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THE WAY WE LIVE NOW

The Vegetable-Industrial Complex

By MICHAEL POLLAN

Soon after the news broke last month that nearly 200 Americans in 26 states had been sickened by eating packaged spinach contaminated with E. coli, I received a rather coldblooded e-mail message from a friend in the food business. “I have instructed my broker to purchase a million shares of RadSafe,” he wrote, explaining that RadSafe is a leading manufacturer of food-irradiation technology. It turned out my friend was joking, but even so, his reasoning was impeccable. If bagged salad greens are vulnerable to bacterial contamination on such a scale, industry and government would very soon come looking for a technological fix; any day now, calls to irradiate the entire food supply will be on a great many official lips. That’s exactly what happened a few years ago when we learned that E. coli from cattle feces was winding up in American hamburgers. Rather than clean up the kill floor and the feedlot diet, some meat processors simply started nuking the meat — sterilizing the manure, in other words, rather than removing it from our food. Why? Because it’s easier to find a technological fix than to address the root cause of such a problem. This has always been the genius of industrial capitalism — to take its failings and turn them into exciting new business opportunities.

We can also expect to hear calls for more regulation and inspection of the produce industry. Already, watchdogs like the Center for Science in the Public Interest have proposed that the government impose the sort of regulatory regime it imposes on the meat industry — something along the lines of the Hazard Analysis and Critical Control Point system (Haccp, pronounced HASS-ip) developed in response to the E. coli contamination of beef. At the moment, vegetable growers and packers are virtually unregulated. “Farmers can do pretty much as they please,” Carol Tucker Foreman, director of the Food Policy Institute at the Consumer Federation of America, said recently, “as long as they don’t make anyone sick.”

This sounds like an alarming lapse in governmental oversight until you realize there has never before been much reason to worry about food safety on farms. But these days, the way we farm and the way we process our food, both of which have been industrialized and centralized over the last few decades, are endangering our health. The Centers for Disease Control and Prevention estimate that our food supply now sickens 76 million Americans every year, putting more than 300,000 of them in the hospital, and killing 5,000. The lethal strain of E. coli known as 0157:H7, responsible for this latest outbreak of food poisoning, was unknown before 1982; it is believed to have evolved in the gut of feedlot cattle. These are animals that stand around in their manure all day long, eating a diet of grain that happens to turn a cow’s rumen into an ideal habitat for E. coli 0157:H7. (The bug can’t survive long in cattle living on grass.) Industrial animal agriculture produces more than a billion tons of manure every year, manure that, besides being full of nasty microbes like E. coli 0157:H7 (not to mention high concentrations of the pharmaceuticals animals must receive so they can tolerate the feedlot lifestyle), often ends up in places it shouldn’t be, rather than in pastures, where it would not only be harmless but also actually do some good.

To think of animal manure as pollution rather than fertility is a relatively new (and industrial) idea.

Wendell Berry once wrote that when we took animals off farms and put them onto feedlots, we had, in effect, taken an old solution — the one where crops feed animals and animals' waste feeds crops — and neatly divided it into two new problems: a fertility problem on the farm, and a pollution problem on the feedlot. Rather than return to that elegant solution, however, industrial agriculture came up with a technological fix for the first problem — chemical fertilizers on the farm. As yet, there is no good fix for the second problem, unless you count irradiation and Haccp plans and overcooking your burgers and, now, staying away from spinach. All of these solutions treat E. coli 0157:H7 as an unavoidable fact of life rather than what it is: a fact of industrial agriculture.

But if industrial farming gave us this bug, it is industrial eating that has spread it far and wide. We don't yet know exactly what happened in the case of the spinach washed and packed by Natural Selection Foods, whether it was contaminated in the field or in the processing plant or if perhaps the sealed bags made a trivial contamination worse. But we do know that a great deal of spinach from a great many fields gets mixed together in the water at that plant, giving microbes from a single field an opportunity to contaminate a vast amount of food. The plant in question washes 26 million servings of salad every week. In effect, we're washing the whole nation's salad in one big sink.

It's conceivable the same problem could occur in your own kitchen sink or on a single farm. Food poisoning has always been with us, but not until we started processing all our food in such a small number of "kitchens" did the potential for nationwide outbreaks exist.

Surely this points to one of the great advantages of a decentralized food system: when things go wrong, as they sooner or later will, fewer people are affected and, just as important, the problem can be more easily traced to its source and contained. A long and complicated food chain, in which food from all over the countryside is gathered together in one place to be processed and then distributed all over the country to be eaten, can be impressively efficient, but by its very nature it is a food chain devilishly hard to follow and to fix.

