



ENERGY, FOOD AND YOU

ON THE PATH TO RECONCILIATION

Andrew Kang Bartlett

Recall that whatever lofty things you might accomplish today, you will do them only because you first ate something that grew out of dirt.

Barbara Kingsolver

A couple of generations ago, all farmers were organic farmers.

Ben Burkett, Mississippi farmer

The last time I was with Ben Burkett, a graying farmer from the Federation of Southern Cooperatives who grows collards and twenty other vegetables on his Mississippi farm, he reminded me how *new* our current industrialized system of food production is. In a few decades, between the time when Ben's father was organically producing crops and now, factory farms and giant livestock operations, with corporate-run processing, distributing, marketing and retailing, have come to dominate the global food system.

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This industrial food system provides ample food, but as this article will attempt to point out, it does so at a huge cost to the carrying capacity of our planet. What we eat raises ethical questions as we consider the environmental, energy and social impacts of this new food system.

Environmental Impacts

Large-scale, monoculture farms typically erode far more soil than smaller farms with a diversity of animals and plant crops, especially those employing sustainable agricultural techniques. In short, industrial agricultural methods result in the “mining” of topsoil formed over thousands of years.¹ We are currently destroying topsoil 17 times faster than the rate at which it can be regenerated (IUGS, 1996).

Industrial agriculture is also implicated in the loss of biological diversity due to ecosystem destruction and the reduction of crop varieties. The United Nations Food and Agriculture Organization estimates that over 75% of the planet’s agricultural biodiversity has already been lost (FAO, 1996). Of the crop varieties that were grown a century ago, 90% are no longer commercially produced (Tuxill, 2000). In fact, nine crops now supply 75% of the world’s food, and only three crops provide 50% (Withgot, 2001; Tuxill, 2000).

Industrial farming uses vast quantities of chemicals to combat weeds, fungi, insects, and other pests – poisoning farm workers and surrounding communities.² These herbicides, fungicides and pesticides, along with tons of chemical fertilizers, pollute our water and air. Factory farms, especially intensive livestock operations, release ammonia-nitrogen into the air, which impacts neighboring communities and the world’s climate.³

¹ Soil loss is most severe in some of the richest farming areas; Iowa loses topsoil at 30 times the rate of soil formation. Iowa has lost half its topsoil in only 150 years of farming. (Pimental, 1997)

² Globally, pesticides kill 20-40,000 farmers each year. Despite the fact that the use of pesticides has increased 33 fold since 1945, they aren’t working as predicted; the quantity of crops lost to pests has increased 20% since the introduction of pesticides, and \$40 billion a year is now spent on pesticides to save an estimated \$16 billion in crops. (Altieri, 2000)

³ In addition to the carbon dioxide released by burning fossil fuel, the food system, notably in the production of meat and dairy, produces large quantities of greenhouse gases, nitrous oxide and methane (perhaps as much as half of the total) from fermentation of food and decomposition of manure and slurry.

Social and Economic Impacts

We Are What We Eat, a report adopted by the 214th General Assembly (2002), explains how modern, industrial agriculture has changed the fabric of rural life. Conventional farmers in the U.S. receive, on average, nine cents of every food dollar, and tens of millions of farmers around the world have gone bankrupt and been driven off their land. African-American farmers in the U.S. have been hardest hit and have lost their land at more than twice the rate of White farmers.⁴ Moreover, when they have needed and requested assistance from the U.S. Department of Agriculture (USDA), they have been systematically discriminated against, as findings in a recent class action lawsuit indicate.⁵

As has been the case for some time, the world produces and has the capacity to continue to produce enough food for all. Hunger occurs, however, because this food fails to get to the people who need it. This maldistribution is illustrated by our current, unprecedented situation in which an estimated one billion people have grown fat or obese from over-consuming, while an equal number suffer debilitating hunger. Also, the idea that factory farms produce more food is a myth: the total productive output of food per acre on small, diversified farms ranges from 200-1000% higher per unit area than on large farms (Rossett, 1999).



