SPECIAL FEATURE

# Organic and Sustainable Up for Review ... Again

by Deborah Rich

Harlan and Homer Lundberg apologize for not remembering either of the two groups of researchers from Washington, D.C. who visited their California rice farm in the late 1970s and the mid-1980s to see what organic farming was all about. By then organic farming was no longer new to the Lundbergs, nor was it uncommon for people to stop by to see what they were up to. Moreover, neither of the reports that the researchers wrote helped the Lundbergs' figure out how to control the build-up of aquatic weeds in fields that had been under organic management for several years: a problem so troublesome that at one point the Lundbergs had scaled their organic production back to 100 experimental acres.

The first group of researchers came to the farm at the behest of Agricultural Secretary Bob Bergland who, in 1979, at the end of a decade marked by two oil crises and amidst growing concern about the side effects of agricultural chemicals, decided it was time the United States Department of Agriculture (USDA) took a serious look at organic farming. The researchers compiled case studies on 69 farms including the Lundbergs' and recommended in their 1980 *Report and Recommendations on Organic Farming* that the USDA begin comprehensive research into organic practices.

In 1985, with the USDA slow to act on the recommendations of the 1980 report—despite the nation's deepening dissatisfaction with the environmental and economic repercussions of high input conventional farming—the National Research Council (NRC) commissioned a second group of researchers to study organic and other forms of sustainable farming. The group examined the science and policies that influence whether farmers adopt sustainable farming practices and the economic impacts of doing so. In their 1989 NRC report *Alternative Agriculture*, the researchers concluded that the nation should direct significant research and education efforts towards sustainable farming and dismantle the barriers to alternative agriculture built into U.S. agricultural policy.

Today, nearly 20 years after the second report was published, a third report is in the works. The NRC has commissioned a group of scientists to revisit the 1989 *Alternative Agriculture* report and to provide an updated review of the science behind sustainable farming practices, the economics of sustainable farming, and the government programs and policies that impede or promote the adoption of sustainable farming practices. The group will also consider how sustainable farming contributes to national economic, environmental, social, and human health goals.

This new NRC study—due out in June or July of 2009—is particularly timely; organic and sustainable agriculture remains only a sideline issue for the USDA despite the fact that the high input farming model that has dominated U.S. agriculture for the past 70 years has grown embarrassingly and dangerously outdated. Cracks in the façade of cheap food policy are widening as scientists continue to elucidate the threats to environmental and human health posed by synthetic fertilizers and agrichemicals, and diminishing oil supplies expose the inherent weaknesses of a food system built on fossil-fuel intensive fertilizer and pesticides. American agriculture may be approaching a tipping point.

A new NRC report on the progress and potential of organic and sustainable farming systems may give consumers, farmers, and politicians the rationale, the blueprint, and the inspiration to reset the course of American agriculture.


*Eldon, Wendell, Harlan and Homer Lundberg.*

*Deborah Rich grows olives near Monterey, Calif. She writes about agriculture for the San Francisco Chronicle and other publications.*

Despite limited USDA support or interest over the past decades, leading farmers have continued crafting a new model of agriculture that recognizes the interdependence of productivity and sustainability. In the 1990s, after much experimenting, the Lundberg brothers hit upon a combination of no-till drilling and alternately deep-water flooding and drying-out rice fields that keeps them one step ahead of watergrass, sedge, and other aquatic weeds. The Lundberg family now has 3,000 acres in organic rice production and contracts with other farmers who grow an additional 11,000 acres of organic rice each year for the Lundberg mill.

Whether the new NRC report can serve to redirect American agriculture towards sustainability will ultimately come down to politics and personal courage and conviction. The conventional farming lobby has proven itself extremely adept at using its political heft and claim on the status quo to marginalize sustainable farming. Judging from the aftermath of the 1980 USDA organic farming report and the 1989 NRC report on alternative agriculture, how the nation responds to yet another review of sustainable farming will depend more upon political agendas writ large and small, lobbyists' coffers, and who happens to be in the right (or wrong) place as on the science and evidence the report puts forth.

