

# ORGANIC FARMING RESEARCH FOUNDATION

## INFORMATION BULLETIN

FALL 2007 NUMBER 15

### Dairy Tales

As organic dairy grows, so do research and extension programs that support this dynamic industry



Guest Feature

### Beyond Organic: What's Really At Stake

Frederick Kirschenmann begins the Organic Summit conversation

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- Forage brassicas as a component of organic production systems
- Using trap crops in organic strawberries to control western tarnished plant bug
- Integrated caterpillar control in organic sweet corn
- Feeding beef cattle to produce healthier and highly acceptable beef
- On-farm nutrient budgets in organic cropping systems
- Intercropping to create local refugia for natural enemies
- Maintaining agroecosystem health in an organic strawberry/vegetable rotation system

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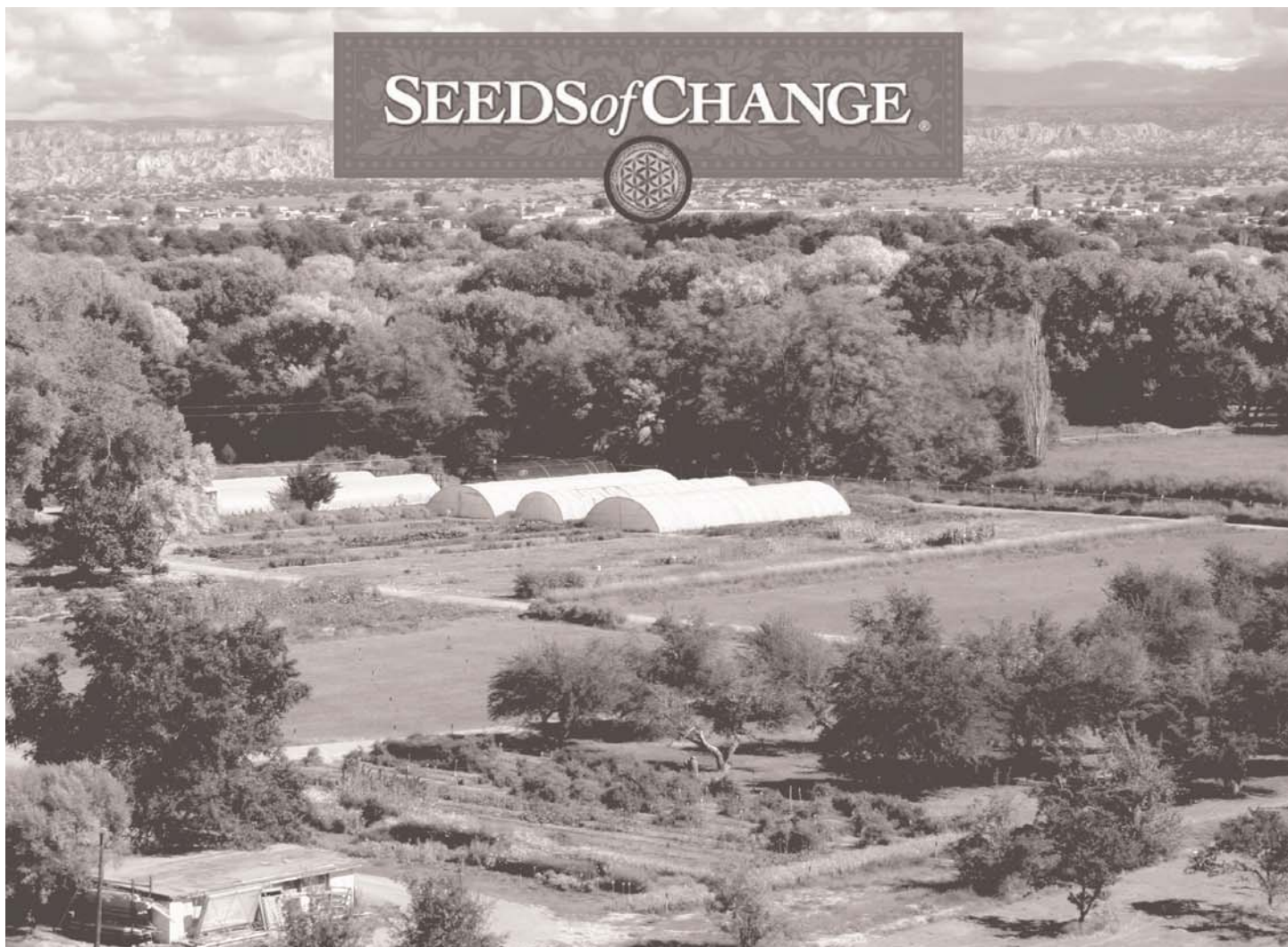
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THE NEWS AT OFRF — *Jonathon Landeck*

POLICY PROGRAM NOTES — *Mark Lipson, Tracy Lerman and Zach Baker*

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**OUR MISSION** • To sponsor research related to organic farming practices • To disseminate research results to organic farmers and to growers interested in adopting organic production systems • To educate the public and decision-makers about organic farming issues

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# F R O M T H E D I R E C T O R



Dear Organic Farmers and Organic Advocates,

Many of you have received and read the *Information Bulletin* in the past. Others of you may be wondering who we are and what this publication is. The Organic Farming Research Foundation (OFRF) is a non-profit organization founded in 1990 to foster the improvement and widespread adoption of organic farming practices. We do this primarily through our organic farming research and education grants, and through our policy and networking programs.

Our board of directors—organic farmers in the majority—awards small-scale research and education grants to organic farmers and cooperating scientists each year. Since 1993 we've made nearly 250 grants, making OFRF one of the most prolific (and only private) organic farming research grant maker in the U.S. Until the USDA initiated their Integrated Organic Program research funding in 2003, (which OFRF helped establish), only OFRF and the USDA's Sustainable Agricultural Research and Education (SARE) program consistently funded farmer-led organic research.

While grantmaking is not all we do, it remains our flagship activity. This newsletter is our hard copy medium for publishing the highlights of the research we've funded. More comprehensive project summaries as well as complete project reports submitted by our investigators are also available on our website ([www.ofrf.org](http://www.ofrf.org)).

In addition to grantmaking, OFRF's policy program advocates for research and other public programs to support organic agriculture. Our grassroots-based Organic Farmers Action Network (OFAN) has connected over 700 certified organic farmers and ranchers to the legislative process, effectively helping to secure (so far) major gains in this year's Farm Bill. We encourage more organic farmers to join OFAN to keep informed about federal policy issues that directly affect organic agriculture.

This summer OFRF proudly co-hosted the Organic Summit in Boulder, Colorado, in partnership with New Hope Natural Media. Our objective was to bring together leaders from all walks of the organic community in a retreat environment. It is time that we invest in conversations pointing towards what we are for and suggestions on how to get there. To give you a sense of the kind of conversations we want to bring to the organic community, we have published an edited version of organic farmer and agrarian philosopher extraordinaire Fred Kirschenmann's keynote presentation at the Organic Summit for your review. We hope you find it thought-provoking.

In this, our 15<sup>th</sup> issue since 1995, you will find seven OFRF-funded project highlights, a report on exciting organic dairy institutional and networking developments throughout the country, and updates on our policy work. We hope the content of our newsletter is of interest to you, and your feedback on any part of the content is encouraged and welcome. We hope you will also visit our website for additional information.

OFRF and this newsletter are entirely supported by charitable contributions. This support comes from private industry, progressive individuals, and family foundations—you can find a list of our supporters on pages 26 and 27. In particular, we appreciate the support of *Seeds of Change* for sponsoring this issue of the *Information Bulletin*. Our work can only continue thanks to your collective, on-going philanthropic generosity. In our 17<sup>th</sup> year of advocacy on behalf of organic farmers and ranchers all I can say is: So far so great!

—Bob Scowcroft, Executive Director

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# THE NEWS AT OFRF



by Jonathon Landeck,  
Deputy Executive Director

OFRF has long committed to organic family farmers and organic farming systems research. In this spirit of commitment, we launched the Organic Farmers Action Network (OFAN) less than two years ago, inviting organic producers across the nation to join this new voluntary, grassroots action and policy education project. More recently, we published our *National Organic Research Agenda*, meant to inspire scientific research on organic farming systems within the USDA, land grant university system, and the organic food industry. OFAN and the *Agenda* are the nexus of our policy and research work, a concerted attempt to answer an unresolved question posed in the USDA's *Report and Recommendations on Organic Farming* way back in 1980: "Under what specific circumstances and conditions can organic farming systems produce a significant portion of our food and fiber needs?" Research is the key to these answers. Now that OFRF has framed the research agenda, we all need funding to do the research.

OFRF's Farm Bill platform centers around the authorization of a "fair share" of public funds dedicated to organic farming research—at least \$20 million annually. Our activities during the past year to that end have included a partnership with the Sustainable Agriculture Coalition and the National Campaign for Sustainable Agriculture. This past summer, OFRF helped support nine organic farmers for a Farm Bill "Fly-in" to Washington, DC to meet with House and Senate agricultural subcommittee staff. This past spring, OFRF board member and Iowa organic dairy farmer, Francis Thicke, testified before the U.S. Senate Agriculture Committee on organic and sustainable agriculture research priorities for the Research Title of the 2007 Farm Bill. Francis urged the Committee to apportion a share of USDA dollars to research on organic production systems proportionate to organic's share of the U.S. retail food market, now 3.5% and growing. He pointed out that funding for organic research accounts for only 0.6% of the USDA research budget. In April, as a follow-up to Francis's testimony, OFRF Policy Director Mark Lipson provided historic testimony to the U.S. House Subcommittee on Horticulture and Organic Agriculture titled, "Overview of Federal Policy for Organic Agricultural

Research and Development." Mark's testimony was the first ever in the House of Representatives explicitly devoted to organic farming. His and Francis's testimonies are available on the web at [ofrf.org](http://ofrf.org).

OFAN today counts 1,394 participants from 50 states including 704 organic growers, and its participation grows monthly. We have issued eight policy alerts most of which relate to the 2007 Farm Bill. In the meantime, our farmer-led board continues to fund research, awarding 23 research grants totaling \$254,219 during the past two years. On the research side, OFRF's grantmaking now totals \$1.6 million in support of 243 projects. During this time, OFRF published *Investing in Organic Knowledge*, an assessment of our grantmaking program. Of particular note in the report is OFRF's capacity to leverage funding for research. More than three-quarters (78%) of the researcher grantees matched OFRF funding with other resources or obtained additional resources to conduct follow-up work. One set of OFRF grants totaling \$116,898 helped seven researchers establish organic projects that have garnered more than \$3.5 million in additional funding to date. All of OFRF's publications including the *National Organic Research Agenda* and *Investing in Organic Knowledge* are available on the OFRF website along with OFRF-funded research reports.

Finally, in June 2007, OFRF co-hosted the Organic Summit with New Hope Natural Media in Boulder, Colorado, the first such gathering since the acclaimed Claremont Business & Regulatory series of the 1990's organized by OFRF. Organic food and farming activists gathered to "renew the organic conversation" around issues related to unity, regulation, research, and consumer education. The idea to hold a public conversation about these kinds of organic industry issues arose from an article by OFRF's Executive Director, Bob Scowcroft, writing in the Winter06/Spring07 issue of *The Greenmoney Journal*. There Bob called for dialogue and commentary on how to improve on the past 30 years of organic food and farming systems development, and how to support the next generation of an emerging organic leadership. OFRF's research and policy work is our contribution to the future success of those new leaders. 🌱

## Beyond Organic: What's Really At Stake

by Fred Kirschenmann

*Fred Kirschenmann is a longtime leader in national and international sustainable agriculture. He currently serves as Distinguished Fellow for the Leopold Center for Sustainable Agriculture at Iowa State University in addition to overseeing management of his family's 3,500 acre certified organic farm in south central North Dakota and holding an appointment in the ISU Department of Religion and Philosophy. Fred offered the opening keynote at the Organic Summit in Boulder, Colorado on June 21, 2007, an event co-sponsored by OFRF and New Hope Natural Media. This article is an edited and abridged version of his remarks, which are available in audio on OFRF's website, [ofrf.org](http://ofrf.org).*

It was such a pleasure yesterday here at the Organic Summit to shake hands and get hugs and to see some of you with whom I've worked with for 25 or 30 years now. I got to thinking about all of you, and I thought...this is a time to speak from the heart.