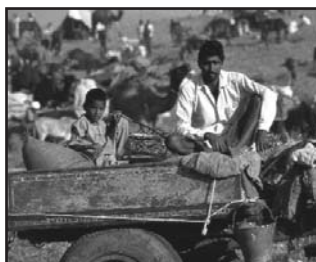
*Asian and Latino farm workers sort potatoes, Washington State
Photo: A. Bartlett*

⁴ A 1990 House Committee on Government Operations report shows that the number of Black farms declined 57.3% or two and a half times the rate of loss for Whites.

⁵ More than \$630,000,000 has been awarded to 13,000+ African-American farmers as of July 9, 2003; see www.usda.gov/da/status.htm.

Giant corporate purchasers award contracts to the lowest bidders, so growers compete by paying farm workers poverty wages and (as documented in the September 2003 *National Geographic*) practicing modern-day slavery, even on U.S. farms.⁶ Wages for jobs in picking, processing, packing, shipping, fast food restaurants and supermarkets are notoriously low, and people are forced to work two or three jobs to make ends meet. As family farmers cave in to crushing debt, rural businesses and churches also fold, and the migration of young people to cities increases.⁷ In many rural areas, Wal-Mart and other giant retailers move in and finish off any remaining local stores, which are unable to compete with the super-low prices. Both in the U.S. and overseas, rural poverty continues to rise along with the rates of violence and suicide (Lee, 1999).⁸

Half the planet's human population lives in rural areas, and hundreds of millions of subsistence or small-scale market farmers still grow food as Ben's father did – with little energy or off-farm inputs. Our commodified, industrial food system and market economy has helped drive the very farmers who have sustained societies for millennia deep into poverty.



A Reconciling Path

Each of us perpetuates human-made systems. As consumers and members of society, and as Christians, we are called to understand how we are connected and to establish “right relationship” with the food system and with all those who suffer.

Wendell Berry – the noted Kentucky writer, poet and farmer – speaks to this relationship with his concept of eating as “an agricultur-

⁶ See “Annals of Labor: Nobodies; Does Slavery Exist in America?” by John Bowe, *New Yorker*, April 21-28, 2003. Find information on the PCUSA Taco Bell Boycott at www.pcusa.org/boycott.

⁷ During the mid-1980s, 235,000 U.S. farms failed; roughly 60,000 other rural businesses also went under.

⁸ In India, more than a thousand peasants committed suicide between 1998 and 1999, many by drinking pesticides. In England and Canada the suicide rate among farmers is twice the national average. In Wales one farmer commits suicide every week. In the U.S. Midwest, suicide is the fifth largest cause of death among farmers. In China peasants are the social group with the highest suicide rate. In Australia the frequency of farmer suicides is roughly equal to the rate of accidental death. (Hernandez Navarro, 2003)

al act." Barry calls us to be mindful of the food we place in our mouths. Each grain of wheat is a gift of God, coming to us as a result of God's grace in the form of water, sun and soil. Each morsel of bread has been produced through hard work and has passed through many hands and processes to contribute to our survival.

Berry reminds us that eating is an agricultural act that links us to the farmer, the processor, the packer, the shipper, the cook and the server. Eating also links us to the plants and animals themselves.