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### Something Revolutionary

Bob Bergland, U.S. Secretary of Agriculture from 1977 to 1981 under President Jimmy Carter, had good reason to look into organic farming even though the academics, crop associations, and agri-chemical companies intent on industrializing U.S. agriculture preferred to dismiss it as the practice of hippies, back-to-landers, and obstinate farmers. The nation had spent much of the 1970's idling in line at gas stations during back-to-back oil crises, nitrogen fertilizer prices were surging, and it was becoming increasingly difficult to ignore that the country was simultaneously polluting its surface water and depleting its groundwater. "Non-renewables were a big issue. A lot of people were beginning to ask whether we could find less energy-intensive ways of farming," says Garth Youngberg, a member of the committee Bergland assembled to investigate organic farming.

Then there was that neighbor of Bergland's back in Minnesota who farmed 1,000 acres organically. Bergland got to wondering how many other farmers could do, or were already doing, the same.

"I've been told that Bergland was having a staff meeting one day, and the topic came up of organic agriculture, and Bergland asked, 'What do we know about this?'" says Youngberg. "Apparently, everybody looked either at the ceiling or the floor because nobody knew."

So it was that Youngberg, then political science department chair at Southeast Missouri State University, got a phone call early in 1979 from the USDA asking him to be part of a study team being assembled to take a look at organic farming. The year prior Youngberg had published a paper in the *Policy Studies Journal* about what he termed, "the alternative agricultural movement." "They [the USDA] probably came to me because I was about the only social scientist who had written on organic farming at the time, and they wanted the group to be interdisciplinary," says Youngberg.

Top USDA and land grant university agricultural scientists made up the rest of the ten-member committee. Not knowing any of them, Youngberg asked to attend a meeting with key members of the committee before he committed. "I didn't want to go out there and be part of a whitewash," said Youngberg. "Within 15 minutes of meeting with the core of the team and talking about objectives and methods, I knew I was fine with the process. It was clear to me that the study would be done objectively, and that was all I needed to hear."

The committee reviewed the scant scientific literature on organic agriculture; polled 1,000 farmer subscribers to Rodale Press's *New Farm* magazine; visited organic farmers across the United States and in Germany, Switzerland, England, and Japan; and spoke with Cooperative Extension Service agents across the country about local organic farming and research activities.

Their findings impressed the scientists. Rather than the love beads and drumming circles they half-expected to find on their visits, they found modern machinery, certified seed, and sophisticated water and soil conservation practices like grassed waterways, stripcropping, and contour farming. They found the Lundberg brothers' state-of-the-art rice mill.

Just as surprising to the committee was the scale of organic farming they encountered. "Back in those days, the standard view was that you could only do this on a half-acre in your backyard," says Youngberg. "One of the most important findings was that farmers were organically farming large acreage. Just to put out the bare facts—that there was a farmer in Minnesota with 1,000 acres, and a farmer in Texas with 2,000 acres—was mind-boggling to people; they had no clue

that anything like this was going on. It was really like uncovering something revolutionary." Nothing in the scientific literature at the time gave any indication of the breadth and depth of organic agriculture, says Youngberg.

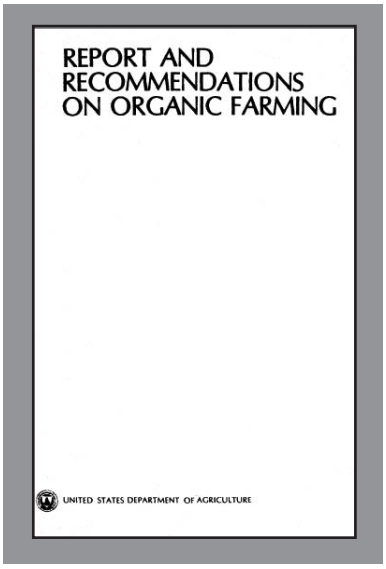
Bolstered by their findings, the committee had little trouble drafting its report. The researchers described organic agriculture as they saw it, detailed common organic farming practices, and concluded with a list of recommendations, the first and foremost being for more research into organic farming.

Research was needed, the committee wrote, to better understand the potential for improving soils with organic wastes, the chemical and microbiological interactions at play in organic systems, why farmers experience a yield reduction when first transitioning to organic, the long term-effects of chemical fertilizers and pesticides on soil, biological nitrogen fixation, the economics of organic farming, and the human health effects of agrichemical residues on foods. Additional research was needed to develop crop varieties adapted to organic farming systems; non-chemical methods of controlling weeds, insects, and plant diseases; and ways to raise livestock without the use of antibiotics. The committee called for university courses on self-sustaining farm systems, Cooperative Extension materials on organic farming, and organic production and labeling standards. Finally, it recommended that the USDA establish a permanent organic resources coordinator to foster and oversee organic research and policy.

