

WHAT'S WRONG WITH GENETICALLY MODIFIED FOOD?

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ABSTRACT: Is there now any good evidence that genetically modified foods (GMOs) are dangerous to health or environment? Kaplan argues that there is not, but that there may be other good reasons to oppose them. Kaplan argues that the World Trade Organization's (WTO) regulations concerning GMOs may give unfair economic and political advantages to large corporate farmers at the expense of small farmers in developing nations. If true, the issue of GMOs is not just about health and the environment anymore. It is also about distributive justice on a global economic scale. Food, science, economics, and politics intersect on the road to GMOs.



The most common concerns about genetically modified organisms (GMOs) among environmentalists, doctors, scientists, and public interest advocates have to do with the health risks they might pose, the environmental pollution they might cause, and the biodiversity they might threaten. Although these are all valid concerns, there is not yet any overwhelming evidence that genetically engineered food is dangerous. We really do not know what the long-term consequences will be for our health, safety, or the environment. Maybe the biotech defenders are right and they are safe to eat and safe to grow. A stronger argument would show that even if GMOs could be made safe to eat and safe to grow there would be still be good reason to oppose them. I believe the key to such an argument is the way that the biotech industry uses intellectual property rights laws and international trade regulations to patent GMOs and to transform the nature of farming from an activity required to sustain life to a profit-driven, high-tech industry. The World Trade Organization (WTO), the largest, most powerful international organization dealing with global rules of trade among nations, has aggressively protected the rights of GMO producers to sell their goods, prevent labeling, and protect their patents. I

believe that what is at stake here is the institutional privileging of market imperatives over the needs, interests, and democratic values of peoples and nations around the world to choose what kind of food they would like to produce and consume. It is a conflict between the basic human right to freedom and food security versus the property rights of private enterprises—and that is what’s wrong with genetically modified food. After briefly examining the usual arguments opposing GMOs, I’ll explain what is wrong with the way the WTO allows for the corporate control of patented food, and suggest some things we can do as philosophers and citizens to address ourselves to it.

Among the potential dangers of genetically modified food are the various health risks they could pose. In 1992 the Food and Drug Administration (FDA) decided that genetically engineered foods were no different than conventional foods. Under FDA law, food must be thoroughly tested unless it is “generally regarded as safe,” (GRAS) which is a legal determination. Because biotech goods have been determined to be GRAS, they undergo no independent safety testing. Instead, we rely on the tests performed by biotech companies. However, there are important questions to be answered about the toxicity of GMOs, their connection with allergic reactions, antibiotic resistance, and carcinogens. Some argue that the possible health risks are so great that it is better to err on the side of caution and avoid them altogether. The recent episode in which the GM corn Starlink, deemed unfit for human consumption, found its way into consumer goods in grocery stores, attests to the real danger GM food poses to the public. Until the manufacturers can guarantee safety and institute procedures to keep the unsafe products out of our food, GMOs should be viewed as possible health hazards and avoided whenever possible.

A second set of arguments claim that GM crops pose a unique threat of genetic pollution. The real danger, already evidenced, is that GMOs will be spread to the soil and other plant and animal life, triggering irreversible genetic contamination. For example, genetically engineered crops could pollinate with other plant life making them genetically engineered, as well; GM crops that contain their own pesticides often kill more than their targeted insects, producing a chain reaction of unintended consequences, among them pesticide resistant “super-pests”; GM crops designed to be herbicide resistant (so that large amounts of strong weed killer can be safely used on them) have already spread to related weed species, which then also pick up the resistance to the herbicides and become “super-weeds” that are difficult to control. There is also the possibility of creating new strands of “super-viruses” as the genes of viral resistant plants are passed on to other plants. Finally, there is the danger of GM crops threatening regional biodiversity as single, mono-crops are imported and transplanted into foreign ecosystems.