I will do my best to share what is on my heart in terms of the challenges we face as an organic community, and for me as a farmer of 60 years now. The flip side of challenges are always opportunities—you can't be a farmer and not see things that way. I think over the next two decades we're going to see more in the way of challenges and opportunities than we've seen over the last two decades.

As you all know, we have some tensions within the organic community. It's important to honor this tension, which I tried to do in choosing the title for my talk. I don't know who first came up with the phrase, "beyond organic," but in my awareness it was Michael Ableman, in the essays he wrote some time ago about his passion growing up in the organic community, and recognizing some things that were happening that he didn't feel were appropriate to our future—it was then that he began to write about "beyond organic." Wherever the term came from, it refers to this tension between those who want to maintain the original principles of organic agriculture, and those who feel the need to move the organic community into the industry and into the mainstream. It's created a tension that we still have with us and that we know we want to resolve.

To understand this tension, it's important to understand a little bit of history. A recent book by Philip Conford, *The Origins of the Organic Movement*, points out the difference between organic practices and the organic movement. While organic practices have been around probably 10,000 years since agriculture began, the organic movement didn't start until the early 1900s. It started as a reaction against the industrialization of agriculture, when we began to use energy-derived, external



Connie Falk

Fred Kirschenmann.

inputs as a substitute for soil fertility and for managing healthy soils, and pesticide inputs as a substitute for managing good predator-prey relationships. There were intelligent people at the time who looked at the industrialization of farming and recognized that this is not the way to have a reliable, long-term food system. Sir Albert Howard was one of those people. He referred to the fact that we have to maintain soil fertility by maintaining its health because it is critical to the survival of human civilization. In addition, there were Lady Eve Balfour, J.I. Rodale, Rudolf Steiner, and in Japan there was Mokichi Okada. They all had essentially the same message—that industrialization was the wrong direction, that we had to maintain these fundamental principles of how nature renewed and restored itself, and we had to be partners in that—that's what organic is all about.

It's important for us to recognize that value and that passion which is a part of our history.

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As food started to be produced in this organic way, out of this passion, there were consumers who started to say, "I want to eat *that* food." They didn't all want to eat it for the same reasons—some felt it had superior nutritional qualities, some thought it had health benefits. Whether they were right or wrong about that, that's not important. Some simply wanted to support the farmers who were farming this way. So the question was, how can people identify this food in the marketplace? That brought about the emergence of the International Federation of Organic Agriculture Movements (IFOAM), created in the early 1970s, and hundreds of organic certification programs which have been developed since then. In the 1990s the Organic Foods Production Act brought the USDA into the system to help consumers identify food that is produced this way.

As consumers continued to want this food, it created an opportunity for industry to step in, and then came the organic *industry*. The organic industry quite rationally had a very different set of priorities from the organic movement. As any industry, it was interested in bringing organic food into the marketplace in an efficient and a reliable way to meet the needs of consumers. While the organic *movement* was philosophically driven—about how we farm and how we relate to nature—the organic *industry* was sales driven, quite naturally.

It was predictable and perhaps inevitable that tension between these two aspects of organic reality emerged. That's where we are now. Back in 2002, recognizing this tension, IFOAM, in their international conference, selected as their topic, "The Organic Community." IFOAM was suggesting the need to move to the point where the organic movement and the organic industry can become an organic community, so that we can share these aspects of our values. I don't know any farmer who isn't interested in the industry being successful at improving sales and making organic products available in a reliable and efficient way. And I haven't met anybody in the organic industry that isn't interested in seeing those original organic principles retained. Sometimes we interpret things differently and have disagreements, and that is part of the conversation that I think the organizers of the Organic Summit want to start.

While this issue is important to resolve, it pales in comparison to other challenges we face as we move into the next couple of decades. One challenge has to do with what's happening in the marketplace. It is no longer adequate for us as an organic community to rely on the organic label as our distinction within the market. Because the organic label simply says to the consumer that the food was produced in a particular way, and while that's of interest and it has certainly enhanced our market, I would argue that our success has much more to do with what the food industry is *not* doing, than with what we *are* doing.

A good example is the melamine incident, when it hit the streets and people's pets were dying. My good friend David Vetter, an organic farmer near Marquette, Nebraska, has an organic processing and manufacturing company called The Grain Place. One thing they produce is organic pet food. Suddenly his sales doubled overnight because of melamine in the food system. One reason people seek organic food is not because of what we're offering them, but because of what the rest of the food system is screwing up. We in the organic industry are not paying sufficient attention to what the market is telling us.



The market is telling us a number of things that are really quite specific. Let me quote, as one way of expressing this, from Barbara Kingsolver's new book, *Animal Vegetable, Miracle*. It's about her own family and their decision to produce all their food from their own little farm in Virginia, and the struggles her family had with that. In the middle of the book she talks about organic:

*...the paper trail of organic standards offers only limited guarantees to the consumer. Specifically, it certifies that vegetables were grown without genetic engineering or broadly toxic chemical herbicides or pesticides; animals were not given growth-promoting hormones or antibiotics. "Certified organic" does not necessarily mean sustainably grown, worker-friendly, fuel-efficient, cruelty-free, or any other virtue a consumer might wish for.*

*The rising consumer interest in organic food has inspired most of the country's giant food conglomerates to cash in, at some level. These big players have successfully moved the likes of bagged salads and hormone-free milk from boutique to mainstream markets and even big box stores. But low price has its costs. In order to meet federal organic standards as cheaply as possible and maximize profits, some industrial-scale organic producers (though not all) cut every corner that's allowed, and are lobbying the government to loosen organic rules further. Some synthetic additives are now permitted, thanks to pressure from industrial organics. So is animal confinement. A chicken may be sold as "free range" if the house in which it's confined (with 20,000 others) has a doorway leading out to a tiny yard, even though that doorway remains shut for so much of the chickens' lives, they never learn to go outside. This is not a theoretical example.\**

I wanted to share this with you because this is one of our friends telling us, "Look, something is happening in the marketplace, something that consumers want, that organic is not providing." That's what we need to pay attention to.

There are other hints about how this is happening. You're all acquainted with these. The cover of *Time* magazine last

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March, said, “Forget Organic, Eat Local.” When Time Magazine spends six pages on an article telling you about that issue, we’ve got to pay attention. *The New York Times Magazine*, on March 30, had an article, “Fighting the Tide, a Few Restaurants Tilt to Tap Water.” It’s a story about restaurants that are giving up bottled water because their customers recognize that bottled water is an environmental disaster. On the same day, *The New York Times* published another article that headlined, “Is Wal-Mart Too Cheap for Its Own Good.” It’s about the fact that while price is extremely important in the marketplace, increasingly consumers are saying that’s really not what they’re after. They want certain quality characteristics that are more important than price.

What other things does the market want? The Hartman Group has done a remarkable job helping us put a finger on the pulse of the market. A recent Hartman report stated: *62% of the consuming public now wants to buy food that is consistent with their values.* I read that and it struck me...Sixty-two percent of the public is buying food as a *values exercise*. The fact that people are now buying food based on values means we have an enormous market opportunity to respond to those values needs. And for many of them it has to do with authenticity. That means you can’t just hype these values, they really have to be there, in the way in which the food is produced and brought into the marketplace.

About three years ago, I attended a speech given by Rick Schnieders, who is the Chairman and CEO of Sysco Corporation, the largest food distribution company in North America. He said that the cutting edge today in the food service business is all about *memory, romance and trust*. What he meant was that you want a food product out there that is *so good* that when your customer eats it they say, “Wow, where did that come from, I want that again.” They build a memory connection to that food.

Secondly, he said, consumers not only want good food, they also want to feel good about buying it and consuming it. The story that comes with that food is the romance part. People now want to know where their food comes from—they would prefer to know the actual farm family that produced that food, they want to know there was good environmental stewardship, they want to know the animals were treated appropriately.

Finally, he said, consumers who want good food with that good food story also do not want to be passive recipients, they want some kind of active engagement and involvement in the food chain and they’d prefer to have that as a trusting rela-



**Sixty-two percent of the public is buying food as a *values exercise*. The fact that people are now buying food based on values means we have an enormous market opportunity to respond to those values needs.**

tionship that goes all the way from their table to the farmer.

Those companies, he said, that achieve that three-fold purpose, and bring food into the marketplace with those characteristics—memory, romance and trust—will be the most successful in today’s cutting edge marketplace.

Everything I’ve seen since confirms exactly what Schnieders said. A survey by the University of Nebraska, looking at eight mid-western states asked the question, “When you go to

buy food, what is extremely important or very important in your food choice?” At the top of the list was taste, followed, in order, by health, nutrition and price. Price is very important, but not the most important. Everything below price that consumers chose had to do with the food story—they preferred to buy it from a family farmer and preferred to buy local—all of those food story attributes.

Then a year or so ago I read a book by a business design specialist named John Thackara, who works with CEOs of major multinational corporations. He wrote this wonderful book called, *In the Bubble: Designing in a Complex World*. Thackara points out that the industrial economy is essentially over—it’s too exploitive, it’s too heavy on the planet and it cannot exist much farther into the future. He does a fascinating job of envisioning what our future food and agriculture system, and health care and educational systems will look like. Essentially he says that we will use technology to work together *within communities* to accomplish what we need. That’s the future he envisions because of changes we’re going to see in the way our planet functions. Then he says this interesting thing—at bottom, the future is going to be all about relationship value. This takes us right back to what Schnieders said about where we are in the growing edge of the market. And that’s what the market is telling us—that we are moving into a marketing phase that enables people to be a participant in the food chain and the future will be about relationship marketing.

**B**eyond what’s happening in the marketplace, the more serious challenge is one that’s going to start hitting us within the next 20 years if not within the next five to ten—and that is what’s happening in nature. First, our storehouse of concentrated energy is rapidly being depleted. That storehouse is in old growth forests, coal, oil and natural gas, all of which evolved over the last 3.6 billion years, and we have mined in the space of about two centuries. And then it’s going to be...*gone!* The big issue right now is not running out of oil, because we are just now at the peak of global oil production.

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What happens after we hit peak global oil production is that the amount of oil available starts to drop off quickly. As we start going down that other side of that peak—particularly as we're doing even more industry that is based on oil—it's going to deplete very rapidly. We're going to start seeing oil prices and natural gas prices escalate very, very rapidly.

So, what I've been asking myself on my own farm in North Dakota—and I would ask the same thing of you in your farms and businesses—is this: Will your farm or business be operational when oil hits \$250 a barrel? And at the same time when you have half the amount of water available and twice the severe weather events? Because as we see these energy changes take place, we also won't be able to use as much water as we've used in the past. Our current food system consumes 2,000 liters of water to supply each of us with the food that we eat each day. We can't continue to use this amount of water. The Ogallala aquifer has been drained by half just since 1960; farmers on the edge of the aquifer already have had to give up irrigation. Add to this what's going on in China: 80 percent of their grain production is dependent on irrigation and they are drawing their groundwater down at the rate of 10 feet per year, in some places pumping from 1,000 feet deep. In India, 60 percent of grain production is dependent on irrigation, and they're drawing down their groundwater at the rate of 20 feet a year, in some places pumping from 3,000 feet deep. You don't have to be a farmer or a geologist to know that this is not sustainable into the future.

