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ANNALS OF AGRICULTURE

## SALAD DAYS

*How a lowly leaf became a high-end delicacy.*

BY BURKHARD BILGER

**D**oucette, they called it, the sweet little one, and its lack of cultivation was half its charm. It was a slender, diminutive thing—so lowborn that it came clean only after repeated washings—but it had strong roots and surprising snap, and a certain native, untutored delicacy. Alexandre Dumas found it “very tender and very tasty,” and Thomas Jefferson always kept a place for it at Monticello. Balzac wrote parts for it in his novels, and the great food writer Waverly Root warned against dressing it too finely, lest its “modest, subtle, seductive, and caressing” character be compromised. Even its admirers admitted that it was still a bit wild: an unimproved little weed that no one had ever bothered to take in hand. But they liked it well enough as it was.

“It’s beautiful,” Todd Koons told me one evening. “But it’s a little leggy.” We were sitting in a restaurant on a lamp-lit side street in Carmel, California. Koons, who is forty-four, was wearing a cream linen shirt with the sleeves rolled up, and, like a lot of people in Carmel, he looked as if he’d just had a long, relaxing mud bath. He had burnished skin and sun-bleached hair, loose shoulders, and an easy, half-mocking smile. Peering intently at his salad bowl, he reached in with his thumb and forefinger and lifted out a sprig of doucette, or mâche, as it’s now commonly known in the United



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States. Its eight spoon-shaped leaves were clustered in a perfect rosette, but Koons wasn't impressed. "It's too big and it's overdressed," he said. "Ideally, there would be just six leaves, and the whole thing would fit in your mouth." He shook his head and sighed, then ate the mâche anyway. "One of my most valuable lessons has been that I am not my salad," he said. "I am not my mâche. Just because my mâche is having a bad day doesn't mean I have to have a bad day."

Koons is a farmer, an entrepreneur, and the president of a produce company called Epic Roots. He has been called the Johnny Appleseed of salad, but he's more like its Colonel Tom Parker: he takes obscure country greens and grooms them for mass consumption. He first came across mâche as a young boy in Oregon, living on a small hippie farm near Eugene. His parents were artists and epicures—a rare combination in the nineteen-seventies—who worked with stained glass and raised their own rabbits and vegetables. Dinners were long, talky affairs lit by kerosene lamps, often with other artists and intellectuals around the table, and Todd was in charge of the salads. At first, he didn't really notice the mâche—its taste was too subtle to stand out among the other greens. But one visitor almost certainly did. Alice Waters, the owner of Chez Panisse, in Berkeley, came to dinner in 1975 as the guest of a local art patron and gourmet. Afterward, when she heard who had made the salad, she teasingly invited Koons to come see her when he finished high school. Three years later, at the age of eighteen, he showed up and asked for a job.

Chez Panisse was, of course, the wellspring of a new kind of American cooking in those years. Waters, who opened the restaurant in 1971, when she was twenty-seven years old, reminded a generation of chefs of the virtues of fresh, local, seasonal produce, and salad was her prime proselytizing tool. In the late seventies, when three-quarters of the lettuce sold in this coun-

try was still iceberg, Waters was serving organic mesclun—a spicy bramble of leaves from a dozen or more kinds of plants, flanked by rounds of baked goat cheese, which was considered equally exotic. "That was the salad that changed America," the restaurant consultant Clark Wolf told me recently. "It taught us that greens aren't necessarily bland and wilting, that they can be pepper and sweet and nutty and creamy. It taught us that they can make a different dish in every season, as the crops and flavors change. And, once we knew that, it changed the way we felt about everything. If salad wasn't just iceberg with a slice of radish on top, then what about other vegetables? What about chickens and cheese and milk and grains?"

In the years since Chez Panisse opened, American produce has been virtually reinvented. Organic vegetables can be bought at Piggly Wiggly, and last year McDonald's sold a hundred and fifty million "spring mix" salads—their drastically simplified version of mesclun. Bagged salads, featuring plants that people once attacked with hoes and herbicides, are a two-and-a-half-billion-dollar industry. Koons and Waters have been central figures in this revolution. For a few years after he arrived at Chez Panisse, they also dated. But in recent years they've taken organic farming down radically diverging paths. While Waters has continued to preach "slow food" and small farms, Koons has focussed on broadening the repertoire of industrial agriculture. Mâche is his latest protégé. If he was slow to appreciate it at first, he has come to think of it as the perfect salad green: sophisticated enough for gourmets yet amiable enough for a truck-stop diner. The French grow fifty million pounds of it a year, and Koons believes that Americans could consume four times as much. "It's going to be big," he says. "It's going to be a mother."

