

Close to Home: Local Organic

Just as the summer sun rises, dozens of independent growers from the surrounding region unpack their trucks and vans and set up stalls to sell fresh vegetables, fruit, meat, fish, cheese, bread, honey, and flowers. They're at the Union Square Greenmarket in New York City, the gem in the crown of the city's more than one hundred farmers' markets, one of the biggest such networks in the United States. Some farm stands take up more space than others; some resemble lean-tos, with weathered sunshades pitched against box trucks lettered with names such as EVOLUTIONARY ORGANICS. Other stands are sleeker, sheltered by new white canopies that cast an even, dispersed light onto the piles of fruits and vegetables on tables below: frilly squash blossoms, bright radishes, wild spinach, and heirloom tomatoes with their full flesh folding in on itself. This produce bears little resemblance to the standardized, homogenous grocery store fare. The variegated farm stalls line the western edge of this bustling urban plaza—the type of place where, in the years before agribusiness and processed foods, farmers and shoppers would have come for exactly the same purpose.

Farmers' markets such as the one in Union Square seem to summon a feeling of ethical alignment, important amid today's global-warming-conscious environmentalism: buying here means doing the right thing. At the market it's possible to meet the people who grow the food, ask what methods they use, and directly support their efforts. Purchasing this produce then becomes a means of defending nature by supporting an agricultural system that's more ecologically sustainable, one that rejects toxic agrochemicals, uses less energy, is less polluting, and promotes long-term soil health. Short of growing it oneself, the greenmarket is as virtuous as it gets.

In recent years, farmers' markets have surged in popularity in the

United States, up by more than 150 percent, from just under two thousand in 1994 to well over five thousand last year. In 2005 revenues from farmers' markets topped \$1 billion, while the following year overall U.S. sales of natural and organic products exceeded \$17 billion. As of 2007 the global organic market was worth \$48 billion. Greater public awareness of "food miles," the distance groceries travel from field to dinner plate, and the greenhouse-gas-emitting transport this requires, has triggered an urgent call to eat locally. Surging interest in healthy food grown close to home coupled with fear over ecological disaster has brought down a cascade of criticism of industrial agriculture, or what is oddly referred to as "conventional farming." Emerging from the storm are local organic growers, now cast as heroes who have the power to overturn the environmental catastrophe that is conventional agriculture.

Over the past half century the dominant food system in the West has based itself on a toxic model. Crops are grown on landscapes remade as flat expanses of biological minimalism, swept clean of most life-forms by use of petrochemical pesticides. These swaths are made to fruit at the behest not of natural cycles but synthetic fertilizers and profligate irrigation. (According to the *Economist* magazine, "Farming accounts for roughly 70% of human water consumption.") Similarly, industrial farming has transformed animal husbandry into a practice more akin to mass assembly-line production. It is saturated with chemically engineered antibiotics and growth hormones that render animals so malformed—to bulk up quickly for higher profits—that the sheer weight of their musculature can make them lame.

The fallout from conventional agriculture can be devastating. Synthetic fertilizers typically contain high levels of nitrogen and phosphorus, much of which eventually washes into coastal waters where it fuels rampant algae growth. Algal blooms colonize these aquatic systems, sapping them of oxygen, thereby suffocating fish and most other marine life. These mass underwater "dead zones" now plague large areas in the Gulf of Mexico, up and down the U.S. East Coast, the Baltic and Black seas, and are beginning to choke the waters off Australia, South America, China, and Japan.

In addition to flowing into rivers, lakes, and oceans, pesticides also linger as residues on food. A U.S. Department of Agriculture (USDA) survey found that out of eight fruit and twelve vegetable crops assessed, 73–90 percent were contaminated by pesticides. And almost half of the items tested had residues from multiple chemicals, compounding toxic-

ity. A 2009 study on whether organic food is more nutritious, and therefore healthier, than conventional edibles showed no significant difference between the two. However, according to a report in the *Guardian* (UK), the researchers perplexingly did not factor fertilizer and pesticide residues that persist on conventionally grown food into their calculations. The most commonly used agricultural pesticides wreak havoc on human health, affecting the nervous system, harming the skin, eyes, and lungs, causing a variety of cancers as well as genetic damage, and impairing reproductive organs and normal hormone functions. Rejecting the food establishment that aims to conquer ecosystems, today's small farmers are building an agriculture that's fundamentally compatible with nature.

But this change doesn't come cheap. It's no mystery that food raised locally and without chemicals, hormones, or antibiotics costs more, sometimes a lot more. Among the chemical-free growers at Union Square, one sells milk for \$20 a gallon and eggs for \$14 a dozen; another offers tomatoes for \$5 a pound, and still another marks leafy greens at almost \$20 per pound (in winter, the same vegetables raised in greenhouses can ring in at over double that). As for meat, one Union Square farm sells its naturally raised Italian pork sausage for \$12.50 per pound. Compared to meat and vegetables at the conventional grocery store, the difference is staggering. A recent circular from the supermarket near my house advertises twelve eggs for \$1.50, vine-ripened tomatoes at \$1.99 per pound, and Italian pork sausage for just \$1.99 a pound. The organic premium can start at 10 percent above conventional prices, but, as the comparison above demonstrates, the discrepancy can easily hit 500 percent or higher. While advocates and shoppers often believe that a revolution in food will be led by local farmers, many of these revered husbandmen and women don't earn a living wage. Because their prices can be exorbitant, it's easy to assume that unconventional farmers have healthy incomes; in reality, many of them couldn't afford to buy the very food they grow.

Part of why organically raised goods are so expensive is that caretaking natural systems is more labor-intensive than industrial agriculture, which engineers its way to productivity. Richard Pirog, associate director at the Leopold Center for Sustainable Agriculture, an Iowa State University research institution, explains, "Conventional farming is cheaper because it externalizes its true costs onto the environment and public health. Unconventional cultivation internalizes those costs so it carries a higher price tag." Many organic farmers must rely on hand labor to bring in crops and keep

fields free of weeds and bugs instead of using sprays; more workers and the time needed to manage them drive up costs. In raising meat, pastured animals can take considerably longer to fatten than those finished on grain. The average grass-fed head achieves its "kill weight" at around thirty months, whereas conventionally raised cattle can be slaughtered as young as twelve months. The more time it takes until slaughter, the more expensive each cut of meat becomes. On top of that, meat processing is substantially more expensive for the small farmer sending through a few head a week than it is for the big industrial packers, who kill hundreds or thousands a day.

Once the produce is ready to go, unconventional farmers must cope with a marketing and distribution system that's woefully inadequate, creating inefficiencies that drive up costs. What's more, these growers are typically located in areas near urban markets, where real estate values are higher, and so are mortgages and property taxes, thus contributing to heftier prices. All of this on top of the normal risks farmers endure: bad weather, pests, disease, and the more general vagaries of the market. So, despite the steep premium their products can garner, many small unconventional farmers face a myriad of economic pressures that can make for a seriously unstable situation.

Local, seasonal agriculture is firing up a new generation of food activists amid a flurry of enthusiastic press coverage from the *New Yorker* to *Mother Jones*, the *New York Times*, and an expanding slate of books. But what isn't being talked about is that many of the small organic producers who are expected to lead the reinvention of the food system can barely make ends meet. How able are these frontline farmers to withstand, indeed transform, the industrial food juggernaut? Why would small organic family farms be able to hold their own against the agribusiness establishment when their conventional forebears could not? Even though it's clear that alternative, organic farming is environmentally sustainable, it's not certain that this type of cultivation is economically sustainable. While local organic growers are hailed as leaders of ecological salvation, they face a plethora of difficulties that make their existence startlingly precarious.

WINDFALL

I meet Morse Pitts at Union Square on Wednesday, July 4, 2007, around 7 p.m. His farm stand is whittled down to just four card tables, each piled high with baby greens, arugula, squash, purple carrots, and Sungold tomatoes. Unusually, the market feels deserted—it's a holiday and a gloomy rain has been falling all afternoon. Pitts stayed late because he's hoping to make up for the day's slow traffic, one of the risks of doing direct sales. His workers have been at it for almost thirteen hours, and now they're ready to deal. "Buy one, get one free!" Kevin shouts, smiling. "That's two for five dollars," booms Tim, his coworker. "No pesticides!" announces Kevin. "No herbicides!" says Tim. "No homicides!" they chime together. They've done this routine before.

Some people approach the produce-laden stall with caution, or a tinge of suspicion. "How do I cook these? What *are* they?" one man asks holding a bag of snap peas tentatively aloft. Another woman wants to know what to do with the delicate nasturtium blossoms. The different types of leafy greens are more trustworthy, but many potential buyers still aren't sure just what they're looking at. I quickly realize that much of the work at the farm stand involves rather extensive public education.

A woman in office garb holds up a bag of young dandelion greens and asks Tim if they're organic.

"It's better than organic," he quips.

"If they're not certified organic, then I'm not buying them," she says.

"Organic doesn't mean anything anymore," Tim says as he embarks on another series of lines he's recited before. "There are no chemicals whatsoever used to grow these vegetables. But they're not organic." He begins to lay out the somewhat complex argument that, ever since the U.S. Department of Agriculture took over certification, organic standards have been watered down to such an extent they've become meaningless. Pitts is not officially certified as organic and has chosen not to be, as have between two thousand and thirty-five hundred other organic farms in New York State alone. But, as I will find out at his farm, he grows food in a way that is markedly more ecologically responsible and sustainable than is required by current USDA regulations.

Before Tim can finish his rap the woman's attention falters and she walks away.

Eventually, Pitts and his helpers pack up the truck and we drive north out of town. As we cross the Hudson River, distant Independence Day fireworks decorate the gray night sky.

Windfall Farms is located on the edge of the small town of Montgomery in Orange County, New York, sixty-five miles from the city. Pitts has been planting its soil for twenty-seven years, all of it as an organic farmer. His family inherited the property unexpectedly when Pitts was a child. An uncle who'd passed away willed a neighbor the right to use this farm until he died, at which point ownership reverted back to the family. Pitts's father, an engineer, hadn't thought about the place in decades, so did not anticipate the turn of events and was surprised again when his son wanted to become a farmer. "Ever since I was little, I wanted to grow things," Pitts tells me. "I transplanted mint in an empty lot when I was three years old, and it took!"

Pitts is in his fifties, isn't married, and has no kids, but constantly surrounds himself with friends. He's tall with gray hair and eyes that remain serious even when everyone's joking around; although Pitts rarely acts silly himself, he deftly draws that quality out in others. Well respected in farming and culinary circles, Pitts has received a stream of good press over the years and is praised by the likes of Alice Waters, the Bay Area, California, chef who is widely regarded as the doyenne of the locally grown organic movement.

The bedroom I've been assigned is on the second floor of the rambling farmhouse. In the morning I wander down to the basement, where there's a second kitchen, an office, and the refrigerated storage and processing facilities for the produce. It's 9:30 a.m. and Pitts appears just as I walk outside to see what he and the workers are up to. We go back in for breakfast. I ask what they're doing in the fields, and he says they haven't started yet. The place is nonstop on Tuesdays and Fridays when they're preparing for market the following morning. But it's Thursday so things are relatively quiet.

Over the years Pitts has cleared a path for his business, one that would be hard to duplicate. Before he got into the farmers' market, he sold produce to restaurants. At first it seemed like a good idea because it meant guaranteed customers. But, as he explains over eggs from his henhouse and toast made with bread and butter he swaps for vegetables at the market, this was not tenable. "Selling to restaurants is basically like making

an unsecured loan to a shaky business—no interest—that maybe will be paid someday," he tells me. After several years Pitts was owed \$40,000 by twenty-five different establishments, so he decided to get out. He then managed, after years of wrangling, to secure one of the highly coveted spots at the Union Square market. Centrally located and at a major subway hub in Manhattan, it is the busiest, most profitable farmers' market in the region. Now Pitts only sells at Union Square, and mostly to regular shoppers; he maintains just a few commercial clients, including the New York Museum of Modern Art (for its restaurants), and chefs who buy from his farm stand. No one ever gets more than a week to pay up.