The other challenge that's happening in nature is climate. I don't particularly care whether people are still in denial about climate change—because they don't think that greenhouse gases are that big a deal or for whatever reason. The fact is that the climate we have had over the last 100 years has been unusually stable in terms of the history of this planet. In 1975 we already knew this. A National Academy of Sciences panel on climate change studied it thoroughly, and what they said was that the climate that we've had in the last century is abnormal. This very stable climate is not the normal situation on our planet. This is important because our industrial food system, which has been so successful, has been dependent on that stable climate as much if not more than on green revolution technologies.

So even if you discount greenhouse gases, you cannot expect the future climate to be the same as the past climate. When you add greenhouse gases to that, we're looking at a situation where we could be in deep, deep trouble. As NASA climate scien-

tist Jim Hansen has reminded us, if we continue to do business as usual for another 10 years—he said this a year ago so we've got nine years left—we are likely to experience a mass extinction comparable to our planet's six previous mass extinctions, where virtually 90 percent of the species got wiped out. This is not a situation that we can readily come back from if we cross the threshold of 500 ppm greenhouse gases, and we're at 380 ppm now. This is changing our planet fundamentally, and that's going to make it very difficult and uncomfortable for us. It's going to be very difficult for us to survive.

What about all of this hype about alternative energy that we're hearing now? It's not going to solve the problem. Because with concentrated stored energy, we're getting 100 kilocalories of energy out for every one kilocalorie of energy in. That's the efficiency ratio that we've gotten used to and that is what our industrial economy is built on. With all of the alternative energy forms we're talking about, whether it's wind or hydroelectric dams or nuclear or biofuels, the efficiency ratios are much, much lower. Corn-based ethanol—which we are saying is going to wean us from Mideast oil—provides 1.3 kilocalories of energy out for each kilocalorie of energy in. Where do you think that kilocalorie of energy comes from? It comes from the Middle East. Wind power, one of the more efficient alternatives, provides about 15 kilocalories out for each kilocalorie in. But you still have to mine the ore, turn it in to steel, manufacture the towers and the turbines, and erect them and maintain them and build the infrastructure. Where is the energy coming from for all of that? It's petroleum. It's all based on a petroleum platform.

So the question we need to ask ourselves, particularly in farming and in agriculture, is this—let's use corn-based ethanol as the example—if you could *only* use corn-based ethanol as the sole source of energy to *produce* that ethanol, would you *do* it? That's what we've got to come to terms with. How much energy does it take to produce that alternative energy? This doesn't mean that we shouldn't do alternative energy—we're going to need it. But any of us who believe that it's going to allow us to continue to do business as usual, that all we've got to do is switch from oil to ethanol or from oil to wind or from oil to solar, then you're living in a fantasy world. We have in fact been living in a kind of fantasy world for the last 200 years, because we have had this concentrated, stored energy that we've been able to mine. But that's not the world we're going to live in.

**What I've been asking myself  
on my own farm in North  
Dakota—and I would ask the same  
thing of you in your farms and  
businesses—is this: Will your farm  
or business be operational  
when oil hits \$250 a barrel?**



*Continued on page 10*

Why is all of that important in terms of how we position ourselves within the organic movement? The reason I think it is so important is because we have buried, in those works of Sir Albert Howard, Eve Balfour, J.I. Rodale, Rudolf Steiner and Mokichi Okada, principles that we need to pull into the future and marry them with the best science we have available now, to create a fundamentally new food system, a fundamentally new production system, based on those agroecological principles that were identified by these stellar individuals. That's the wave of the future.

Because the only thing that I can see that's going to enable us to produce the amount and the kind of good food we want and need is going to be through biological synergy—I had the opportunity yesterday to visit the botanical gardens down in Denver, which is a wonderful place. One of the exhibits that caught my eye was about ants and plants, and their synergy, where the ants provide everything that the plants need and the plants provide everything that the ants need. That's the model.

Fortunately, we have farmers out there, who, on their own, have begun to develop those kinds of models in their farming practices. We have Takao Furuno in Japan who has a duck/rice/fish system that uses no energy inputs whatsoever, and is more productive than any industrial monoculture I've ever seen. We have Joel Salatin in this country, who has not just an intensive rotational grazing system which already reduces energy inputs but also has a series of different species of animals, each of which contributes something to the health of the whole. Very little outside energy is needed, because the animals provide all the energy that's required. It is the kind of energy exchange that takes place in nature. These are the systems we ought to be looking at. Francis Thicke in Iowa is doing this in his dairy operation. So we have these models. What we need to do now is to put at least 30% of our public research dollars in agriculture into exploring these models, seeing how we can extend them, and what else we can learn from the sciences of ecology and evolutionary biology, which agriculture has until now paid almost no attention to.

Let me close with this: 1859 was a very interesting year in our history. It was the year that the first producing oil well was created in Titusville, Pennsylvania and it was also the year that Charles Darwin published *On The Origin of Species*. The oil was so seductive that this was the path we went on—we essentially ignored Darwin. If we had reversed that, and taken Darwin seriously in terms of how we produce our food and how we make food available, we'd have a very different kind of world now, one much better positioned for the future.

But we still have this little space of time, what Thomas Berry calls "moments of grace," because they provide us with the opportunity to bring about the changes we need. That's the good news. The other part of the good news is what it will

do for us. If you want to read somebody who's done a marvelous job helping us understand this—because I don't want any of you to feel like what I've said this morning means we're moving into a future of horrible deprivation—author Bill McKibben has pointed out, after looking at all of the psychological and economic research, that our well-being has actually gone *down* since the 1950s as our wealth has increased. Once you get out of poverty there is no correlation between wealth and well-being.

So, we have a wonderful opportunity to actually *improve* our quality of life as we move into the future, moving out of the industrial era into a new era based on agroecological systems. Cooperating with nature, using and adapting to nature's cycles, rather than trying to dominate and control them as we currently do with our technology. We in the organic community have a wonderful opportunity to take global leadership in this new future, because this is our past. This is the message I hope to leave with you. 🌱

\*Excerpt from: *Animal, Vegetable, Miracle: A Year of Food Life* by Barbara Kingsolver, with Steven L. Hopp and Camille Kingsolver. Harper Collins Publishers, 2007.

## The Organic Summit — Renewing the Organic Conversation

More than 200 organic farming and industry advocates gathered in June at the Organic Summit in Boulder, Colorado. The goal of this inaugural Summit was, as described by OFRF's Bob Scowcroft, "To share our perspectives and experience and open a civil discourse for the betterment of organic."

Veterans of the organic industry and a handful of organic farmers filled the halls and meeting rooms of the St. Julien Hotel, exploring topics like Entrepreneurial Money for Organic; The Cutting Edge of Foodservice; and (Organic) Purists and Pragmatists: Finding a Public Balance.

Guest speakers reflected on the roots of organic farming, the economically thriving community we've become, and our public identity—both for better and for worse. One notable headliner asked, "Is this the organic we wanted? One response was, "You bet it is!"

Others weren't so sure. Pivotal issues like scale and messaging were aired but left unresolved.

Summit participants praised the event overwhelmingly, yet much remains unsaid. Nine out of ten attendees wanted more discussion of "hot topics" like local organic and national standards. Eight of ten wanted more discussion of consumer behavior and trends. One-half would like to attend a Summit again next year; the other half says wait a year then reconvene. Practically all participants hope to keep the conversation alive. "Raise tough discussions, like a family meeting," implored one.

Participants came from all around and met on common ground, a key accomplishment in itself. Yet the graying set of industry reps and organic growers in attendance reflected a current challenge—discover the next generation of organic leadership and bring their voices into the conversation. —JL

# Dairy Tales

The dynamic organic dairy industry is anchored by increasing research and extension support from public and private sectors.

*by Jane Sooby, Organic Research Specialist*

As the organic dairy industry has grown, a network of support services for the transitioning organic dairy farmer has sprung up from the non-profit, industry, and public research and extension sectors. There is more financial and technical support for organic and transitioning dairy farmers than ever before, yet many of the research programs are only becoming established and results have yet to be generated.

Here we profile some of the most active organic dairy support and research programs. While organic dairy companies such as Horizon and Organic Valley offer a broad array of services to organic and transitional dairy farmers, these profiles are focused on the public and non-profit sectors. We have found that most organic dairy research activity is located in the Northeastern portion of the United States, and more is on the way. Alfred State College, part of the State University of New York system, is currently developing an organic dairy research program as part of its new Center for Organic and Sustainable Agriculture.

A full list of publicly funded organic dairy research and extension programs will be provided in the next edition of OFRF's *State of the States* report, slated for publication in 2008.

**UMaine Cooperative Extension** — A persistent group of organic dairy producers approached University of Maine Cooperative Extension professor Rick



*Kevin Brussell and a few members of the UNH organic dairy herd.*

## **First Land Grant Ships Organic Milk**

UNIVERSITY OF NEW HAMPSHIRE, DURHAM, NH

**The University of New Hampshire** (UNH) made headlines in fall 2006 by starting the first organically managed dairy herd at a land grant university. Funded with significant industry support, UNH's newly renovated organic dairy is stationed on 200 acres at the Burley-Demeritt Farm in Lee, and began shipping organic milk from the 48-cow Jersey herd on January 15, 2007.

Small grain production trials are underway, as is a feeding trial, conducted in cooperation with the University of Maine. While a curriculum to train students at the organic dairy is being developed, student and farmer education is currently accomplished through facility tours and field days.

Kevin Brussell, an organic grain and livestock producer, oversaw the organic

dairy startup and now serves as its Organic Research Project Director. The UNH organic dairy team also includes a soil consultant, an alternative vet, certified organic dairy farmers, and UNH's own expert in animal nutrition, Charles Schwab, to advise dairy operations and research. Brussell says the UNH farm management model is "trying to emulate the typical Northeast family dairy farm."

Management strategies emphasize building highly mineralized soils to support growth of high quality forages. "Let's develop our nutritional programs from the ground up to ensure quality," says Brussell. "We want to graze as much as we can. We've determined that the least expensive way to feed a cow is to graze it."

Kersbergen about using his forage research expertise to initiate an organic dairy program. Kersbergen agreed, recognizing that Maine has the highest proportion of organic dairies of any state in the country, with over 20% of Maine's dairies certified organic. The research and extension team that Kersbergen assembled received the Northeast Extension Directors' Award of Excellence in 2006. Kersbergen's program encompasses a study on the economics of forage rotations (in cooperation with UNH), developing a double-cropping system for corn and small grain production (in cooperation with University of Vermont Cooperative Extension and ARS), and weed management in organic settings.

**Vermont Cooperative Extension** — Heather Darby was born and raised on a dairy farm in Vermont, then left the state to acquire her education. She later returned to take over operation of her family's farm and now works as an agronomic and soils specialist for University of Vermont Extension. Darby works closely with Northeast Organic Farming Association (NOFA)-Vermont to educate dairy farmers about making the transition to organic management. In particular she advises growers on producing forages and grains for their organic herds. Darby is cooperating with researchers at the University of Maine and the USDA-Agricultural Research Service (ARS) station there in a regional effort to develop organic grain systems to provide local sources of feed for organic dairies.

**USDA-Agricultural Research Service (ARS) New England** — Nestled on the southern edge of the University of Maine campus in Orono is the New England Plant, Soil, and Water Laboratory (NEPSWL), a USDA-ARS research facility where a team of four scientists is working on a project: "Nutrient cycling and utilization on organic dairy farms." Acknowledging that organic

## "Send a Cow to College" Kick-Starts Western College-Based Dairy

CALIFORNIA STATE UNIVERSITY, CHICO, CA

**Soon after** UNH's facility went on-line, a new organic dairy facility at Chico State University started shipping certified organic milk on March 23, 2007, becoming the West's first university-based organic dairy. Milk from the 65-head herd of Jerseys and Jersey crosses is shipped to a processing plant in Gridley, and sold under the Organic Valley brand.