First, though, it must be made to cooperate. Like a lot of salad greens, mâche is more than a little passive-aggressive. It will agree to grow most

anywhere, just not particularly well. It's native to the Alps, so to withstand the California sun it must be kept in shade at all times, like some pale Victorian beauty. When picked fresh in the wild, it's subtle and complex, with a faint taste of hazelnuts and newly mowed grass. In a farmer's hands, it can turn flabby and insipid. How do you shape so delicate a thing for the blunt tastes of the American consumer? How do you turn it into a uniform and predictable product, one that lends itself to mechanized harvesting and washing, can last for weeks without wilting, and yields enough to justify all the money that's been poured into it? How do you make a widget out of a weed?

"A lot of this isn't about winning. It's about not losing," Koons told me one morning, as he surveyed a field of mâche that was ready for harvest. "Because, in agriculture, not losing is really pretty good." The field lay near the center of the Salinas Valley, two hours south of San Francisco. To the east, the Gabilan Mountains, patched with scrub oak and bluegrass and crimson madrone, rose toward the distant Diablo Range. Across the valley, beyond a hazy line of willows that marked the windings of the Salinas River, the ochre hills of the Santa Lucias hunkered in the sun. It was past eleven, so the fog that blankets the valley every morning had burned off. Soon, the fields would heat up, drawing cool air down the valley from the Pacific Ocean, seventeen miles away. Most days, the temperature never rises above seventy.

The valley's abundant sun and cool air, loamy soil, and vast underground aquifer have turned it into America's Salad Bowl: ninety per cent of our salad greens—around four billion pounds a year—are grown here. The valley has two hundred or so lettuce farmers, who sell their harvest to about twenty shipping companies. The two largest shippers, Dole and Fresh Express, account for almost eighty per cent of the bagged-salad business. They own their own

farms in addition to buying from local growers, and they have driven prices low enough to force most small operators out of business.

Epic Roots is one of the smallest farms around. Its two hundred acres of mâche are a tiny fraction of the valley's hundred and forty thousand acres of salad greens. Still, like the small organic farms that first grew mesclun more than twenty years ago, the company has cornered its market: most of the valley's industrial farms either haven't heard of mâche or find it too finicky to grow. To temper the California sun and keep out insects like the leaf miner, Koons and his two main growers, David Gill and Mike Hitchcock, have to keep their mâche under blue-green row covers, which look like miniature tents at an army base. Even then, the plant germinates so slowly and grows so low to the ground that it is easily overwhelmed by weeds. "I mean, show me the mâche over there," Koons said, pointing to a shaggy patch in the next row. "If just one weed germinates, that's what you get."

On an organic farm, growers can gradually clear the soil by letting the weeds sprout up, then plowing them under before they go to seed. But it's a slow, expensive process. In a year or two, when the mâche market has been established and the plant's idiosyncrasies are better understood, farming it organically should be cost-effective. For now, though, the growers still use chemical herbicides. "I'm an organic guy to the core," Koons said. "But, growing these babies, it's hard to stay true to it all." Even when the mâche grows clear and a heat wave doesn't kill it, he added, the crop doesn't always survive the harvest.

Koons plucked a piece of mâche from the ground and shook off the soil, then turned it over to show me its long, nubby root. Between the top of the root and the hub of the rosette lay a pale-green stem less than a quarter of an inch long. To harvest mâche mechanically—which Koons must do in order to

turn a profit—a machine has to cut the plant within this tiny strike zone, which lies entirely underground. And it has to do so with absolute consistency. "Other plants give you a lot more leeway," Koons said. "If you're growing a five-inch baby lettuce, you can cut it anywhere. But with mâche you'll either end up with too much root or you'll just have a bunch of leaves."