To grow Windfall's produce Pitts cultivates only 15 of the 140 acres he inherited. Just after breakfast he takes me to see the 12 acres planted across the road from the house. The air is heavy, sunlight still burning off the morning haze. The field is luxuriant with snap peas, fennel, basil, and Swiss chard. The vegetables grow in distinct parallels at some points, then in other parts of the field they interlace and overlap. Weeds are here, too, blurring the lines between rows; a reminder that the order cultivation asserts is only temporary.

As we walk deeper into the field, green gives way to rich brown-black soil. Here the activity is mostly taking place underground. Short stalks of corn are embarking on their ascent, but won't be ready until next month. More carrots are planted beyond the corn, and under the dark blanket of earth are kale and a variety of mustard greens that will push their way up for the late summer and early fall. These leafy vegetables are best when it starts getting cold at night; the plants produce sugar as a protective measure, so their taste sweetens. "Just after the first frost is the best time to eat them," I hear Pitts say one day at the greenmarket. The more distant edge of the large field was recently "disked" (plowed) and will get covered with manure from a nearby horse farm in the coming days. Pitts will then seed the area with a cover crop of buckwheat, which keeps weeds from sprouting, minimizes erosion, and can be turned into the soil to add nutrients, before the next seeds are sown. The horse dung is the only substance Pitts adds to his crops from off the farm, meaning he uses no chemical fertilizers, herbicides, or insecticides.

After walking the big field we head back toward the house to check out the farm's other three acres, stopping at the potato patch. Here Pitts is conducting an experiment with black plastic fabric that he wants to use to keep the weeds down. He's planted a couple different varieties of pota-

toes along the edge of the sheeting to ascertain which will grow around the cover, and which will get stuck beneath it. The tubers that are reaching out, finding the sunlight on their own, are the ones he'll cultivate next year.

This is how Pitts does things. "Trial and error. I farm through trial and error," he tells me more than once. To build soil health, avoid using pesticides, and make the labor easier, he does complicated rotations and diverse plantings. He's deciphered how to outsmart the bugs by growing crops in different places each year. He mixes seeds and tosses them into the path of the rototiller to see what will come up, like rolling dice. (While it may sound haphazard, the method, known as broadcasting, was forged by the Japanese natural-farming pioneer Masanobu Fukuoka over a half century ago.) By broadcasting one year Pitts discovered he could grow turnips sooner in the season than he'd realized, and by doing that, the harvest would come before a troublesome turnip-eating pest arrived. As with any type of farming, timing is key. Pitts races the weeds, planting certain vegetables so they grow taller faster, then he simply harvests from the upper areas. Planting more than he needs means the workers can pick what is easiest to reach without having to painstakingly search through dense leaves and pull weeds to clear the way. "We plant tons of stuff," Pitts explains. "Growing it is not that expensive, picking it is. So we try to make that part as easy as possible."

It's midday and the laborers have arrived, about ten of them. They've eaten lunch but are out behind the house knocking around a soccer ball instead of working because a heavy rain is on the way. Many of these farmhands are from Mexico and have come to Windfall through Hector Gonzalez, who has worked here since 1993. As Pitts tells the story, Gonzalez approached him because he wanted a job at a place that didn't use pesticides. For years he'd been working on another farm, also in Orange County, that gave him, as part of his wages, a house on the edge of its land. However, when the crops were sprayed, so was his home. Not only did he have to labor in the chemical-laden fields, but he and his family had to live in them as well. A few years after Gonzalez had begun working for Pitts, his sixteen-year-old son was diagnosed with cancer. Two years later he died.

Gonzalez oversees the field labor at Windfall. They do the harvesting, then wash and pack all the vegetables for market. The produce goes from

the field to the customer's hands in less than twenty-four hours. The converted school bus Pitts loads with vegetables and takes to market runs on biodiesel made from waste oil he collects at restaurants in Manhattan when he goes in each week. The biodiesel also powers and heats the farm's greenhouses. Pitts is not a numbers guy—he doesn't keep tabs on how much fossil fuel he isn't using, how much CO₂ he's not emitting, or how much water he's not polluting by farming and distributing the way he does. But he's righteous about it.

Pitts is opinionated about official USDA organic because, in his estimation, it's simply not good enough. "It's just a list of things you can and can't add to your crops. I take a whole approach to farming. It's not some checklist I tick off," he says irritably. Since the USDA fully implemented organic standards in 2002—a process that began a dozen years earlier and went through several contentious rounds—many farmers, precisely the type that consumers imagine when they see the organic label, reject certification outright. Growers who practice organic methods—chemical-free farming and grazing, complex crop rotation to build and maintain soil health, fertilizing with green manure (cover crops that allow soil to regenerate), low or no fossil-fuel consumption, and labor practices that are more socially just—now call themselves "beyond organic," "unconventional," "real."

Many of these farmers are also critical of the process of earning USDA certification because it's costly and time-consuming. They must keep detailed records on the planting and tending of each individual crop—the chard, the snap peas, the carrots, the kale—something that's clearly inappropriate for a farmer such as Pitts, but highly doable for a large-scale operation. "If you have five thousand workers and one million acres, you can allocate one worker to spend all day doing paperwork," Pitts tells me hyperbolically. "But on a small farm you can't spend your day filling out paperwork, because then you're not growing the food." He is loath to do the complicated documentation of all his various plantings, such as the frequent rotations and broadcasting. It also costs hundreds and sometimes thousands of dollars to ensure the paperwork is in order and to pay the certifier, a sum many small producers can't afford.

Another Hudson Valley grower, Ron Khosla of Huguenot Farms, further elucidates problems with USDA certification. Earning and keeping the seal is supposed to work like this: The farmer maintains detailed logs of planting, fertilizing, and pest, weed, and disease management. Once

each year a third-party certifying agency hired by the farmer and licensed by the USDA dispatches an inspector to assess the farm and review its records. Then the inspector submits the report for evaluation by the certifier, and if everything is up to snuff, the organic seal is granted.

But, as Khosla explains, inspectors are only required to do what's called a "visual inspection" of the farm. Khosla—who founded a peer-based certification program called Certified Naturally Grown and formerly served as a consultant to the United Nations Food and Agriculture Organization—tells me of instances of inspectors visiting farms, yet never setting foot in a field. He knows farmers who've had auditors conduct visual inspections by peering at crops through living-room windows. Astonishingly, official USDA rules require no soil samples or chemical-residue tests on produce. That means any such tests are entirely at the discretion of the certifier. Because certification companies must bear the cost of running these tests, plus time for the added paperwork, they have an incentive to avoid it. Consequently, visual inspections are all consumers can rely on.

Because inspectors typically have such heavy workloads, Khosla explains, they may not always make it to some of the farms that bear the organic seal. Khosla also tells me how a certification company he contacted brainstormed with him on how to cheat. "It was incredible!" The bottom line: "Certification companies don't want to pressure farmers because they don't want to lose the business," Khosla imparts. "The for-profit certifiers and the nonprofits, too, they don't want to lose their jobs." Being too strict could increase the risk of farmers switching to the competition. This capacity for fraud is another reason growers such as Pitts dismiss official organic.

Back at the Pitts farm, perched in front of the main house is a hand-painted sign that reads WINDFALL FARMS. Underneath the name are letters that used to say ORGANICALLY GROWN VEGETABLES. Pitts tells me that while he was away at a conference in California in 2000, the USDA announced the first phase of implementing federal organics standards. As soon as he heard, he called Gonzalez to repaint the sign immediately. With a few tight insertions and alterations, it now reads UNCONVENTIONALLY GROWN VEGETABLES.

Pitts doesn't have a mortgage because he inherited the place, as the farm's name suggests. So, unlike many of his fellow small-scale cul-

tivators, he doesn't have the burden of debt. Yet he is still facing circumstances that are driving him off his land.

Most significant is Pitts's hefty property-tax bill. He tells me the Montgomery Town Council rezoned a large area as commercial about fifteen years ago, including Windfall and several other farms. The council realized they could shift to a more lucrative commercial tax base by taking advantage of the transportation infrastructure, which includes a major freeway, railway lines, and a small airport. But by encouraging a change in land use away from agriculture, the town officials have created an impossible situation for most local small farmers. Among the new neighbors is a manufacturer of medical and surgical supplies called Cardinal Health, which, Pitts tells me, built a single warehouse covering twenty-three acres. These operations generate considerably more income from their fertile Hudson Valley land than does farming, yet Pitts must fork over as much in taxes as his corporate neighbors. "It's like you're renting your own farm forever and the rent just keeps going up," he says. "The tax system is thwarting people who want to preserve farmland." Consequently, he laments, "Farms are just gone from here."

To beat the precipitous taxes Pitts, too, must leave. For the past several years he's been looking for a new farm, and while some prospects have been exciting, they've all fallen through. Finding the right spot is a tall order. Pitts has spent a generation building up his soil, and accumulating local knowledge of such things as weeds and bugs and weather patterns. Now he must go and begin again somewhere else, hopefully not too far away. At this point he could stop or be stopped by circumstance. No meaningful subsidies or supports exist for farmers such as Pitts, even though the environmental value of what they're doing is indisputable. If he used industrial methods and doused his fields with chemicals to grow commodities such as corn and soy, he'd be better able to tap into the U.S. Department of Agriculture's knowledge base and resources. But as it is, he's pretty much on his own.

As Pitts is showing me the squat, narrow greenhouses where he raises baby lettuces and tomatoes, the sky opens up, dropping long, full lines of summer rain. He joins several workers outside to secure things around the farm from the storm. A few of us shelter inside the sloping walls of one of the greenhouses. No one talks over the beating of the midafternoon rain. Looking up, I can see through the clear plastic roof as the drops hit, fleetingly puddle, then slip down the side.

The next morning the place is abuzz with activity; it's Friday and a lot must get done before market tomorrow. I eat a breakfast of dandelion and mustard greens, Sungold tomatoes, and eggs we gathered yesterday while Pitts sits at the table wiping down the handwritten, laminated signs he uses to label his produce at the stand. Meanwhile workers bag lettuce in the basement's refrigerated room. Gonzalez, who grew up tending his family's orchard in Mexico, walks into the kitchen. "It's too wet to hoe, and too wet to plant, but it's good weeding weather, so perhaps we'll do that," Pitts says out loud. Gonzalez cuts Pitts off by gently casting his eyes down. It's a subtle no. Gonzalez has other plans for the workers today, which he doesn't actually articulate. It's the nonverbal exchange of brothers or an old couple. Without discussion, Pitts consents.

The farm has six full-time workers whose starting pay is \$7.50 an hour. A few of Pitts's additional laborers, such as Kevin, who minds the farm stand, are volunteers. Pitts's employee situation has gone through several configurations: early on he used interns, then local high school kids, then his sister Kathy brought in disabled people to work—"It wasn't the right setting for them," he tells me—then he went on to college kids from the nearby town of New Paltz, then Gonzalez arrived. Gonzalez, his brother and sister-in-law, and their relatives now fill many of the jobs on the farm.

At one point Windfall employed twenty-eight people, but the payroll taxes and workers' compensation fees got to be too much. The only company in the area that offers workers' compensation insurance once recommended to Pitts that he should stop farming organically because then he'd need fewer employees and that would lower his costs. Pitts sees the problem as being deeply embedded in current economic policy. "If you're going to employ people here, the government will tax the hell out of you," he says. "But if you employ slaves in China, they'll reward you." He also thinks agricultural policy is to blame: "Lots of little farms could meet the needs of the market. Why doesn't this happen? Because the USDA thinks it's good to stop farming, get people off the farm. This made sense during the Dust Bowl, but not anymore."

