

## TEACHING THE WORLD TO FARM<sup>1</sup>

James McCommons©

On a warm May morning—one that signals the advent of a steamy summer—a tractor grumbles through a hillside apple orchard, misting the newly emerged fruit with a clay slurry for protection against codling moths. Beneath the cool shadow of a barn, two staffers chat about a recent trip to Guatemala, where they taught young farmers how to rebuild soil fertility. Nearby in the demonstration garden, chattering schoolchildren gather around a sun-bonneted guide as she spins a tale of good bugs versus bad bugs.

On most days, The Rodale Institute displays a curious blend of working farm, soil research station, tourist destination, international agency, and outdoor classroom. That's not surprising when you consider that for decades the Institute has been a dynamic force in the progress of the organic agriculture movement. The knowledge gained from these fertile acres of Pennsylvania Dutch countryside has helped growers from the deserts of Africa to the rice fields of Japan to the backyard gardens of Iowa find success without chemicals.

Fifty-five years ago, J.I. Rodale, founder of *Organic Gardening* magazine, established an experimental organic farm in response to skeptics who said, "Prove it." His experiments and the research carried on by his son, Robert, produced much of the data and techniques that transformed organic farming from a fringe concept into a practical alternative to chemically based agriculture. Today, the work of the Institute focuses less on providing proof, or validation, than on spreading the good news about organic agriculture, says Anthony Rodale, the Institute's chairman.

***"Our mission now is global—to convince producers to grow food organically and to help people feed themselves," explains Rodale. "We have knowledge and expertise that can change the way people live."***

A sincere and serious man, Rodale is the third generation to lead The Rodale Institute. He's determined to build upon his grandfather's and father's legacies and keep the farm a place where gardeners, farmers, and especially children can learn about the benefits of organic agriculture. "We want to be a place where people come not just for practical advice but inspiration, too," he says.

### Regenerative Farming

The Institute originated in 1947, when J.I. Rodale bought a small farm in the rolling countryside outside Allentown, Pennsylvania. There he experimented with raised beds and compost and reported his findings to readers of his new magazine, *Organic Gardening*. Convinced that soil health was the key to growing wholesome food, he established the Soil and Health Foundation, the forerunner of The Rodale Institute. Bob Rodale worked alongside his father at both the farm and Rodale Press, the family's publishing business. In 1971, after J.I.'s death, Bob bought a 333-acre farm—today's Rodale Institute—near Kutztown, Pennsylvania. On this new parcel of farmland, Bob brought together a team of scientists and technicians to raise crops on a large scale by using and documenting various organic methods. The team brought greater scientific credibility to the organic experiments begun by J.I. Rodale.

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<sup>1</sup> Organic Gardening Garden to Table Newsletter, [www.organicgardening.com/feature/0,7518,st-26-27-1322.00.html](http://www.organicgardening.com/feature/0,7518,st-26-27-1322.00.html)

Bob's travels to impoverished Third World countries in the 1970s, and the Institute's investigations into soil enrichment, led him to adopt a philosophy of regenerative farming. The aim was not only to avoid agricultural chemicals but also to promote a holistic farming system that could heal depleted soils, stressed natural environments, and malnourished people, recalls John Haberern, the Institute's president, who worked closely with Bob. "Regenerative food systems came out of Bob's research and his concern about preventing famine. It led to the Institute's motto, Healthy Soil = Healthy Food = Healthy People," Haberern says. In 1990, Bob went to Russia to set up a magazine and teach the tenets of regenerative agriculture to farmers just coming off collective farms. While in Moscow, he was killed in an auto accident. The magazine, *Novii Sadovod i Fermer* (New Gardener and Farmer) went forward despite the tragedy and recently celebrated its 10th anniversary.

Today the Institute functions as a nonprofit agency, which is completely separate from Rodale Inc., the for-profit publishing company. The Institute runs hands-on training in Japan, Guatemala, and Senegal and provides technical advice in several other countries. It often works with nongovernmental organizations (NGOs), such as the World Bank, to spread its message of regenerative agriculture to farmers and politicians. "One of the big things we have going for us is that we've been doing this work for a long time," says Haberern. "When we walk into a room filled with scientists and decision makers, we have instant credibility."

### **The Farming Systems Trial**

Much of that credibility stems from the Farming Systems Trial, an experiment that has been running at the farm since 1981. The trial directly compares organic farming practices with chemical ones and stands as the Institute's most significant scientific achievement. On the surface, the trial's 12 acres of alternating strips of soybeans, corn, and wheat look rather unremarkable. The difference lies in the soil. One-third of the crops receives conventional chemical fertilizers and pesticides; another third receives a combination of cover crops and manure for fertility; and the remainder is nourished by cover crops only. "We're simulating different types of farms raising the most commonly grown grain crops in America," explains Peggy Wagoner, a soil scientist. "The organic plots have shown comparable yields to the chemical plots, especially over time as the soil builds up with organic matter." On this day, Wagoner gives her presentation—complete with detailed charts and graphs—to an accepting audience of tourists and backyard gardeners. But frequently, the visitors are groups of farmers, government officials, and extension agents, many of whom are skeptical about regenerative farming.

Some of the best evidence for organic practices emerged from the drought of 1999, the worst dry spell to hit the East Coast in a century. While the conventionally managed crops mostly withered in the fields, the organic plots performed surprisingly well. Organic soybeans yielded 30 bushels per acre while the Institute's chemically treated plots yielded 16 bushels per acre and neighboring farms using conventional methods produced 21 bushels. The organic matter held the moisture like a sponge, and the tilling allowed roots to reach deeper for water, says Wagoner. "The drought was tough on the organic crops, too. But we couldn't have asked for a better scenario to show the benefits of creating a healthier soil," she adds.