But what if the advocates of GM food are right and they could demonstrate that the technology poses no unacceptable health or environmental risks? Or what if they were improved and made to be as safe as regular food? These are debates that non-scientists are ill-equipped to participate in. We have no choice but to trust the contestable research of some scientists over others, and base our actions more on

prejudice than reason. The problem with policy arguments that hinge on health and bio-pollution is that it takes the issue out of the hands of the public and puts it in the hands of scientists. When the debate over policy is relegated to experts, citizens are not able to participate in a decision-making process over an issue that affects the general welfare. Unless there is some kind of democratic accountability such policy decisions are unjust and illegitimate.

A further problem exists in the very language of “risk assessment” and the closely related problem of balancing risks and costs versus benefits. As Langdon Winner argues, if we are studying and remedying *hazards* our orientation to the problem is clear. First, we assume we demonstrate hazards to health and safety if we can provide adequate evidence. Second, when we find hazards we assume that reasonable people can agree what to do about them. But, if we assessing risks, then we have to study, weigh, and compare circumstances about which no consensus is available. What kind of risk? To what and to whom? How can we compare different kinds of benefits and harm? What methods are best suited to measuring and analyzing risk? While waiting for those problems to be resolved we add to risk assessment calculations of costs and benefits. More reasons, more controversies, more disagreement, and more hesitation before proposing practical remedies. The risk assessors add in psychological complications about how well or how accurately people assess risk they face, how well we are able to compare and evaluate risks, and why we focus on some (like pollution) and not others (like driving cars).¹

A risk is something I decide to take. It is voluntary. By contrast a “hazard,” “danger,” “threat,” or “peril” is something I avoid rather than accept willingly expecting a gain. Winner warns us about confusing the use of the word “risk” as it is used in business, sports, and gambling—where the payoffs are clear and the choices voluntary—with policy decisions made by other people, that may or may not benefit me, but certainly will endanger, threaten, and imperil me. We can discuss health and environmental harms directly without treating it like a game of chance and focus instead on working more directly to find better ways to secure a healthy public and eliminate pollution. Arguably the very scientific discourses used in risk analysis work to the advantage of an industrial status quo over those who seek to challenge existing commercial practices. Not only does a risk analysis take time and money to complete but it makes it seem as if these risks exist independently of specific economic and social conditions. When analyzing hazards exclusively in a seemingly neutral language of science it is too easy to overlook the social inequalities reflected and reinforced by a free enterprise system.²

To understand what GMOs are and how they affect our health and the environment we should, at the very least, address the issue in terms of hazards rather than risks. It is even more important, however, to consider the ways in which these hazards occur within a free enterprise system. That way we will be able to see a number of rather predictable connections between free markets and the erosion of public interest safeguards, including public health and safety, environmental degradation, and even human rights. GMOs do not exist in a vacuum; they are

part of complex social, political, and scientific networks that connect the biotech industry with national and international laws, markets, and dietary practices. If we analyze them within their multiple use-contexts we find that they not only raise narrowly construed issues of health and environmental hazards but also more broadly construed issues of social justice. Now, instead of entering the thickets of scientific debates, we can make a stronger argument on principle: GM food production, distribution, and consumption, driven by market imperatives, backed by institutional power, violates our human rights. Specifically, the trade policies enforced by the WTO that requires nations to purchase GM food, privatize public farms, and transform agricultural production from subsistence to export violates the internationally recognized right to food security.

The WTO has established rules of commerce that require national governments to eliminate “non-tariff barriers to trade,” which include food safety laws, workers’ safety and public health laws, product standards and liability, environmental protections, use of tax revenues for public services, and other domestic laws regulating investment and trade that would limit the ability of transnational corporations to operate profitably. The WTO limits what kind of non-tariff barriers to trade nations may implement and enforce. Through the Dispute Settlement Process, nations can challenge each others’ laws on behalf of their private sector interests if they believe barriers to trade exist. The result is that democratic political bodies have to conform to WTO regulations or face economic sanctions. Cases are decided in highly secretive tribunals, without due process, by a small number of unelected, hence, unaccountable officials. The tribunals thus far have systematically ruled against domestic laws in every case, giving precedence to global commerce over national sovereignty.

