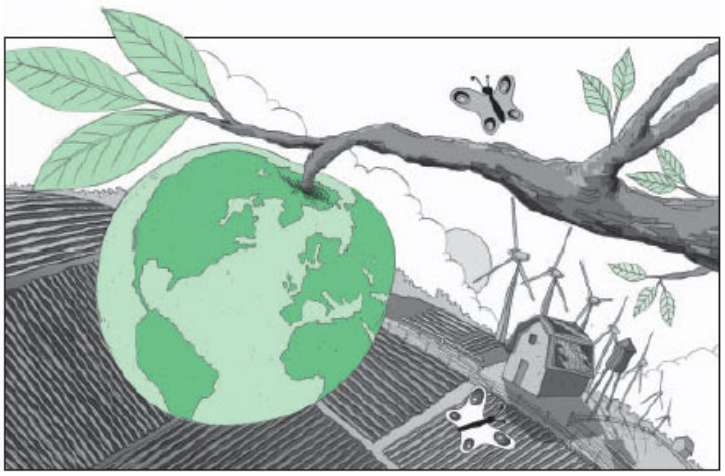
Ripe for Change: Agriculture's Tipping Point

by Claire Hope Cummings

Now, in the midst of so much unnecessary human and ecological destruction, we are facing the necessity of a new start in agriculture. —Wendell Berry

The story of agriculture is usually told as an epic struggle between people and nature. Ten thousand years into this narrative, it looks to some as if people have the upper hand. After all, food production is keeping up with population growth. But others say that this productivity comes at too high a cost. Industrial agriculture is laying waste to soil, water, forests, wildlife, and the life ways of traditional farming communities.



Conventional and sustainable agriculture have long debated the question: what kind of agriculture works best for both people and nature? Then suddenly, as in any good drama, while the forces of good and evil are having it out, something happens to raise the stakes. Now, lumbering onto center stage comes a real monster, global warming, and the conflict shifts from being about how we feed ourselves to whether we survive at all.

We find ourselves at a dramatic point in human history. Agriculture, the largest industry on Earth, is exhausting the planet's biological support systems. Two billion hectares of soil (more than the area of the United States and Canada combined) have been degraded. In India, this damage has cut agricultural productivity by almost US$2.4 billion a year. In Africa, threequarters of arable land is severely degraded, worsening the hunger crisis there. The annual cost of soil erosion worldwide is estimated to be more than US$400 billion. Similarly, water quality and availability are in peril. The 450 million kilograms of pesticides that U.S. farmers use every year have now contaminated almost all of the nation's streams and rivers, and the fish living in them, with chemicals that cause cancer and birth defects.

And yet, as serious as this environmental predicament is, it will be energy issues that determine the fate of agriculture. Industrial agriculture uses at least 15 percent of all energy consumed in developed countries. So when oil production peaks, fossil-fuel-dependent agriculture will face a day of reckoning. And that inevitability raises a fundamental question: do we wait for some widespread disaster to happen and let panic determine our social policy? Or do we begin now to engage in purposeful social change?

Malcolm Gladwell's "tipping point" analysis provides a useful way to examine the dynamics of such dramatic social transformations. Tipping points have three essential factors, he says. One, lots of little behaviors accumulate and begin to push a system toward change. Two, some ideas or issues "infect" public awareness and spread like a virus, pulling the system toward even greater change. Finally, one significant moment occurs when things "tip."

It's easy to recognize the first factor in sustainable agriculture's tipping point in the thousands of initiatives that support local and ecological food production. Sales of organic products have been growing by 20 percent per year for the last decade. In 2005, U.S. retail sales of organic food and beverages amounted to almost $12.8 billion. Organic practices are being proven at both large and small scales and more acreage is being planted in organic crops. As consumer demand increases, Wal-Mart has begun stocking organic food, and chains of mid-size natural grocery stores are expanding. There are almost 4,000 U.S. farmers' markets selling fresh local food. Restaurants are putting sustainably raised food and fish on their menus and hundreds of schools are serving organic meals. Fair trade and green labeling programs are on the rise.