Pitts tells me it can get tricky managing his employees—Gonzalez and his field hands are prone to working too hard, picking more than will sell at the farmers' market. The extra labor drove his earnings down considerably last year. When I ask, Pitts tells me that in 2006, he earned about \$7 an hour. That's fifteen cents below New York State's minimum wage. "It's not a living, it's a life," he tells me. "You're not gonna get rich, but you get

to do what you love all day. And if you're working on the farm, you're not spending much money, so the money you make you can just put back into the farm. And believe me, the farm will gulp it all down." Before leaving Windfall I ask Pitts how economically sustainable his farm is. "It's basically not," he says. "Anything can knock it over, it's always hanging in the balance."

STONE BROKE AND SWEET TREE

The bus is crowded for 6 a.m. on a Monday, headed *out* of town. In the row behind me a teenage girl sleeps; the jacket she'd pulled over her head has slouched down around her shoulders. I disembark after two hours traveling north through the Hudson Valley to the town of Kingston, New York. Here I meet Joshua and Jessica Applestone, owners of Fleisher's Grass-Fed and Organic Meats, a butcher store located on the main shopping street. They have invited me to come with some of their employees to visit the farm of their main beef supplier, David Huse.

Fleisher's sells meat only from animals grazed on pasture and raised without hormones or antibiotics. It's a relatively young business and like farmers' markets it's part of the burgeoning network for nonfactory food. Fleisher's buys carcasses from small farmers, cuts them into steaks and chops, grinds them into burgers and sausages, and makes soap with the leftover fat. The Applestones, both in their thirties, revived Joshua's family butcher shop, also called Fleisher's. Started by his great-grandfather in Brooklyn, New York, over a century ago, the original went out of business around the time industrial meat processing took off. By working with farmers such as David Huse, the Applestones aim to help build a lasting market for humanely raised, ecologically sustainable meat.

From Kingston we drive an additional ninety miles north in two separate cars. I ride with Joshua and his main butcher, Aaron. Jessica is in the SUV behind us with two employees and two interns (the unpaid labor of idealistic youngsters seems to be a key feature in the emergent clean-food movement). Joshua and Aaron, who exchange a jocular banter like old college friends, tell me about the trials of being butchers selling strictly grass-fed, nonhormone, free-range meat. One of the most difficult aspects of the trade is getting and keeping access to slaughterhouses. Because USDA guidelines are tailored to industrial meatpacking plants, Joshua and Aaron

explain, it's disproportionately more expensive for local abattoirs to stay in business, and far costlier for small farmers to process animals. Federal food-safety laws are written for—and often de facto by—big corporations such as ConAgra and Tyson, not producers such as Huse and Fleisher's.

Joshua and Aaron also talk about how the art of butchering is being lost. What gets taught in agriculture schools these days is referred to as meat cutting. When animals are slaughtered and packed at large-scale, mechanized facilities, where most meat in the United States is processed, they get broken down into bulk parts, sealed in thick plastic, boxed, and sent to retail stores. Here, the meat cutter comes in. Unlike a butcher, a cutter only has to know which way to position the block of beef when running it through the band saw to shear off, say, a T-bone steak. Eric Shelley, who runs the Meat Lab at the State University of New York, Cobleskill, a schoolroom slaughterhouse, explains, "If people are under forty years old, they don't know where the meat comes from on the animal. Traditional butchers know how to bring something walking in on its feet to something that leaves in a package that can go straight onto the grill."

According to Joshua and Aaron, losing the skill of butchering reinforces our reliance on dirty factory-farm production. This is exactly what's happened; as of 2000, the top four companies slaughtered more than 80 percent of U.S. beef, leaving few choices for processing meat outside the industrial oligopoly. By not knowing how to take apart an animal, we're forced to get meat from producers that confine their cows, pigs, and birds, stuff them full of feed they can't digest, and inundate their systems with chemicals including hormones and antibiotics. Fleisher's aim is to fuel a transformation of the food system that's crucial for the survival of ecological health, animals included.

We crest a quiet hilltop. "It's right around here somewhere," Joshua says from behind the wheel as Aaron inspects the cryptic directions written in black marker on butcher paper. Joshua and Jessica visited the farm this time last year, not long after they first started working with David Huse. Today's outing is part of how they stay connected to the growers that raise the meat they sell. "That's the whole point, to know exactly where your food comes from," Joshua says. We head up the driveway past a small wooden sign that reads *STONE BROKE FARMS*.

The Huse farm consists of seven hundred acres of mostly hilltop land just south of New York State's Adirondack Mountains. Tall elms, oaks, and cedars rustle and shimmer when the summer breeze breaks through.

The pastures are full of tall, pale grasses. Only a few houses dot the landscape. David Huse and his father have raised five hundred or so Angus and Hereford cattle here each year for the last four decades. Over that time they perfected their livestock, breeding solid blacks, white-faced blacks, and white-faced reds to achieve a specific musculature. Joshua, who was a vegan for seventeen years, effusively describes these animals as "walking blocks of steak."

David and his father work their cattle farm themselves, occasionally hiring kids from the town down the hill to help with repairing equipment and other menial tasks. The elder Huse is from Kansas, and, according to David, "He was the first in his family who wasn't a farmer, a preacher, or a schoolteacher." David's father left the family wheat farm to eventually become a vice president at Bell Telephone. In 1966 he bought this acreage for his retirement; that way he could be a small farmer with his own economic safety net. When the Huses moved here, David was still in high school. After earning his associate's degree in animal husbandry in 1972, he joined his father raising cattle full-time.

The family house is a sprawling, two-story ranch-style homestead, built in the 1940s. Inside, the place more closely resembles a suburban dwelling than a farmhouse. Its decor is of a different time, like a Technicolor film from the 1960s that has faded but retains its elegance. The living-room furniture is arranged around a massive, spotless picture window that frames the view down onto the undulating Cobleskill Valley majestic with cumulus clouds of green trees.

It's early July, the height of killing season. "We start slaughtering in June and continue through October. We do about three or four head a week," David says as we pile into his truck to go see the "breeders" a few fields away. David Huse is of medium build, about six feet tall, and is at once grizzled and boyish. He has on muddy cowboy boots, coveralls, and a baseball cap that says *NASCAR* and has yellow lightning bolts that shoot from his temples. When I ask why he's a cattle farmer, he comes back with "Everybody wants to be a farmer, now don't they?"

We've driven the short distance to where the breeders and calves are chomping away in what used to be the front yard of a farmhouse. The white, two-story Victorian is burned out, just barely standing. The animals seem not to notice our arrival. Calves, all born about two months ago, stand close to their mothers, who graze in one big group. As they bite

and pull on the grass, the brown and black lines of their backs move like the lapping of waves in a pond. Their hides are slick against the curves of their stomachs. Digested grass shit lands in clumps at their feet. Tails swoosh and swat at flies. Knees crook and hooves kick out, then drop back heavily upon the ground. Deep eyes stare not at us, but languorously through us.

What happens on a grass-based livestock farm is relatively straightforward: the animals graze. As for what the cattle eat at Stone Broke, fifty different types of grasses carpet the Huse acreage including brome, rye, timothy, bird's-foot trefoil, and white and red clovers. "Whatever naturally grows up here is what's best," David says. "I haven't used fertilizer in ten years." As for *how* the animals eat, the Huses have adopted a system called management-intensive grazing, popular among all-natural grass-fed meat farmers. Put simply, management-intensive grazing entails herding the cows to a new field each day and using portable electric fencing to keep them out of the previously munched area so the grass can regenerate. This method safeguards against overgrazing, which is what happens when ruminants—mammals such as cows that chew their cud—are left to their own devices. Since new shoots of many grasses are sweet and tender, cattle will return to nibble at the same spots, preventing the emerging leaves from fully growing. Fresh blades are what nourishes the root systems, so if they can't form because of too much grazing (and the continuous traffic that compacts the soil), the grasses will suffer. Overgrazing has multiple ecological effects: It destroys ruminants' primary source of food, forcing farmers to resort to feed, the most affordable of which is grown using polluting, irrigation-intensive industrial methods. And, as grasses die off, a cycle of degradation sets in. Opportunistic weeds begin to take over, and runoff and erosion increase, all of which lead to further loss of the soil's ability to support life. In the most extreme cases, this process can result in desertification.

By contrast, management-intensive grazing fosters a nutritive cycle whereby ruminants and their forage feed each other—with some gentle encouragement from the farmer. As cows eat, they move across the land distributing and planting grass seeds while fertilizing the soil with their poop. As the writer Michael Pollan puts it, "The coevolutionary relationship between cows and grass is one of nature's underappreciated wonders." The management-intensive husbandry comes in at this point to safeguard against overgrazing. Every day the Huses corral their bees

into a renewed paddock and pull up, then reinstall, the lightweight electric fencing. At Stone Broke it takes about three to four weeks for a field to rebound, then the cows are brought back for another feast.

When raised this way, cows become an impressively efficient way of turning grass into protein; the only energy source that's needed is the sun. However, the situation isn't so cut-and-dried. Even when they're grass-fed, cows belch and fart a lot of methane, a potent greenhouse gas. Methane is over twenty times more heat-trapping than carbon dioxide, and livestock including cattle account for about 18 percent of global methane emissions. While raising animals as the Huses do eliminates many of the fossil fuels, chemical fertilizers, soil erosion, and toxic runoff that result from industrially grown cattle and the feed they rely on, it is not a panacea.

Later that afternoon, David's father appears along the road. He wades a short distance into a parcel of land a few hundred feet from where the breeders and their calves are still drinking water. He summons them. I can't hear his call, but from behind I see his torso moving from the effort. First one, then another of the animals looks up and begins to lumber over. The dark bodies now head toward him in a flock, V-shaped and slow. In the restored field the tips of summer grass feather up almost to the elder Huse's shoulders.

The Huses didn't always farm this way. Although they've used management-intensive grazing since the early 1980s, it wasn't until about three years ago that they stopped relying as much on grain to feed and finish their livestock. And it wasn't until then that the Huses ceased sending their animals for standard processing. Stone Broke used to sell its cattle to Moyer Packing Company, an old-school conventional plant in Pennsylvania. David tells me he liked working with Moyer, but things got rough after Smithfield Foods Company, now the fifth-largest beef processor in the United States, bought out the regional slaughterhouse in 2001. Almost immediately, the new corporate owner started lowering the prices it paid for cattle. Because of the rampant consolidation in the industry, the Huses were virtually held captive. By 2002 the family's revenue from selling its bees had dropped to 1972 levels. "When you let that concentration happen, you get put in a place where you take what they offer or you go somewhere else, but there's nowhere else to go," David tells me. He says part of why they decided to switch to organic methods was to access a more lucrative market. The Huses now earn more per pound; however, they

rely strictly on Fleisher's. "I'm shipping to one little butcher shop, and if he closes, I don't know what I'd do," David says. This year Stone Broke is hoping to break even. I ask what will happen if they don't and he replies, "I could never do this if we had a mortgage payment." He goes on, "My father's retired and he has a pension. . . . I'm not crying poverty, it just hasn't worked out the way I thought it would."

Ironically, a major obstacle unconventional farms such as Windfall and Stone Broke face is the outcome of the very success of organic. As demand for all-natural food has expanded beyond a niche market, to keep costs down and stay competitive, most higher-volume retailers and processors have stopped buying inputs in small quantities. At Whole Foods' first store in Austin, Texas, opened in 1980, much of the organic fruit and vegetables on offer were from local farmers. But as the organic industry has ventured into bigger markets, it's become much more expensive to manage accounts with, say, twenty growers than it is with one large farm.