There is growing consensus among Non-Governmental Organizations (NGOs) that the WTO agreement on Trade Related Aspects of Intellectual Property (TRIPs) unfairly benefits agri-business at the expense of developing nations. Among other things, TRIPs requires that food and medicine that was once under the public domain must now be privatized through global patent law. This allows food manufacturers to modify traditionally-bred seeds, patent them, and then sell them back to people who had always used them for free. The patenting of GM seeds will deepen the plight of farmers around the world who are already struggling. If a farmer switches to a genetically engineered seed, that farmer has to sign a gene licensing agreement, which specifies royalty fees and dictates the seed, fertilizer, and chemicals to be used.³ In the U.S. it is now illegal for farmers to save patented seeds without paying licensing fees; in India a bio-tech firm patented a version of basmati rice and is attempting to make farmers pay for essentially the same seeds they had formerly used for centuries. Ninety-seven percent of the agricultural patents are owned by five bio-tech corporations: Monsanto, AstraZeneca, Novartis, DuPont/Pioneer, and Aventis.⁴ TRIPs also covers microorganisms such as cell lines, genes, and plant varieties, many of which are used for medicine. It allows for the private sector to own the diversity of nature itself.

The United Nations Development Program (UNDP) criticized the TRIPs agreement in its 1999 Human Development Report as “undermining food security and public health in developing nations.”⁵ The UNDP reports that TRIPs rules make it much more costly for poor and developing countries to procure seeds for crops and to make medicine more accessible to the public. Many developing nations, including Argentina and India, used to exclude food and medicine from intellectual property rights (IPRs) laws precisely to avoid private monopoly control. By keeping food and medicine in the public domain nations are better able to ensure the distribution of basic necessities. That practice, however, is now WTO illegal. If challenged in court, these countries would have to change their laws. Even though food shortages in the developing world are already a problem for billions of people, WTO regulations protect IPRs that undermine the ability of governments to respond to and protect the need and right to food. TRIPs has also been evoked to prevent the development of generic versions of pharmaceuticals, most notably to stop African nations from developing generic drugs to treat AIDS patients.

The right to food is a basic human right and an integral part of international human rights law. The right to food is recognized directly or indirectly by every country in the world (either written into their constitutions or by virtue of their membership in the United Nations). Article 25 of the 1948 Universal Declaration of Human Rights states that “everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing, medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.”⁶ The United Nations again affirmed the right to food security in the 1996 World Food Summit. The U.N. considered it “intolerable that more than 800 million people throughout the world, and particularly in developing countries, do not have enough food to meet their basic nutritional needs.” It also “pledged their political will and their common and national commitment to achieving food security for all and to an ongoing effort to eradicate hunger in all countries with an immediate view to reducing the number of undernourished people to half their present level no later than 2015.” And it “reaffirmed the right of everyone to access to safe and nutritious food.”⁷ The right to be free from hunger includes the right to clean drinking water, as well. The obligation of the national governments to guarantee the fundamental right of everyone to be free from hunger was affirmed by Article 11 of the 1996 International Covenant on Economic, Social and Cultural Rights. “The States Parties will take appropriate steps to ensure the realization of this right, recognizing to this effect the essential importance of international cooperation based on free consent.”⁸

The right to be free from hunger means that the state, minimally, has the obligation to prevent people from starving. But it also implies the right of citizens to access food. The negative obligation of the state is to refrain from interfering with the enjoyment of that right by its citizens; the positive obligation of the state is to take action to protect citizens when that right is violated by others. The state must

protect citizens from hunger and enable citizens to have the physical and economic access to adequate food and clean drinking water. Adequate food means adequate in quality and quantity to allow for a healthy life that is also culturally acceptable—so long as its enjoyment does not infringe upon the rights of others and it is acquired in a way that is environmentally and socially sustainable. The state is rarely obligated to feed people, unless there exists a specific constitutional provision. Rather, the obligation is to refrain from interfering in the efforts of citizens to provide for themselves, to protect our rights against other individuals and groups, and to create opportunities and enable people to secure and maintain their right to food. The state is obligated to respect, protect, and promote rights related to food, water, and nutrition—all of which are necessary conditions for our enjoyment of our basic political and entitlement rights.