The program has been strongly supported by California organic dairy producers who instigated a "Send a Cow to College" campaign, which has helped populate the Chico State herd with at least 25 donated cows.

The research emphasis at Chico State is developing improved pasture management techniques and reducing grain inputs.

Cindy Daley, the Dairy Unit Supervisor, reports that students get hands-on experience by participating in the "student management team model," which brings students, staff and faculty together at a weekly round-

table. "Including students in this process builds confidence in their management skills, provides experience working in teams, and fully engages them in the dairy operations," said Daley. The dairy employs 10 students who are responsible for day-to-day management and recordkeeping.

Daley says the biggest challenge has been convincing people that an organic dairy program will be worth a try. "Developing support for a more sustainable, lower input production system that moves away from the 'maximization' paradigm is a complete one-eighty for most programs in dairy science," she said. "Dairy science programs across the country have been all about maximizing production for the last 50 years. Reversing this will be challenging for educators and the industry." The CSU dairy program was managed conventionally for 40 years prior to the organic transition.

Daley and her colleagues are developing an organic dairy module for the dairy management course and plan to introduce organic

practices into the existing curriculum. They also plan to develop "Organic Dairy Production Schools" to help producers learn the fundamentals of organic dairy and what is required to make the transition.

Eventually, Daley hopes to add a processing plant to the facility and supply the campus with Chico State Wildcat milk.

*The Chico State dairy management team models new shirts.*



management uniquely influences availability, utilization, and cycling of manure nutrients, the team is engaged with numerous activities designed to quantify nutrients in manure, evaluate manure nutrient availability in specific cropping systems, and develop practices for efficient use of animal manure. So far much of the work has been done in the lab where they have developed innovative detection methods for evaluating and identifying the bioavailability of

phosphorus (P) and nitrogen (N) from a range of manures. They are working with Heather Darby in Vermont and Kevin Brussell in New Hampshire to perform basic agronomic studies on forage and grain production under organic conditions.

A larger project being done in both Maine and New Hampshire compares milk yield and forage quality in four organic cropping systems, amounts of imported grain needed for each system,

## Grassroots Groups Spearhead Multi-Faceted Organic Dairy Outreach NOFA-VERMONT ORGANIC DAIRY TECHNICAL ASSISTANCE PROGRAM

**In the Northeast**, it was the organic farmers' groups that first recognized the need to support organic dairy farmers. The Northeast Organic Farming Association (NOFA)-Vermont started their Dairy and Livestock Technical Assistance Program in 1996. In 1997, Lisa McCrory was hired to head the Dairy Technical program. Since then, McCrory has overseen the growth of the program into a comprehensive array of personal and on-line services to help producers manage the risk of transitioning to organic.

"The major resource we offer is we will go on the farms as many times as needed to help them figure out the transition and make sure their transition is successful," said McCrory. A team of four technical advisers makes the visits to growers. Other resources include a newsletter, grazing consultations and custom cash flow analyses of transition costs and returns for producers, and ongoing activities including NOFA's annual Transitioning to Organic Dairy workshop, which brings producers, resource people, and milk buyers all in one room to learn about making the organic dairy transition.

Part of NOFA-VT's outreach is directed at input providers to farmers, such as seed dealers and route truck drivers. McCrory describes route truck drivers as "door-to-door salesmen peddling everything under the sun: nutritional products, feed supple-

ments, vitamins, milking equipment, etc. They need to understand the standards and what products can and can't be used in organic dairy." NOFA-VT also reaches out to veterinarians, educating them about allowable treatments for organic clients.

McCrory is excited about a SARE-funded activity in which NOFA-VT and Cornell's Quality Milk Production Services (QMPS) offered an organic dairy conference aimed at veterinarians, vet students, extension personnel, NRCS agents, and other agricultural professionals. McCrory observes, "These conferences were very much needed because the weakest link is that the resources farmers are turning to are not knowledgeable enough about organic or comfortable working with alternative health products they have no experience with."

*Lisa McCrory with one of her cows.*



and ways to reduce grain imports. Feeding trials will monitor milk production of all four systems at both locations for three years. Organic forages are also being analyzed so they can be included in a new ruminant feed analysis database.

**USDA-ARS University Park, PA** — Kathy Soder, an animal scientist with ARS, is investigating supplementation strategies on organic dairies and how

they influence grazing behavior. Using behavior recorders—devices that measure the amplitude of jaw movement in cows—researchers are measuring the amount of time cows spend on grazing, resting and rumination. In addition they are noting cow grazing behavior after being fed various supplements. Results could provide scientific input into the National Organic Program's pasture recommendation by helping to answer the question of how much time

organic dairy cows need to spend on pasture. Soder relies on farmer input to focus her research and reports that participating farmers have helped develop research grants and have volunteered their farms as research sites. Soder is working to develop fact sheets for dairy farmers on the results of her organic work, and has drafted a dry matter intake worksheet that will assist dairy farmers track individual cow performance.

**State of Vermont** — The Vermont Agricultural Credit Corporation (VACC) and the Vermont Agency of Agriculture, Food and Markets (VAAFAM) have instituted a new program to make deferred payment loans to eligible dairy farmers transitioning to organic milk production. The Organic Transition Program will provide loans to offset costs of transitioning to organic dairy production and allow farmers to begin repayment after achieving organic certification. Eligible borrowers must be operating a dairy farm in its last year of transition to organic dairy production. In an effort to assist as many transitioning organic dairies as possible, individual loan amounts will be capped at \$20,000.

For more information contact Diane Bothfeld at VAAFAM, (802) 828-3835, or Sarah Isham at VACC, (802) 828-5627. *Adapted from Vermont Economic Development Authority press release dated Oct. 19, 2006.*

**State of Wisconsin** — The Grow Wisconsin Dairy Team, a joint venture of numerous state agencies and the University of Wisconsin, offers grants of up to \$7,500 "to transition to or enhance organic or intensively managed grazing operations. Cow, goat or sheep operations may apply." This program is not limited to making the organic transition. Eligible costs include design, engineering, and layout of dairy facilities and consultations on financial management, labor management, and risk management. Applicants are required to match

at least 50% of the funds. For more information, contact Jim Cisler at the Wisconsin Department of Agriculture, Trade and Consumer Protection, email [james.cisler@datcp.state.wi.us](mailto:james.cisler@datcp.state.wi.us), phone 608-224-5137.

**University of Wisconsin** — Dr. Pam Ruegg is conducting a longitudinal study of the development of resistance to macrolide/lincosamide antibiotics on organic farms vs. conventional farms. Some soil organisms naturally produce macrolide-like substances, so this may account for some of the low level resistance to this family of antibiotics seen in past studies of organic farms.  
—Courtesy of Linda Tikofsky. 🐾

## Educational resources for organic dairy production

Additional contact information and web links for all programs described here are available on the resources page of OFRF's website

### Books and online publications

- *Organic Dairy Farming: A Resource for Farmers*. 2006. Jody Padgham, Editor. Published by the Kickapoo Organic Resource Network.
- *The Organic Decision: Transitioning to Organic Dairy Production*. 2005. Revised edition. By Steve Richards, Steve Bulkley, Craig Alexander, Wayne Knoblauch & Dan Demaine. Published by Cornell University.
- *Organic Dairy Production*. 2004. Sarah Flack. One of the Organic Principles and Practices handbook series published by NOFA.
- *Organic Livestock Workbook*. 2004. NCAT's overview of the organic certification process including checklists of allowed practices and materials to help prepare an organic system plan. Free online at <http://www.attra.ncat.org/attra-pub/PDF/livestockworkbook.pdf>
- Northeast Grazing Guide. <http://www.umaine.edu/grazingguide/>
- ATTRA Dairy Resource List: Organic and Pasture-Based. 2006. [http://www.attra.org/attra-pub/dairy\\_resources.html](http://www.attra.org/attra-pub/dairy_resources.html)

## Energetic Leader Takes on Cutting Edge Research

CORNELL UNIVERSITY, ITHACA, NY

**Cornell University's** organic dairy program is embodied by one energetic individual, Dr. Linda Tikofsky. Inspired while conducting an OFRF-funded study in 2001 which compared antimicrobial resistance in milk from organic compared with conventional farms, Tikofsky has been working in organic dairy research ever since. She is an extension veterinarian with Cornell's Quality Milk Production Services.

In 2004 she landed a \$500,000 USDA Integrated Organic Program grant to conduct a 4-year study of herd and udder health during the transition to organic dairy production.

*Linda Tikofsky (R)  
and the Cornell herd.*



Results from this study are pending.

Tikofsky is currently preparing a report on a second OFRF-funded grant documenting levels of fatty acids (including conjugated linoleic acid or CLA), vitamin A, vitamin E, and beta-carotene in organic compared to conventional milk.

She is also studying how to identify different strains of the *Staphylococcus* bacterium to determine which cows can be treated with immune stimulants and which cows ought to be culled. "Not all *Staphylococcus* bacteria are created equal," says Tikofsky.

"If we can identify the strain infecting the cow, we can guide the farmers to alternative treatments or to considering the cow's future on the farm."

If a pending grant proposal is funded, Tikofsky will next turn her attention to documenting the prevalence of Johne's disease on organic dairy farms, measuring awareness in the organic industry about Johne's disease, and creating educational programs on its prevention.

### Organizations

- Northeast Organic Dairy Producers' Alliance (NODPA), Ed Maltby, Executive Director, Deerfield, MA: (413) 772-0444; email [dnodpa@comcast.net](mailto:dnodpa@comcast.net)
- NOFA-Vermont's Dairy Technical Program (802) 434-4122 <http://www.nofavt.org>
- Vermont Pasture Network, Jennifer Colby, Outreach Coordinator, (802) 656-0858 <http://www.uvm.edu/~pasture/>
- NOFA-Massachusetts Organic Dairy Program (978) 355-2853 <http://www.nofamass.org>
- Pennsylvania Certified Organic (814) 364-1344, email [info@paorganic.org](mailto:info@paorganic.org). PCO publishes Organic Dairy Matters, a monthly resource for organic dairy producers: <http://www.paorganic.org/newsletter.htm#dairymatters>

- New York Organic Dairy Initiative, Fay Benson (607) 753-5077. <http://www.nyfarmviability.org>
- Midwest Organic Dairy Producers' Alliance (MODPA), Steve Pechacek (715) 946-3050, email [sppg@nelson-tel.net](mailto:sppg@nelson-tel.net)
- Western Organic Dairy Producers' Alliance (WODPA), Tony Azevedo, Stevinson, CA, (209) 634-0187, email [mcdairy@koalas.com](mailto:mcdairy@koalas.com)

### State grant/loan programs

- Vermont [http://www.veda.org/interior.php/pid/1/sid/68VACC's Organic Transition Program](http://www.veda.org/interior.php/pid/1/sid/68VACC's%20Organic%20Transition%20Program)
- Wisconsin [http://www.growwisconsin.org/apply/grants/dairy\\_producer/dairy\\_farm\\_org.asp](http://www.growwisconsin.org/apply/grants/dairy_producer/dairy_farm_org.asp)

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# POLICY PROGRAM NOTES

## OFRF Staff Testifies on Capitol Hill

*Ed note: This is an excerpted version of Congressional testimony given by OFRF Policy Program Director Mark Lipson, on April 18, 2007, to the newly formed House Agriculture Subcommittee on Horticulture and Organic Agriculture. The Subcommittee was created by incoming Agriculture Committee Chairman Rep. Collin Peterson (D-MN) and is chaired by Rep. Dennis Cardoza (D-CA). The Subcommittee's historic April 18<sup>th</sup> hearing was the first-ever hearing in the House of Representatives devoted exclusively to organic food and farming. With 12 witnesses speaking over a period of almost three hours, it was a dramatic "coming-of-age" for the organic community and an important educational moment for Members of Congress.*

*Hearing witnesses were asked to speak on the economic development impacts of organic production and processing, and the implications for federal policy. Although the hearing was not specifically about construction of the 2007 Farm Bill, the record built by the hearing was clearly aimed at this legislation. From his long experience as an organic policy advocate, Mark framed his testimony in terms of overall federal policy development for organic agriculture. We offer this excerpt so that organic farmers can see how their issues are being presented in the halls of Congress.*

### Overview of Federal Policy for Organic Agricultural Research and Development

#### Unique Nature of Organic Agriculture and Policy Needs

Within American agriculture, modern organic production and processing have many unique aspects. Organic farming cuts across every region and type of production, every scale of operation, and has many special requirements. The 1990 Organic Foods Production Act (OFPA) is likewise a unique statute. It tries to embody an ecological-systems approach that is meaningful for every type of crop and livestock production and processing. OFPA prescribes a complex certification and labeling program which applies the force of the marketplace to realize this agro-ecological vision.