Epic Roots has harvesting machines that can manage the trick, skimming a long, thin blade just beneath the surface, but only if the fields are laid out with mathematical precision—"and nature abhors precision," Koons said. The mâche beds have to be levelled by machinery guided by G.P.S. and lasers. The seeds are pneumatically injected at three-inch intervals. The harvesters are imported from France, where mâche is grown mainly in the Loire Valley, but nearly every component has to be modified to suit the soil and scale of local farming. "It's a brave new world over here," Koons said. "The machines are bigger, we drive 'em faster, and we drive 'em longer. It's just a different beast."

Earlier that week, the cutting head of a harvester had been broken and had to be repaired, at a cost of twenty-five thousand dollars. In the meantime, the grower had sent one of his crews of Oaxacan migrants, most of whom make about seven dollars an hour, to handpick the crop. Koons watched them shuffle down the rows of plants, bundled in mud-stained sweatsuits and bandannas, working their curved little knives in the soil. "There was a time in my life when I was cockier, when I deluded myself into thinking I knew what I was doing," he said. "That has definitely changed."

When Koons arrived at Chez Panisse, in 1978, Alice Waters, like many American chefs, still had to forage for much of what she served. Then as now, the restaurant offered only a single, prix-fixe dinner menu, but it changed every day and many ingredients couldn't be found in stores. "For me, those were

the best years," Jean-Pierre Moullé, the restaurant's soft-spoken senior chef, told me. "We didn't have the network we have now, but people would come to the back door with some berries they'd collected, or some fish they'd caught." Sometimes neighbors brought vegetables from their gardens and exchanged them for meals, or Moullé collected chanterelles in the Berkeley hills. Waters had designated Koons the garde-manger, or pantry manager, so if any ingredient was still lacking he would wake up before dawn and start driving. He might head up to Petaluma for wild strawberries or down to the Sacramento River delta for crayfish. "He was a kid who wanted to touch everything," Moullé said.

Koons and Moullé soon became friends and started a garden together for the restaurant, on terraced plots in a local doctor's back yard. But Koons's real culinary education came later, when he and Waters began dating. She wasn't yet the "doyenne of Western cuisine," he says, but she was already well connected in the food world. When they vacationed together in France, Italy, New York, and London, the days would spool by like endless tasting menus. "If we were in some tiny little market in the South of France, she'd meet Lulu Peyraud, who is a central figure in French cooking, and we'd be invited for dinner at her vineyard." In Mexico, they dined with Diana Kennedy, and in Portland with James Beard; in Paris they ate at L'Ami Louis and in Venice at the Gritti Palace. "I can't remember all the places, but I can remember all the meals," Koons says.

Friends say that the relationship was always a fractious one, and not just because of the differences in Waters's and Koons's ages and job titles. "I think he was so lovely she didn't take him seriously," one mutual acquaintance told me. "He didn't have sufficient gravitas for her." Koons credits Waters with taking the edge off his youthful arrogance—he fancied himself a food critic

at first, after his gourmet upbringing—but there was also “a little fear there,” he says. “You don’t go up against the God Mother.” After they broke up, in the early eighties, he left the restaurant. As Moullé, who has himself been fired once or twice from Chez Panisse, put it, “When things are going wrong with Alice, she has a tendency to say, ‘Just go.’”

Koons drifted for a while after that, from cooking to farming and back again. He worked for chefs in Paris and New York, and became a consultant for organic farms in the Bay Area. Then, in 1986, he was hired by a subsidiary of Dalgety, a British agricultural-supply firm, to launch a fresh-herb operation in the Salinas Valley. “It was my first experience of corporate agriculture,” he says. “They were a fifteen-billion-dollar company, and they put a lot of money into this line. We had sample packs and herb bags, and we developed the technology to de-stem and chop up the herbs.” Unlike Koons, however, Dalgety had little intrinsic interest in being a pioneer. It had projected nine million dollars in gross revenues within the first year. When herb sales fell far short of that mark, the company shut the operation down.

“I was incredulous,” Koons says, but he was also impressed. The people at Dalgety had taken an obscure crop and reinvented it for the mainstream. They had shown him how to reach beyond the benevolent food snobs of Berkeley—to spread the bounty of Chez Panisse to the rest of the country. They had simply picked the wrong crop: fresh herbs, as ubiquitous as they’ve since become, are still only a hundred-million-dollar business. “They thought these little greens were where it’s at,” Koons says. “Salad was where it was at.” A few weeks after the herb business went bust, he borrowed a hundred thousand dollars from his girlfriend’s mother, who had founded a lucrative stock-photography agency in New York. Then he leased forty acres of an old ranch inside the Salinas city limits and

founded TKO: Todd Koons Organic.