Unfortunately, the TRIPs agreement is likely to threaten food security increasing both the number of people who live in hunger and poverty. WTO policy not only requires nations to buy GM seeds, but it also requires that they change the nature of farming from small farms that produce food for local people to eat, to large farms that grow export crops like coffee, sugar, cotton, fruits, and flowers. These large farms replace human labor with machinery thereby displacing millions of people every year while eradicating societies based on rural farming, where one half of the world's population still lives and works. As farming communities dwindle in the face of competition, people are driven off their land and into poverty, usually settling in urban centers. Hunger actually increases as farm size increases.⁹ Even if GM foods could produce more abundant crops, they would do little to solve hunger. The issue is poverty and poor governance, not lack of food. By turning food into intellectual property, biotech is likely to exacerbate hunger by increasing dependence on the corporate sector for seeds and materials. The WTO makes it illegal to prevent the takeover of farming by corporate agri-business.

The authority of the TRIPs agreement was called into question in November 2001 by the United Nations' Food and Agriculture Organization (FAO). The "International Treaty on Plant Genetic Resources for Food and Agriculture" states that intellectual property rights shall not be applied to plants and genes used for food and agriculture.¹⁰ The treaty establishes a multilateral system for providing access to seeds for staple food crops, including a provision on farmers' rights to save, use, and sell farm-saved seed. The international treaty was adopted in Rome by a vote of 166-0 with two abstentions: the United States and Japan. If enforced it could deal a blow to the biotech industry, which would no longer be allowed to patent the genes used for food crops. The language of the genetic resources treaty is, however, equivocal. It says clearly on page one that "nothing in this Treaty shall be interpreted as implying in any way a change in the rights and obligations of the Contracting Parties under other international agreements" and it "is not intended to create a hierarchy between this Treaty and other international agreements."¹¹ Given the greater power and authority of WTO, disputes over seed or gene patents would most likely be resolved by its own dispute settlement tribunals.

The TRIPs Agreement also contradicts the Convention on Biological Diversity (CBD), which was signed in 1992 at the U.N. Conference on Environment and Development (also known as the Rio Earth Summit). The CBD recognizes the sovereign rights of states over their biological and genetic resources, and aims to enable developing countries to have access to technology to make use of those resources—including technology protected by patents and other IPRs. In 1999, representatives of 140 countries met in Cartagena, Colombia, to revise the CBD, and to sign a Biosafety Protocol treaty permitting countries to prohibit GMO imports, require segregation of GMOs, and make GMO producers liable for any future economic or environmental damage. The results were mixed. The strengths of the Protocol include the adoption of the Precautionary Principle which allows a country to ban a GM product even in the absence of scientific data on its harmful effects; it puts the burden on the producer to demonstrate safety. The Protocol also requires that GM products bear the label “may contain,” although they do not have to offer specific details on what GM materials are included. And no labeling will be required for processed plant and animal products, like flour, cereal, and cooking oil. The weakness of the Biosafety Protocol is that it will not override other international agreements; any dispute will be reviewed by the WTO.¹² In the most recent Ministerial in Doha, the WTO agreed to an interpretation over the TRIPs agreement that would allow developing countries to override patents in the interests of public health, but it issued no clear statement if the Biosafety Protocol would take precedence over WTO rules. They will make a decision on that in their next meeting. The 2002 U.N. World Summit on Sustainable Development in Johannesburg did little to resolve the conflicts between the Biosafety Protocol and international trade rules. There remains a need to develop fair legal-political mechanisms to resolve conflicts should they arise between the two agreements.