## A Bombshell

The report hit the farming world like a bombshell, says Youngberg. The oil crises had brought the nation up short, but conventional agriculture wasn't flinching. "The dominant view still was that there would be high-tech ways to solve these problems," says Youngberg. "Biotechnology was coming into view, and there were people in that camp who thought any effort to look at something as simple as crop rotations was ridiculous and represented a step back rather than forward. They felt the more viable approach was to find ways to continue with monocultures and heavy chemical approaches."

From anyone else, the report would likely have been ignored by all but the converted. The USDA seal-of-approval and the reputations of the authors, however, made the report hard to dismiss. "This was new information, new data, written up by some highly credible USDA and land grant university scientists," says Youngberg. "People like Bob Papendick, Jim Parr, and other scientists on the committee had enormous scientific credibility. They were fellows in their societies and had published hundreds of papers," says Youngberg.




For many months following the report's release in July 1980, Youngberg, who by that time had been appointed to fill the new role of organic resources coordinator at the USDA, spent much of his time responding to requests for copies of the report. Tens of thousands of copies were distributed, and the report was translated into seven languages. The agricultural press gave the report widespread coverage, and farm and university groups from all over the country asked Youngberg to speak to them. "People just really wanted to meet me, to see who the USDA had put in charge of organics. They wanted to ask where this was going to go, and whether I had real support or if this was just a symbolic thing," says Youngberg.

## Dead End

The question was prescient. By September 1982, Youngberg would be fired and the organic resources coordinator position eliminated as part of a USDA "reduction in force." Organic farmers and advocates wrote letters of protest to the Congress and USDA, and several congressmen spoke up in favor of retaining Youngberg and his office, but to no avail. "It was a good lesson for me as a political scientist in just how impotent a handful of congressman is when up against that kind of decision influenced from the top," says Youngberg. "You can wave your hands and holler all you want and nothing happens."

It was probably all over for Youngberg from the minute that Ronald Reagan entered the oval office in 1981 and appointed John Block as the new Secretary of Agriculture. A 3,000-acre corn and soybean farmer and owner of a 6,000-hog operation, Block was a star member of the emerging industrial farming elite and had little use for organic farming. In a June 10, 1984, article for the *Des Moines Register*, journalist James Risser reported that upon becoming

**Plain package.** The 1980 *Report and Recommendations on Organic Farming* represents the first instance of the USDA putting its logo on a public text related to organic agriculture. (Copies of the report are available for free on mini cd or in pdf format from the National Agricultural Library nal.usda.gov/afsic/pubs/USDAOrgFarmRpt.pdf)

Secretary of Agriculture, Block had said that there would be no follow-up to outgoing Secretary Bergland's "dead end" research into organics.

Block's attitude matched that of the conventional farming contingent, which didn't like to see the USDA flirting with organic agriculture. The Fertilizer Institute, pesticide companies, and crop associations demanded to know why the USDA was looking into organic farming. With enviable speed, the Council for Agricultural Science and Technology (CAST)—whose list of "sustaining members" includes a full line-up of fertilizer and agrichemical companies and commodity crop associations[1]—released a counter-report in October, 1980, titled "Organic and Conventional Farming Compared," positing organic farming as economically justified only when off-farm inputs are not readily available. The CAST report also argued that widespread adoption of organic farming would raise food prices and require marginal lands to be brought into cultivation.

"You began to see arguments like, 'Well, maybe you can farm this way, but you can't feed the world this way,'" says Youngberg. "That feeding the world argument really became a big part of the debate. Think tanks like the Hudson Institute, agrichemical industry spokesmen, and some university researchers started to write papers and make speeches about how organic farming was really kind of unpatriotic, if not immoral, because Americans should want to feed the world and had a responsibility to feed the world."

Many in the scientific community, meanwhile, honestly disagreed with the report. "There were scientists at the USDA Beltsville research center who had been involved heavily in developing 2,4-D, for example," says Youngberg. "They didn't take kindly to what I was doing there." Once Block came on as Secretary of Agriculture, the dissenters within the USDA found their voice.