Like any grower of salad greens, Koons began with a basic problem: his plants weren’t designed to go anywhere. Most fruits and vegetables are naturally prepackaged for transport. Their moisture is sealed within a peel or a pod, their flesh bound together and shielded from bacteria and the elements. Lettuce is much more vulnerable. When cut, it reacts a lot like a person who has been badly wounded: it starts to respire heavily, using the extra oxygen to speed up its metabolism and rev up its immune system. A plant that’s still rooted can prevent infection this way and then grow new tissue. Once harvested, it consumes itself in the effort. More and more of its cellulose breaks down, releasing energy and producing water. The more water the lettuce loses, the more it wilts.

Cold can delay the process considerably: for every ten-degree drop, the chemical reactions in a leaf are cut in half. But salad greens can’t be frozen like other vegetables, or their cells will be ruptured by ice crystals. A refrigerator can keep them crisp for a week or so, but that isn’t nearly long enough for most farmers. Though ninety per cent of American lettuce is grown in the West, much of it is eaten in the East. If cut lettuce were put in an ordinary refrigerated truck, it would be half-dead by the time it got from California to New York. That is why Americans spent a century eating iceberg: it’s a lettuce with so much water and such strong cell walls that it can last for two or three weeks without wilting. It’s a lettuce built for the long haul.

In the early nineteen-sixties, scientists at the Whirlpool Corporation put some iceberg leaves under a glass jar, pumped out all the air, and flooded the jar with carbon dioxide and oxygen. Those were exuberant days for food technologists. Elsewhere in the lab, researchers were zapping vegetables with radiation and inventing squeeze dispensers for astronauts. The iceberg team reasoned that if lettuce were deprived of

oxygen to fuel its breakdown it would stay crisp much longer. They were right, but only within limits. If the lettuce received too little oxygen, its anaerobic metabolism kicked in and, like the yeasts in beer, began to yield ethanol and other potent by-products. The lettuce, in other words, began to ferment. The trick was to take some but not all of the oxygen out of the atmosphere: you had to keep the lettuce barely breathing.

Total Environment Control, as this process was then called, nearly doubled the shelf life of lettuce, turning it into an international commodity. By the early seventies, the U.S. Army was sending heads of iceberg to Vietnam. But shredded lettuce still couldn’t be shipped in bulk—it wilted too quickly once it left the truck’s controlled atmosphere—and that was where the real money was. Lettuce farmers were throwing out half their crops, because the heads were slightly imperfect. If those heads could be shredded and sold, the industry could more than double its profits.

In 1966, Whirlpool joined with a California grower (now called Fresh Express) to create the first bagged salad: a mixture of iceberg, endive, and cabbage sealed in plastic and pumped full of carbon dioxide, nitrogen, and oxygen. “It crashed and burned,” Jim Lugg, the president of Transfresh, a sister company that did the research and development for Fresh Express, told me. The atmosphere inside the bags was much harder to control than that inside a truck. If the bag was airtight, the lettuce used up any oxygen and began to ferment. If it leaked, the lettuce respired too much and began to turn pink and wilt. The smallest pieces deteriorated fastest, leaving the salad speckled with blackened slime. “So we went back to the drawing board,” Lugg said.

It took Fresh Express until 1989—more than twenty years and another disastrous product rollout later—to “crack the code,” as Lugg put it, and mass-produce the first retail bagged salads. Salad spinners were perfected, shredding

knives sharpened, battalions of chemists subcontracted to create the perfect polymers. Today's bags are a triumph of practical ingenuity. Their plastic is made up of five to ten layers, each with a different function. Some are designed to make the package shiny or crinkly, others to carry print well. Together, they have to be just permeable enough to keep the bag's artificial atmosphere in balance—the wrong ink alone can suffocate a salad. As the lettuce sits on the shelf, the gases in the bag are constantly consumed, released, and replaced. Oxygen, nitrogen, and carbon-dioxide molecules bond with the polymers on one side of the plastic and are released on the other, diffusing from high concentrations to low. Every type of salad requires a different type of bag, tailored to its respiration rate by gas chromatography and computer analysis. Every bag is a miniature biosphere.

