Attention Whole Foods Shoppers

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Robert Paarlberg is a professor of political science at Wellesley College and an adjunct professor of public policy at the Harvard Kennedy School. He conducts research on public policy, with a specific interest in international food and agriculture policy. His current research examines national policy responses to obesity and climate change, and he is particularly interested in the relationship between the failure of democratic governments to take action on such issues in the face of modern views of personal freedom and material abundance. He is the author of many scholarly articles and books, including *Food Politics: What Everyone Needs to Know* (2010). In this essay published in *Foreign Policy* in 2010, he draws connections between personal ideals about food and larger global realities of world hunger. He argues that we should prioritize finding effective ways to address world hunger over ideals that emphasize eating "organic, local, and slow" food.

From Whole Foods recyclable cloth bags to Michelle Obama's organic White House garden, modern eco-foodies are full of good intentions. We want to save the planet. Help local farmers. Fight climate change—and childhood obesity, too. But though it's certainly a good thing to be thinking about global welfare while chopping our certified organic onions, the hope that we can help others by changing our shopping and eating habits is being wildly oversold to Western consumers. Food has become an elite preoccupation in the West, ironically, just as the most effective ways to address hunger in poor countries have fallen out of fashion.

Helping the world's poor feed themselves is no longer the rallying cry it once was. Food may be today's cause célèbre, but in the pampered West, that means trendy causes like making food "sustainable"—in other words, organic, local, and slow. Appealing as that might sound, it is the wrong recipe for helping those who need it the most. Even our understanding of the global food problem is wrong these days, driven too much by the single issue of international prices. In April 2008, when the cost of rice for export had tripled in just six months and wheat reached its highest price in 28 years, a *New York Times* editorial branded this a "World Food Crisis." World Bank president Robert Zoellick warned that high food prices would be particularly damaging in poor countries, where "there is no margin for survival." Now that international rice prices are down 40 percent from their peak and wheat prices have fallen by more than half, we too quickly conclude

that the crisis is over. Yet 850 million people in poor countries were chronically undernourished before the 2008 price spike, and the number is even larger now, thanks in part to last year's global recession. This is the real food crisis we face.

It turns out that food prices on the world market tell us very little about global hunger. International markets for food, like most other international markets, are used most heavily by the well-to-do, who are far from hungry. The majority of truly undernourished people—62 percent, according to the U.N. Food and Agriculture Organization—live in either Africa or South Asia, and most are small farmers or rural landless laborers living in the countryside of Africa and South Asia. They are significantly shielded from global price fluctuations both by the trade policies of their own governments and by poor roads and infrastructure. In Africa, more than 70 percent of rural households are cut off from the closest urban markets because, for instance, they live more than a 30-minute walk from the nearest all-weather road.

Poverty—caused by the low income productivity of farmers' labor—is the primary source of hunger in Africa, and the problem is only getting worse. The number of "food insecure" people in Africa (those consuming less than 2,100 calories a day) will increase 30 percent over the next decade without significant reforms, to 645 million, the U.S. Agriculture Department projects.

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What's so tragic about this is that we know from experience how to fix the problem. Wherever the rural poor have gained access to improved roads, modern seeds, less expensive fertilizer, electrical power, and better schools and clinics, their productivity and their income have increased. But recent efforts to deliver such essentials have been undercut by deeply misguided (if sometimes well-meaning) advocacy against agricultural modernization and foreign aid.

In Europe and the United States, a new line of thinking has emerged in elite circles that opposes bringing improved seeds and fertilizers to traditional farmers and opposes linking those farmers more closely to international markets. Influential food writers, advocates, and celebrity restaurant owners are repeating the mantra that "sustainable food" in the future must be organic, local, and slow. But guess what: Rural Africa already has such a system, and it doesn't work. Few smallholder farmers in Africa use any synthetic chemicals, so their food is de facto organic. High transportation costs force them to purchase

and sell almost all of their food locally. And food preparation is painfully slow. The result is nothing to celebrate: average income levels of only $1 a day and a one-in-three chance of being malnourished.