Though I am by no means a vegetarian, I dislike the thought that some animal has been made miserable in order to feed me. If I am going to eat meat, I want it to be from an animal that has lived a pleasant, uncrowded life outdoors, on bountiful pasture, with good water nearby and trees for shade. And I am getting almost as fussy about food plants. I like to eat vegetables and fruits that I know have lived happily and healthily in good soil, rather than the products of huge biochemicaled factory-fields that I have seen, for example, in the Central Valley of California. The industrial farm is said to have been patterned on the factory production line. In practice, it looks more like a concentration camp. (Berry, 1990)

Food as a Petroleum By-Product

An agronomist friend describes beef as a petroleum by-product. Livestock production uses fossil fuels to seed feed for livestock, to produce and apply fertilizers and pesticides, and to harvest and process the feed. More than 50% of all grain in the U.S. and 40% worldwide goes to feed livestock (Pimentel, 1997). Electricity, gas and diesel are needed to maintain the animals and transport them to feedlots and then to meat-packing plants. More is used to process and package the meat, and to refrigerate the trucks that haul it to distribution centers, then to stores,⁹ and then to people's homes where it is consumed.¹⁰

While beef is the most energy-intensive, all food in our industrial

⁹ In 1997, tractor-trailers, averaging 5.9 miles per gallon, traveled more than 170 billion miles, using 42.5 billion gallons of diesel fuel, to transport food. Diesel fuel is responsible for a significant portion of air pollution, particularly particulate matter. (*Farm to Table*, 2001) Close proximity to heavily-traveled streets and the amount of particulate matter in the air has been shown to significantly increase disease rates, especially among children.

¹⁰ Cheaper food markets with fresh produce are commonly located farther from low-income neighborhoods; poorer families use significantly more of their income on transportation and food.

system requires tremendous amounts of petroleum.¹¹ In fact, between 16-20% of all energy consumed in the U.S. is used by the food system.¹²

The distance between field and plate is a key reason for this: The average food item travels upwards of 1,500 miles.¹³ (See graph on following page.) To translate this into the impact on global climate change, researchers in England compared two versions of the same traditional Sunday meal, one with imported ingredients, one with locally grown ingredients. They found that the imported meal would produce 650 times the amount of CO₂ as the local meal, due to petroleum-intensive food transport (Jones, 2001).

In a recent article, biologist and writer Barbara Kingsolver declares:

It's enough to turn your stomach ... to add up the fuel, money and gunk that can go into food that isn't even about food. Our gustatory industries treat food items like spoiled little celebrities, zipping them around the globe in luxurious air conditioned cabins, dressing them up in gaudy outfits, spritzing them with makeup and breaking the bank on advertising, for heaven's sakes.

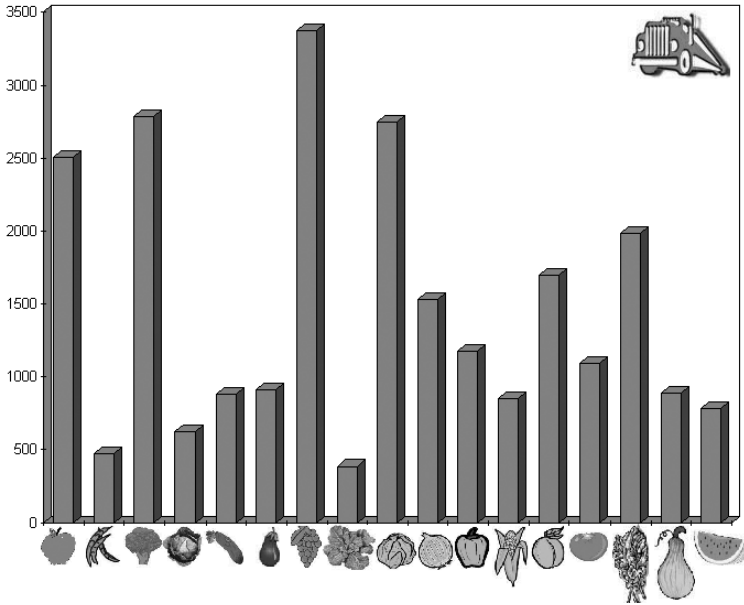
Indeed, the energy required to produce, process, package and distribute a can of corn is six times the food energy contained in that corn. The packaging alone uses more than twice the energy of production; driving the corn home from the store and preparing it also uses more energy than production. Consider the energy used to make the 100 bil-

¹¹ Energy input to protein output differs greatly: Beef=54:1, Lamb=50:1, Eggs=26:1, Pork=17:1, Milk protein=14:1, Turkey=13:1, Chicken=4:1. Pimentel (1997) estimates that the U.S. could feed 800 million people with the grain consumed by livestock.