Thanks to the new technology, lettuce could now, theoretically, be kept crisp for up to thirty-five days—five times longer than was possible with refrigeration alone. But to start a salad craze, Koons knew, you needed something better than iceberg. Word of mesclun had spread across the country by then, but the supply was limited. At first, chefs like Waters grew the greens themselves, from seed bought in France and smuggled through customs by the suitcase-full. Then a handful of organic truck farmers—Warren Weber in Marin County, Morse Pitts in the Hudson Valley—began selling them to restaurants and natural-food stores, and at farmers' markets. Demand was so high that plants like radicchio, arugula, mizuna, and lolla rossa helped stores turn huge profits. To industrial growers, though, organic growers were just hippies exploiting a fad: weed farmers, they called them.

"The thing about organics back then was that we had to invent everything," Koons told me. Mesclun, unlike mâche, had never been farmed industrially overseas. In Provence, gardeners simply

blended seeds together and scattered them by the handful. Koons tried to emulate them at first, but the plants matured at different rates, so when some were ready to harvest others were overgrown or undergrown. He tried using spinach harvesters—colossal machines with sicklelike blades and powerful vacuums to suck in the leaves—but they chewed up the crops and spat out little pieces that quickly spoiled. The biggest challenge, though, was washing and drying. At Chez Panisse, Waters would gently dip each leaf in a cold-water bath, then set the leaves to dry on cloth towels, a single layer at a time. Koons didn't have time for that.

"I remember going to San Jose to see the first washing system we had custom-built," Koons told me. "It was designed by an engineer named Schnake, who came to me from one of the companies I was buying equipment from. It looked like something out of Willy Wonka. It had a tank forty feet long, with these undulating plastic walls, like a swimming pool in Las Vegas, and there were all these cones along the sides to do the gentle washing. It had cables and pulleys, and a bubble system, and this giant orange-and-white agitator that would come down." Koons had spent six hundred thousand dollars on the machine, but when Schnake threw in some salad for a test run half the leaves shot right through the tank without getting clean. The other half hit the cones and went around and around, slowly getting beaten to a pulp. "It was like a giant green smoothie machine," Koons said. "And that was just the first stage. There was a big tank with paddles after that. I was, like, 'Schnake, you're an engineer. My five-year-old daughter could have designed something better than this.' I wanted to kick him."

Every lettuce grower in the valley has a boneyard somewhere: a warehouse full of monstrous old machines—gut-sprung shredders, sabre-toothed tillers, and mammoth transplanters—long since replaced by sleeker beasts. Koons knows

one grower who used Jacuzzis to wash his greens, and another who used clothes dryers to spin them. Before there were salad baggers, people experimented with Teflon-coated machines designed to package cigarettes. "They were a quarter million a pop," Koons recalls. "So we had a guy build us one for a hundred thousand instead. It was sixteen feet tall and looked like a giant praying mantis. The salad would go to the top of this thing and then these buckets would clang open and let it drop into the bags. *Ka-chang! Ka-chang!*"

Koons never quite perfected his machines. Mesclun was selling for fourteen dollars a pound, so he could afford to lose some of his crop to inefficiency. By 1993, TKO was farming ten thousand acres a year and shipping bagged mesclun nationwide. But in agriculture, Koons likes to say, nature always bats last. In January of 1995, ten inches of rain fell, swelling the Salinas River to capacity. When storms dumped another ten inches in March, the river washed over its banks. Within days, the flood had reached once-in-a-century levels and all of TKO's farms were underwater. "It was one of the fastest bankruptcies in history," Koons says. The hardest blow came later, though, when he ran into Waters at a conference on sustainable agriculture. "I can almost see what she was wearing," he says. "She was about to address the crowd at dinner, and we were talking off to the side. She shook her finger at me and said, 'You grew too large.'"

The real cause of TKO's downfall wasn't ambition; it was inexperience. Veteran salad farmers know better than to have all their fields in a floodplain and all their money in the same crop. Koons proved that there was a huge market for organic salad and mesclun, but his farming was never efficient enough to truly exploit that market—and he liked it that way. He didn't want to undercut the small organic farms that had mesclun to themselves when he started. He just wanted to sell the same product at the same price to

a broader audience. In the end, though, he helped put them all out of business. "I was the pioneer, the wedge," he says. "I took every arrow in my back and in my ass, then I paved the way for the market to get there."