In response to the backlash against GM food—especially in Western Europe—the biotech industry is attempting to market a “second generation” of GMOs designed for specific health uses. These so called “functional foods,” or “nutraceuticals” are food-based products that provide a demonstrable physiological benefit beyond their dietary or nutritional value. This class of food—most of which are not genetically engineered—are designed to be more nutritious, or assist in the prevention or reduced risk of disease. There is, of course, nothing new about adding nutritional supplements to food. Vitamin D has been added to milk since the 1930s, breakfast cereals have been fortified with extra vitamins and minerals since the 1940s, and iodine has been added to salt for over a century to prevent goiter. The difference between these foods and the newer generation of function foods is that more recent ones are designed to replace medicine with food, or sometimes to eliminate qualities from the food to make them seem more healthy. Examples of non-GM products include *Benecol*, a cholesterol-lowering margarine, *Kitchen Prescription* soups (like chicken noodle soup with Echinacea), *EggsPlus* (nutritionally enhanced eggs with extra omega-3 fatty acids), supplement beverages (like *Gatorade* and *Vitamin Water*), and a number of products geared toward the specific health needs of infants, toddlers, and the aging.¹³

The most notable example of a GM functional food is the highly publicized, vitamin-A enriched, Golden Rice, that has been touted for its ability to reduce blindness in malnourished children. Other GM products currently promised are high-protein and vitamin-enriched cassavas, milk and peanuts that are allergen-free, tomatoes with three-times the usual amount of lycopene, a cancer-fighting anti-oxidant, carrots with a hepatitis-B vaccine, and potatoes with a cholera vaccine.¹⁴

All of these products, however, will require years of further research and funding before they could be proven to be effective. In the meantime, the resources devoted to functional food research could be used to fight hunger, malnutrition, and disease far more directly and effectively. Hundreds of millions of dollars have been spent on Golden Rice alone; hundreds of millions more will be spent researching and developing other GM “agritechnicals.” Even if proven effective, these products would most likely be too expensive for poor people to buy. Unless they are given away, the people who need these crops the most will not have access to them. *Corporate Watch* warns that even if they were affordable, adopting these crops would lead to a dependence on the biotech companies further concentrating the control of food in the hands of few corporations. “Technical fixes serve to divert attention from real problems of starving people—poverty, injustice, and lack of land and other resources. And ironically, the intensification of corporate control that GM crops promise will only make this problem worse.”¹⁵ The second generation of GMOs is as problematic as the first generation. It does not matter what traits are engineered into them; our human right to food security is threatened so long as there is international pressure to privatize food and protect it as intellectual property.

There are three objections to this argument that immediately come to mind. 1) Not all patented food is genetically modified. Seeds and staples crops modified through more traditional methods have also been patented and privately owned as intellectual property. Food security may be threatened by both GM and non-GM food. If the issue is the privatization, then it should not matter whether or not food has been genetically modified. Therefore, there is nothing wrong with genetic modification *per se*, rather it is the IPRs system that undermines food security.

2) Some GMOs do not undermine food security. Some seeds are modified to resist pests and diseases, tolerate harsh climates and poor soil, delay ripening to reduce spoilage, and other specific conditions, often tailored to meet the needs of particular crops and regions. The biotech industry, for example, boasts of the successes of its virus-resistant sweet potatoes in Kenya and papayas in Hawaii—crops that otherwise would have been devastated.¹⁶ What is wrong with any particular farmer deciding to grow GM crops? If he or she can afford it—assuming the crops are safe to eat and safe to grow—what is wrong with that voluntary transaction between farmer and seed manufacturer?