¹² On average, ten calories of fossil-fuel energy are used to produce, process, transport and prepare each calorie of food consumed in the U.S. (Pimentel, 1996). The U.S. uses more energy per capita for food production, processing and distribution than Asia and Africa use for all activities combined. (Pirog, 2001)

¹³ A recent study found that the average pound of produce had traveled 1,685 miles. This chart shows the distances various foods need to travel to reach a family table in Jessup, MD. Shown are: apples - 2,505; beans - 470; broccoli - 2,786; cabbage - 626; cucumbers - 882; eggplant - 914; grapes - 3,370; greens - 387; lettuce - 2,750; onions - 1,535; peppers - 1,180; sweet corn - 848; peaches - 1,700; tomato - 1,097; spinach - 1,984; squash - 887; watermelon - 779. A recent Worldwatch Institute report estimated that food travels 1500-2500 miles from farm to table in the U.S. Chart: M. Hargleroad.

Average Shipping Distance from Farm to Market:
Miles from State or County of Origin to Jessup, Maryland



lion beverage cans used each year in the United States.¹⁴ It is no wonder that the food system uses 10-20% of global energy (Heller, 2000; Hendrickson, 1997), with post-production accounting for 80-90%.¹⁵ Since 1961, the value of the global food trade has tripled and the tonnage of food shipped between nations has quadrupled, while human population has only doubled (Halweil, 2002).

A Sustainable Global (and Local) Food System

Providing food is the single largest human activity on the planet, occupying over 40% of the planet's bio-capacity. As we have seen above, this activity is diminishing the earth's capacity to regenerate itself and sustain us. As a complex, global system, piecemeal approaches will have limited success since often one solution may generate new problems. Local initiatives are critical, but a whole systems approach,

¹⁴ Smelting, used to convert aluminum oxide to aluminum, is so energy intensive that aluminum has earned the nickname "congealed electricity."

¹⁵ Of the 10-20% of the fossil fuel used by the global food system in agricultural operations, 40% is indirect energy consumption, e.g. the energy needed to produce chemical fertilizers and pesticides. Of the rest, 25% is used directly as diesel fuel and 35% for other uses such as irrigation. (Tansey and Worsley, *The Food System*, Earthscan, 1995; Heller and Keoleian; Hendrickson.)

which takes into account population, consumption, technology, sustainability and political issues, will give us greater odds of success.

Population: Slowing population growth takes pressure off land, soil and water resources. We must continue efforts to provide safe, effective and affordable family planning.

Technology: Increased efficiencies in food production, processing and transportation – such as that achieved by smaller, diversified farms and a shift to renewable fuel sources – is critical.

Sustainability of our natural capital: Sustainable farming methods produce sufficient amounts of food and protect soil, water and wildlife. Farming can build natural capital in many ways, for example through conservation measures to reduce erosion and restore soil carbon, eliminate water pollution, and farm with less energy and water by taking advantage of natural flood cycles.

Politics: The commodification and commercialization of the global food system means that those without the means to purchase food may end up without sufficient food or join the estimated 30,000 who die of hunger and hunger-related diseases every day. Corporations, which are beholden to shareholders and bottom-line profits, generally ignore external social and environmental costs except when they are hurting or may hurt profits. These same corporations – many with names you recognize, such as Wal-Mart, Phillip Morris/Kraft/Altria, Archer Daniels Midland (ADM) – have been gobbling up companies to consolidate their breadth, depth and control of the food industries. This control extends from seeds and agricultural inputs, to food processing and transport, and in some cases to retail.