After TKO went under, a small organic grower called Earthbound Farm bought most of its assets. Earthbound then went on to become a partner with a couple of the largest conventional growers in the valley, Mission Ranches and Tanimura & Antle. Together, they now sell almost eighty per cent of the country's organic greens—about a billion servings a year. Earthbound's farms are spread across six states, parcelled among microclimates where fewer insects will find them. Its efficiencies are such that the price of mesclun has fallen to five dollars a pound. "For a long time, all the guys at universities and the organic farmers said that you just can't do it well on a large scale," Warren Weber, Chez Panisse's first supplier, told me. "But when the commercial guys finally swooped in it seemed like they learned it in seconds."

One morning near San Juan Bautista, forty-five minutes north of Koons's mâche farm, I watched one of Earthbound's harvesters rip through a field of green oak-leaf lettuce. The machine had half a dozen ungainly appendages, like some gizmo fresh from an inventor's basement, but it worked flawlessly. As it moved down the row, it first pushed a rakelike device known as a "tickler" through the crop, shooing away rodents and other undesirables. Then it sliced the plants with a band-saw blade, half an inch from the ground. The cut leaves fell onto the first of a series of conveyor belts. One had a vibrating grid that shook out any small pieces. Other belts were separated by "air jumps," with fans blowing up through them. Rocks, insects, and other heavy objects fell through the gaps, while the leaves wafted gently up to the next belt. At the top of the incline, the greens were sprinkled with water and gently dropped into twenty-pound bins,

a line of which snaked down a conveyor belt of their own.

At full speed, the machine can harvest forty thousand pounds of greens a day. And Earthbound, I was told, always runs at full speed. From the moment the crop is harvested until bags of salad reach grocery stores, three to six days later, the company is in a dead sprint to preserve shelf life. The greens are carried straight from the harvester to a refrigerated truck in the field. From there, they go to a nearby factory, equipped with processing machines that are like those at TKO but engineered to the tightest tolerances. The salad washers look like rides at a water park, with paddle wheels that submerge the leaves in a lightly chlorinated stream and bubbling agitators that toss them clean. The spinners are perfectly calibrated to keep from crushing the lettuce against their sides. The form fillers weigh the salad in precise increments, drop it into Ziploc bags fused together on the spot, then puff the bags with the proper gases before completely sealing them. At every stage of the process—from truck to factory to refrigerated shelf in the supermarket—the salad is kept between thirty-four and thirty-six degrees Fahrenheit. The "cold chain," as salad producers call it, is never broken.

Organic growers still produce only seven per cent of the bagged salad sold in this country, but their operations are some of the most efficient and competitive in the industry. That's one reason Koons focussed on mâche: when he founded Epic Roots, in 1998—after working as a consultant for another organic grower—Earthbound wasn't growing it yet. He spent five years testing growing techniques and mâche varieties (there are more than two hundred). Then he went looking for some help.

David Gill and Mike Hitchcock, Koons's two principal partners, are among the most experienced growers in the valley: together, they farm fourteen thousand acres of other salads and vegetables in addition to mâche. By the time Koons approached them, they'd seen

arugula take off, in the late nineteen-nineties, and they were willing to take a chance on the next great green. "We thought we'd all make millions of dollars," Gill told me. "We didn't anticipate how tough it would be to grow." Still, the learning curve has been no steeper than it was for mesclun. This past spring, the company had its first two profitable months. With luck, Gill says, they may have a good season or two ahead of them, before Earthbound or some other industrial grower steps in and takes over.

The mâche grown by Epic Roots is processed in a plant similar to Earthbound's, though the leaves are so delicate that they require particularly gentle washing. A whole year's harvest—around three-quarters of a million pounds—could be bagged in two days by Earthbound. But demand is rising steadily. When Epic Roots shipped its first mâche, two years ago, fewer than a hundred stores carried it. Within a year, the number had grown to a thousand. This year, nearly two thousand stores carry the company's mâche, including the Whole Foods and Trader Joe's chains, and Epic Roots has been endorsed by top chefs like Daniel Boulud. In the spring, after reviewing the company's microbial and shelf-life studies, Burger King approved mâche for inclusion in its mixed salads. "It's not like they'll start saying, 'Now with mâche!'" Koons acknowledges. "They don't even know how to pronounce it yet. But it does give me hope."