### Something Pretty Special

The lines at the gas pump had shortened by 1985, but the farm economy was deteriorating. Nitrogen prices were still climbing, and, with agricultural capacity overseas expanding at the same time that a rising dollar made U.S. crops more expensive, exports were declining. Storage silos bulged with excess grain, and federal farm support payments had increased from $3.5 billion in 1978 to $25.8 billion in 1986[2]. Commodity prices fell, and so did the price of farmland. Debt that had seemed smart when commodity and land prices were on the rise could no longer be serviced. More than 200,000 farms went bankrupt in the first half of the 1980's.

There was more bad news on the farm. The Environmental Protection Agency (EPA) had singled out agriculture as the largest non-point source of water pollution, and soil erosion continued at a rapid rate despite 50 years of state and federal efforts to control it. Studies linked pesticide exposure to the occurrence of cancer among farmers and farmworkers, and scientists reported that more than 440 insect and mite species and more than 70 fungus species had developed resistance to one or more pesticides.

In the midst of this agricultural depression, the NRC's Board on Agriculture, under the leadership of Charles Benbrook, decided the nation needed to take another look at sustainable farming. (Following the uproar over the USDA 1980 report on organic farming, "sustainable" became the more politically palatable term.)

*Garth Youngberg. Courtesy of the National Agricultural Library.*

Even though the Board knew the project would be controversial, it felt it important and necessary to get the conventional agriculture community thinking about the direction that U.S. agricultural was headed. "The National Academy of Sciences [the umbrella scientific organization that includes the NRC] is a quasi-independent organization outside of government that depends on government for most of its money," says Benbrook. "So obviously this sets up an ongoing tension between giving government good scientific advice which is not welcomed politically, versus maintaining a good ongoing relationship with government such that it will continue to fund the Academy's activities."

While there still hadn't been many studies done on organic farming by the time the 17-member NRC committee began to meet in 1985, an increasingly robust body of science about the detrimental effects of conventional farming and about on-farm biological and ecological interactions was emerging. "There was a lot of work being done on nitrogen at Iowa State," says Benbrook. "In the pest management sciences literature, there was a lot of discussion on resistance to pesticides and the collapse of chemical-intensive management systems. The important science that we depended on was science addressing the breakdown in conventional systems, and this was science compiled without any concern for organic or sustainable agriculture."

In addition to conducting a literature review, the NRC researchers looked closely at how sustainable farming worked on 11 farms, one of which was the Lundberg rice farm. For each case study, the committee conducted an on-site visit and gathered extensive data regarding the farms' production practices, marketing strategies, yields, and finances. The committee also sought out data on local climate conditions, county production data, and pest problems.

Again the case-study farms hugely impressed the researchers. "There was just no way to look at the detailed information that we compiled on those farms and not come to the conclusion that there was something going on that was pretty special and that conventional agriculture ought to pay attention to," says Benbrook.

The NRC committee's message to the nation was clear-cut: sustainable farming could improve the economics of many farms while simultaneously lessening the negative environmental impacts of agriculture, and it behooved the government to remove the policy barriers that deterred farmers from switching to sustainable farming methods.

The committee's 448-page-long *Alternative Agriculture* report laid-out four central findings: that some farmers in nearly all sectors of U.S. agriculture were employing sustainable farming methods and deriving "significant sustained economic and environmental benefits" while doing so; that a host of federal policies deterred farmers from adopting sustainable farming practices; that a systems approach to research was necessary to understand and capitalize upon biological and environmental interactions; and that the widespread adoption of sustainable farming practices would require significant outreach to farmers and technical assistance[3].

The resolve of the committee to convey its message was to be thoroughly tested. Though the committee finished the report in less than 24 months, it spent the next two-and-a-half years answering challenges from academics and industry representatives during the rigorous peer review process required by the NAS. "We had multiple 20-30 page reviews to deal with," says Benbrook, "and multiple rounds of them. There was a whole other report written in the rebuttals that the committee wrote each time we received a negative review." Time and again the committee responded to the critiques until finally the National Academy of Sciences was satisfied that the report findings and recommendations were scientifically valid.

### For Every One Inspired, Ten Threatened

Interest in *Alternative Farming* was intense. "These were hot issues," says Benbrook. "The farm sector was still in turmoil, and there was a palatable sense that agriculture on its current path was unsustainable."

The NRC decided to print forty thousand copies after receiving pre-orders for at least twenty thousand (*Alternative Farming* would be reprinted five additional times over the following ten years). Newspapers and television cameras carried news of the report's release into nearly every home in the country.