The number of ways to produce and consume sustainable food keeps growing. Land grant colleges and new

funding initiatives by foundations are revitalizing sustainable agriculture programs. Ecologically minded farmers and consumers are rejecting corporate technologies like genetically modified organisms (GMOs). Instead, they are turning to plants bred with traditional methods that are resistant to wind, drought, salt, and disease. They are less expensive, they avoid the risks of genetic contamination, and they do not require farmers to give up saving seed. Conventional farmers are adopting sustainable techniques and finding, for instance, that nature-based pest and weed controls are just as effective as toxic pesticides. No-till cultivation is proving to prevent soil erosion and has the added climate benefit of sequestering carbon.

These impressive technological and market successes are a tribute to the pioneers of the ecological farming movement. And there is no reason to believe that this innovative spirit can't come up with even better ideas to deal with the enormous challenges ahead. But what will transform this popular enthusiasm into real and lasting changes are two other fundamental issues: health and trade. These two issues, the second tipping point factors, are shifting the public discourse over food and farming and pushing policy changes worldwide.

The public is becoming increasingly alarmed by food-related health problems. Rising rates of diabetes, heart disease and stroke, and cancer and birth defects from pesticides, plus a growing obesity epidemic in children and adults, are grabbing headlines and raising health care costs. The U.S. Department of Agriculture estimates that healthier diets alone could prevent US$71 billion a year in medical expenses.

Trade issues are no less important. The billions spent every year on subsidies have created over-production and rock bottom commodity prices for a handful of agribusiness companies. When surpluses are sold overseas for less than the cost of production, third-world farmers are put out of business. But now, as world trade negotiators promise to end these practices, we are presented with an unprecedented opportunity to reformulate farm supports. Instead of paying for commodity production, these funds can be redirected toward soil and water conservation, wildlife preservation, and maintaining the culturally and biologically diverse farming systems that lie at the heart of sustainable agriculture. The funding needed to transform industrial agriculture is available; what's missing is leadership. This fix will not be easy. Entrenched political interests and agribusiness will not willingly relinquish their stranglehold on the status quo.

But there may be no choice. The final tipping point factor, the one that will result in dramatic and lasting change, is the issue of energy and global warming. Renewable energy is already approaching its tipping point. Some energy experts argue that renewable energy sources are now ready to begin replacing oil and other fossil fuels. Amory Lovins of Rocky Mountain Institute says that in the next few decades the United States can get completely off oil and revitalize its industrial and rural economies through efficiencies, green design, and substitutions for fossil fuels. And, inevitably, as energy becomes renewable, agriculture becomes sustainable.

Sustainable agriculture, for its part, will also make a significant contribution to renewable energy production. Model farms have shown that they can produce all the energy required for food production and provide excess energy to the grid, using biogas generators, wind, solar, and fuel from farm waste. Immediate reductions in fossil fuel use can be achieved with current technologies. Sustainably produced crops can provide biodiesel for transportation, and cornstarch-based plastics can be used for packaging. But just calling something sustainable does not make it so. Growing GMO corn with toxic chemicals for use in energy inefficient ethanol is not an acceptable alternative. The key to successfully transforming industrial agriculture will be the careful establishment and enforcement of standards that ensure sustainability.

Obviously, we are not there yet. The public and business are engaging in change, though government action is lagging. But what is different, as the moment of reckoning approaches, is that we're ready. Sustainable agriculture can provide food self-sufficiency while reducing the economic and environmental degradations of industrial agriculture. Just as the end of oil does not mean the end of energy, and may instead be the beginning of the age of endless energy, the same is true for agriculture. Industrial agriculture was all about scarcity. Sustainable agriculture is all about abundance. And knowing that, we can ensure that this age-old human drama need not play out as tragedy.

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