The salad industry is an American success story of the old-fashioned kind: innovators make good; business bears fruit. Its growth seems hard to begrudge. All the technology brought to bear on greens, from polymers and gases to cold chains and harvesters, is in the service of a more natural product. Fifty years ago, vegetables were overcooked and sealed in cans; twenty years ago they were frozen in cartons; today they're packaged fresh in clear plastic bags. While most lettuce is still grown with chemical herbicides and pesticides, or-

ganic farms like Earthbound's are as healthy and beautiful as they are mechanically sophisticated. Even an old organic warrior like Warren Weber admits that their produce, when picked fresh, can taste as good as anything he grows. Isn't that good enough?

No, as a matter of fact, it's not, Alice Waters told me. "When I think what that little mesclun mix has turned into, it just makes me sad," she said. "To think that someone can put that name on a bag of salad from God knows where . . . It's pretty alarming. Pret-tv alarming. And I feel terribly responsible for that." It was late afternoon at Chez Panisse, and a soft, refracted light fell on the nearly empty dining room. Beneath the mitted redwood beams and copper sconces, waiters moved about noiselessly, setting the tables for dinner. Waters, who turned sixty in April, was wearing a plain but elegantly cut black blouse and skirt, striped gray stockings, and pointy black boots. She has a small, fine-boned face, cropped auburn hair streaked with white, and a fluty voice that rises and falls with high, sighing enthusiasms. "I'm enchanted by salad," she said. "I could wash it all day." But although she's grateful for all the greens now available, changing American tastes was never more than part of her purpose. It was an opening gambit at best.

"This is not like packing boxes of paper towels," she said. "This is nourishment. You have to always know that you're feeding somebody. And you have to understand the ecological consequences." Eight years ago, Waters created the Chez Panisse Foundation, in order to promote sustainable agriculture, but industrial organic farms meet only some of her criteria. They may not use herbicides, pesticides, or chemical fertilizers, but they perpetuate all the other ills of conventional farming. Bagged salads, and the boxed salads that have become increasingly popular, are just another new source of packaging and waste. Their longer shelf life means only that trucks can carry them even farther away,

burning fossil fuels and releasing greenhouse gases. True organic food ought to reconnect people to the land, to make farming a local activity again. Industrial organic farms do the opposite. They force small farmers out of business, marginalize farmers' markets, and make packaged food so convenient that consumers forget where it comes from. "I know it's important that people in St. Louis, Missouri, get some salad," Waters said. "But I'd rather send them the seed and get them to plant it than ship it across the country."

Waters's idea of a model farmer is Bob Cannard, who supplies much of the produce for Chez Panisse. Cannard is a burly fifty-two-year-old with the unruly silver mane and penetrating eyes of a nineteenth-century abolitionist. His twenty-five-acre farm lies in the foothills of the Sonoma Mountains, a rugged, verdant landscape hummocked by old lava flows and gnarled with vineyards. He grows dozens of different kinds of plants, including olives and grapes, avocados and limes, eight kinds of onions, and fifty kinds of tomatoes. As a former agriculture instructor, he can wax arcanelly eloquent about their biochemistry—their oxidates, exudates, and silicates, or the few parts of gold per million in carrot leaves. Mostly, though, he's concerned for their souls.

"There is damn little contentment in humanity today, and most of that is because our food has no contentment itself," Cannard told me. A plant raised in a tedious monoculture and bloated on an unvarying, industrial diet can't help but pass its listlessness on to us: most produce has less than fifteen per cent of the minerals it had a century ago. "I want my plants to have a life of choice, with all the nutrients they could possibly desire," he said. "I want them to have their happiness, to build their etheric sweetness. I want people to eat that food and have vegetable dreams."

Cannard not only feeds his crops with compost; he brews hundred-gallon vats of nutrient "teas" and sends them

coursing through his irrigation system. He throws in handfuls of crushed oyster shells, sea salt, and volcanic rock, cartons of eggs and milk, and jugs of molasses. Some days, he'll make a lavender or rosemary tea, to revive his plants with "energetic aromas." Other days, he'll add some worm castings or swallow droppings, from birds that nest under the eaves of his house. The bacteria, he says, help his crops absorb nutrients from the soil. After twenty-eight years of farming, Cannard can tell at a glance what his crops require. "A plant doesn't wear makeup or dark glasses or anything," he says. "It will just sit there in its nakedness and show you how it's feeling through its color, its posture, its textures, its anchorage." His farm is a kind of spiritual retreat for stressed-out crops. Even the wind and the wild birds, he says, sing to his vegetables.

