

# FARMED



THOMAS M. GORMAN

**D**iving north from Wichita, Kansas, toward Salina on a warm day last October, I saw an oil-well pump sitting in the middle of a sorghum field. And not just one. As I drove, I saw hundreds more, maybe thousands, all surrounded by amber waves of grain. Like giant, insatiable gulls, they bobbed their heads up and down, up and down, gulping black crude from the earth's depths. Oil wells in farm fields. Here was a symbol for modern agriculture, dependent on petroleum-based fertilizer to produce high yields.

*I had come to Kansas to meet one of its native sons, a man who has dedicated his life to changing the way we grow food. Wes Jackson is a plant geneticist, president of the Land Institute, and, at age seventy-four, one of the godfathers — along with farmer and author Wendell Berry — of the sustainable-agriculture movement. Thanks to bestsellers like Michael Pollan's Omnivore's Dilemma and Barbara Kingsolver's Animal, Vegetable, Miracle, that movement has gone mainstream. We've been told that our food system is broken, and the fix is*



# Wes Jackson On The Need To Reinvent Agriculture

FRED BAHNSON

to grow food organically and procure it locally. The organic farmer eschews pesticides, spreads compost instead of nitrogen-based fertilizer, and sells her Hakurei turnips at the Saturday-morning market. All big improvements, says Jackson, but ones that stop short of a solution. They are answers to problems in agriculture, when we have yet to address the problem of agriculture itself, a ten-thousand-year-old bad habit that Jackson believes is humanity's original sin.

When our ancestors in the Zagros Mountains of Iran first tilled the ground to plant wheat, they set in motion the ongoing depletion of the topsoil, which Jackson calls the "capital stock of the planet." Unless labor-intensive steps are taken to prevent it, every time the earth is plowed to plant an annual crop, some topsoil is washed away by rain or carried off by the wind. According to Jackson, we're plowing through our soil bank account and sending those riches downstream to the ocean, never to be seen again. He believes the loss of topsoil is the single greatest threat to our food supply and to the continued existence of civilization.

Jackson's life's work is based on a question: Is it possible to avoid erosion by mimicking nature instead of imposing flawed human design on it? Kansas's native prairie was a self-sustaining ecosystem fueled by nothing more than soil, water, and sunlight for millions of years before modern farming came along. That prairie has been replaced with huge fields devoted to single crops — called "monocultures" — that can be planted only by tilling the soil and kept alive only by applying petroleum-based, nitrogen-rich fertilizer. Those amber waves of grain form the base of our diet: the wide bottom level of the food pyramid. For the past thirty-three years Jackson and his fellows at the Land Institute have been crossbreeding such annual grains with their wild perennial relatives, which grow back season after season on their own without tilling and excessive fertilizer, can be planted in mixtures called "polycultures," and have deep roots that actually prevent soil erosion. The only thing these perennials don't do is produce the edible seed that provides some 70 percent of our food. Jackson hopes to change that by breeding an edible perennial grain to replace our monoculture crops of annuals, part of a revolutionary farming method he calls "natural-systems agriculture." The Land Institute is also domesticating wild perennials, mostly close relatives of current annual crops.

Jackson was born in 1936, toward the end of the Dust Bowl era, a time when farmers' failure to prevent soil erosion — combined with an extended drought — allowed the topsoil

of northern Texas, Oklahoma, Kansas, and other Great Plains states to be blown thousands of miles by the wind. "The heart of our continent," Jackson writes in *Becoming Native to This Place* (Counterpoint), "sent its finest soil particles far overhead to Washington and even to ships at sea."

Jackson holds a PhD in genetics from North Carolina State University and established one of the country's first environmental-studies programs at California State University, Sacramento. Dissatisfied with the confines of academia, he returned to Kansas in 1976 to found the Land Institute. His other books include *New Roots for Agriculture* (University of Nebraska Press) and *Altars of Unhewn Stone: Science and the Earth* (Wooster Book Co.). His latest book, published in September by Counterpoint, is *Consulting the Genius of the Place: An Ecological Approach to a New Agriculture*. In 2000 Jackson received the Right Livelihood Award, known as the "alternative Nobel prize."

After having passed the oil-well pumps, I turned off the interstate and onto a dirt road. When I saw a field of native grasses with a sign reading "Prairie Restoration in Process," I knew I had arrived at the Land, a six-hundred-acre spread on the Smoky Hill River. Jackson, his wife Joan, and the Land's staff gave me a warm welcome, and I spent the next two days there. On the first afternoon Jackson and I strolled around his yard and admired the fall colors. He pointed to a particularly vibrant shrub the locals call "burning bush" and quoted Elizabeth Barrett Browning: "Earth's crammed with heaven, / And every common bush afire with God."