Economists largely agree that greater than 40% control of a sector by one to four companies makes fair competition difficult or impossible. Yet, we are at the point where, for example, only four companies control 84% of American cereal production, and four companies control 81% of the U.S. beef market. This concentration poses a formidable challenge to competition and farmer survival.

This corporate influence extends even to international trade agreements, such as the Free Trade Area of the Americas (FTAA) and the North American Free Trade Agreement (NAFTA). Instead of creating a free and competitive playing field, such agreements primarily serve the interests of economically stronger nations and multinational corporations. In the case of NAFTA, we have witnessed the loss of decent-pay-

ing jobs in the U.S. and Canada, and in Mexico, huge increases in income disparity and hundreds of thousands of Mexicans forced out of farming.

Accordingly, the Presbyterian Church (USA) has called on the U.S. government and all Presbyterians to oppose current trade agreements, such as FTAA and the Central America Free Trade Agreement (CAFTA), due to their disregard for workers, farmers, low-income people and the integrity of Creation.¹⁶

Policy: Creating Fertile Soil

Given the power wielded by agribusiness, not only must we work for just trade agreements, but we need to create a policy climate that allows less-centralized sustainable food systems to grow. Public policies can lay the foundation for a food system that feeds all people without destroying the ability of current and future generations to sustain themselves. The following are examples of policy directions that can help us move toward sustainability:

- ❑ Strengthen local and regional food economies based on sustainable agriculture; support this through formation of local food councils as a number of cities are doing around the U.S. and Canada.
- ❑ Motivate and train new farmers to grow locally-distributed food; new farmers are supported by the creation of local processing capacity.
- ❑ Support “anti-sprawl” policies that encourage more densely-populated urban centers while maintaining surrounding countryside for farming and conservation.¹⁷
- ❑ Encourage institutional purchasing policies that give preference to locally-produced items, such as the farm-to-cafeteria programs that are successfully sprouting up in schools around the U.S.
- ❑ Support the Women and Infant Children (WIC) and Senior Farmers’ Market Nutrition Programs, which enable parents and older adults to use food coupons to purchase fresh produce from farmers’ markets.

¹⁶ You can learn how Presbyterians and others are advocating for just trade at the PCUSA Just Trade site www.pcusa.org/trade.

¹⁷ Densely-populated urban centers make healthy food more accessible to everyone by foot, cycling or public transportation. Dense city designs keep surrounding lands affordable and enable farmers to prosper while they help feed urban populations.

- Provide incentives to farmers (such as “green payments”) to use fewer chemicals and conserve the environment.
- End corporate welfare payments, shifting subsidies from factory farms to smaller family farms.
- Prevent further concentration in the food industry and regulate corporate manipulation in the market, in politics, and in negotiations on trade.

Act Globally By Acting Locally

This is an exciting time. Increasingly we are able to understand the dynamic interconnectedness of reality by which local actions ripple in all directions to influence larger systems. By acting locally, we are acting globally. This means that as individuals or families we can create a more just and ecologically-sound food system every time we buy a carrot or an apple. Unlike other actions, when we vote with our food dollars, our vote counts every time.

Your own food shopping will fit somewhere on this continuum. Depending on the item and the time of the year, your source may vary.

Figure A. Food Shopping Continuum

Supermarket – Local Grocery – Farmers Market – CSA¹⁸ – Home-Grown¹⁹

Even if, like most people, you still do most of your shopping at a supermarket, you can begin to build a just food system. Here are some ways:

- Get to know the produce manager and find out which vegetables and fruits are grown nearby.
- Ask the produce manager what produce is in season (seasonal produce is more likely to be grown locally and will often be cheaper, fresher and better-tasting).
- Read labels and try to buy foods coming from your state or a neighboring state.

¹⁸ CSA stands for Community Supported Agriculture, sometimes called Subscription Farming. Find a CSA near you at www.sare.org/csa.