Whether the vegetables hear them is matter for debate. The quality of Cannard's produce is not. When Waters was sampling the dishes for that night's menu at Chez Panisse, she let me try one of her famous mesclun salads. It was a feathery mixture of frisée, curly endive, arugula, and half a dozen other plants from Cannard's farm, and I could almost taste the lavender and rosemary in it. The essence of a great salad, I realized, is the very ephemerality that industrial growers have spent so long combatting—the burst of stored energy in its leaves, the taste of volatile compounds reacting and releasing their flavors. "It's about something that has life in it," Waters said.

It may be true that an industrially grown plant can taste as good as anything from a small farm. But a bagged salad is a creature of compromise, designed as much for color and longevity as for flavor. It's put together by a team of "sensory experts" and engineers at a salad company, and the latter get final say. "Quite often, the sensory folks will tell us, 'Oh, we really like this stuff,'" Jim Lugg, of Transfresh, told me. "But the technologists trying to get the right film and respiration—they can't come together." If spinach and romaine can't cohabitate in

a bag, one of them must go.

Of course, growing greens Cannard's way can be expensive, and it's a hell of a lot easier in California than it is in North Dakota. But Waters believes that those are sacrifices we should be willing to make. She has had fabulous salad from Maine in the dead of winter, she told me, grown organically in greenhouses. Its extra price was only proper for something that is essential to our lives. "We need to learn to pay more for our produce, so that farmers can continue to do their beautiful work," she said. Or, as Cannard put it, there isn't a state in the Union that shouldn't be growing its own salad.

That evening, Waters had a small table set for me in the kitchen, so that I could watch her chefs at work. She seemed a little taken aback when Koons arrived later to join me for dinner. (He had made his arrangements separately, through Jean-Pierre Moullé.) For a while, she stood by our table making small talk, while the pastry chefs bustled around in their white coats, baking trays of semolina cookies. But there was a coolness to her manner, and she soon left to join friends.

"Alice and I don't have the juiciest of relationships anymore," Koons told me later. "There's no mutuality there. I wholeheartedly support her vision—if I had an extra five million to give, I'd write one check. But I don't think that she's a big supporter of Todd Koons." Waters seemed to agree. "Todd has gone on another trajectory," she said. "I don't know what I think of it. He wasn't growing organically, I know, and that is for me a bottom line. That is the most important part."

When dinner was served, Koons's mâche was not on the menu. Cannard grows it for the restaurant, but only in the winter, when it can stand full sunlight. Any other time, he says, "It just turns it into soft, uniform, pappy stuff." Even Moullé admitted, regretfully, that he couldn't allow his old friend's salad bags at *Chez Panisse*: the restaurant has an all-organic policy.

Koons didn't seem to mind; he's used to such snubs by now. Whenever he drives to Berkeley in his Toyota Land Cruiser (a gas-guzzling S.U.V. that he actually needs to negotiate his farm's rough terrain), someone will put a sticker on it: "Ask Me What I'm Doing to Change the Climate." Koons is always tempted to put a sticker next to it that says, "Ask Me What I'm Doing to Feed Your Face." Still, he understands the sentiment. When he was growing up, his parents used to walk through grocery stores marking products they approved of with a handmade stamp of a little superhero. Like Waters, they were idealists who lived according to the principles they preached. But not everyone can raise his own rabbits, or live in the country's most luxuriant agricultural state.

"We are trying to serve mâche to the masses," Koons said. "And in the end we'll probably get pounded anyway. That's part of the thrill: to see how many mouths we can feed before we get pounded." As he spoke, the waiter placed a small, trembling tower of panna cotta in front of him, afloat in a shallow pool of magenta syrup. The custard was made with organic milk and cream from nearby dairies; the syrup with roses grown in the chef's own garden. Koons stopped to admire it—so simple, so lovely, so true to its intent—then tore into it with a spoon. He was hungry, after all. ♦