Despite this uniqueness and complexity, organic has not had the benefit of concentrated attention from either agricultural science or agricultural policy makers. As a result, many



Erica Wialz

Mark Lipson, OFRF  
Policy Program Director

A video excerpt of Mark's testimony, as well as the complete text can be found on the [policy/federal](http://policy/federal) legislation pages at [ofrf.org](http://ofrf.org).

aspects of organic farming practice and corresponding federal policy remain rudimentary. We are still figuring out how to do it right, both in the field and within USDA, and both areas are running largely on sheer determination and improvisation

Even with these developmental challenges, organic agriculture, organic foods and the certified organic label are powerful success stories and they illustrate the potential of the marketplace as a vehicle for positive change and innovation. With a more deliberate approach to federal policy for organics (which this historic hearing represents) that market force can be nurtured and leveraged to great effect.

For most product segments, U.S. organic production is developing and growing much slower than market sales. In turn, restricted U.S. supplies keep prices high and markets untapped. Potential growth of the organic market will be stunted without removing blockages to domestic production. The global growth in organic demand will be met less and less by U.S. production. That means either a growing negative organic trade balance, or simply failing to meet consumers' needs. There are three main areas of obstacles: knowledge, infrastructure and regulatory effectiveness.

## #1 Problem: Research, Education and Development Still Miniscule

In assessing the state of federal organic agriculture policy, it is important to note that when the OFPA bill was first introduced, it included a Research title, but this was cut from the final law. In retrospect this was highly unfortunate. Deliberate federal investment in organic research and extension did not begin until 2001 and remains miniscule. Lack of research has inhibited U.S. production, thus accelerating the decline in the U.S. share of rapidly growing domestic and international markets. The limited investment in research and education is the number one limiting factor that inhibits the growth of organic agriculture, in turn limiting its beneficial impacts for the rural economy and the environment.

For farmers and ranchers who might take advantage of organic market demand and profits, all of our experience and direct grower surveys indicate that their biggest obstacle is lack of information. Successful organic farming is management and

information-intensive. It requires new knowledge simultaneously for both production and marketing. There is still a widespread lack of all the essentials: formal research information, organized delivery of information and (crucially) organized guidance from established producers. Notably, this basic lack of research and extension capacity impacts both novices making the transition and veteran organic growers facing technical limits to expansion.

## #2 Problem: Market Infrastructures That Overlook or Penalize Organic Growers (Data Collection, Credit and Risk Management)

Innovative growers willing to figure out the production challenges mostly on their own still face difficulty with obtaining capital and credit. They are currently charged a 5% penalty surcharge on crop insurance premiums. When organic growers do have an insured loss, those claims are paid out according to conventional prices. Likewise, growers seeking production loans have difficulty getting

# Explore the Exciting Lives...

Tracy Lerman, OFRF Policy Assistant —*Interview by Zach Baker*

### What do you do at OFRF?

I coordinate OFRF's grassroots policy activity, working with grower groups throughout the country to organize activism in key states and congressional districts. I also manage the Organic Farmers Action Network, our growing network of organic farmers and activists whom we educate and mobilize on agricultural policy issues.

### Why do you want to work on organic agriculture policy?

Organic agriculture is an important nexus of two things I care about—the planet and food. My experience working on an organic farm made me feel connected to the earth and realize how much we have to do to support and cultivate this way of growing food. Since politics is where the money and power are, we have to shift some of it to organic and sustainable agriculture to make it more accessible to everyone.

### What are your hopes for the OFAN network?

I want OFAN to help facilitate the growth of organic farmers' voices in Congress. Right now OFAN is primarily an electronic listserv, which limits the number of farmers we can reach out to. I want to build more relationships with individuals and networks of farmers and create other ways of communicating with and mobilizing them.



Tracy Lerman, OFRF  
Policy Assistant and  
OFAN Coordinator

### What was your favorite part of the 2007 Farm Bill process so far? What was most disappointing?

I was excited about the wins for organic agriculture in the Farm Bill, and our successful efforts to beat back attacks on the Organic Certification Cost Share Program. I'm disappointed in the lack of reform on commodity payments—we need to dramatically shift the concentration of money from the few huge commodity growers into programs that support sustainable food and agriculture systems if we want to see any kind of real food justice.

### Describe a day in the life of Tracy Lerman.

Bike alongside the stunning views of the Monterey Bay to the OFRF office. Check and respond to email, connect with activists, grower groups, or organizers in other states to generate grassroots action on organic agriculture policy. Draft a sample letter or work on a policy update for our listserv. Bike home, and eat a meal made from the bounty of fresh produce available from local organic farms.

### Living in Santa Cruz, CA must be a blast, how do you get any work done?

The constant feed of organic chocolate supplied by Mark helps.

acceptance of their business plans in terms of both projected yields and expected prices. These credit and insurance obstacles are directly related to the lack of data on organic production and markets. This is a very challenging obstacle, given the geographic and agronomic diversity of organic production.

### **#3 Problem: Inadequate Regulatory System and Weaknesses in Consumer Confidence**

Just as organic production is management-intensive, the organic label is regulatory-intensive. The USDA National Organic Program (NOP) in the Agriculture Marketing Service is not scaled or designed properly to oversee the organic sector in all its complexity and diversity, especially at the sustained high rates of growth. Significant aspects of the 1990 law are not yet fully implemented. This creates doubt for some consumers, and trust in the label is clearly vulnerable to the fragility and slow pace of the existing regulatory capacity. Inadequate resources for the USDA-AMS program create unnecessary

costs in the certification system, which are passed on to growers and processors and then to the market. Continuation of USDA's small program for the certification cost-share program, as recommended in the Administration's Farm Bill proposal can keep these costs affordable for smaller businesses, but only if NOP functions much more effectively.

It is also notable that the regulatory program is affected by the lack of research support. NOP is trying to answer many complex regulatory questions (e.g. livestock care, grazing management, organic seed production) not fully anticipated in 1990 law. All of these issues need—but severely lack—scientific data to inform effective policy.

These regulatory issues can and must be remedied within several years, or they risk becoming fatal. A bump up in NOP's resources is extremely well justified by the economic stakes inherently at risk. In other words, moderate increases in NOP spending will result in much greater cost-effectiveness of this program. 🐾

## **...of OFRF's Newest Policy Staffers**

Zach Baker, OFRF Junior Policy Fellow — *Interview by Tracy Lerman*

### **What do you do at OFRF?**

As OFRF's Junior Policy Fellow based in Washington, DC, I lobby Congress to support OFRF's policy objectives and provide OFRF policy staff with up-to-the-minute analysis of events and legislation related to organic agriculture.

### **What do you like/dislike about working in DC?**

The best and worst part about working in DC is being able to witness the policy-making process first-hand.

### **What role do you see for OFRF in DC?**

Like any organic farmer trying to maximize his/her yield, OFRF needs to plant the right mix of seeds in Congress and tend to the inevitable weeds that threaten to undermine a bountiful harvest.

### **Describe a day in the life of Zach Baker.**

After a bowl of Optimum Power cereal and some fruit I hop on my bike for a 5 mile ride to the office. Change from my spandex into a suit and tie to get to a meeting with a Congressional staff member. Draft some letters and stay current with email and then head out for the bike ride home, sometimes stopping along the way to meet up with a friend or go to some educational event/community meeting. Cook some dinner, take a walk around the neighborhood, and then hit the bed.



Zach Baker, OFRF Junior Policy Fellow, at the Capitol Building

### **What was your favorite part of the 2007 Farm Bill process so far? What was most disappointing?**

My favorite part was fending off last minute attacks on organic agriculture programs in the Farm Bill. In a matter of hours we were able to get Congressmen to withdraw their harmful amendments. Not getting a fair share of funding for organic agriculture is the most disappointing.

### **Why do you want to work on organic agriculture policy?**

With multiple crises impacting our society at the same time (global warming, sprawl, deteriorating communities, childhood obesity, etc.) we need to support solutions that will push us towards a more sustainable society. Organic agriculture is an important piece of the solution to many of these problems and our policies should do everything possible to encourage it.

### **How do you stay cool in a suit on those hot and humid summer days?**

I don't – I just hope it rains so I can blame my soaking wet shirt on the rain.

*OFRF's Policy Fellowship in Washington, DC has been established through an agreement with the Sustainable Agriculture Coalition. 2007 funding comes through the Food and Farming Policy Project, an initiative of the W.K. Kellogg Foundation.*



## OFRF Flies Farmers to DC to Lobby for Organic Agriculture

In March and July, over 100 farmers from 31 states—more than half of whom are organic producers—temporarily left their farm demands behind to deliver a message for increased federal support of organic and sustainable agriculture directly to policymakers in Washington, DC. Organized jointly by OFRF, the Sustainable Agriculture Coalition, and the National Campaign for Sustainable Agriculture, the two separate farmer Fly-ins provided an avenue for farmers to influence the 2008 Agriculture Appropriations Bill and the 2007 Farm Bill. The presence of farmers leading up to critical House Farm Bill decisions had an unprecedented positive impact on decision makers and is part of the reason for the significant gains for organic agriculture in the House Farm Bill.

OFRF was well represented during both Fly-ins, recruiting 21 organic farmers to participate from our Organic Farmers Action Network. The OFRF delegations included many current and former board members, including Steve Ela, Francis Thicke, John Teixeira and Helen Atthowe as well as Andy Grant, son of former board member Lewis Grant, and Jerry Rosmann, cousin of former board president Ron Rosmann. A generous grant from the W.K. Kellogg Foundation allowed OFRF to cover all the travel expenses for each farmer.

In March, the Farm Bill process had barely begun and the potential outcomes for organic agriculture were still broad and unknown. The strong showing of farmers and organic advocates during the Fly-in put the importance of organic agriculture on the map for the Agriculture subcommittee hearings in April (see pgs 15-17 to read OFRF Policy Director Mark Lipson's testimony before the Horticulture and Organic Agriculture Subcommittee of the House Agriculture Committee).

By the time farmers landed in DC for the July Fly-in, the Farm Bill debate was in full swing, with the House Agriculture Committee set to vote. Farmers delivered messages of increased funding for organic research, creation of a program to provide organic conversion assistance to transitioning farmers, and increased funding for federal programs that help defray the costs of organic certification. Two weeks later, the Final House Farm Bill passed with these asks included!

Although advocacy is yet another exhausting job for farmers, it is one with a huge pay-off. The farmers who participated in the Fly-ins helped position organic agriculture to receive more money and support in federal farm programs in this year's Farm Bill than ever before. Nothing drives home the message to support organic agriculture in federal policy more than farmers making a visit to Congressional offices to deliver the message themselves.