A 2007 study of small organic farmers in California illustrates the point. Some growers said they struggled to attract and keep middlemen because their volumes were too low. Whole Foods showed interest in the berries of one cultivator, but because he couldn't provide two hundred cases a week, he lost the deal. Unable to find an organic buyer to work with, more than one grower ended up having to off-load organic crops as conventional at a considerable loss. Each of those surveyed eventually gave up organic production. Some stopped farming altogether, and others went back to conventional because it was easier to sell and therefore more profitable.

Building an appropriate distribution network isn't the problem; the barriers lie in keeping it open to small producers. Alternative farmers and retailers from the first wave of the organic food movement in the United States created such a system. Established in the 1970s and 1980s, it consisted of small regional circuits that ran throughout New England and many other parts of the United States. Among the early dealers was Norman A. Cloutier, a health-food-store owner in Rhode Island. In the late 1970s, he started a distribution company, Cornucopia Natural Foods, Inc., and a few years later bought two key regional distributors in the Northeast. Over the ensuing decades Cornucopia aggressively pursued growth through a flurry of mergers and acquisitions of regional cooperatives and distribution outfits built up by small health food retailers and buyers' groups. Today the company, now incorporated under the name United Natural Foods, Inc. (UNFI), is the leading handler of natural prod-

ucts nationwide. UNFI boasts over twenty thousand customers including Whole Foods and Sodexo U.S.A., a major food-service corporation that supplies hotels, restaurants, and institutions such as universities. According to Samuel Fromartz in *Organic, Inc.*, UNFI's "purchase of the last two natural-food-distribution cooperatives, Blooming Prairie in the Midwest, and Northeast Cooperatives in New England [in the early 2000s], marked the end of any alternative distribution network." The need to stay competitive in the marketplace compelled UNFI to buy out smaller firms and shutter any regional distribution facilities it deemed redundant, whether or not these lines were crucial to small organic farmers.

I sit shotgun with Huse in a John Deere four-wheel, all-terrain buggy. The jerky ride takes us downhill through a field to where a few dozen one-year-old heifers are grazing. They are perched on a slope bordered by trees, the lower branches of which have been pruned by deer into a perfect line hovering just above the darkness of the grove.

Even though he raises his cattle strictly on grass, infrequently supplemented in small quantities with organic feed, Huse hasn't bothered getting certified organic—none of the meat Fleisher's sells carries the official seal. As with vegetable farms, the certification can cost hundreds and sometimes thousands of dollars each year and involves piles of paperwork that eat up valuable work time. Also, like Morse Pitts and many other nonchemical, holistic farmers, the Huses and Applestones believe that as organic has gone mainstream, it's been stripped of any real substance.

As we mingle with the cattle, Huse and Applestone talk shop, that is, about killing and butchering. (Huse imparts to me that some people believe this shouldn't be done in front of animals destined for "harvesting.") "Around here there's a real bottleneck when it comes to slaughtering," the farmer says. Stone Broke uses an abattoir that's one of just two remaining regional facilities. There used to be eleven small houses around here, Huse explains, but in the last few years nine have shut their doors. This means it's harder to get a slot for his animals, and processing costs are higher than ever.

Before the biggest firms consolidated the industry, Huse would pay twenty cents per pound to process a beeve, and, he says, "You'd give 'em the hide for the kill fee." That would have meant a \$160 outlay for an eight-hundred-pound animal. Now, for the same service, he must fork over about \$500. By contrast, Huse tells me, it costs the commercial compa-

nies just \$50 to kill and pack a head of beef at one of their industrial facilities. Processing fees are so much more at the local operations because there aren't enough of them to meet demand, and each one handles far fewer animals than the mega-slaughterhouses. Compounding this, small slaughterhouses must pay disproportionately more to keep a shop that meets USDA specs.

According to Eric Shelley of the Meat Lab, "All the costs of running a slaughterhouse are basically the same whether you're a small plant or a large plant. But if you're a large plant, those costs get diffused, spread out." Shelley tells me that small operators have to buy the same gear that the big places do, such as stainless steel equipment, and specific high-end stun guns, saws, and knives. He mentions one required knife that goes for \$3,000. While it makes sense that anyone handling food should have the most professional tools, these industrial accoutrements may well exceed what a small facility will ever need. They also typically drive the cost of opening a USDA-approved plant well over a million dollars.

Not long after visiting Stone Broke, in a regional newspaper I come across a profile of a farmer named John Wing, who'd built a new slaughterhouse in Benson, Vermont, five years before. Because of the area's lack of capacity he decided to start processing his own animals. State inspectors convinced him to construct his place to comply with federal standards. That way he could help alleviate the region's slaughterhouse bottleneck that stretched south into New York and Massachusetts. Although it would cost much more, Wing decided to take their advice. The facility is still running today, handling about one hundred animals a week, but the \$1.75 million he spent to outfit the small plant put Wing through Chapter 13 bankruptcy.

Also contributing to these higher costs are meatpacking regulations adopted by the USDA in 1996. The first meaningful revision since the Meat Inspection Act was originally passed in 1906 amid public outcry stirred by Upton Sinclair's book *The Jungle*, the updated rules ironically seem to work in favor of the largest corporations. Central to the USDA's new specifications is what's called Hazard Analysis and Critical Control Point, or HACCP (pronounced "hassup"). All meat processors regardless of size are now required to write a HACCP plan—"basically a book, it's *that* detailed," Eric Shelley tells me—which can be particularly onerous for small operators. The document covers a range of issues related to potential exposure of meat to unwanted contaminants, such as chemicals,

pathogens, hair, and bits of metal, at all points throughout the slaughtering and processing chain. While such a plan is undoubtedly a good idea, the document requires specialized knowledge in engineering and science that most small-time butchers don't have. So they must hire outside consultants to write their HACCP plan; this can cost thousands of dollars for the initial document, and even more for revisions, which are common. But that's not all—HACCP requires constant documentation. Huse tells me it takes his butcher an hour and a half every day to fill out the paperwork. "USDA makes it so hard to operate, many slaughterhouses are guys who are sixty to sixty-five years old, and they just get tired and quit and no one takes their place," Huse says. "Why would they?"

That HACCP better suits the bigger facilities isn't surprising. Before being taken up by the USDA, HACCP was adopted and refined by the fast-food chain Jack in the Box. The company revamped its system in an effort to salvage its reputation after a 1993 *E. coli* 0157:H7 outbreak was traced back to the company's food. The dangerous bacteria sickened seven hundred people across the United States and killed four, including children, and were linked to meat processed in large industrial facilities. According to Marion Nestle's book *Safe Food*, the spread of *E. coli* coincides with the rise of factory farming. "The earliest case [of *E. coli*] seems to have occurred in 1975, but the first reported outbreak occurred in 1982. . . . Outbreaks are increasing in frequency; there were 6 in 1997 but 17 in 1998." As for why, she writes, "The most reasonable explanation involves the profound changes in society and food production that have taken place." The changes have been dramatic indeed; in 2007 over half the cattle slaughtered went through just fourteen meatpacking facilities. Although HACCP introduces procedures that, when carried out well, could improve food safety, the regulations were shaped by and for industrial-scale processors to the detriment of their small-scale competitors, not to mention public health.

Frank Johnson's farm is decidedly unassuming compared to Huse's. It's tucked in the valley on a much smaller two-hundred-acre parcel just outside the small town of Carlisle. The place is well-worn, unadorned. Off the main road, a dirt drive leads past a modest one-story, white house, where Johnson lives with his family. The main barn is across the drive from the house, and behind it are Johnson's pastures. We walk to a field where the forty-five or so cattle Fleisher's will be carving in the coming weeks are

grazing on grass that's a fluorescent green. Upon seeing the animals' black bodies bulging with muscle, Applestone punches the air in excitement.

Johnson has salt-and-pepper hair and, unlike Huse, doesn't look the part of a farmer. He's wearing faded denim shorts, a T-shirt, and sneakers. He looks like a suburban dad on a Sunday afternoon. He tells me he farms holistically "because you should leave the earth in better shape than when you got here." Johnson is neither an eco-evangelizer nor a hippie who went back to the land. Huse shares these qualities. These men are straight-up farmers.

Johnson has known this is the life for him since he was a kid on his family's dairy farm. However, when he was married to his first wife, he earned a living doing construction, he says, because she didn't want him to work the land. But the desire to raise animals persisted. After Johnson divorced and then married a second time, he and his new wife, Judy Pangman—who wrote an authoritative book on chicken-coop construction—went into farming. About ten years ago they bought the "land base" of his family's dairy farm, where the crops were grown. (The milking facilities are on the half that they didn't buy.) They named their new place Sweet Tree Farm and have been paying the sizable mortgage ever since.

"Joel Salatin"—a grass-fed beef-farming guru—"says you shouldn't have money tied up in land, but we have a mortgage. We had to," Johnson tells me. "If you inherit the land, you're in a really different situation." So, to help service the debt, Johnson maintained an "off-farm job," as they're called, until just three years ago. And Pangman works full-time for an engineering company. "If it wasn't for her income, we wouldn't be farming," Johnson says.

There is a tinge of shame in this admission, as is true with other farmers I talk to who must rely on external income to stay afloat. But, in reality, there's nothing abnormal about it. According to the USDA Economic Research Service, the average small farm earns 85–95 percent of its income from "off-farm sources" such as the wages of a spouse. Medium-size farms, ones that earn between \$250,000 and \$499,999 in annual sales, rely on off-farm resources for almost 50 percent of their income. This means that most small growers don't even come close to earning a living from being farmers. Old news in many respects, but with an increasing emphasis on organic and local, the struggle of the small farmer is cast in a new light.

Needless to say, Johnson works hard. He raises his own animals, finishes the Huse cattle, does his own butchering, and brings Sweet Tree's

products to farmers' markets twice a week, selling the goods himself. Before our group leaves, Johnson shows me a smokehouse he built last year. The idea was he could make smoked cuts, adding value to his meat, boosting his earning potential. But he hasn't yet been able to use it because he can't get USDA approval. Thanks to convoluted regulations, which he said Cornell University's trusted extension workers couldn't help him figure out, Johnson's smoker sits idle.

As Johnson traces his efforts to make Sweet Tree more profitable, all the things he's done to cut costs and be more self-sufficient, he says he's getting worn-out. "That's the point I'm at. I'm raising the beef, I'm doing the butchering, I'm smoking my own meat, I'm doing inventory, and the markets. If I try to do more, it becomes a snowball. I can't say it can't be done, I just don't have the ambition to do it. I was always ambitious, but these last eight years, doing both the farming and the markets have really taken it out of me." Throughout the visit Johnson tells me several times that he's afraid he's going to have to stop farming and go back to wage labor.

LOGIC OF THE LOCAL

In the summer of 2007 I place a call to the USDA's National Organic Program, or NOP, in Washington, D.C. Established in 2002, the NOP is the top body in charge of overseeing the organic system in the United States. A man picks up without identifying the office. I ask to speak to someone in communications. He tells me to hold on, then puts the receiver down and continues a conversation that I can hear and that my call has obviously interrupted. Several minutes later he picks the phone back up. I ask how many people are currently in the office. He says six. I ask what he knows about organic farming. "Nothing," he tells me. I ask how long he's been at the job. "A couple of weeks." He's a temp.

From its inception in 2002 through 2008, the NOP staff fluctuated between five and eight people even though the program has a heavy workload. Its duties include interpreting and amending the constantly evolving regulations and enforcing organic rules. The NOP is also charged with training, accrediting, and monitoring the independent third-party bodies that issue organic seals. Approximately one hundred third-party certifiers are registered with the NOP, which might sound like a manageable number. But those companies are in turn responsible for keeping tabs on

thousands of domestic as well as foreign farmers and processors that sell in the American market. From early 2008 through the end of 2009 the NOP lacked a director, operating instead under an acting director, Barbara Robinson, who held another full-time job at the USDA. Meantime, the key post of head of Compliance and Enforcement sat vacant until late 2008. Among Compliance and Enforcement's stated goals for 2009 was to "establish an internal management system" because, for the first time, the division had a staff.