3) If the issue with GMOs is not related to health or safety but privatized food as part of a global, corporate managed-market, then the issue is not genetic modification but privatization. That could mean that there would be nothing wrong with GM foods if they existed in a different social-political context. They could be manufactured in

a worker-owned cooperative, distributed to farmers for free, or be a part of a non-profit agricultural system geared toward sustainability, not profit. In that case the genetic qualities of the food would be irrelevant if human rights and food security are fully respected. There is nothing wrong with GMOs “in themselves” but only as an instrument for the corporate take-over of food production.

To the first objection that food security may also be threatened by patented, non-GM food, it is true that if health and safety are not at issue then perhaps there is nothing wrong with genetically modifying food. If the issue is the privatization through IPRs, then one must concede that both GM and non-GM foods may threaten food security, in which case there is nothing uniquely wrong with GMOs. But there is something unique about how aggressively the U.S. and the WTO continue to advocate for and protect GM food producing nations, disregarding almost entirely the needs and interests of developing nations. They are the centerpiece of high-tech international agri-business. The U.S. and the so-called “Miami Group” of GMO producers (including Canada, Argentina, Chile, and Australia) have worked to protect industry interests by undermining a strong Biosafety Protocol that would give nations the right to prohibit GMO imports.¹⁷ Commodities, such as corn, soya, wheat, rice, potatoes, and cotton are the crops that people depend on for food and income. They represent over 99 percent of the total GM crops planted since 1997.¹⁸ Although it is true that non-GM patented food could also threaten food security, at the present they do not. The social justice issue facing developing nations is the threat posed by GM crops, not other patented life forms.

To the second objection that limited use of particular GMOs should be permissible so long as they are used voluntarily and do not undermine food security, I agree that there may be some good reasons to want to use GM seeds designed for specific environmental conditions, like poor soil or lethal viruses. But we should be wary of the exaggerated claims made by biotech defenders that GM foods are the key to fighting hunger, enhancing nutrition, and eradicating disease. Those are little more than industry-driven public relations tactics designed to convince skeptical consumers of the importance of GM crops. The consensus, however, among non-governmental organizations, like Food First, Oxfam, and the FAO is that there are much better ways to feed people and fight disease than by genetically modifying food. But limited use of GM crops should be permissible under the right conditions—provided they do not threaten food security, are voluntarily adopted, and consumed with knowledge that they are GM,

To the third objection, that there would be nothing wrong with GMOs if they were developed and distributed in a different, more just and egalitarian social-political context, and used intelligently to solve problems other than hunger, I agree that this scenario is indeed conceivable. If GM seeds were not protected as under IPR laws then they would not threaten food security. But as they are used, developed, and distributed in existing socio-political contexts, they do indeed raise the specter of undermining food security in developing nations. That is the main human rights/social justice concern at the moment. Different social justice issues will

arise in different socio-political contexts. It makes little sense to think of GMOs “in themselves” as if they can be understood apart from the vast networks of research, laws, regulatory agencies, and markets. The more complete understanding of them occurs in relation to their broader use context.

The issue that philosophers and citizens can take up if they are concerned that there is something wrong with GMOs—without the help of scientific experts—is the conflict between the basic human right to food security and the property rights of private enterprises that undermine our right to food security. The WTO regulations that punish governments for resisting the privatization of food should not be tolerated on the grounds that they undermine democratic, accountable government, and erode public interest safeguards. In effect what our current global trade agreements do is to take away our rights—and that is something they should not be allowed to do.

I have three recommendations for philosophers, activists, and citizens to join the efforts to ensure access to essential goods and services.