If we are going to get serious about solving global hunger, we need to de-romanticize our view of preindustrial food and farming. And that means learning to appreciate the modern, science-intensive, and highly capitalized agricultural system we've developed in the West. Without it, our food would be more expensive and less safe. In other words, a lot like the hunger-plagued rest of the world.

Original Sins

Thirty years ago, had someone asserted in a prominent journal or newspaper that the Green Revolution was a failure, he or she would have been quickly dismissed. Today the charge is surprisingly common. Celebrity author and eco-activist Vandana Shiva claims the Green Revolution has brought nothing to India except "indebted and discontented farmers." A 2002 meeting in Rome of 500 prominent international NGOs, including Friends of the Earth and Greenpeace, even blamed the Green Revolution for the rise in world hunger. Let's set the record straight.

The development and introduction of high-yielding wheat and rice seeds into poor countries, led by American scientist Norman Borlaug and others in the 1960s and 1970s, paid huge dividends. In Asia these new seeds lifted tens of millions of small farmers out of desperate poverty and finally ended the threat of periodic famine. India, for instance, doubled its wheat production between 1964 and 1970 and was able to terminate all dependence on international food aid by 1975. As for indebted and discontented farmers, India's rural poverty rate fell from 60 percent to just 27 percent today. Dismissing these great achievements as a "myth" (the official view of Food First, a California-based organization that campaigns globally against agricultural modernization) is just silly.

It's true that the story of the Green Revolution is not everywhere a happy one. When powerful new farming technologies are introduced into deeply unjust rural social systems, the poor tend to lose out. In Latin America, where access to good agricultural land and credit has been narrowly controlled by traditional elites, the improved seeds made available by the Green Revolution *increased* income gaps. Absentee landlords in Central America, who previously allowed peasants to plant subsistence crops on underutilized land, pushed them off to sell or rent the land to commercial growers who could turn a

profit using the new seeds. Many of the displaced rural poor became slum dwellers. Yet even in Latin America, the prevalence of hunger declined more than 50 percent between 1980 and 2005.

In Asia, the Green Revolution seeds performed just as well on small nonmechanized farms as on larger farms. Wherever small farmers had sufficient access to credit, they took up the new technology just as quickly as big farmers, which led to dramatic income gains and no increase in inequality or social friction. Even poor landless laborers gained, because more abundant crops meant more work at harvest time, increasing rural wages. In Asia, the Green Revolution was good for both agriculture and social justice.

And Africa? Africa has a relatively equitable and secure distribution of land, making it more like Asia than Latin America and increasing the chances that improvements in farm technology will help the poor. If Africa were to put greater resources into farm technology, irrigation, and rural roads, small farmers would benefit.

Organic Myths

There are other common objections to doing what is necessary to solve the real hunger crisis. Most revolve around caveats[9] that purist critics raise regarding food systems in the United States and western Europe. Yet such concerns, though well-intentioned, are often misinformed and counterproductive—especially when applied to the developing world.

Take industrial food systems, the current bugaboo of American food writers. Yes, they have many unappealing aspects, but without them food would be not only less abundant but also less safe. Traditional food systems lacking in reliable refrigeration and sanitary packaging are dangerous vectors for diseases. Surveys over the past several decades by the Centers for Disease Control and Prevention have found that the U.S. food supply became steadily safer over time, thanks in part to the introduction of industrial-scale technical improvements. Since 2000, the incidence of *E. coli* contamination in beef has fallen 45 percent. Today in the United States, most hospitalizations and fatalities from unsafe food come not from sales of contaminated products at supermarkets, but from the mishandling or improper preparation of food inside the home. Illness outbreaks from contaminated foods sold in stores still occur, but the fatalities are typically quite limited. A nationwide scare over unsafe spinach in 2006 triggered the

caveat: Warning, caution.

virtual suspension of all fresh and bagged spinach sales, but only three known deaths were recorded. Incidents such as these command attention in part because they are now so rare. Food Inc. should be criticized for filling our plates with too many foods that are unhealthy, but not foods that are unsafe.