The NOP's funding is allocated with each new farm bill. Congress writes and passes the legislation every five years and has never set aside mandatory financing for the USDA's National Organic Program. Instead, each year the NOP must slog through the appropriations process in the House of Representatives and the Senate, justifying its costs to politicians who hold its fate. Each successive farm bill sets a ceiling on how much the NOP can receive, but no floor—Congress is under no obligation to give the program any funds. Although lawmakers have never outright denied resources, there's no guarantee the money will come.

The most recent farm bill, passed in 2008, raises the NOP budget from about \$1.5 million annually to \$3 million for 2009, and \$3.8 million for 2010. This represents the first significant increase since the agency opened despite that organics have seen annual growth rates in the double digits for over a decade. Thanks to the added funds, and President Obama's apparent support, the NOP is undertaking a reorganization to better carry out its tasks. Most significantly the new plan involves hiring additional employees—by summer 2009 the office's numbers surged to an all-time high of fourteen—and at last a full-time head, Miles McEvoy. While some changes will doubtless result, the NOP nevertheless remains starved of the resources it would need to become a vital tool for promoting and supporting truly ecological agriculture.

Other facets of the most recent farm bill offer support for organic farmers, but the scales are tipped well in favor of agribusiness. The document tenders billions toward marketing, distribution, research, extension, and education for growers using conventional factory methods. The law also shells out tens of billions more dollars to subsidize industrial farms. The 2008 farm bill rings in at about \$300 billion. From such largesse the plan sets aside a meager \$78 million for organic research and extension over five years. A fivefold increase from the previous farm bill's spending on organic research and extension, the sum nevertheless reveals that more

biologically destructive farming practices still rank high on the USDA and Congress's list of priorities.

What has come of the first wave of organic agriculture from the 1970s demonstrates just how hard it can be to survive while keeping a green commitment intact. Some holistic growers have stayed in business yet remain cloistered in the confines of "boutique farming." Here they serve a limited consumer base that can pay prices prohibitive to most shoppers. Morse Pitts is a prime example; what he's doing shows that alternatives are possible, but its reach remains confined. Another outcome is that a great many organic and natural food endeavors have simply gone bust. Innumerable small cultivators who hung on by a thread, not unlike Frank Johnson, couldn't ultimately make it. Finally, some farmers decided to play by the rules of the market and go up against the big guys. As is true in conventional agriculture, with more competition comes greater pressure to streamline production to lower prices and create a more uniform, and shippable, product. Case in point is the Washington State-based Cascadian Farm, started three decades ago by back-to-the-landers looking for alternatives to the mainstream. One of its founders ended up taking the farm in a more commercial direction and, in the 1990s, sold out to General Mills. Some now criticize Cascadian Farm's practices as following a less rigorous version of organic, having surrendered more holistic methods to tap bigger markets. Jeff Moyer, current chair of the National Organic Standards Board, the official body that recommends standards changes, spoke to this when he told the *Washington Post*, "As the organic industry matures, it is becoming increasingly more difficult to find a balance between the integrity of the word *organic* and the desire for the industry to grow."

Many Big Organic proponents argue that working on such a large scale pays off because it means a lot of synthetic chemicals that would have been used in conventional farming are avoided. Peter LeCompte, once a worker on a small organic farm who is now head of organic buying for General Mills, is a prime example. When I interview him, he tells me that even though he knows working for the establishment compromises him, it's the best, and most realistic, option for widespread change he can see. Agriculture went toxic and industrial largely because doing so was most effective at beating rivals and fattening the bottom line. When producers try to achieve greater economies with organic, they often do so by swerving back

toward less sustainable cultivation methods—that's why LeCompte and his ilk must compromise. Ultimately, however, this incarnation of organic stifles biologically sound farming because it helps the major food producers maintain their dominant position; small growers can't compete with firms such as General Mills in lobbying Congress for incentives and regulations to bolster their market position. Big Organic reinforces the political, economic, and regulatory apparatus currently in place that favors the most powerful food processors as well as the agribusiness elite. Meanwhile life remains rough for growers such as Pitts, Huse, and Johnson, and processors such as Fleisher's. To get by, the unconventional operator must instead rely on the subsidies of inherited land, free and low-cost labor, and off-farm income. If alternative farmers and processors are too beaten down by the lack of resources for cultivation and distribution, inappropriate food safety rules, insurmountable debt, and inadequate pay, then, no matter how much we as consumers want local, ecologically responsible food, the people who make it may well go extinct.

CHAPTER TWO

All the World's a Garden: Global Organic

Most of Paraguay remains unmapped. The landlocked country lies in the heart of South America, surrounded by Brazil, Argentina, and Bolivia. In the nineteenth century Paraguay was among the first countries on the continent to build a railroad; its extensive tracks reached far into the countryside and were still in use until recent decades. But the military dictatorship of Alfredo Stroessner, who ruled from 1954 until 1989, left the railways in tatters. Paraguay's eastern expanse is interlaced with uncharted dirt roads built to access villages and fields, and as an initial step in deforestation. The subtropical Upper Paraná Atlantic Forest, said to be among the most biodiverse in the world, is home to a wealth of plants and rich with fauna including jaguars, tapirs, a plethora of reptiles and amphibians, and over five hundred species of birds. However, it is continuously being transformed into cattle pasture and immense stretches of commodity crops such as soy, wheat, and, increasingly, sugarcane.

The native Atlantic Forest once carpeted about 100 million acres, an area comprising eastern Paraguay and crossing over into Brazil and Argentina. Perhaps surprisingly, and until only recently, Paraguay had one of the highest deforestation rates in Latin America. Today just 8 percent of the primary Upper Paraná ecosystem remains. The destruction began to decelerate in late 2004 when the government enacted law no. 2524/4, the so-called Zero Deforestation Law, for the Atlantic Forest region. Although the World Wildlife Fund reports the measure has dramatically slowed the felling of trees, the casual observer can't help but see that clearing nevertheless continues.

In the state of Guairá, the country's primary sugar-growing region, only a few main arteries are paved; everything else is dirt, and it's easy to

get lost. There may be small hand-painted signs, which should sometimes be followed, other times not. A driver might unexpectedly hit a makeshift roadblock of felled trees piled high, or an unmarked, sudden drop-off. Few private automobiles travel these rural roads, but bicycles are everywhere, and so are pedestrians—in the remotest spots and along the biggest thoroughfares, all day and late into the night. The motorized vehicles I see most often are cheap, domestically assembled motorcycles and lumbering eighteen-wheelers piled high with freshly cut sugarcane. The bikes buzz through thick dust past knots of traffic, dodging the heavy trucks that dominate the roads during the spring and summer harvest season. The long, spindly stalks of cane are chained together into thousand-pound bundles that bounce, as if in slow motion, precariously on the backs of the open-bed lorries.

Great plantations and networks of smallholder plots advance across Guairá's lowlands and inch up its lush hillsides. Peasant farmers have cultivated the area for generations, living mostly off the abundance of food that sprouts from the region's productive soils, and selling modest yields of sugarcane for income. Increasingly, smallholders and large plantations alike are growing organic to meet booming demand for natural foods from big organic processors and retailers in the West.

Paraguay is an epicenter of organic sugar production and exemplifies how the globally grown, ever more corporate organic food system works. The country is among the leading organic sugar producers and exporters in the world, sending most of its granules to the United States and Europe. Paraguay's top organic sugar makers include a company called Azucarera Paraguaya (AZPA), which, according to its importer, provides a third of all organic sugar consumed in the United States. AZPA's crystals course through the American food system, selling in stores such as Whole Foods under the brand name Wholesome Sweeteners, the Paraguayan firm's Sugarland, Texas-based importer, which is a subsidiary of Imperial Sugar, the largest sugar company in the United States. AZPA's sugar is also used by top processors including General Mills for its Cascadian Farm and Muir Glen products, and Dean Foods, the biggest dairy concern in the United States, in its Silk soymilk goods. Even in the era of healthy eating, the fraught and mysterious commodity of sugar continues to play a major role; as producers and retailers take organic mainstream, they are remaking natural food as processed, packaged, and sugar-rich.

Runaway sales of organic in the United States, the United Kingdom, and Europe and double-digit overall growth rates for the industry marked the 1990s and much of the first decade of the 2000s. Although consumption of all-natural goods has slowed somewhat due to the economic recession, the sector nevertheless continues its ongoing expansion. As a result, regional farms, even big ones, are not always able to keep pace, leaving existing local and national supplies stretched thin. In 2004, organic milk producer Organic Valley ended its lucrative deal with Wal-Mart because the dairy couldn't turn out enough product. Unable to find sufficient alternatives nearby and year-round, processors and retailers are going farther—sometimes very far—afield. Consequently, food from around the world is appearing in supermarkets stamped with the word *organic*, a moniker that doesn't reveal all the resources required to get that chemical-free morsel to the grocery aisle.

The notion of "food miles"—the distance an item travels to make it to the consumer—became a hot issue in the early 2000s. A debate flared in the United States and the UK about what made more sense, buying locally produced organic that was raised in energy-sucking greenhouses, or organic imports from warmer climates. Were the fossil fuels used to keep the vegetables and fruits from freezing contributing more to global warming than those used to transport them from overseas? The UK's Soil Association, the country's top organic-certification entity, considered pulling its seal for imported products. After conducting a study into the matter, however, the organization decided on a compromise. As of 2009 it began extending organic certification to airfreighted food that also meets ethical trade standards. The Soil Association reasoned that not buying organic crops from developing countries would inadvertently punish small farmers who've become reliant on the income.

While the discussion of food miles has died down somewhat in the United States, it has only deepened in the UK. British processors and retailers are beginning to focus on the overall carbon footprint of food (and other goods)—not just emissions from transport, but also those created from farming, storing, and packaging, and even from consumer trips to the store. To address this the UK-based Carbon Trust, a government-established independent company, created the Carbon Reduction Label, which divulges the total greenhouse gases embodied in an item, from every stage of production and disposal. Participants in the program include PepsiCo, Heinz, Kellogg's, Coca-Cola, Cadbury, and the major

British supermarket chain Tesco. Versions of the Carbon Reduction Label are being adopted across Europe, the United States, Canada, and Australia. Disclosing CO₂ releases, coupled with official organic certification, which, in some countries such as the UK, includes the Fair Trade component, sounds like a foolproof system.

Nevertheless, thorough as they may seem, these metrics can fail to capture the realities of how organic crops are grown in distant lands. Even as supermarkets brim with produce from such places as China, Chile, and Paraguay stamped with seals pledging higher standards, questions inevitably persist: What are the realities of unconventional farming in developing countries with notoriously exploitative labor practices and where environmental controls are often insufficient and go unchecked? How holistic can “certified organic” on a global scale truly be?

The spread of organic cultivation internationally is not always as beneficial as it might sound; in daily dealings, the reality of organic can diverge from its ideal in ways that are difficult to see from a distance. To understand these issues more fully, I traveled to South America in the fall of 2007 and, at an organic food conference, met a representative from Wholesome Sweeteners. I subsequently visited AZPA's plantation, and some of the peasant farmers who supply the company. There, I found a system riddled with inconsistencies, loose interpretations of established organic rules, and what seems to be outright fraud. Such transgressions are facilitated in part by surprisingly inadequate official organic standards. While ignoring and breaking regulations can and does happen in the United States and Europe, when an operation is, say, in a remote, impoverished country in an unmapped rural area and run by a powerful company, checks and balances can more easily fall away.