1) Use existing institutional mechanisms to bring political and legal challenges to any corporation, financial institution, international body, or government for failing to ensure equal protection, for harming public well-being, and for violating human rights. We should work with existing public interest groups, like Public Citizen and Global Trade Watch to use the courts, on a national and international level, if governments are not responsive. The New York Times reported that an organization in France, called “Attac” is challenging the government for adopting international regulations that unfairly distribute the tax burden, privilege corporate over public interests, and fail to respect the rights of workers.¹⁹ It also reported that a British Columbia-based organization, Defense of Canadian Liberty Committee, is suing the Canadian government alleging that Canada’s participation in the WTO process of global corporatization is unconstitutional.²⁰ In the U.S. there currently are sixteen bills in eight states that would ban or put a moratorium on the planting of genetically engineered crops. Insofar as constitutional governments use public resources to promote WTO and other instruments of development, like the IMF and World Bank, they are open to legal challenges on the part of citizens whose rights and opportunities are limited.

2) Demand increased transparency and accountability from the WTO to include greater representation and redress, and make it more open to the public. Corporate globalization is not going to go away. The best we can do is to make it more humane and democratic. WTO Dispute Resolution meetings must be opened to the public and include minimal due process protections. Currently the qualification for serving on WTO dispute panels include past service on GATT panels, past representation of a country before a trade institution, or past service as a trade policy official in a WTO member country.²¹ In other words, bureaucrats with trade expertise judge environmental, public health, worker rights, and economic development policies. These individuals not only lack relevant expertise, they also lack political legitimacy. The GM food debate reveals the need for greater national and international regulatory and monitoring systems for health, environmental, and development policies.

A number of European nations have instituted procedures that make their science and technology policies more fair in order to better serve public not private interests. In Sweden, for example, non-scientists represent the majority of the government's Council for Planning and Coordination of Research; in Denmark representatives from citizen, consumer, labor, and environmental groups have the opportunity to examine their science and technology policy recommendations, and then bring their findings both to Parliament and to the public in a nationally-televised press conference; citizen panels are also found in France, the Netherlands, Switzerland, Germany, and Japan.²²

The guiding principle for science and technology policy should be the same as any other procedures for making decisions about the collective fate of any group of people: it should be democratic. If a decision is legitimate, it must have the informed, free consent of those effected by it. In the U.S., decisions about technological systems are made by market forces and government officials, often influenced by small groups of technically skilled peoples, who we have no choice but to believe have our best interests in mind. At stake in having such important decisions about our lives made by other people is nothing less than our autonomy. The implication for public policy is to create the mechanisms that would enable people to contest or reject a technology wherever we determine that our rights, liberties, opportunities, and our collective well-being is threatened. Such decisions should be made in a democratic process that would include representatives from grassroots organizations, public interest groups, academic scientists from the social and natural sciences, and community organizations.

3) Participate in the politics of globalization. Teach it, talk about it, write about it, and do something about it, like join activist and interest groups, or give them money; make it a political issue with your representatives; make it an issue at the workplace or the classroom; boycott products; attend demonstrations and protests; in other words, work both inside and outside of existing legal-political structures to challenge globalization whenever it involves unfair, undemocratic practices, and privileges private capital accumulation over the interests and well-being of the public and the environment. As philosophers and citizens we can call attention to the political character of our laws, policies, and institutions to show that economic practices also involve political choices, embodying political ideas, and are thus open to political deliberation and transformation. You do not have to be an expert to know that there are some things that should not be privatized—and that is what is wrong with genetically modified food.

ENDNOTES

1. Langdon Winner, *The Whale and the Reactor* (Chicago: University of Chicago Press, 1986), pp. 138–148.
2. *Ibid.*, pp. 148–154.

3. For more on “biopiracy,” the colonial practice of using patent rights and international intellectual property laws to privatize life-forms in developing nations, see, Vandana Shiva, *Biopiracy: The Plunder of Nature and Knowledge* (Boston: South End Press, 1997), pp. 1–11.
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20. Andrew Pollack, “Farmers Joining State Efforts Against Bioengineered Crops,” *New York Times*, March 24, 2001.
21. Wallach and Sforza, *Whose Trade Organization?* p. 198.
22. For examples of democratic practices in science and technology policy, see, Richard E. Sclove, *Democracy and Technology* (New York: Guilford Press, 1995), pp. 180–238.