## The 2007 Farm Bill

The Farm Bill is in the process of being reauthorized this year, and your members of Congress need to hear from you on many provisions that affect organic agriculture. Every five years, the Farm Bill—the legislation that governs US agricultural and nutrition policy—is reviewed, and programs are added, dropped, or receive increases or decreases in their funding. Despite the fact that the Farm Bill deals with some \$100 billion in annual funds, the reauthorization process happens with little fanfare and public awareness. Throughout the process there will be several opportunities for you to contact your Senators and Representatives. Below we have provided a list of resources for you to learn more and to get involved. Also our Organic Farmers Action Network will be sending periodic emails about organic and sustainable farming priorities and opportunities to take action. To join, please see our newsletter insert or visit [ofrf.org](http://ofrf.org).

### Background Resources

- [https://ofrf.org/policy/federal\\_legislation/federal\\_legislation.html](https://ofrf.org/policy/federal_legislation/federal_legislation.html) – OFRF's federal legislation page on our website, which is updated frequently to provide timely information about the 2007 Farm Bill process.
- <http://mulchblog.com/> – The Environmental Working Group's blog, which comments on agriculture policy.
- <http://www.sustainableagriculture.net/> – Website for the National Campaign for Sustainable Agriculture, where you can subscribe to the Farm Bill Digest, a weekly email update on sustainable agriculture priorities in the Farm Bill.
- <http://www.sustainableagriculturecoalition.org/key-farbill.html> – The Sustainable Agriculture Coalition's farm bill page, which has good basic information about farm bill process as well as what's at stake for sustainable agriculture.
- [http://www.agobservatory.org/issue\\_farbill2007.cfm](http://www.agobservatory.org/issue_farbill2007.cfm) – The Farm Bill page for the Institute for Agriculture and Trade Policy, which works to protect small scale, sustainable agriculture around the world.

### Government Links

- <http://agriculture.house.gov/inside/2007FarmBill.html> – Link to the House Agriculture Committee's Farm Bill webpage.
- <http://agriculture.senate.gov> – link to the Senate Agriculture Committee.
- To find out who represents you in Congress and how to contact them, visit [www.congressmerge.com/onlinepdb](http://www.congressmerge.com/onlinepdb)



## Forage brassicas as a component of organic production systems in Montana

The Montana State University Western Agricultural Research Center (WARC) and the non-profit Alternative Energy Resource Organization (AERO) conducted on-farm research on the introduction of brassicas for green manure and/or forage into organic agricultural systems in Montana. This project followed studies demonstrating a potential for forage brassicas to enhance soil fertility and nutrient uptake by the subsequent crop, as well as studies showing a potential to extend the grazing season with high-nutrient, cold-tolerant brassicas.

Specific objectives were to identify organic farming systems that will benefit from the introduction of brassicas, to gather farmer input on the practical concerns regarding incorporating forage brassicas into their grazing and cropping practices, and to evaluate the effects of brassica crops on soil nutrients.

'Barnapoli' rape was selected as the test crop for the study. Replicated plots were established in a randomized complete block design at WARC and in paired comparisons at three organic farms.

### Key results

#### Comparison of 'Barnapoli' rape with Berseem clover at WARC, Corvallis -

Two plantings were made on May 7 and June 8, with each crop planted at 10 lbs/ac. Irrigation was applied at ½" to 1" per week, May through August.

- ❖ Biomass of the early planting of rape was much higher at first cutting than that of the clover, but the difference was not evident when the regrowth was harvested.
- ❖ The forage rape crop contained more nitrogen than did the clover because of its greater biomass, but the clover

green manure resulted in higher soil nitrate-N after incorporation.

- ❖ A significant increase in soil sulfur was seen after the 'Barnapoli' rape green manure was incorporated.
- ❖ Disadvantages were flea beetle problems, poor growth in areas of low soil fertility, problems with wilting, and a high water requirement during the intense heat of summer.

#### Comparison with oats at Montana

**Arnica, Grantsdale** - Both were seeded on May 29; the rape at 40 lbs/ac. Crops were irrigated at ¾" to 1" per week.

- ❖ Both crops suppressed weeds in vigorous stands. In contrast to observations at WARC, no differences in soil fertility were seen after the rape or oat green manure crops.
- ❖ Advantages were weed control in areas where soil was fertile and moist. Flea beetles and intolerance to drought were the greatest disadvantages. The rape crop performed poorly in areas of low soil fertility; the addition of a legume in the mix might minimize dependence on soil fertility.

#### Comparison with winter rye at

**Matheson Farm, Helena** - Rape was seeded on April 30 at 18 lbs/ac. Early irrigation only was provided, about 2" in mid-May.

- ❖ The brassica did not emerge well in the spring, and required irrigation for



Nancy Matheson in her planting of 'Barnapoli' rape (center) and winter rye, Helena, Montana.

establishment. Full emergence finally occurred by the end of May. Seedling stand and productivity of rape was substantially lower than at WARC or Montana Arnica. Weed competition was severe. No differences in soil fertility between rape or rye green manures were observed.

#### Comparison with spring pea at Alger

**Farm, Stanford** - No irrigation was provided at this dryland farm; 10.6" rainfall was received from May - September.

- ❖ Seedling emergence was slow and spotty and substantial germination was not achieved until mid-summer.
- ❖ A flush of emergence was observed after three inches of rainfall in July. Dry matter production in the best parts of the Alger planting matched the comparison crop of field peas.
- ❖ The area was grazed and the cows found the rape to be highly palatable. 🐄

**Principal investigator:** Dr. Nancy W. Callan, Western Agricultural Research Center, Montana State University, Corvallis, MT

**Organic grower-collaborators:** Western Agricultural Research Center, Corvallis, MT; Rod Daniel, Montana Arnica, Grantsdale, MT; Nancy Matheson, Matheson Farm, Helena, MT; Jess Alger, Alger Farm, Stanford, MT

**OFRF support for project:** \$9,840, awarded spring 2001

For a full project summary (2 pp) and a copy of the complete project report submitted by Nancy Callan (10 pp), go to: [http://ofrf.org/funded/callan\\_01s40.html](http://ofrf.org/funded/callan_01s40.html)

## Using trap crops in organic strawberries to control western tarnished plant bug

On California's Central Coast, western tarnished plant bug (WTPB) is the principal cosmetic pest of strawberries and organic strawberry producers are interested in trap crops for their potential to control WTPB damage. Feeding by all five nymphal stages and adults causes distortion of the berries known as catfacing, rendering the fruits unacceptable for fresh market sale. WTPB moves from numerous adjacent broadleaved weeds to strawberry crops in spring once weeds begin to die off and as strawberry plants bloom and bear small green fruit.

Primary objectives of this project were to explore the utility of trap crops to attract WTPB away from strawberry plants, to look at measures to control WTPB within the trap crops themselves, and to compare these control measures with traditional whole-field mechanical measures consisting of machine-mounted vacuums, known as bug vacs. Original project objectives focused on biological controls within the trap crop area utilizing both a native egg parasitoid and a non-native nymphal parasitoid. However, the mass-reared egg parasitoids became unavailable from the supplier early in the experiment, and control measures subsequently were modified toward utilizing passes with the bug vac within the trap cropping area. This capitalized on a control mechanism to which organic strawberry growers in the region are already accustomed.

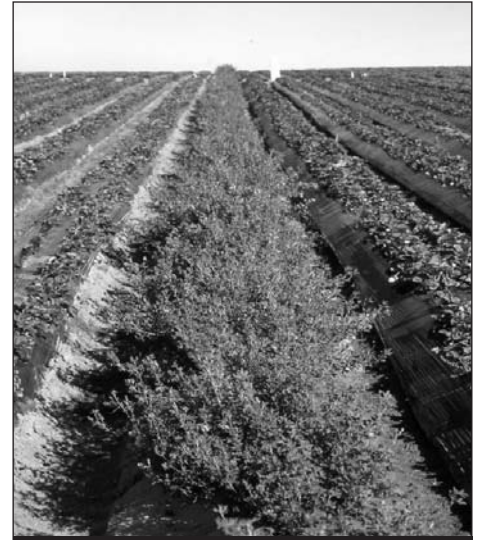
Trap crop areas planted to alfalfa and a radish/mustard mix were developed adjacent to crop rows on standard strawberry beds and monitored for WTPB and beneficial insects, and adjacent strawberry rows were monitored for WTPB damage. Several passes were

made with the bug vac within the trap crop areas, with results measured for each pass. Measurements were taken during three sampling periods from June to August.

On the four organic farms on which this project took place, results from this experiment indicated that WTPB could be significantly reduced within the trap cropping area, and that WTPB damage was also significantly reduced in adjacent strawberry rows compared to whole-field vacuuming programs. Control measures within the trap crop area also constituted significant energy savings over whole-field vacuuming programs.

### Key results

- ❖ WTPB preferred alfalfa trap crops, which attracted four times more WTPB than either radish/mustard or strawberry plants in the spring.
- ❖ A significant difference in WTPB counts from the alfalfa trap crop was *always* detected after a single pass vacuuming treatment when compared with pre-treatment counts. The average adult WTPB reduction was 70% and the average nymphal reduction was 72%.
- ❖ Vacuum treatment in the alfalfa also reduced beneficial insects by 40% in a single pass.
- ❖ In June and July the vacuumed trap crop treatment significantly reduced damage due to WTPB feeding in



Alfalfa trap crop planted on standard strawberry bed adjacent to strawberry rows.

associated strawberry rows (38-47%) compared with the growers' whole-field vacuuming program.

- ❖ In August, trap crop attractiveness may have been compromised by lack of irrigation water, underscoring the importance of maintaining the horticultural quality of the trap crop throughout the production season, and especially to maintain irrigation supply.
- ❖ Vacuuming the trap crop constituted a 75% reduction in machine energy/effort expended by whole-field vacuuming programs.

Based on these experimental results and other more recent (2003 and 2004) field observations, one grower-collaborator, Larry Eddings of Eagle Tree/Pacific Gold, has expanded his alfalfa trap-cropping program to over 75 acres of organic strawberry production on two farms in Monterey County. 🌱

**Principal investigator:** Sean Swezey, University of California-Santa Cruz, Center for Agroecology and Sustainable Food Systems, Santa Cruz, CA

**Organic grower-collaborators:** Miles Reiter (Driscoll Strawberry); Clint Miller (Driscoll Strawberry); Larry Eddings (Pacific Gold) and Dale Coke (Coke Farms)

**OFRF support for project:** \$9,896, awarded spring 2001

For a full project summary (3 pp) and a copy of the complete project report submitted by Sean Swezey (23 pp), go to: [http://ofrf.org/funded/swezey\\_01s44.html](http://ofrf.org/funded/swezey_01s44.html)

## Integrated caterpillar control in organic sweet corn

**C**orn earworm (CEW) and European corn borer (ECB) are significant caterpillar pests of sweet corn in the northeast. Organic sweet corn growers have successfully used foliar applications of *Bacillus thuringiensis* (Bt) products for many years to control ECB; however, these are ineffective against CEW larvae, which do little feeding on exposed surfaces before entering the silk channel of the ear.

Over three years we evaluated an integrated strategy of direct silk oil and Bt applications for caterpillar control. To facilitate oil application, we collaborated with Hampshire College to develop an easy to use hand-held syringe pump applicator with a lightweight backpack tank for delivering oil by hand to each silk along the row. The Zea-later™ reduces the labor requirement for the single oil application to 8-10 hours per acre, and is now available through Johnny's Selected Seeds.

Oil applications may result in slightly reduced ear length and tip fill, called cone-tip, as a result of oil interfering with kernel pollination. Application timing requires balancing the need for caterpillar control from beginning to end of the silking period with minimal physiological effects to the kernels at the corn ear tip, which can occur when oil is applied too early.

### Key results

#### Residual efficacy of the oil & Bt application for CEW control:

One 0.5 ml application of corn oil/Bt on day 5 after first silk was shown to be adequate to control CEW throughout ear development. The oil and Bt treatments appeared to control CEW for at least 17 days, from silking through maturity.



Zea-later™ applicator being used to apply 0.5 ml of oil/Bt to silking corn.