"The study by the nation's pre-eminent body of scientists is perhaps the most important confirmation of the success of agricultural practices that use biological interactions instead of chemicals. Such farming methods have been developed by farmers over the last two decades almost entirely outside the Department of Agriculture, agricultural universities and other institutions in American farming," wrote Keith Schneider for the *New York Times* in a front-page above-the-fold article (only the second time that a report from the Academy had occupied those coveted column inches).

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Such public and positive coverage of sustainable farming was bound to upset those with vested interests—academic, financial and emotional—in the practices and products integral to conventional farming. "There were 10 people threatened by *Alternative Agriculture* for every one inspired," says Benbrook. "The report had such a big impact on public dialogue and understanding of these issues that it triggered the immune system of conventional agriculture because they correctly realized that if that kind of report kept coming, it would inevitably build support for more fundamental changes in how agricultural policy is conducted in the United States."

Pushback was swift. The Cotton Council, the Farm Bureau, the Fertilizer Institute, and the pesticide and industry associations began making calls to top USDA officials. In turn, the USDA made its calls to the president of the NAS. "I don't think that the USDA instigated or was even terribly sympathetic to the complaints that they heard," says Benbrook. "But as a practical reality, the commodity and agribusiness organizations control the budget of the Department, and the Department knew that, and they did what they were asked to do."

By July, 1990, CAST had assembled another counter-report, which, while carefully avoiding disagreeing with most of the conclusions of *Alternative Agriculture*, resurrected the specter of food shortages. "*Alternative Agriculture* recommends agricultural practices that may significantly reduce food supplies, thus placing a severe financial burden upon low income consumers and intensifying world food shortages," wrote Lowell Jordan, president-elect of CAST[4].

In the fall of 1990, Benbrook was fired from his position as executive director of the NRC Board of Agriculture.

### Progress, But No Sea Change

When heads had rolled, and the press had gone home; when the Lundberg brothers and the other case study farmers had turned their attention back to weeds and water systems, what had changed as a result of the USDA and NRC reports? The answer is both a lot and not much at all. On the one hand, the reports established organic and sustainable farming as worthy of scientific investigation and secured them toeholds in agricultural policy debates. On the other hand, the reports failed to promote the sea change in U.S. agriculture that their conclusions warranted. Nearly thirty years out from the 1980 report, the number of certified organic farmers and certified organic acres—two of the most trackable data points on the penetration of sustainable agriculture—still only total about one-half of one percent of total U.S. farmers and acres[5].

Youngberg and his USDA colleagues had found that a fair number of agricultural scientists were quietly conducting small organic research projects, even before release of the 1980 report. "When I would speak at land grant universities, there was almost always a group of scientists, sometimes half a dozen, sometimes more, that would come to me afterwards and tell me, 'We have this little project over here that we want you to know about,'" says Youngberg. "'It's sort of *sub rosa,* we're not making a big deal about it, but we share your views.'"

With two high-level reports within 10 years concluding that the nation had much to learn from organic and sustainable farming practices, alternative agriculture researchers could and did come out of the closet. "The reports asked a whole series of scientific questions, legitimizing research," says Richard Harwood, former director of Rodale's research center. "When I went to Rodale in the 1970's, my colleagues all said I was throwing my career away because then it was neither fashionable nor acceptable within the scientific community to look at this." By 1990, Harwood would become the first C.S. Mott Chair for Sustainable Agriculture at Michigan State University.

"If you look around, there are pretty strong clusters of sustainable and organic research going on at probably 20 land grant universities now. In the late 1980's, you could probably say that about maybe two of them," says Benbrook.

In addition to empowering scientists, the reports armed politicians inclined to support organic and sustainable farming and helped them achieve a series of legislative gains. Representative Jim Weaver introduced the Organic Farming Act of 1982 which would have initiated USDA research into organic agriculture on several pilot farms and permitted knowledgeable volunteers to staff Cooperative Extension offices to respond to inquiries from parties interested in organic agriculture. Weaver's legislation didn't pass, but three years later Senator Patrick Leahy gained congressional approval for a USDA competitive grants program, which evolved into the Sustainable Agriculture Research and Education program (SARE).

1985 also saw the founding of the Alternative Farming Systems Information Center (AFSIC) at the National Agricultural Library in Beltsville, Maryland. Two years later, the National Sustainable Agriculture Information Service (known as ATTRA) was started, its mission to respond to requests for information on sustainable farming from farmers, Extension agents, and educators.