Fortunately, this is not the only food chain we have. The week of the E. coli outbreak, washed spinach was on sale at my local farmers' market, and at the Blue Heron Farms stand, where I usually buy my greens, the spinach appeared to be moving briskly. I tasted a leaf and wondered why I didn't think twice about it. I guess it's because I've just always trusted these guys; I buy from them every week. The spinach was probably cut and washed that morning or the night before — it hasn't been sitting around in a bag on a truck for a week. And if there ever is any sort of problem, I know exactly who is responsible. Whatever the risk, and I'm sure there is some, it seems manageable.

These days, when people make the case for buying local food, they often talk about things like keeping farmers in our communities and eating fresh food in season, at the peak of its flavor. We like what's going on at the farmers' market — how country meets city, how children learn that a carrot is not a glossy orange bullet that comes in a bag but is actually a root; how we get to taste unfamiliar flavors and even, in some sense, reconnect through these foods and their growers to the natural world. Stack all this up against the convenience and price of supermarket food, though, and it can sound a little. . .sentimental.

But there's nothing sentimental about local food — indeed, the reasons to support local food economies could not be any more hardheaded or pragmatic. Our highly centralized food economy is a dangerously precarious system, vulnerable to accidental — and deliberate — contamination. This is something the government understands better than most of us eaters. When Tommy Thompson retired from the Department of Health and Human Services in 2004, he said something chilling at his farewell news conference: "For the life of me, I cannot understand why the terrorists have not attacked our food supply, because it is so easy to do." The reason it is so easy to do was laid out in a 2003 G.A.O. report to Congress on bioterrorism. "The high concentration of our livestock industry and the centralized nature of our food-processing industry" make them "vulnerable to terrorist attack." Today 80 percent of America's beef is slaughtered by four companies, 75 percent of the precut salads are processed by two and 30 percent of the milk by just one company. Keeping local food economies healthy — and at the moment they are thriving — is a matter not of sentiment but of critical importance to the national security and the public health, as well as to reducing our dependence on foreign sources of energy.

Yet perhaps the gravest threat now to local food economies — to the farmer selling me my spinach, to the rancher who sells me my grass-fed beef — is, of all things, the government's own well-intentioned efforts to clean up the industrial food supply. Already, hundreds of regional meat-processing plants — the ones that local meat producers depend on — are closing because they can't afford to comply with the regulatory requirements the U.S.D.A. rightly imposes on giant slaughterhouses that process 400 head of cattle an hour. The industry insists that all regulations be "scale neutral," so if the U.S.D.A. demands that huge plants have, say, a bathroom, a shower and an office for the exclusive use of its inspectors, then a small processing plant that slaughters local farmers' livestock will have to install these facilities, too. This is one of the principal reasons that meat at the farmers' market is more expensive than meat at the supermarket: farmers are seldom allowed to process their own meat, and small processing plants have become very expensive to operate, when the U.S.D.A. is willing to let them operate at all. From the U.S.D.A.'s perspective, it is much more efficient to put their inspectors in a plant where they can inspect 400 cows an hour rather than in a local plant where they can inspect maybe one.

So what happens to the spinach grower at my farmers' market when the F.D.A. starts demanding a Haccp plan — daily testing of the irrigation water, say, or some newfangled veggie-irradiation technology? When we start requiring that all farms be federally inspected? Heavy burdens of regulation always fall heaviest on the smallest operations and invariably wind up benefiting the biggest players in an industry, the ones who can spread the costs over a larger output of goods. A result is that regulating food safety tends to accelerate the sort of industrialization that made food safety a problem in the first place. We end up putting our faith in RadSafe rather than in Blue Heron Farms — in technologies rather than relationships.

It's easy to imagine the F.D.A. announcing a new rule banning animals from farms that produce plant crops. In light of the threat from E. coli, such a rule would make a certain kind of sense. But it is an industrial, not an ecological, sense. For the practice of keeping animals on farms used to be, as Wendell Berry pointed out, a solution; only when cows moved onto feedlots did it become a problem. Local farmers and local food economies represent much the same sort of pre-problem solution — elegant, low-tech and redundant. But the logic of industry, apparently ineluctable, has other ideas, ideas that not only leave our centralized food system undisturbed but also imperil its most promising, and safer, alternatives.

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