Though his subject is dire — the question of our survival as a species — Jackson is full of charm, wit, and mischief. He delivers his message with a mixture of scientific acumen, biting social commentary, and theological reflection.

Even when his voice rises in anger at the way we've squandered our soil and water, it is tempered by an underlying mercy for those he chastises and a hope for the land's resilience. We began the interview on a bluff of unplowed prairie, the sort of landscape the explorer Zebulon Pike might have seen when he arrived just south of there in 1806. The bluff overlooked fields of *Kernza*, a perennial wheat grass that will become the Land's first commercially available crop sometime in the next ten to twelve years.

"This tall-grass prairie we're standing on," Jackson said, "is nature's wisdom. Those research plots of ours" — he pointed down the hill — "represent human cleverness." Whatever agricultural breakthroughs they might achieve down there, he wanted me to know, the unplowed prairie up here would always

be the lofty, unattainable standard. With enough cleverness we can learn how to live less-extractive lives and perhaps even meet the expectations of the land, but we'd be fools to think we could ever master it.

**Bahnson:** Who or what started you thinking about agriculture and soil erosion?

**Jackson:** I first got a fix on nature's landscapes the summer I turned sixteen. I went to White River, South Dakota, to work on a ranch with an eccentric cousin of mine and her equally eccentric Swedish-immigrant husband. The ranch was more than four thousand acres of grassland paradise, a natural system that was more or less taking care of itself. There were fences to keep in the cattle and horses, but still it was a relationship between the people and the land that required minimal input from the industrial world.

I was coming to this from a truck farm in the Kansas River valley, where we had lots of hoeing and stoop labor. It was sweat-of-the-brow farming. But riding over that range and fixing fences and putting up hay — that was paradise. On that ranch the landscape hadn't changed much since the Native Americans had walked over it. I rode horses on Sundays with half-Indian kids who told me about their ancestors' life on that landscape. It wasn't all paradise: In the town of White River I witnessed racism far worse than any I'd seen growing up near Topeka. In Kansas it had been directed toward blacks and Mexicans; here it was toward Native Americans. But that ranch was where I got a fix on the prairie, the summer I turned sixteen.

Ten years later I read Aldo Leopold's *A Sand County Almanac*. His essay "Odyssey," in which he compares the modern agricultural system to the Native American system, left an impression on me. Then, when I was in graduate school in genetics at North Carolina State, my professor and his wife were working to protect a park that was under siege by developers. He walked into the lab one night and gave me a thirteen-word sentence: "We need wilderness as a standard against which to judge our agricultural practices." Then he walked out.

**Bahnson:** How did you come to found the Land Institute?

**Jackson:** I'd been teaching in and chairing the environmental-studies department in California. I came back to Kansas on leave for a couple of years, and when the university said I had to either return or resign, I decided to stay here. This was in 1976. I had the idea of founding a school in which students would spend half their time reading, thinking, and discussing and the other half doing physical work. We had wind machines, solar collectors, a big garden, a butcher hog, a milk cow, a steer, and some chickens. The school building burned down six weeks after we'd opened up, so we had to start over with recycled materials. At that point my first wife, Dana, who had been taking classes at Kansas State University, joined the effort, later codirecting it.



WES JACKSON

**Bahnson:** Did you have much funding starting out?

**Jackson:** No, not really. Dana and I had three children, and all of them were hard workers. We grew a lot of our own food. Dana was a good gardener and beekeeper. The students paid a little tuition. It was a small operation.

About a year after starting the Land, I read Congress's General Accounting Office study, which revealed that soil erosion was as bad as it had been in the 1930s. Shortly after that, I took my students to the Konza prairie. Seeing the contrast between that prairie and a cornfield inspired me to write a piece for Friends of the Earth's *Not Man Apart* entitled "Toward a Sustainable Agriculture." That led to *New Roots for Agriculture*, which came out in 1980.

One day I got a call from Wendell Berry, who wanted to come out and interview me for *New Farm* magazine. It was the beginning of an indispensable friendship. Wendell sets such a high standard that it makes humility easy for the rest of us. His thinking has had a profound influence on me and still does.

I also read a paper by Arnold Schultz at the University of California, Berkeley, about "the ecosystem as the conceptual tool for managing our resources." Schultz cited another paper, by Stan Rowe at the University of Saskatchewan. In his book *Home Place* Rowe describes the ecosystem as a slab of space and time. Both Schultz and Rowe saw the ecosystem as more than a mere container; it's a structure with emergent properties of its own. For example, the tropical rain forest is helping regulate the hydrological cycle of the planet. This helped me think about the problem of agriculture at the system level, which runs counter to the old Western philosophies of Francis Bacon and René Descartes, who thought that the way to deal with nature is to break it down. Now, there's nothing wrong with reductive thinking, as long as it does not lead us to believe that the world resembles the method. That's where we got into trouble.

*(end of excerpt)*