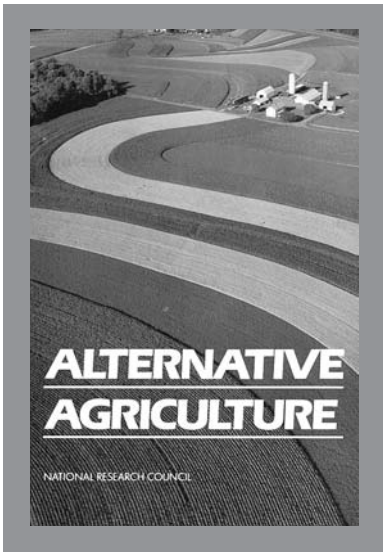
In 1990, the landmark Organic Foods Production Act authorized the national organic certification and labeling program. During the late 1990's, the Agriculture Management Assistance Act included the provision that organic farming would be considered a "good farming practice" for crop insurance purposes.

Funding for "Organic Transitions Research" within the Cooperative State Research, Education and Extension Service's competitive grants program came in 2001, and, in 2002, for the Organic Agriculture Research and Extension Initiative.

These gains are precious and trace directly or indirectly back to the bold positions staked out by the USDA and NRC report committees. Despite these advances, however, conventional farming maintains a tight hold on agricultural research, policy-making, and funding.

"We're accumulating more science, but still at a pretty slow rate," says Mark Lipson, policy program director at the Organic Farming Research Foundation (OFRF). "There is just a trickle coming through the pipeline. Percentage-wise, yes, there have been significant leaps. But relative to the big scheme of things, it's still just a dribble."

Similarly, while organic and sustainable farming has garnered some funding in the




**The 1989 Report,** *Alternative Agriculture,* published by the National Research Council. (Copies are availalbe for purchase from the National Academies press at nap.edu/catalog.php?record_id=1208)

farm bills, the amount remains relatively insignificant. "Our total cumulative serious ask – not only for research and education, but also for things like assistance with certification and transition costs - for organic agriculture in the current farm bill is in the range of $150-$180 million over five years," says Lipson. Many billions, meanwhile, will be funneled to conventional farming.

Benbrook feels that little has changed on the policy front since he spearheaded *Alternative Agriculture*. "From a policy perspective, I don't think there's any support for organic or sustainable," says Benbrook. "There wasn't much in 1989, and there's not much now. It's just not there. We can all think it is, but show me the money. Show me the changes in policy that really make a difference other than the 1985 Conservation Title. The vast majority of the agriculture sector is involved in building more CAFO's, using more GM crops and more fertilizer, and buying $400,000 GPS-guided combines, not in diversifying rotations and building soil microbial communities."

## Good Reports Aren't Enough

There are a lot of reasons why conventional farming has been hard to uproot and why good reports and good science have gone only so far in resetting the agricultural agenda. Near the top of the list is the amount of money that conventional farming has doled out for decades to politicians, farm bureaus, university research programs, and industry groups. So far, the organic and sustainable farming constituency has largely steered clear of or been unable to afford much in the way of campaign contributions, limiting its influence. "When the big decisions are made behind closed doors, there's only so much political capital that we have as righteous populous forces," says Lipson.

Money buys a lot, but there are other reasons why the USDA and NRC reports did not have a larger impact on American agriculture. Though the reports opened the door for research into organic farming, translating that research into workable widely used farm practices has been slow. "We always hear from Cooperative Extension about their limited budgets," says Lipson, "But there's a lot of Extension money being spent. It's just going in the wrong direction. There is a ton of resources, for example, going into extending no-till systems using co-pesticidal genetically modified crops, and has been for decades."

Meanwhile, growers wanting to learn about organic no-till systems generally have to tap into sources of information outside of establishment agriculture. "Despite the fact that there's more research, and that we know organic farming can be done, if you're a 50-year-old conventional farmer—you've got 1,000 acres in corn and soybeans in central Illinois and you belong to the Illinois Farm Bureau, and you get most of your information from the University of Illinois—it's still easiest to continue doing more or less what you've been doing," says Youngberg. "It's very difficult to be motivated enough to say I'm going to stop this corn and soybean rotation and throw legumes and other cover crops into the mix too. If you're going to do that, it means that you've got to think about your machinery line-up and what the costs are going to be to buy the equipment to plant and harvest the alfalfa. And then what do you do with the hay? You haven't raised a hog or steer in 25 years."