TEBICUARY

AZPA's mill and sprawling plantation are situated in the state of Guairá, about three hours' drive east of the country's capital, Asunción. AZPA was started a century ago by a partnership of families, “pioneers” according to the company's website, “who planted a dream in Paraguay's wilderness.” I've come here by way of Dario Zaldivar, who is Wholesome Sweeteners' point man in Paraguay. Zaldivar deals exclusively with AZPA, which supplies much of Wholesome's product. AZPA's compound on the banks of

the Tébicuáry River is a classic setup: an orderly, tree-lined entrance leading to narrow streets of whitewashed worker housing, a school, church, health clinic, commissary, hotel for official guests, the house of the owners, and, of course, the mill. The buildings and grounds are meticulously maintained, an outpost of civility in the undeveloped countryside. The company's ever-expanding crew of workers—Zaldivar says it's now at about seven hundred full-time and half as many seasonal—has erected, just across the Tébicuáry, a shantytown that looks like a movie-set version of itself. Zaldivar calls it “the Wild West.”

In addition to organic, AZPA makes ethanol and conventional sugar—one of its biggest Paraguayan customers is Coca-Cola. Since organic is the most profitable of AZPA's products, the company is rapidly expanding its operations to increase output. In 2007, the firm tripled the mill's sugarcane grinding capacity from five thousand to fifteen thousand metric tons per day. AZPA's organic acreage is also on the rise. I'm told that the sugar maker isn't converting any of its conventional land, but is instead establishing new organic fields.

Rubén Darío Ayala oversees AZPA's agricultural land as the company's head of crop care. I first meet him when he arrives on the small, rain-soaked, unpaved road where the car I'm riding in is lodged deep in the mud. My guide, after several fruitless attempts at extracting the vehicle himself, finally places a cell-phone call for help. He dials AZPA. They quickly dispatch Ayala with three others in a company-issued 4x4, a technology few here can afford. Ayala has a solid build, and a baggy, sun-tanned face, and looks completely at ease as he and the others go about the messy job of extricating our car. Several people had stopped to offer help before Ayala's crew arrived. My guide offhandedly declined, telling each of them that someone from AZPA was on the way. The company has a powerful presence in the region, and not just as an employer and buyer of cane. It helps maintain roads and funds area schools and medical clinics. Most people who live here, from the wealthy to the poor, have some connection to the company.

After our car is on solid ground, Ayala, who's in his midthirties, drives us out to the company's older organic fields in an area called Tébicuáry. He tells me his responsibilities are increasing because the company has embarked on an expansion of its organic cropland; he has no formal training so he's learning as he goes. Out the window I see pools of water that have collected after last night's heavy downpour that now reflect a sil-

very blue sky. From the wet soil rise phosphorescent new shoots of three-month-old organic cane. The precise rows form lines that converge at a distant vanishing point somewhere on the horizon. We get out of the truck and stand amid thousands of acres of cane.

As is true with domestically raised organic crops, those grown outside the United States and the European Union must meet binding organic standards set by those governments and verified by a third party. To qualify a farm must abide by rules including bans on certain chemical fertilizers, pesticides, and fungicides, and it must avoid monocropping. Monocropping is a factory-farming method that entails transforming existing ecosystems or traditional farmland into large fields planted with the same crop year after year, a method designed to reduce costs. Organic methods are intended to counteract the deleterious effects of conventional industrial cultivation, which destroys biodiversity, wipes out soil health, contributes to erosion, and helps deplete groundwater due to increased runoff. The organic seal is meant to signal that a farm abides by nature-supporting practices, which are typically more expensive to implement. (With organic certification, farmers can not only advertise their more sustainable methods, but also charge higher prices to help recoup their costs.)

I ask if Ayala considers organic monoculture a contradiction. "I understand it's a monocrop," he says, but "because it's a perennial, we can't avoid doing monocropping." He recounts a trial his team did a few years ago with just over six hundred acres of organic soy as a rotation. "It almost killed me. Lots of expenses, weeds took over, we had a drought that year, it didn't grow, caterpillars and other bugs . . . we had a lot of problems."

As its certifier AZPA employs California-based Quality Assurance International (QAI), established in 1989 and owned by NSF International, an American nongovernmental organization that develops public-health standards. QAI is a for-profit firm that is a major player in the global organic trade; its stamp of approval adorns the labels of two-thirds of all certified organic food on U.S. grocery store shelves. Ayala says QAI has issued minor warnings about AZPA's monocropping, citing the need to maintain greater biodiversity. So, he explains, despite the earlier fiasco, currently his workers plant some fields with regenerative crops. When I ask how much land is currently under rotation, however, he says he's not sure.

Even though AZPA is clearly failing to adequately cycle in various plants to repair its soil, not all crops need to be rotated at the same rate. Compared to other perennials, sugar is less taxing on the soil and less disease-prone. So in relative terms growing cane nonstop isn't as destructive as growing more nutrient-hungry crops such as tobacco and bananas. But, according to Richard P. Tucker, a professor of natural resources at the University of Michigan, "Sustainability depends on far more than the biological potential of a single crop." While it may fare well in the short run, over longer periods of time this stripping away of biological complexity has a more profound impact. Just because sugarcane is typically tougher against infestation and more forgiving to the soil doesn't mean it's immune from harm. This becomes apparent as soon as Ayala directs my attention to the plants in the field where we're standing.

The head of crop care digs up one of the young organic cane plants by its roots. "Here, this is the mark of a driller," he says as he points to a brown borehole in the base of the stalk. He cuts into the plant's green and white flesh with his pocketknife searching for the culprit, but the pest has already moved on. Drillers are a serious problem because they suck the sweet liquid from the plant, leaving it unable to mature. Every stalk Ayala pulls up carries the telltale mark. The bugs also plague some of AZPA's vast conventional fields, Ayala tells me. But he doesn't bring up the connection between the pest infestation and monoculture farming, nor does he mention that unhealthy soil conditions created by single-crop farming also increase runoff that would otherwise recharge groundwater sources. This is a serious issue on AZPA's plantation since it sits atop the massive Guaraní Aquifer, one of the biggest underground stores of freshwater in the world, and a major source of drinking water in South America.

An outsider might conclude that these results are at odds with official USDA National Organic Program (NOP) regulations, but the devil is in the details. The legal text that delineates NOP standards doesn't explicitly ban monocropping—in fact the word is never mentioned. Further, the rule sheet uses the term *biodiversity* just once, in the definition of organic farming: "A production system that is managed in accordance with the Act and regulations in this [document] to respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity." The text does call for crop rotation, which all organic farms

must engage in—save for farms that cultivate perennials such as sugarcane. “Perennial cropping systems [must] employ means such as alley cropping, intercropping, and hedgerows to introduce biological diversity in lieu of crop rotation.” So, technically speaking, AZPA doesn’t have to tear up its sugarcane every year and plant soy or some other nitrogen-fixing legume. But the company is required to grow other types of crops amid the cane. While AZPA might employ these practices, Ayala never says so, and I don’t see such efforts at biodiversity in the organic fields I visit.

QAI seems more forgiving of the sugar maker, however. Each year the certifier dispatches a freelance inspector to AZPA; for the past several years they’ve sent Luis Brenes from Costa Rica. When we talk over the phone, Brenes won’t speak specifically about AZPA, but claims that NOP standards on biodiversity are too vague for a certifier such as QAI to impose restrictions on farms that monocrop. “If you have a requirement that is not concrete enough to be measured or in some way evaluated, you cannot audit it,” Brenes asserts. “And that’s something that happens with biodiversity.”

“That sounds like a bit of a cop-out to me,” says Jim Riddle, former chair of the National Organic Standards Board, the body that wrote and administers NOP regulations. As Riddle explains, while the language in the official code doesn’t itemize specifics for every bioregion, organic inspectors aren’t meant to use any lack of detail as a loophole, adding, “There are some certifiers that are much more attuned to biodiversity, and QAI is not one of them.”

Adhering to more straightforward NOP organic rules, AZPA plows without turning the soil, weeds by hand, and forgoes chemical fertilizers, herbicides, and insecticides (for example, Ayala and his crew are releasing wasps to try to drive out the drillers). But as a soil amendment AZPA relies heavily on chicken manure from industrial poultry farms—the type that administers antibiotics and uses feed laced with arsenic to speed growth (not to mention breeding birds to bulk up so quickly their legs snap beneath the weight, and packing the animals tightly into indoor pens). Again, counter to common sense, this practice is entirely acceptable under the current law. NOP regs make no distinction between manure from an organic animal farm and that from a chemically reliant industrial operation. Further, although substances including arsenic are banned from organic production, the way NOP rules are currently

interpreted, manure from animals fed such substances doesn’t have to be treated before being applied to organic fields.

On the afternoon Zaldivar drives me through AZPA’s plantation, we pass a storage area piled with grayish mounds of chicken dung. A suffocating ammonia odor infiltrates the car. “What kind of organic farm can this really be if it relies on chicken manure generated by a factory farm?” he snipes. He rails against the inadequate certification system that allows an organic operation to be dependent on an environmentally unsustainable, polluting enterprise. At another point Zaldivar tells me, “Organic is becoming exactly the same as conventional. The revolution organic once was doesn’t exist anymore, it’s gone.” While observations such as this could be construed as hypocritical, they’re not entirely uncommon in the corporate organic trade. Among the industry’s key players are people with a background in progressive politics and environmentalism. I imagine this is what predisposes Zaldivar to admit that organic hasn’t turned out the way he once thought it could.

Zaldivar is a former militant leftist and founding member of Paraguay’s Workers Party. In his late forties, he’s got a compact build, keeps his thinning hair buzzed short, and persistently tries to conceal his chronic edginess. Zaldivar tells me he started protesting the military dictatorship of Stroessner when he was a university student in the 1970s. But when police brutally killed some of his comrades, and Stroessner retained power despite the resistance, Zaldivar called it quits. “I don’t do politics anymore,” he says. “I decided to get a job instead.” Zaldivar calculated that if he tried to save society, he could pay a dear price, but if he tried to save himself, he could prosper. And that’s what’s happened. He is now among the upper class who live in gated compounds and drive imported cars. I ask why he continues to work with companies such as Wholesome Sweeteners and General Mills if he doesn’t believe in what they produce. “Because of the money,” he replies. “In organic you can make a *lot* of money.”

ISLA ALTA

Rubén Ayala didn’t take me to where many of AZPA’s newer organic fields are located, in an area called Isla Alta, in the state of Paraguari, which borders Guairá to the west. AZPA’s unconventional cropland traces the silhouette of the Ybytymi, a low string of hills that surround a river studded

when we buy the land. Only then is it important that we don't make something against nature—and we *don't* do it!"

Frete tells me it's hard to believe AZPA didn't deforest the area. "Who else would?" she asks. "Even if it's not them doing it directly, even if it's other companies or small farmers, AZPA knows the land is cleared for them to grow sugarcane. Either way, AZPA is ultimately responsible." While AZPA itself may not clear land at Isla Alta, according to the people I talked to, forest that once stood is now gone and has been replaced at least in part by the company's organic crops.

Clearing trees, or transforming any native biome, to create cropland undeniably wrecks diverse ecosystems, yet NOP standards don't ban it. The official document outlining the rules never even addresses the practice. "This is the problem of how the farmers interpret the rules," explains Salvador Garibay, a researcher at the Swiss-based Research Institute for Organic Agriculture, who works extensively with organic growers in Latin America. "If the farmers and certifying agencies and buyers take into account biodiversity then this wouldn't happen." Laura Reynolds, codirector of the Center for Fair and Alternative Trade at Colorado State University, frames the issue in terms of the market. "What incentive do organic producers have to not clear land? If they are involved in commercial organic circuits, where price premiums for producers are often quite low, they are caught in the same market dynamics as conventional producers and many may disregard rules that are not enforced." If powerful farms and certifiers can bend and interpret the standards to get away with avoiding more expensive organic methods, then why wouldn't they?