#### Influence of application timing on ear quality at harvest:

The best combination of effective insect control resulting in the highest rate of marketable ears with the least degree of cone-tip was achieved by application of oil + Bt suspension on day 7. Year-to-year variation in the environment would suggest an optimum timing range of application from days 6 to 8.

#### Impact of Bt concentration rates on efficacy for CEW control, and on ear development:

Increasing Bt rates had a significant effect on CEW control, with the higher rates producing less caterpillar feeding damage. The effects leveled off as the rate increased, with moderate Bt rates

(between ¼ - 1 lb/ac) producing fewer ears with tip damage. Drought-stressed corn showed a more severe response to the oil, resulting in more cone-tip compared to adequately watered corn. Bt concentration had no effect on the number of ears with cone-tip, the size of the cone-tips, or the development of corn ears in either year.

#### Evaluation of several different vegetable oils for efficacy in CEW control and effect on ear development:

Corn, canola, safflower and soy oils were tried and compared with a water control. In both years of the trials, there was no difference between the oils in the proportion of ears with cone-tip, the length of the cone-tip, (averages for all oils were <1.4 cm), or the size of the cone-tip relative to the rest of the ear.

Among the different oil treatments, tip damage due to caterpillar feeding was not statistically significant between any of the oils in either 2001 or 2002, or both years combined.

#### Evaluation of several different emulsifiers in soy oil for efficacy in CEW control and effect on ear development:

The emulsifiers lecithin, Atlox, and Golden Natr'l were tried in comparative soy oil treatments with and without Bt. There were no statistical differences in the mean number of ears with cone-tips between any of the treatments containing soy oil regardless of the emulsifier used. As for feeding damage, any oil treatment, regardless of emulsifier type, provided better control than the water control applied with or without Bt. ☛

**Principal investigator:** Ruth Hazzard, University of Massachusetts, Dept. of Plant, Soil & Insect Sciences, Amherst, MA

**Organic grower-collaborators:** Rob Johanson, Goranson Farm, Dresden, ME; Jack Manix, Walker Farm, Putney, VT; Skip Paul, Stone Farm, Little Compton, RI; Andy Caruso, The Upper Forty, Cromwell, CT; Steve and Ray Mong, Applefield Farm, Stow, MA; Dan Kaplan, Brookfield Farm, Amherst, MA; Tom Harlow, Westminster Station VT; Doug Coldwell, Coolwater Farm, South Deerfield, MA; Sandy Williams, Williams Farm, Deerfield, MA; DeWitt Thompson, Full Bloom Farm, Sunderland, MA

**OFRF support for project:** \$29,337, awarded in spring 1999, fall 2000 and spring 2002

A full project summary (4 pp) and the complete project report submitted by Ruth Hazzard (17 pp) are available at [http://ofrf.org/funded/hazzard\\_02s18.html](http://ofrf.org/funded/hazzard_02s18.html)

## Feeding beef cattle to produce healthier and highly acceptable beef

In this on-farm study, farmer Ron Rosmann and a research team from Iowa State University compared the finishing performance of cattle fed to USDA choice grade on pasture and in the drylot.

Rosmann Family Farms produces both organic grains and livestock, and this project tested a number of objectives. One was to determine whether pasture feeding could decrease the amount of corn fed to animals, thus making more grain available for sale off-farm or for other uses, and generating greater farm income. A second purpose was to produce a leaner beef with higher concentrations of healthful fatty acids such as conjugated linoleic acid (CLA), therefore differentiating the product as more healthful. The research team wanted to see whether it is possible to finish pastured cows on a ration that includes a small amount of grain—for the purpose of finishing to USDA choice grade—while at the same time maintaining fatty acid values seen in beef that are fed only on grass.

Thirty yearling Red Angus cross steers and heifers were divided into two groups. Each 15-cow group was fed to choice grade, one group on pasture and the other in the drylot. Pastured cattle grazed primarily on cool-season endophyte-free tall fescue with some orchardgrass and alfalfa. The drylot group was fed with ground alfalfa-orchardgrass hay. Both groups of cattle were fed a corn-soybean concentrate mixture, at 0.5 to 1.0% of bodyweight for pasture-fed cattle, and at 2.0% bodyweight for drylot-finished cattle. Cattle were harvested upon reaching choice grade (determined visually). Steaks from each group were tested for



Ron Rosmann with herd of spring cows, Harlan, Iowa.

sensory qualities, tenderness, and total lipid content and fatty acid composition.

### Key results

- ❖ The average final weight of the pastured cattle was about 12 kg heavier than the drylot cattle, and had a 55-day longer feeding period.
- ❖ Average daily gain (ADG) of the pastured cattle was significantly slower than that of the drylot cattle (0.68 kg and 0.98 kg, respectively).
- ❖ No significant differences were found in the sensory qualities, pH, or tenderness of steaks from the pastured and drylot cattle.

❖ CLA content concentrations of steaks, trim and adipose tissues from pasture finished cattle were more than twice the concentrations of the same parts from the drylot group.

❖ Ratios of omega-3 to omega-6 fatty acids were significantly greater for pasture-fed cattle compared with ratios for drylot-finished cattle in all three beef parts tested: steak, trim and adipose tissue.

❖ The pasture-fed cattle had a lower dressing percentage and a lower percentage of choice than the drylot cattle but had a higher percentage of yield grade 1 and 2.

❖ The drylot cattle produced slightly higher revenue with equal prices. The total cost of the pasture system was much less than the drylot system, hence, greater profit per head of pasture-fed cattle was realized.

Higher CLA and linolenic acid concentrations and omega-3 to omega-6 fatty acid ratio strongly suggest that potentially healthier beef can be produced by the pasture system with limited grain supplementation. 🌱

**Principal investigator:** Ron Rosmann, certified organic farmer, Rosmann Family Farms, Harlan, IA

**Cooperating investigators:** Faculty from Iowa State University, Ames Iowa: Donald Beitz, Distinguished Professor of Animal Science and Biochemistry; Allen Trenkle, Distinguished Professor of Animal Science; John Lawrence, Associate Professor of Economics; Roberto Sonon, Jr., Visiting Scientist; James Russell, Professor of Animal Science

**OFRF support for project:** \$13,870, awarded fall 2002

A full project summary (2 pp) and a copy of the complete project report submitted by Ron Rosmann (13 pp) are available at <http://ofrf.org/funded/rosmann02f17.html>

## On-farm nutrient budgets in organic cropping systems: A tool for soil fertility management

It is extremely challenging for organic producers to manage soil fertility so that the correct balance of nutrients is applied to maintain crop quality and yield while avoiding over-application. One strategy that could contribute to organic nutrient management is using a mass balance approach to budgeting nutrients.

Constructing simple mass-balance budgets at the field or farm scale involves quantifying fertility inputs and harvested exports. The amount of nutrients leaving the farm as unintended losses is determined by the size of the surplus and the capacity of the agroecosystem to store surplus nutrients. Excessive applications of nutrients, particularly nitrogen (N), tend to increase the size of nutrient losses.

Long-term studies of organically managed cropping systems indicate that yields comparable to conventionally managed systems can be achieved under organic management while N surpluses are very small and N losses are significantly reduced. In these studies, under conditions of surplus N additions, a greater proportion of total N inputs was retained in the soil. Thus, organic production systems clearly have the capacity to operate close to a balanced state, something which has not been achieved in fertilizer-driven systems.

Studies of organic farms indicate that the balance between nutrient additions and nutrients harvested in the crop varies tremendously due to large variations in nutrient additions. Nutrient budgets constructed for multiple years that reflect rotation cycles for organic management units will provide a foundation for soil management recommendations that will improve efficiency, reduce costs and reduce the potential for environmental losses of nutrients.

We began working with local

organic grain and vegetable farmers to develop nutrient management tools in 2001. Green manure, soil amendment, and grain and vegetable crops databases were developed based on sampling nutrient content of inputs and harvested crops over a 3-4 year period on 16 farms. A prototype nutrient budgeting tool was developed and linked to these databases. The original tool, in Excel spreadsheet format, was tested with farmers in January, 2004. Farmers' suggestions were then used to revise the budgeter.

Nutrient budgets were constructed for two fields at Martens' Organic Grain Farm, one field at Myer's Organic Grain Farm, and sample rotations at Beech Grove Farm and Blue Heron Farm.

We constructed sample single-year budgets for 11 farms using the budgeting tool and supporting databases.

### Key results

- ❖ Nutrient balances in these organic systems are highly variable but we found that it is more common for vegetable production systems to be managed with large surplus additions of phosphorus (P) and N due to the heavy reliance on compost for nutrients.
- ❖ Nitrogen was applied in the highest surpluses on vegetable farms with 50% of the farms exhibiting N excesses averaging 50 lbs/year or more.

- ❖ There was a tendency for small nutrient surpluses or deficits on grain farms compared to significant surpluses of varying sizes for vegetable farms.
- ❖ Phosphorus showed a tendency towards excess on vegetable farms, again especially among farms applying high rates of compost. Four vegetable farms as well as two of the grain farms achieved average annual P balances near zero. One grain farm had a high annual rate of accumulation of phosphorus, traceable to the large amounts of dairy manure with an especially low N:P ratio.

Mass balance analysis of the nutrient flows for this sample of organic farms points to the need to educate farmers and extension staff about appropriate and strategic use of such amendments, as well as risks of over-applying nutrients that are mobile and can pollute local watersheds.

Both grain and vegetable farms achieved profitable yields without large surpluses of P and N, supporting the idea that organic systems have the potential to operate with very high nutrient use efficiency.

The budgeting tool is most useful for identifying farming systems with significant nutrient imbalances. It can be used in making decisions about the quantities of soil amendments that should be added to a rotation to replace exported nutrients. 🌱

**Principal investigator:** Laurie Drinkwater, Associate Professor of Soil Ecology, Department of Horticulture, Cornell University, Ithaca, NY

**Cooperating Growers:** Ann and Eric Nordell, Trout Run, PA; Robin Ostfeld and Lou Johns, Lodi, NY; Jen and John Bokaer-Smith, Ithaca, NY; Liza White and Andy Leed, Candor, NY; Lisa and Brendan Bloodnick, Apalachin, NY; Elizabeth Henderson, Newark, NY; Dave and Kathy Rice, Elba, NY; Klaas and Mary-Howell Martens, Penn Yan, NY; John Myer, Ovid, NY; Guy Christiansen, Penn Yan, NY; Ron Kirk, Penn Yan, NY; Larry Lewis, Penn Yan, NY; Marlin Martin, Penn Yan, NY; John and Chris Saeli, Geneva, NY; Fred Sepe, Romulus, NY

**OFRF support for project:** \$23,840, with grants awarded in fall 2001 and spring 2003

A full project summary (2 pp) and a copy of the complete project report submitted by Laurie Drinkwater (18 pp) are available at <http://ofrf.org/funded/drinkwater03s16.html>

## Intercropping to create local refugia for natural enemies: Flowers and birds in organic agroecosystems

In this study, we tested the hypothesis that sunflower rows in vegetable cropping systems may serve as predator refugia. We predicted that fields including rows of flowers would have greater densities of insect-eating birds, and that greater foraging by birds would be observed in fields with flower intercrops than fields without.

Specifically, we tested whether sunflower rows in cropped fields increase the occurrence, density, and foraging activities of insectivorous birds, and the density of sunflower rows per acre needed to maximize bird presence and foraging activities while having the least impact upon yield per acre of other marketable crop production.

We also documented foraging patterns and activity budgets of insectivorous bird species utilizing cropped treatment and control plots, and which insects were preyed upon by birds within the experimental plots via visual observation.

We also performed a limited survey of the insect fauna found in our test plots to establish a partial listing and the relative occurrences of beneficial arthropods in the test systems.

Overall, this study investigated effects of within-field habitat structure, microclimate, and food abundance upon the presence and foraging activity of insectivorous birds in cropping systems. These are all features under the direct control of farmers.