Where industrial-scale food technologies have not yet reached into 15
the developing world, contaminated food remains a major risk. In Africa, where many foods are still purchased in open-air markets (often uninspected, unpackaged, unlabeled, unrefrigerated, unpasteurized, and unwashed), an estimated 700,000 people die every year from food- and water-borne diseases, compared with an estimated 5,000 in the United States.

Food grown organically—that is, without any synthetic nitrogen fertilizers or pesticides—is not an answer to the health and safety issues. The *American Journal of Clinical Nutrition* last year published a study of 162 scientific papers from the past 50 years on the health benefits of organically grown foods and found no nutritional advantage over conventionally grown foods. According to the Mayo Clinic, "No conclusive evidence shows that organic food is more nutritious than is conventionally grown food."

Health professionals also reject the claim that organic food is safer to eat due to lower pesticide residues. Food and Drug Administration surveys have revealed that the highest dietary exposures to pesticide residues on foods in the United States are so trivial (less than one one-thousandth of a level that would cause toxicity) that the safety gains from buying organic are insignificant. Pesticide exposures remain a serious problem in the developing world, where farm chemical use is not as well regulated, yet even there they are more an occupational risk for unprotected farmworkers than a residue risk for food consumers.

When it comes to protecting the environment, assessments of organic farming become more complex. Excess nitrogen fertilizer use on conventional farms in the United States has polluted rivers and created a "dead zone" in the Gulf of Mexico, but halting synthetic nitrogen fertilizer use entirely (as farmers must do in the United States to get organic certification from the Agriculture Department) would cause environmental problems far worse.

Here's why: Less than 1 percent of American cropland is under certified organic production. If the other 99 percent were to switch to organic and had to fertilize crops without any synthetic nitrogen fertilizer, that would require a lot more composted animal manure. To supply enough organic fertilizer, the U.S. cattle population would

have to increase roughly fivefold. And because those animals would have to be raised organically on forage crops, much of the land in the lower 48 states would need to be converted to pasture. Organic field crops also have lower yields per hectare. If Europe tried to feed itself organically, it would need an additional 28 million hectares of cropland, equal to all of the remaining forest cover in France, Germany, Britain, and Denmark combined.

Mass deforestation probably isn't what organic advocates intend. 20
The smart way to protect against nitrogen runoff is to reduce synthetic fertilizer applications with taxes, regulations, and cuts in farm subsidies, but not try to go all the way to zero as required by the official organic standard. Scaling up registered organic farming would be on balance harmful, not helpful, to the natural environment.

Not only is organic farming less friendly to the environment than assumed, but modern conventional farming is becoming significantly more sustainable. High-tech farming in rich countries today is far safer for the environment, per bushel of production, than it was in the 1960s, when Rachel Carson criticized the indiscriminate farm use of DDT in her environmental classic *Silent Spring*. Thanks in part to Carson's devastating critique, that era's most damaging insecticides were banned and replaced by chemicals that could be applied in lower volume and were less persistent in the environment. Chemical use in American agriculture peaked soon thereafter, in 1973. This was a major victory for environmental advocacy.

And it was just the beginning of what has continued as a significant greening of modern farming in the United States. Soil erosion on farms dropped sharply in the 1970s with the introduction of "no-till" seed planting, an innovation that also reduced dependence on diesel fuel because fields no longer had to be plowed every spring. Farmers then began conserving water by moving to drip irrigation and by leveling their fields with lasers to minimize wasteful runoff. In the 1990s, GPS equipment was added to tractors, autosteering the machines in straighter paths and telling farmers exactly where they were in the field to within one square meter, allowing precise adjustments in chemical use. Infrared sensors were brought in to detect the greenness of the crop, telling a farmer exactly how much more (or less) nitrogen might be needed as the growing season went forward. To reduce wasteful nitrogen use, equipment was developed that can insert fertilizers into the ground at exactly the depth needed and in perfect rows, only where it will be taken up by the plant roots.