Although official NOP certification rules do not forbid the destruction of native environments, QAI is also supposed to inspect AZPA's organic fields according to International Federation of Organic Agriculture Movements guidelines, a set of global rules that prohibit "opportunistic ecosystem removal." However, due to AZPA's obfuscation, when QAI asks how the land was previously used, the company can simply say it sat fallow, was cattle pasture, or has been shifted from conventional production. Since apparently no inspectors have sought to confirm this, AZPA need not mention deforestation at all, and QAI can continue rubber-stamping AZPA's organic seal. When I ask QAI about the situation at AZPA, its general manager, Jaclyn Bowen, says the company "has been an advocate for the organic industry and the biodiversity, improved soil quality, and water quality that it represents."

ITURBE

The Asociación Agrícola Cañera del Sur (Agricultural Association of Southern Cane Growers) is a half-century-old farmers' cooperative headquartered in Iturbe, a dusty town several kilometers down the Tebicuary River from AZPA. Each year AZPA augments its supply of cane by purchasing the harvest of local smallholder farmers. I've come here to meet some of the growers who supply the sugar maker. We sit in the Cañera del Sur office with the windows open; a ceiling fan whirs overhead, and a few of us pass a cup of cold yerba maté, a traditional tea. Francisco Ferriera, president of Cañera del Sur, says the co-op has 220 members, most of whom grow sugarcane on farms that vary in size but can be as small as two and a half acres. Wholesome Sweeteners has been working with Cañera del Sur for the last five years, brokering their deal with AZPA, and helping them get both organic and Fair Trade certification.

Cañera del Sur farmers earn their organic status as part of what's called "group certification," which is permitted by both the USDA National Organic Program and the European Union's organic EU-Eco Regulation. The idea behind group certification—praised by many who promote small-scale organic agriculture in developing countries, and criticized by those who believe it can't guarantee all growers employ organic methods—is that it allows larger numbers of family farmers to earn the organic seal while minimizing costs. Under this setup, a group of farmers pool their money to pay the certifier, a fraction of the farms are physically inspected, and if they're approved, all the group members get the seal.

In the case of Cañera del Sur, AZPA—not the farmers themselves—organizes the group and pays for certification. (This is a common arrangement in developing countries with impoverished farmers seeking verification seals.) That means the organic distinction doesn't belong to the farmers, but instead is the property of AZPA. Consequently, Cañera del Sur members can't vend their produce as organic on their own. If the campesinos want to get the price premium, they are obliged to sell to AZPA. According to Zaldivar and Francisco Ferriera, if the small growers had to carry this fee, it would be their single largest fixed cost. On their own—without AZPA picking up the tab, and without group certification—most of these small farmers could never afford to get certified organic.

As for Cañera del Sur's Fair Trade certification, Wholesome Sweeteners

foots the bill, again because it's too costly for the growers to fund themselves. As is true with organic, Fair Trade, or FT, is accredited by a third-party organization, which then grants the producer the right to stamp the official seal on its product packaging; for goods sold in the United States this label is issued exclusively by the nonprofit certifier TransFair U.S.A.; it is a black-and-white graphic of a person holding a bowl in each hand. FT-certified goods cost more for Western consumers because the items are grown using sound environmental practices, and, most centrally, because small farmers garner a higher—"fair"—price for their produce. The idea is to boost the income and therefore standard of living of peasant growers such as those in rural Paraguay. Zaldivar tells me that in the case of Cañera del Sur, FT status increases their earnings by about a third.

Wholesome lets the farmers keep the entire FT premium without requiring any repayment of the certification fees. I ask why his company doesn't try to recover the thousand or more dollars a year it spends to renew Cañera del Sur's license. "First, it's good marketing for Wholesome, it makes us look good," Zaldivar says. "Second, last year the market for Fair Trade in the U.S. grew by thirty-seven percent—that's a lot more than the organic market." In other words, the FT logo on Wholesome's packaging is good PR and gives the company greater access to the burgeoning mass of socially conscious shoppers. Since Wholesome pays to maintain Cañera del Sur's FT certification, however, the license belongs to the trader and not the campesinos. As with their organic-certification deal, the small farmers can't sell cane as Fair Trade to anybody but AZPA, which in turn sells that sugar only to Wholesome.

A Cañera del Sur member whom I will call Eber Ibarra is thirty-five years old and has been farming since he was a child. His parents, grandparents, and great-grandparents were farmers; as far back as he knows, his family has worked the land in Guairá. His fields are some distance from where he, his wife, and their two young daughters now live. They moved from their old house near their acreage because the road was too rough. About twenty kilometers from the nearest town, their current home is still remote but more accessible; for most of the year, the unpredictable dirt roads are navigable on the cheap motorcycle the family recently bought on an installment plan.

Out here the landscape is cloaked in rich grasses and trees, and the soil is either bright red or ocher; in every direction giant termite mounds rise

like earthen stalagmites. In the distance round hills rise abruptly from the flat earth. Ibarra's small, weathered house is washed in chipping blue paint, has a rudimentary kitchen, one bedroom, and a storage room, no bathroom, and no running water. The family spends most of its time out of doors, which can get difficult in the peak of summer. We sit outside under a tree in the molded-plastic lawn chairs now ubiquitous the world over. During the time that we talk, we all periodically adjust our seats seeking shade to block the sapping, extreme gaze of the sun. Chickens and ducks flap and squawk in the dirt yard near a white horse that's tied to a tree.

Ibarra grows five acres of sugarcane on his farm. His annual crop of cane generally earns him just under \$3,000 per year. Out of that he must pay workers to help harvest. He can't do it alone; when it's time to bring in the cane, it must be done quickly. When the mill issues the word that it's accepting tonnage, small producers such as Ibarra must get theirs in before other growers do, lest the company stops buying. The rapid pace is also due to the need for income; by the time harvest rolls around, most growers have earned little if any money for a full year. Out of his pay, Ibarra also has to cover the cost of transporting his stalks to AZPA's gate.

This year the harvest was difficult. After dealing with cut cane languishing on the ground uncollected for weeks, Ibarra finally got it delivered to the mill and got paid. But once he subtracted his costs for labor and hauling, he ended up well below the Paraguayan minimum wage. So, as often happens, the family will have to rely on the income of his wife, who works at the local health clinic. There she earns less than the national minimum of about \$265 per month; but that, along with their subsistence crops, is what keeps the family of four fed, clothed, and able to make the payments on their motorbike. She tells me the health clinic has no medicine, and almost no supplies, so area residents most often end up relying on traditional cures using roots and herbs.

Ibarra's good friend, neighbor, and fellow Cañera del Sur member, whom I will refer to as Luis Gonzalez, has also had a rough season. Early on, Cañera del Sur encountered troubles with transport. The co-op had a contract with a hauling company called El Corre Caminos, which belongs to one of the owners of AZPA. (Cañera del Sur owns three trucks, which Wholesome helped it buy, but these are not enough for its more than two hundred members.) According to the farmers, El Corre said it could handle eight loads a day, but sometimes collected just two loads all week. Because of this Gonzalez was hesitant to cut—if the stalks sit too long they

lose their juice and with it their value. Being cautious, he waited until he knew there would be a truck, but none ever came. Out of his twenty-five acres Gonzalez cut only seven; most of the stalks still lie scattered in the field. "I feel like I've been ripped off," he says, exasperated. And he wasn't alone, according to Francisco Ferrera of Cañera del Sur, about 70 percent of its members couldn't deliver their cane this season.

Gonzalez wasn't able to harvest last year either because of a shortage of field workers. This type of low-paying, hard, manual labor is failing to attract a new generation. If cane goes uncut for more than two years, it is virtually worthless; farmers might try to sell it to another mill as conventional or offer it at a pittance as cattle feed to one of the area's ranches. Gonzalez doesn't sell any other crops; everything else he raises, including a few cows and chickens, is for subsistence. His wife works the farm so when they don't move their cane, neither have an income. In years when there is little or no revenue from sugarcane, Gonzalez, his wife, and their daughter survive on money he earns as a laborer on a nearby estancia owned by a powerful senator.

When I ask Ibarra and Gonzalez why the collection trucks didn't come, they say it's because AZPA grows a lot itself, an increasing amount of which is organic. "I think this happened because AZPA has too much sugarcane to harvest," Gonzalez assesses. "We are basically competing with them now." Ibarra agrees, "AZPA is growing more organic than in the past, and they give priority to their own fields." To remedy this, Ibarra and Gonzalez tell me the co-op wants to start its own mill, where they figure they would earn 60 percent more money. And, Ibarra says, their daughters could become managers there. But when I mention this to Zaldivar, he is skeptical: "AZPA would drop them for another co-op and they would lose what they've got." He adds that AZPA intends to start its own Fair Trade co-op "with farmers it can control."

Even though Ibarra and Gonzalez are registered organic and Fair Trade, it's no guarantee they'll make a living wage. If the company's harvest was sufficient or they procure it from other growers, these campesinos won't take home the income that certification promises. According to the international body that oversees FT, the Fairtrade Labelling Organization, farmers on its rolls sell no more than 20 percent of their crops at the premium price. The rest either rots in the field or is off-loaded at far lower conventional rates. Regardless, AZPA and Wholesome get to stamp their quota of packages with the seals. This is obviously not what consumers have in mind

when they purchase organic and Fair Trade items. Part of what's made Fair Trade so popular in the Global North is the notion that it will help small farmers such as Ibarra and Gonzalez earn more to improve their quality of life. In this case, however, Fair Trade status binds these growers to a single processor and trader because the cost of certification is so high. Despite how it may look from afar, the system meant to ensure ethical standards and ecological well-being can deal small farmers out from the start.

Something else Western consumers might find surprising is that although Gonzalez has been certified organic for over ten years, his farm has never been visited by an organic inspector. The cane he grows carries the seal of QAI, which has also never sent anyone to Ibarra's farm (although he was once visited by the Swiss body Institute for Marketecology, which certifies for the European market). Instead, as is allowed under NOP rules, AZPA performs the inspections itself. That means when QAI's man shows up for annual assessments, he first reviews AZPA's in-house records on its suppliers. Then the inspector randomly selects a group of farms to make the trek to. The proportion of farms he visits isn't something laid out in official organic rules, however; it's entirely at the discretion of the certification body. The more farms the inspector checks up on, the more money it costs the certifier. This can, of course, create the temptation to keep the number of visits low. One thing external inspectors might not see is that some of these farmers fail to rotate crops. Because sugarcane is a perennial and the area has rich clay-based soil, the campesinos can and do leave the roots in the ground as long as they continue to produce; these peasants can't afford to lose the income from planting a different crop to revitalize the soil. In his field Gonzalez has grown cane from the same roots for thirteen continuous years. He says he's not concerned about pests and infertility from monocropping because it hasn't been a problem yet.

Regardless of whether organic certifiers review the paperwork and walk the fields of each small farm, the reality is that cultivators such as Ibarra and Gonzalez will most likely grow without chemicals because that's what they know and can afford. Chances are low that they'll cheat by using pesticides or synthetic fertilizers, even if they don't rotate crops or maintain good diversity in their fields. But, by not visiting the farms of each grower, and relying on AZPA's audits, certifiers can miss other damaging practices.

YBYTYRUZÚ

Paraguay is comprised of two main ecosystems. In the country's north and west is the less populated, more arid Great Chaco Forest, which reaches over the Argentinean border. Stretching across all of eastern Paraguay and into both Argentina and Brazil is the Atlantic Forest. This region used to be blanketed in trees, but now what remains is a devastated biome, fragments of flora and fauna cut off by cropland and cattle pasture. Today over 90 percent of the native forest has been felled, rendering the area, according to environmental researchers, "arguably the most devastated and most highly threatened ecosystem on the planet."