*Chuck Benbrook.*

Another constraint is that improvements in sustainable farming systems often entail greater management complexity and ever-greater diversity. "As Miguel Altieri says, this is 'agroecosystem redesign'," says Lori Ann Thrupp, manager of sustainability and organic development at Fetzer Vineyards, an Organic Farming Research Foundation board member, and member of the NRC committee. "You're not just manipulating the vegetation, or the grasses, or the water for one crop, you're also integrating other crops and all of their own interactions with the surroundings.

And while it's fairly easy to co-opt the private sector into educating farmers about spray programs and genetically modified seed protocol, corporations haven't much to gain by discussing site-specific ecosystem interactions. "The system is hard-wired against the very types of science and technology that organic and sustainable farming requires," says Lipson.

Some may fear for their jobs should the nation shift away from conventional agriculture – perhaps especially at the agencies that regulate its trespasses. Thrupp, who worked for the Environmental Protection Agency (EPA) for three years prior to joining Fetzer, saw good support for organic and sustainable projects at regional EPA offices, but little at EPA headquarters where the pesticide department holds sway. "That office was in the business of reviewing pesticides. They hire dozens of people for reviewing new chemicals. So for them to talk about eliminating pesticides is to talk about eliminating a lot of jobs, about eliminating their very own source of income," says Thrupp.

Disinformation campaigns, even those seemingly crude and patronizing, have been and continue to be highly effective in raising doubts about the viability of sustainable and organic farming. "It always comes back to people making these statements: we can't feed the world unless we do it in the old way and unless we get subsidies to make sure that farmers continue to survive," says Thrupp.

Finally, like any news, timing influenced the impact the reports had. When *Alternative Agriculture* was published in 1989, Congress was simultaneously massaging the conservation titles introduced in the 1985 farm bill and drafting the 1990 farm bill. Agricultural policy-makers already had a full plate, and the emerging organic community was focused on securing passage of the 1990 Organic Foods Production Act legislating organic labeling and processing standards.

Timing too in the sense that the organization at the elite and grassroots levels and the funding necessary to capitalize on watershed events like the USDA and NRC reports weren't in place in the 1980s. "By themselves, these reports are just kind of outliers and, in some ways, ahead of their time," says Lipson. "The other collaborating forces that would be necessary to leverage that kind of statement into policy just weren't there." The OFRF didn't exist yet, and the organic network was loose, more potluck than political, and poorly funded.

## Third Time's a Charm?

The Lundberg brothers keep on experimenting. They're taking a look at using Global Positioning System-guided (GPS) tractors to be able to control aquatic weeds in varieties that have poor seedling vigor and aren't suited for deep water. They hope GPS will allow them to cultivate between the rows of rice seeded just six inches apart, including one round of "blind tillage" before the rice even emerges. Most of their learning comes from trial and error. "We've had to learn organic farming mostly on our own," says Homer. "There's just not many people, even now, thinking that we're going the right way."

There is good reason to hope that the Lundbergs will find more support for their efforts following the release of the NRC's report next year. The convergence of many factors may enable the nation to leverage the findings of the new NRC report into a paradigm shift that resets the course of American agriculture: Organic food enjoys huge popular support and accounted for $17 billion, or nearly 3%, of total U.S. food and beverage retail sales in 2006[6]; Internet-based communication webs now connect and mobilize sustainable farmers and advocates; big box retailers lend new heft and resources to the organic lobby; OFRF has formulated a national organic research agenda; and the House Committee on Agriculture now includes a Subcommittee on Horticulture and Organic Agriculture. Perhaps most importantly, the general public demonstrated considerable interest in the farm bill fine print during the recently ended funding negotiations.

But the forces financially and philosophically committed to conventional agriculture haven't gone away. Instead, they've gained in strength with the takeover and consolidation of the seed business by the chemical industry and the rollout of genetically engineered crops.

*Eldon Lundberg in a photo taken for the 1989* Alternative Agriculture *report. Courtesy of Chuck Benbrook.*

"There is this whole new constellation of political and economic interests that has been created by biotechnology," says Benbrook. "Things are different now, the companies are making much more money than in the early '90s, and as a result the companies are much more powerful both politically and economically. They can wage campaigns and political efforts on a scale that dwarfs what was possible in 1989 when *Alternative Agriculture* came out. There's also this whole new layer of ideological competition for who gets to craft a vision of a productive, safe, sustainable future agriculture towards which we design and implement public policies and public expenditures. Clearly the biotech vision has dominated over the last 10 to 20 years."