Observations were made on ten certified organic farms in Florida. Eighteen ten-acre blocks on five of these farms were used for the study. A randomized block design was used to assess the effect of 0 (control plots), 1 or 2 sunflower rows in the fields. We surveyed bird community structure, foraging behavior, conducted gut content analysis (using a non-lethal regurgitation method among trapped birds), and surveyed beneficial insect populations.

### Key results

- ❖ Sixty-eight bird species were observed using cropped fields or bordering habitats. Cropped areas with sunflower treatments had significantly greater mean densities of birds than control plots in both 2002 and 2003.
- ❖ Plots with two sunflower rows per acre had greater mean density of birds than plots with one row in both years, although the difference was significant only in 2003.
- ❖ Fields with even one row of sunflowers per acre had significantly greater bird densities than those without, regardless of crop type or diversity.
- ❖ Species most often observed foraging in crops for insects included northern cardinals, blue grosbeaks, northern mockingbirds, eastern bluebirds and indigo buntings.
- ❖ The mean number of birds foraging in cropped areas and mean foraging activity per hour were both significantly greater in plots with sunflower treatments than those without.
- ❖ Birds used sunflower plants as perches by the time the plants were 24" tall. As sunflowers continued to grow, birds increasingly used them as cover and perch sites.



Multi-branching sunflower varieties were planted at 1 or 2 rows per acre between vegetable rows to attract birds and beneficial insects into cropped fields. Here, a row of sunflowers grows between rows of tomatoes.

- ❖ Gut samples (obtained by non-lethal methods) from birds confirmed that leaf chewing caterpillars and grasshoppers had recently been consumed.
- ❖ Growers unanimously indicated that adding sunflower rows into their cropping plans did not interfere with their normal management operations.
- ❖ At the conclusion of the study, 4 of 5 participants indicated they would continue to intercrop sunflower strips as part of their regular cropping scheme. 🌻

**Principal investigator:** Gregory Jones, Ph.D. Candidate and Dr. Kathryn Sieving, Associate Professor, Dept. of Wildlife Ecology and Conservation, University of Florida, Gainesville, FL

**Cooperating Growers:** Lois Milton & Tommy Simmons, Archer FL; Bill Ogle & Bill Allen, Gainesville, FL; Rosalie Koenig, Gainesville, FL; Charles Lybrand, Alachua, FL; Donald Applebaum, Alachua, FL; Ed Parker, Bell, FL; Charles Andrews, Island Grove, FL; Joe Durando, Alachua, FL; Paul Morris, Webster, FL; Marty Mesh, Florida Organic Growers and Consumers, Gainesville, FL

**OFRF support for project:** \$7,600, in two grants awarded fall 2001 and spring 2003

A full project summary (4 pp) and a copy of the complete project report submitted by Gregory Jones (38 pp) are available at <http://ofrf.org/funded/sieving-jones03s33.html>

## Maintaining agroecosystem health in an organic strawberry/vegetable rotation system

Continued growth of organic strawberry and vegetable production in California faces two challenges: soil-borne disease management of *Verticillium* wilt without use of synthetic chemical fumigants, and fertility management to optimize fertility input use while ensuring protection of vulnerable habitats.

The goal of this project was to demonstrate effects of diverse organic strawberry/vegetable rotations and integrated ecological practices on agroecosystem health.

In 2001, we initiated a replicated trial at Sandpiper Farm in Moss Landing, California with number of years between strawberry crops as the main plot treatment (5 levels) and strawberry cultivar as sub-plots (2 levels). The main treatments were:

Treatment A: Continuous strawberries with pre-plant biofumigation using broccoli residues;

Treatment B: One-year break before replanting strawberries;

Treatment C: Two-year break before replanting strawberries;

Treatment D: Three-year break before replanting strawberries;

Treatment E: No strawberries until fifth year.

Sub-treatments included ecological practices integrated into the rotation: biofumigation with broccoli residues and mustard incorporation, compost application, use of vegetables that do not host *Verticillium dahliae* (spinach and broccoli) as rotational crops, and choosing strawberry cultivars that are less sensitive to disease.

The main treatment effect was tested after the fifth year of the experiment; results of the first three years are reported here. Soil health indicators (*Verticillium dahliae* propagule number, soil inorganic nitrogen (N), and other



Organic strawberry/vegetable rotation experiment at Sandpiper Farms.

physicochemical indicators) and agroecosystem health indicators (yield, disease incidence, and nutrient budgets) were monitored.

### Key results

**Yields.** Strawberries grew well all three years without any major pest and disease problems, and had relatively high yields for an organic system. Average marketable fruit yields were 36-44 tons ha<sup>-1</sup> for the selected cultivars, Aromas and Seascape. Vegetables and cover crops had moderate yields and no major disease problems. No significant differences were found between any treatments in yields of any crops during the period.

**Nitrogen Dynamics.** In year 1, pre-plant soil inorganic N analysis revealed 150 kg-N ha<sup>-1</sup> of residual inorganic N. By adding 222 kg-N ha<sup>-1</sup> of total basal N, inorganic N content at planting time rose to 260 kg-N ha<sup>-1</sup>. After receiving

280 mm of precipitation, the grower applied plastic mulch. In the meantime, it was estimated that 214 kg ha<sup>-1</sup> of inorganic N was lost from the root zone within 20 weeks from planting. Cumulative daily N uptake of strawberry plants showed that about 80% of the total N uptake took place in the latter half of the growth period. Total N uptake by strawberry was about 120 kg-N ha<sup>-1</sup>.

In year 2, to meet strawberry N demand, the grower decreased the basal N rate of the organic fertilizer and increased the rate of liquid organic fertilizer. In current organic strawberry systems, fertigation and foliar N application are the only practical options as supplemental N application measures. However, organic fertigation may have a high risk of N leaching under excess irrigation conditions, as we detected an increased inorganic N level in a deeper soil layer in one summer.

The N monitoring in organic strawberries suggested: 1) the maximum N-loss during the rainy season reached 214 kg ha<sup>-1</sup>, and 2) pre-plant plastic mulch application and adjusting basal/supplemental N rates significantly reduced N-loss during the rainy season while maintaining fruit yield.

***Verticillium dahliae* Test.** Generally, counts were low for all three years. Broccoli residue incorporations consistently reduced *Verticillium dahliae* propagule number in soils, whereas mustard incorporations did not.

Further, a major weed (*Capsella bursa-pastoris*) of the plot hosts *Verticillium dahliae*, suggesting weed management should be integrated with soil-borne disease management. 🍌

**Principal investigator:** Joji Muramoto, University of California-Santa Cruz, Center for Agroecology and Sustainable Food Systems, Santa Cruz, CA

**Cooperating Growers:** Daniel Schmida, Sandpiper Farms, LLC, Watsonville, CA

**ORF support for project:** \$9,342, awarded fall 2003.

A full project summary (4 pp) and a copy of the complete project report submitted by Joji Muramoto (29 pp) are available at <http://ofrf.org/funded/muramoto03f12.html>

# OFRF's Community of Support Continues to Grow

Generous giving from long-time friends and new contacts has allowed us to expand our programs over the last two years. The following people and organizations donated \$100 or more to OFRF from January 2006 through August 2007. Categories reflect annual giving.

## **\$100,000 +**

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Coleman Natural Foods  
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Foundation for Sustainability and Innovation  
The Hain Celestial Group  
Jacobs Farm / Del Cabo  
Lundberg Family Farms  
PMO Wildwood  
Rudi's Organic Bakery / Charter Baking Group

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Jerry DeWitt  
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Phil Foster Ranch / Pinnacle Brand  
Frey Vineyards  
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Anna Getty  
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Anthony Rodale  
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The Lumpkin Family Foundation  
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Mary Novak  
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The Kamut Association of North America  
David Lanstein  
David Laskin & Virginia Clarke-Laskin

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Long Family Farms  
Martha Macambridge  
David & Teresa Martinelli  
Munson Farms  
Oliver's Artisan Breads  
The Organic Center  
Osage Gardens  
Luis Sierra  
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Spectrum Organic  
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Square One Organic Spirits  
Staglin Family Vineyards  
Charles Swezey  
Godfrey & Marylisa Tencer  
Ann Thrupp  
United Agri Products  
Alan Viader  
Valerie Wheeler & Peter Esainko

## **\$100 +**

Keith Abeles  
The Acme Bread Company  
Agro Logistic Systems  
Akasha's Kitchen  
Annie's Homegrown  
Anonymous (9)  
Anonymous in memory of W M Alexander  
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Avalon Organics  
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| Marcia Fein  | Ed and Mona Key                            | Clement Pappas   | US Foods  |
| James Firor, in honor of John Firor                                      | Ed and Mona Key                            | Peaceful Valley Farm Supply                              | Vermilion   |
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| gDiapers   | Jeffrey Levenberg                          | Mark Retzloff  | ZD Wines  |
| Anne Gentry  | Linden Associated Growers                  | Marie and Ron Roller                                     | * * * * *   |
| Global Water Solutions   | Elaine Lipson                              | The Robert and Patricia Ronald Family Foundation         | <i>And many, many more of you contributed generously with gifts under \$100 – we just don't have room for all of your names! Every gift helps make our continuing success possible.</i> |
| Good Foods Co-op   | Miles McEvoy                               | Louis Rorimer  |   |
| Roberta Gordon, in honor of Mark Lipson                                  | McEvoy Ranch                               | Peter and Gillian Roy                                    |   |
| Dan and Norma Green  | Patricia Maloney                           | Samish Bay Cheese  |   |
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# PROJECTS FUNDED

## OFRF PROJECTS FUNDED SPRING 2007

The following grants were awarded at the OFRF Board meeting in March 2007.

**Total in competitive grants awarded: \$90,041**

**Dave Christensen, Seed We Need,  
Big Timber, Montana**

\$14,970

Development of corn borer-resistant corn for organic farming systems: year 2.

**Sean Swezey, University of California,  
Santa Cruz, California**

\$14,848

Integrating biological control with trap crop management in California organic strawberries.

**Edward DePeters, University of California,  
Davis, California**

\$15,000

Healthy components in organic milk: oligosaccharides, vitamins and omega-3 fatty acids make organic milk unique in healthy diets.

**Eric B. Nelson, Cornell University,  
Ithaca, New York**

\$10,019

Suppression of *Pythium* damping off with compost and vermicompost.

**Rebecca Chaplin-Kramer, University of  
California, Berkeley, California**

\$8,770

Determining habitat requirements for natural enemies of crop pests.

**Amy Charkowski, University of Wisconsin,  
Madison, Wisconsin**

\$14,600

Organic certified seed potato production in the Midwest. In cooperation with the Environmental Protection Agency's Strategic Agriculture Initiative, Region 5.

**Michaela Colley, Organic Seed Alliance,  
Port Townsend, Washington**

\$11,834

Establishing breeding populations for organic broccoli, sweet corn, and red kale varieties.

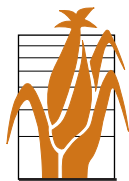
**OFRF** IS SOLICITING PROPOSALS for education and outreach projects that are targeted primarily at organic farmers and ranchers. OFRF also continues to fund research to improve organic production systems.

In addition to its general grantmaking, OFRF currently has special funding for organic fruit research and education projects thanks to a new partnership with Stretch Island Fruit Company. These resources are intended to support the improvement of organic fruit production systems and to encourage more fruit growers to transition to organic practices.

OFRF particularly encourages farmers, ranchers, researchers, and extension personnel to consider applying for funding.

Proposals are considered twice a year. The deadlines and notification dates for the next two granting cycles are **Dec. 17, 2007** and **July 15, 2008**.

Details on applying for grants are available through the OFRF website at [www.ofrf.org](http://www.ofrf.org), or contact Jane Sooby, OFRF's organic research specialist, at phone (831) 426-6606, email [jane@ofrf.org](mailto:jane@ofrf.org).



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