These "precision farming" techniques have significantly reduced the environmental footprint of modern agriculture relative to the quantity

of food being produced. In 2008, the Organization for Economic Cooperation and Development published a review of the "environmental performance of agriculture" in the world's 30 most advanced industrial countries—those with the most highly capitalized and science-intensive farming systems. The results showed that between 1990 and 2004, food production in these countries continued to increase (by 5 percent in volume), yet adverse environmental impacts were reduced in every category. The land area taken up by farming declined 4 percent, soil erosion from both wind and water fell, gross greenhouse gas emissions from farming declined 3 percent, and excessive nitrogen fertilizer use fell 17 percent. Biodiversity also improved, as increased numbers of crop varieties and livestock breeds came into use.

Seeding the Future

Africa faces a food crisis, but it's not because the continent's population is growing faster than its potential to produce food, as vintage Malthusians such as environmental advocate Lester Brown and advocacy organizations such as Population Action International would have it. Food production in Africa is vastly less than the region's known potential, and that is why so many millions are going hungry there. African farmers still use almost no fertilizer; only 4 percent of cropland has been improved with irrigation; and most of the continent's cropped area is not planted with seeds improved through scientific plant breeding, so cereal yields are only a fraction of what they could be. Africa is failing to keep up with population growth not because it has exhausted its potential, but instead because too little has been invested in reaching that potential.

One reason for this failure has been sharply diminished assis- 25
tance from international donors. When agricultural modernization went out of fashion among elites in the developed world beginning in the 1980s, development assistance to farming in poor countries collapsed. Per capita food production in Africa was declining during the 1980s and 1990s and the number of hungry people on the continent was doubling, but the U.S. response was to withdraw development assistance and simply ship more food aid to Africa. Food aid doesn't help farmers become more productive—and it can create long-term dependency. But in recent years, the dollar value of U.S. food aid to Africa has reached 20 times the dollar value of agricultural development assistance.

The alternative is right in front of us. Foreign assistance to support agricultural improvements has a strong record of success, when undertaken with purpose. In the 1960s, international assistance from the Rockefeller Foundation, the Ford Foundation, and donor governments led by the United States made Asia's original Green Revolution possible. U.S. assistance to India provided critical help in improving agricultural education, launching a successful agricultural extension service, and funding advanced degrees for Indian agricultural specialists at universities in the United States. The U.S. Agency for International Development, with the World Bank, helped finance fertilizer plants and infrastructure projects, including rural roads and irrigation. India could not have done this on its own—the country was on the brink of famine at the time and dangerously dependent on food aid. But instead of suffering a famine in 1975, as some naysayers had predicted, India that year celebrated a final and permanent end to its need for food aid.

Foreign assistance to farming has been a high-payoff investment everywhere, including Africa. The World Bank has documented average rates of return on investments in agricultural research in Africa of 35 percent a year, accompanied by significant reductions in poverty. Some research investments in African agriculture have brought rates of return estimated at 68 percent. Blind to these realities, the United States cut its assistance to agricultural research in Africa 77 percent between 1980 and 2006.

When it comes to Africa's growing hunger, governments in rich countries face a stark choice: They can decide to support a steady new infusion of financial and technical assistance to help local governments and farmers become more productive, or they can take a "worry later" approach and be forced to address hunger problems with increasingly expensive shipments of food aid. Development skeptics and farm modernization critics keep pushing us toward this unappealing second path. It's time for leaders with vision and political courage to push back.

Understanding the Text

1. What is a crisis of values?
2. What do global food prices reveal about food availability and food production?
3. What is food security?

Reflection and Response

4. What does Paarlberg suggest about the future of the politics of food? What are at least two ways to respond to his position? What do you think is the best way? Explain your response.