And while the rising price of oil is pushing up the cost of high-input farming, for now the revenues of conventional farmers, especially grain and oilseed farmers, are setting records. A larger, wealthier world population is demanding more food even as ethanol refineries court growers with lucrative contracts. The call to grow healthier food, to increase crop rotations, to leave room for hedgerows and filter strips, and to transition acres to organic could be hard to hear over the scream of the commodities market. ❧

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[1] CAST 2007 Annual Report, page 15-16

[2] *Alternative Agriculture*, page 89

[3] National Research Council, Alternative Agriculture, National Academy Press, Washington, D.C., 1989,

[4] *Alternative Agriculture: Scientists' Review*, Special Publication, No. 16 summary, July 1990 page 7

[5] Lipson, Mark, personal interview 3/20/08, and http://www.ers.usda.gov/Data/Organic/Data/Certified%20and%20total%20US%20acreage%20selected%20crops%20livestock%2095-05.xls

[6] http://www.organicnewsroom.com/2007/05/us_organic_sales_show_substant_1.html

# Back to the Future?

Robin Schoen, Director of the National Research Council's current study.

**Robin Schoen serves as the director** of the Board on Agriculture and Natural Resources at the National Research Council (NRC), the same post that Chuck Benbrook occupied when the NRC's 1989 *Alternative Agriculture* report came out. We spoke with Robin in April about the Board's current project: *21st Century Systems Agriculture: An Update of the 1989 NRC Report 'Alternative Agriculture'.*

**OFRF:** What led to the Board taking on this project now?

**Schoen:** We probably would not have done this study if the Gates Foundation and the Kellogg Foundation hadn't initiated it. The question of whether our agriculture system is improving on many different scales of measure should probably be asked all the time, but finding funding for such projects is another story. I don't think the USDA [a frequent sponsor of Board projects] would have said, 'We need some strategic thinking about where we're going and whether we're farming better than we were 20 years ago.'

**OFRF:** What is the interplay with the USDA given that the USDA did not ask for or fund the 21st Century Systems Agriculture study?

**Schoen:** Right away when the project was announced, a national program leader at the USDA-ARS asked me to come over to talk with him at Beltsville. He was ecstatic about the project. There's a group over there that works on the natural resources side that's really very happy about us doing this. The scientific community within the USDA knows that our agricultural system has a significant environmental footprint. They would like more attention paid to how we can be doing a better job. They said to me, 'We have all these practices and systems that we think are working, but only 10% of farmers are adopting them.' That whole adoption problem is beyond the national program leader's mandate: how to provide the incentives and environment for the other 90% of farmers to move away from their current practices. Part of the study is to explore the things that set a farmer on a path that may not be his preferred path but that, because of economic reasons, he sees as the only path he can take.

But at a high level, the USDA is subject to the political pressures of large commodity growers and the same forces that support certain economic incentives that probably cause damage to the environment. The USDA is responsive to political pressures, and it doesn't set the research agenda necessarily, a lot of that is determined by Congress.

**OFRF:** Are you involving the USDA in the report process?

**Schoen:** We've had two meetings, and at both we've asked people in from the USDA to brief the committee. As we begin the scientific review, we'll be drawing on more USDA scientists.

But what I'd like to do between now and when the study comes out is to engage the USDA at the administrator level about the implications of the study and about how we prepare the USDA to respond in a way that shows it will be responsive. The only problem with having two private foundations fund the study is that the USDA could say, we didn't ask for the study so we don't have to listen to anything you say. There's no way, politically, that the USDA could have asked for the study. But since these foundations have taken the initiative, the USDA ought to get ahead of the game and use the report to lever its independence from what hamstrings it from doing the more strategic and progressive things that we all know the USDA needs to do.

We're going to try to make a big splash with this report, and I hope that it can be a win-win situation. I hope the NRC has the credibility such that the report gives the USDA and ARS a hook for change.

**OFRF:** Given that Chuck Benbrook was fired in the wake of the 1989 *Alternative Agriculture* report, are you worried at all about your own job security?

**Schoen:** I don't think about it much. Hey, if the report got so much attention that it became the subject of much debate and passion but moved things forward, then what the hell. ❧