Driving to the top of Acati, the second-tallest point in the Ybytyruzú chain of hills, not far from AZPA's Tebicuary mill, I come across a newly cleared field. Jagged trunks mark what used to be standing; their stubble looks awkward amid the previously sheltered dirt and grass that's now exposed. A curtain of intact trees hangs behind the freshly cleared two acres of land. Much of the Ybytyruzú area is protected by a federal law that designates it a Managed Resource Reserve, meaning that trees can be cut but only with a permit. Campesino farmers are sprinkled throughout the Ybytyruzú, their croplands creeping up into some of the last remaining clusters of native forest in eastern Paraguay.

Mariano Martinez is in charge of making sure the reserve does not further disappear at the hands of loggers, farmers, and fires. In his late thirties, Martinez has been working as the lone Ybytyruzú park guard for about fifteen years. The reserve is sixty thousand acres, all of which lies on unpaved roads, many rough and steep. Even though the government created the reserve, it hasn't allocated Martinez the tools to do his job; he's been given no vehicle, no telephone, no office, no computer, and no fire-prevention equipment. When we go to survey the cleared land, to look official he adorns himself with a khaki vest, a canvas hat, a pair of binoculars, and a tote bag from an environmental conference he once attended.

"This land is owned by Luis de Jesus Escobar," Martinez states as we stand on the road facing the deforested patch. The park guard assesses that Escobar, a campesino farmer (whose name I have changed), has cut the trees so he can cultivate sugarcane. "No question, the size of the area and its location just next to the road, this will definitely be used to grow cane,"

Martinez says. Along the road lies field after field of sugarcane. I ask if we can talk to Escobar about the deforested area, and with a wince Martinez shakes his head no. "I don't want to go talk to him. It could turn violent," he says. "Besides, the bad thing is already done."

Almost everyone around here has a .38, Martinez tells me as he pulls back his vest to reveal a handgun (which he has borrowed from another government agency because the reserve did not provide one). "I've never used my gun, but people have pulled guns on me many times," he says. On one such occasion he was walking around the reserve and a man he suspected of clearing trees put a rifle to his chest and told him to leave. Martinez recounts another incident when he was home with his wife and three kids and a car drove by firing twice into the air and once at the house. The bullet hit a wall and no one was hurt. The shooters were never found. "There are many interests: there's the political, money, business interests—those are the people who are really dangerous," Martinez explains. "The demand for organic sugar in the U.S. and Europe is a big pressure on the forests here."

Escobar's land, it turns out, is not in the reserve Martinez monitors, although it lies in the middle of the Ybytyruzú chain. Even still, looking across a steep, narrow valley directly into the reserve, deforestation is obvious to the naked eye. "We have to grant the people who live here the right to support themselves off the land," Martinez explains. "As their families get bigger, they are not leaving, so they clear more and more land to grow crops to earn a living." Martinez says that although residents in and outside the reserve are required to get permits to cut, the majority of farmers ignore this rule. And, despite the supposed success of the 2004 Zero Deforestation Law, enforcement mechanisms around here are essentially nonexistent, so the clearing persists.

According to Martinez many of the farmers in and around the reserve are certified organic, and it's likely that Escobar will seek, and win, the official seal. While deforestation is nothing new to the region—most of the forest was taken out well before official organic arrived—the price premium for organic is driving cultivators to clear more land. "When we started, we thought certifying these small farmers was a good idea, that it would form a sort of greenbelt around the Ybytyruzú chain," Zaldivar tells me. "But instead the farmers now have incentive to go into the forest and clear it away to grow organic cane."

THE POWER OF ORGANIC

The laws enacted in both the United States and EU requiring organic food and farming to meet certain standards, among other outcomes, have contributed to a streamlining of commerce, greatly easing national and international trade in organics. Since U.S. regulations apply equally in all fifty states, a producer in, say, Paraguay has to meet just one set of guidelines to sell its goods throughout the entire country. Before the American standards were fully implemented in 2002, different states and various certification companies followed an array of directives in a piecemeal system. This made it exceedingly complex for a firm such as AZPA to crack the rich and voracious U.S. market. The EU's rules, which originated in the early 1990s, have also helped its organic sector become more cohesive, albeit less so than in the United States. Because these are the most developed organic markets globally, their guidelines serve as *de facto* international organic rules.

Although U.S. and EU laws say organic food must be regulated, how those standards are upheld is another issue. Under the American system, the government isn't directly tasked with day-to-day enforcement. Instead, it issues licenses to private certification companies for the job. Government officials can intervene when there's a serious problem, but, otherwise, the certification firms call the shots. QAI's Jaclyn Bowen refuses to answer any questions about what's happening on AZPA's land when I inquire. She does say that as of May 2009 (a year and a half after my visit to Paraguay) QAI is no longer AZPA's certifier, but she won't say why. It serves the interests of organic certification firms to keep a lid on the situation. If QAI, or whoever goes on to certify AZPA, raises questions about, say, deforestation at Isla Alta, or deems AZPA unworthy of organic status because of monocropping, the company runs the risk of losing a valuable customer. According to Zaldivar and Ferrera, the leader of Cañera del Sur, during the seven years it was certified by QAI, AZPA spent about \$25,000 annually renewing its organic certification.

While it's unclear whether QAI was aware of possible noncompliance at AZPA, the company has been known to protect powerful clients in the past. The most prominent case involves Aurora Organic Dairy, one of the largest such operations in the United States. Aurora is owned and operated by the founders of Horizon Organic Dairy (now held by Dean Foods,

the leading dairy producer in America), and its milk is sold in cartons bearing the in-store labels of Target, Wal-Mart, Safeway, and other major chains. These retailers typically sell their milk at a lower price than the brand-name organic stuff. In 2007 a USDA investigation identified over a dozen "willful violations" of organic provisions by Aurora, which owns large-scale farms in Colorado and Texas, and a dairy processing center in Colorado. According to the investigation, Aurora was running its dairies more like industrial feedlots, not letting its cows sufficiently graze on pasture, integrating conventionally managed animals into its organic herds, and keeping inadequate records of its activities and transactions. The Cornucopia Institute, a Wisconsin-based watchdog group that filed the initial complaint against Aurora with the USDA, reported that the dairy company's violations were so overt it's implausible that QAI could have missed them.

Throughout the investigation, the certifier stood by its client, and in the aftermath of the USDA judgment, QAI spoke in Aurora's defense. Ultimately, Aurora signed a consent agreement with the USDA admitting no wrongdoing while accepting a probationary period during which it would address the issues raised in the investigation. QAI, however, has suffered no disciplinary action for its handling of the dairy's certification.

Joe Smillie, vice president of QAI—and a current member of the National Organic Standards Board—recently told a reporter, "People are really hung up on regulations . . . I say, 'Let's find a way to bend that one, because it's not important.' . . . What are we selling? Are we selling health food? No. Consumers, they expect organic food to be growing in a greenhouse on Pluto. Hello? We live in a polluted world. It isn't pure. We are doing the best we can."

By no means do all organic farmers and processors flout the rules. A number of organic proponents I talk to stress this point. But even when certified producers do the right thing, the guidelines and enforcement are seriously flawed. Peter LeCompte, the organic-sourcing manager for General Mills, which owns Muir Glen and Cascadian Farm under its Small Planet subsidiary, is one of the biggest buyers of organic in the world, and he's a major customer of Azucarera Paraguay's. When I interview him, he says he can't comment on land use or farming practices at AZPA. But LeCompte agrees that the current certification system is susceptible to fraud. "Sure," he says. "If somebody wants to cheat and they're smart, they can get away with it." No doubt many in the organic industry

would prefer if the public remained oblivious to this. As it stands, organic rules can be manipulated without sacrificing the price premium—which can be 10, 30, 50 percent or more above the cost of conventional food—because, as LeCompte puts it, “people’s faith in organic is often not founded in knowledge.” The General Mills executive isn’t alone in this assessment. Bruno Fischer, director of international procurement for another large organic conglomerate, Hain Celestial, sees the matter similarly. “Most consumers are simple minds,” he imparts to the audience at an organic trade show I attend. “Simple minds will look at the label and nothing else.”

From grocery store aisles the competing interests and layers of interrelations are impossible to see. Small farmers can be registered Fair Trade and organic and still not earn a living wage because they’re bound to a single buyer. If that deal falls through for any reason, the campesinos lose. The organic label on a bottle of ketchup signals to the green shopper that its ingredients—including the sugar—weren’t harvested from monocultures raised on land where native forest used to stand, even if that’s not true. It’s difficult to read these complex realities through the postage-stamp-size emblems that promise biodiversity, socially just conditions, and the abandoning of toxic chemicals. Many Westerners believe organic marks a return to a cycle more aligned with the workings of nature. But what official organic really means in such places as the eastern forests of Paraguay is not so straightforward.

After a long day in AZPA’s mill and rambling plantation, Zaldivar tells me there’s no guarantee Wholesome and AZPA will keep their prominent place in the organic sugar business. Some producer in some other country might come in at a lower price and “it could all be gone, in one day, just like that.” The short term is the enduring quality in Paraguay, and not just in the organic trade. “I can’t think of the future, I can’t take it for granted,” Zaldivar says. “All that is certain is uncertainty, and you just learn to live with that.”

A few nights later I have a final meeting with Zaldivar at an expensive restaurant. The waiter is dressed as a gaucho and serves us grilled chicken hearts and fresh steak. Our table is on a covered patio, and a group of unwashed, rag-clothed children pass by in a horse-drawn cart filled with garbage. Zaldivar is unmoved. As our conversation goes on, it becomes clear that he’s grown ambivalent about what he told me in previous days.

Tonight he says he believes Big Organic can correct the looming environmental crisis. He now claims the system will save itself—pursuing social change to create ecological stability, he says, is just too dangerous. Then his cell phone rings. His oldest son, who’s twenty, has been kidnapped. He slaps his phone shut and dashes to his car. I watch the red taillights trail off down the road.

On the way back to my hotel I’m suddenly more aware of the neighborhood. My eyes are drawn to a house with the kind of lights that would be used to illuminate a football field; four squares of intense white, silently streaked by bugs that momentarily reflect the electric glare. Stationed atop tall posts, maybe thirty feet up, the lights point down into the backyard. The whole place is concealed by sheer, mute walls. Many homes in the upscale district look something like this, the physical demonstration of efforts to wipe out the unknown: the risk of strangers walking up, the chance that someone might be taken, shot at, killed.

The uncertainty in a place like Paraguay, for rich and poor, is so palpable it can begin to seem like a natural aspect of life; the presence of it changes in the way the heat changes throughout the day. The early-morning coolness lingers in the shade, near trees and bushes, and gently gives way to midday rays. But before long the sun grows stifling, there is nothing merciful about it. It singes the skin. The warmth it offered just a few hours before is now transformed into a force that’s unbearable. Then with nightfall, the heat recedes as if to rest. But it is replaced by darkness, hence the floodlights.

In such a situation, dismantling biodiversity, felling trees, cutting deals with certifiers, and taking advantage of small farmers can, oddly, start to seem logical. Why not get in before someone else does, or before economic and political structures splinter? Amid extreme poverty and extreme wealth the notion of organic ceases to make sense. The market for organic is clearly not here, where most of the population must endure such realities as no running water, while those with all they could want live in constant fear. The majority of people in the tattered economies of developing countries don’t understand what “organic food” is, even though they grow, sell, and eat it. Today’s conceptualization of organic is a specific cultural creation. It comes from developed countries that have industrialized their own agricultural systems and are now trying to remedy the consequent ill effects. Some organic farmers follow the rules, but the incentive to cheat and to erode those rules is omnipresent. The ever-expanding growth in

competitive Western economies provides constant pressure for companies to push up profits by any means necessary. The quaint picture of the small farmer raising organic crops, doing the right thing for the planet by appealing to what Western consumers want—the win-win scenario that the eco-friendly marketplace promises—can easily translate into something quite different, and ephemeral, on the ground.