¹⁹ Many places will have other options. A more complete continuum might look like this: Megastore e.g. Costco or Wal-Mart — Supermarket — “Natural” Marketplaces (e.g. Wild Oats or Whole Foods) — Buying Club / Food Co-op — Non-Chain Grocery Store — Local Co-op — Farmers Market — CSA — Community/Home Garden

- ❑ Try to shop at stores where workers are unionized and buy union-label produce.
- ❑ Buy local or regional items from the organic section of the supermarket or request that your supermarket establish one.²⁰

Support of cooperatives is also critical. Ben Burkett, our vegetable farmer friend, might well have been forced to quit farming and sell his land, like most of the farmers in his area. Instead, Ben joined the Mississippi Association of Cooperatives, a member of the Federation of Southern Cooperatives, a group which the Presbyterian Hunger Program has been supporting for many years. Now he is shipping watermelons through Red Tomato, a marketing non-profit in the Boston area, founded by Jonathan Rozyne, one of the founders of Equal Exchange. While these are not locally-sold products, the profit margin enables Ben to stay afloat. Cooperatives have often proved to be the difference between bankruptcy and solvency for family farmers, and you can support them by buying from cooperatives:

- ❑ The SuperMarketCoop is an innovative project of the Rural Coalition, a long-term partner of the Hunger Program. You can learn about member cooperatives and order items online at www.supermarketcoop.org.
- ❑ You can also visit the Co-op Directory at www.coopdirectory.org/directory.htm to find food cooperatives near you.
- ❑ Local Harvest (www.localharvest.org) is one of many Internet



Home-made human-propelled, double horizontal seedling planter on organic, CSA farm in Washington. Photo: A. Bartlett

²⁰ Increasingly, organic items are being grown on large farms and sold by large corporations; c.f. Dean Foods' purchase of Horizon Organic Dairy. You can, however, be fairly sure chemical fertilizers and toxic chemicals did not affect the environment and farm workers.

sites that can help you find farmers' markets, farms and Community Supported Agriculture outlets, as well as restaurants serving local and organic foods.

And, most important, keep learning about the food system because the more you learn, the easier it will be to move along the continuum to more sustainable practices. You may even begin to crave a relationship with the soil and microorganisms in your yard and begin to grow some of your own food. The Hunger Program has developed a Food & Faith website at www.pcusa.org/hunger/food where you can learn more and read stories about what congregations are doing to build local food economies.

Reconciliation is about building relationships that avoid harm and exploitation and embody justice and love. Reconciliation can be practiced every time you break bread.

For I am about to create new heavens and a new earth; the former things shall not be remembered or come to mind. But be glad and rejoice in what I am creating; for I am about to create Jerusalem as a joy, and its people as a delight.

Isaiah 65:17-18



For Reflection and Action

1. What in this article about our current system for food production most surprised you? What disheartened you? What inspired you?
2. Are you, or has your family been, engaged in farming? If so, how have you seen farming change?
3. How might your church celebrate rural life, family farmers, and hunger/poverty action? For ideas, contact the Presbyterian Rural Ministries Network, the Hunger Program and Self-Development of People at 888-728-7228 or www.pcusa.org.
4. Order and discuss the Presbyterian resource *We Are What We Eat* at http://www.pcusa.org/evangelism/churchdevelopment/rm_urwhat.htm or call (888)728-7228, x5244 for a hard copy of the report. Order extra copies of the November/December 2004 issue of *Church & Society* which will further address these concerns.

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Hot Off the Press –

Eco-Justice – The Unfinished Journey

William E. Gibson, Editor
State University of New York Press
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Through this series of articles, Bill Gibson, one of the founders of the Eco-Justice movement, traces the journey of the eco-justice movement from its beginnings to an examination of current issues and a look ahead as the journey continues. By providing introductory comments to each section and most articles, he provides a backdrop through which his own ministry of engagement is narrated as well. He is Director Emeritus of the Eco-Justice Project, Center for Religion, Ethics and Social Policy at Cornell University.