### **Talking to Farmers**

This type of demonstration project helps win farmers over to organic methods, says Jeff Moyer, the Institute's farm manager. Farmers like to be shown, not preached at, he says. "We can't talk to farmers from a basis of knowledge unless we're doing it, too," says Moyer, a stocky man who

looks like the farmer he is, with sunburned skin, dusty jeans, and ball cap. Consequently, the farm brims with experiments. In the apple orchard, workers spray fruit with kaolin clay to create a physical barrier between apples and hungry bugs. If the promise shown by this new natural product is borne out by the trials, the Institute will recommend it to orchardists. Along one field, piles of compost cook in the midday sun. The Institute sells the finished compost as fertilizer, a practice many farmers could adopt as an added source of income, says Moyer.

To survive in the future, American family farmers will have to run more diversified operations, grow specialty crops for niche markets, and when possible sell directly to consumers, says Moyer. Much of the Institute's emphasis is on helping farmers find these new revenue streams. "We want to change this whole notion that farmers have to grow a single crop, let someone else set the price, and then be at the whim of worldwide markets," he says. "We're not saying that farmers just need to go organic. They need to rethink how they do business."

To demonstrate that, workers in an Institute greenhouse snip away at bedding trays of wheat grass bound for a health-drink manufacturer. Vegetables from the production garden sell at a local supermarket. And last year, Moyer rented 2 acres to a former Institute staffer who wanted to start a Community Supported Agriculture (CSA) operation but had no land. "Most farmers have some land to spare," says Moyer. "They'll earn more money by renting the land and putting it into food production than by growing another 2 acres of field corn. The other benefit is that it helps a younger person get started in farming."

### **Kids' Regeneration**

Children receive special attention at the Institute. Florence Rodale, Anthony's wife, heads up the farm's creative department. In a small barn, she and two educators create learning materials and Web-site pages for children, featuring the adventures of Professor Redworm, the Institute's mascot. They've designed educational displays on regenerative farming for a traveling exhibit hosted at Capital Children's Museum in Washington, DC, Epcot center in Florida, and at the Institute itself. Last year, the Institute gave awards to Pennsylvania schools growing organic gardens. "Anthony and I really care about kids. They will determine the future of regenerative farming," she explains.

Adult learning is equally important. Twice yearly, the farm hosts "Learning Capsules," daylong seminars and lectures on organic techniques. The demonstration garden, which has always drawn the most attention from visitors, will be renovated this year to make it friendlier for self-guided tours touring. "We're looking at all our communications because we want to do a better job of explaining what goes on at the farm," Florence Rodale says. "People come here for information." They also come because the Institute holds a special place in their hearts. On any given day, cars with out-of-state plates sit in the parking lot, driven here by backyard gardeners making their pilgrimage to the farm. To many of them, The Rodale Institute is hallowed ground. They quiz the garden staff, buy armloads of how-to texts in the bookstore, or sit meditatively under one of the big shade trees, admiring the farm's remarkable balance between cultivation and nature. "My father and grandfather inspired them to grow their own food, and they learned their gardening techniques by reading OG," says Anthony Rodale. "This farm has a very special relationship with them."

### **Diversity in the Garden**

When you stroll through the demonstration garden at The Rodale Institute, you are likely to be struck by two things: the wide diversity of plantings and the simplicity of the techniques used.

The gardens demonstrate not only that organic methods work but also that they are not complicated. In the early years, that wasn't always the case. The staff laboriously double-dug beds, added copious amounts of manure, and controlled pests and diseases with insecticidal soaps and hot pepper sprays, says Eileen Weinsteiger, the chief gardener since 1973. "If we've learned anything over the years, it's that *Organic Gardening* can be very simple," she says. "Oh, you still have to weed and do some work, but we've abandoned many of the practices we once thought were necessary."

Many visitors express surprise at the light touch applied by the staffers. And they marvel at the integration of hundreds of food plants and ornamentals, the array of colors and aromas, and the rich bird and insect life within the dozens of raised beds. "There's a lot of good news here for gardeners," she says. "Put in a lot of plants, mix up your flowers and vegetables, and enjoy."

**Biological controls:** Institute gardeners still use BT (*Bacillus thuringiensis*) against cabbage loopers and against Japanese beetles, but that's about it. The days of using rotenone, pyrethrins, and other botanical insecticides are long gone. There's simply no justification to use anything that kills good bugs along with bad bugs, says Weinsteiger. Most diseases and insects can be controlled with row covers, diverse plantings, borders that are attractive to beneficial insects, birdhouses that bring in insect-eating birds, and simple handpicking, she says.

**Diversity:** No single plant type dominates any of the raised beds. Such diversity limits the spread of diseases and bugs. And many of the flowers draw beneficial insects, such as lacewings and lady beetles, which protect the food crops.

**Wildlife:** Insects, toads, and birds thrive here. Lured in with birdhouses, a bog pond, and lots of plants that provide habitat and food, they're all part of the diversity and natural pest control, says Weinsteiger. "The wrens, especially, are really effective in keeping down the cabbage loopers," she adds.

**Fertility:** Years of composting have created rich planting beds. Organic matter makes up 5 to 10 percent of a typical raised bed at the Institute. When planting, staff members dig down 12 inches, turn over the earth, and simply rake it smooth. During the growing season, they apply 1 to 2 inches of compost. The garden also makes extended use of cover crops, such as red clover, oats, and buckwheat, which return fertility to the soil.

**Compost:** The Institute promotes the use of plant materials—grass clippings, leaves, and garden waste—to make compost. It no longer uses manure in the demonstration garden (though it does in the farming trials) because most home gardeners don't have access to it, and they don't really need it, says Weinsteiger. "Just use what you have. Everybody has access to plant materials from the yard and garden, and vegetable matter from the kitchen," she says.