoric, acts of civil disobedience, and street theater and that they are looking to more moderate consumer and environmental groups on the GM issue. There is also a belief that the British tabloid press will eventually move on to other battles. But most important, decision makers and opinion leaders are betting that the eventual introduction of GM products with direct medical or health benefits (like edible vaccines, vitamin A enriched rice, or foods with low fat or cholesterol content) will break down public resistance.

My own assessment is that European acceptance of GM food will be slow—even with the product labeling and traceability measures planned by the EU Commission. Governments, industry, and the science community will be living with the fallout of the GM debate for some time to come, and its impact will be widespread. How leaders handle communicating science with its risks and its benefits, how they engage the public in making societal trade-offs for GM and other science and technology issues, and how the precautionary principle is defined and finally adopted by governments will have a significant effect on public willingness to support and accept a whole host of science and technology advances in the 21st century.

Should the U.S. food industry and American government worry about a spillover into this country of the same so-called "bio-food phobia" that exists among European consumers? Several American food processors, especially baby food makers, have foresworn GM ingredients. U.S. environmental and consumer groups are running newspaper ads and direct-mail campaigns to rouse domestic concern over GM food. Their efforts already have forced American regulators to reevaluate existing food safety and environmental procedures. Their support for legislation to require labeling of food made with genetically modified crops was a likely factor in the Clinton Administration's decision to include "GM-free" as part of new organic labeling proposal.

America's magazines and news shows seem filled with feature stories about StarLink and "frankenfish," and financially battered farmers worry about selling their crops abroad. (The United States exports $46 billion worth of food annually.) Television cameras are now focused on the Earth Liberation Front and their attacks on U.S. biotechnology laboratories. In 2000, a number of companies, including Dow Chemical, E.I. duPont de Nemours, and Monsanto, launched a $50 million media blitz, which biotechnology activists like Jeremy Rifkin claim will backfire just as it did in the United Kingdom.

At first glance, you can see Europe's conundrum all over again. But in very real ways the American condition is different. Our long-run economic and technological outlooks are strong. Our drug and food safety record is the envy of the world. Our people are among the most technology- and science-friendly on Earth. Early data indicated that while there may be a drop in GM crop plantings in 2000, America's long-term commitment to biotechnology appears solid. But that is a cup half full.

The half-empty side is that American expectations of biotechnology and science are very high. For most of us, biotechnology still conjures up visions of a new green revolution, or, as Rockefeller Foundation President Gordon Conway calls it, a "doubly green revolution." Biotechnology promises to boost crop yields, reduce environmentally harmful chemical use, lessen pesticide consumption and exposure, and fight off devastating agricultural pests and diseases.

If biotechnology "doesn't deliver," (if, for example, it results in new or increased environmental damage to soils, water, and wildlife) then the U.S. public could become disillusioned and disaffected. If people who want and can afford food choice (especially organic food) feel their choices are being threatened, they will fight back. If U.S. industry

and government officials and international trade organizations are seen as secret societies impervious to the concerns and interests of individual American consumers on food, public health, and other issues, then the popular backlash could be significant.

If the country does not maintain a strong environment and food regulatory system, and if (as called for in the NRC report mentioned above) the government does not tighten and invest in the review and monitoring of genetically engineered crops to ensure that plants made toxic to pests do not harm human health or the environment, then there could be trouble in Peoria, Illinois, as well as in Brussels and London. In short, I am proposing a new Moore's Law. As advances in science accelerate, the number and complexity of factors that impact public attitudes toward new science and technologies will double every 18 months.

The public on both sides of the Atlantic may not be terribly science literate, but increasingly they want more assurances and hard evidence that scientists, government, and industry have examined and addressed the potential risks associated with new technologies. Citizens want a voice in making individual choices and societal trade-offs related to the application of new technology. The GM controversy is only the beginning of a brave new world for science and for science policy.

Endnotes

1. The view expressed are the author's own, and do not represent the Wilson Center or any other organization.
2. "The Cost of BSE," *Financial Times,* December 6, 2000, p.16.
3. Science and Society," *Select Committee on Science and Technology, Third Report, House of Lords.* London, England, February 23, 2000.
4. Gilbert, Virginia Baldwin, "Monsanto Profitability Will Help in Spinoff," *St. Louis Post-Dispatch,* July 30, 2000.
5. *Genetically Modified Pest-Protected Plants: Science and Regulation,* Committee on Genetically Modified Pest-Protected Plants, National Research Council, Washington, DC, 2000.
6. "A not-so-perfect market," *The Economist,* March 23, 2000.
7. Hargreaves, Deborah, "Deal to revise laws on GMOs," *Financial Times,* December 13, 2000.