

Research: Organic practices build healthy soil

At an Iowa State University research farm near Greenfield, organic and conventional plots of corn and soybean grow side-by-side, producing almost identical yields for more than a decade.

The biggest difference, however, resides within the soil. The plots managed with organic techniques have up to 40 percent more biologically-active soil organic matter—critical for fertility and nutrient availability—compared to conventionally-managed plots, according to a study published in the April issue of *Crop Management*.

Results from the ongoing Long-Term Agroecological Research (LTAR) experiment suggest that organic

agriculture can be an important strategy for dealing with climate change, both by eliminating the need for synthetic inputs that consume fossil fuels and by strengthening a farm's resiliency to droughts, floods and other extreme weather events. Both benefits hinge on the importance of building healthy soils.

The experiment, located at ISU's Neely-Kinyon Research and Demonstration Farm, compares three- and four-year organic rotations of corn, soybean, oats and alfalfa to the conventional corn-soybean rotation. Each rotation is repeated four times in 44 plots. Beginning in 1998 with funds from the Leopold Center, LTAR is one of the longest-running replicated comparisons of organic and conventional

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Prairie strips transition from research to reality

By MELISSA LAMBERTON, Communications assistant

Good stewardship is a way of life for Seth Watkins. Like many of his neighbors, he grows corn, soybeans and alfalfa and runs a cow-calf operation on hilly pastureland. He's always on the lookout for ways to improve the environmental health and economic vitality of Taylor County, Iowa, which his family has called home since his great-grandparents homesteaded there in 1846.

Now he is putting research from Iowa State University and the Leopold Center to work on his farmland by planting prairie strips, a system explored by the Science-based Trials of Rowcrops Integrated with Prairies (STRIPs) research team.

Growing strips of native prairie, a new conservation practice pioneered at the Neal Smith National Wildlife Refuge,

reduces soil loss, slows runoff and creates vital patches of native habitat on row-cropped farms. Watkins, in consultation with the STRIPs research team, plans to seed a 50-acre field with prairie strips this July, weather permitting, becoming one of the first Iowa farmers to adopt this practice.

"This is the part we've been investing in and waiting for," said Jeri Neal, leader of the Leopold Center Ecology Initiative that provided initial funding for the STRIPs project in 2002. "We have some practices that make an enormous difference. How can we get them on the ground?"

Doug Davenport, the Natural Resource Conservation Service (NRCS) district conservationist who arranged the collaboration, said that the soil in

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LEOPOLD CENTER

LEOPOLD LETTER MISSION

The mission of the *Leopold Letter* is to inform diverse audiences about Leopold Center programs and activities; to encourage increased interest in and use of sustainable farming practices and market opportunities for sustainable products; and to stimulate public discussion about sustainable agriculture in Iowa and the nation.

Leopold Letter ISSN 1065-2116

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The Leopold Center for Sustainable Agriculture seeks to identify and reduce adverse socioeconomic and environmental impacts of farming practices, develop profitable farming systems that conserve natural resources, and create educational programs with the ISU Extension Service. It was founded by the 1987 Iowa Groundwater Protection Act. The *Leopold Letter* is available free from the Leopold Center at 209 Curtiss Hall, Iowa State University, Ames, Iowa 50011-1050; (515) 294-3711.



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Research Results

On the Web: www.leopold.iastate.edu/news/results

Summaries

Easy-to-read summaries are available for these recently completed projects funded by Leopold Center grants:

- Des Moines farm to school pilot project: Local sourcing for events and summer feeding
- Drainage water quality impacts of current and future agricultural management practices
- Exploring the role of multifunctional agriculture on the future of agriculture and rural development
- Getting the most from Iowa's forests: Linking forest understory composition to stream water quality and enhancing nutrient capture in forest remnants
- Greenhorn Grazing: A modular pasture and animal management curriculum for beginning and transitioning graziers
- Impacts to the land-water-human system of rural Iowa from high intensity continuous maize production

Scientific Journals

Leopold Center-supported research has produced these papers published in peer-reviewed journals. Check at a research library or the journal's website for an abstract or full report. Additional information is available on each competitive grant (see ID number in brackets).

- Delate, K., C. Cambardella, C. Chase, A. Johanns and R. Turnbull (2013). The Long-Term Agroecological Research (LTAR) Experiment Supports Organic Yields, Soil Quality and Economic Performance in Iowa. Online. *Crop Management*. doi:10.1094/CM-2013-0429-02-RS

This article summarizes 13 years of data from the LTAR experiment set up in 1998 at the Neely-Kinyon Research Farm that has been supported each year by the Leopold Center [XP2011-02]. The experiment is a side-by-side comparison of organic corn/soybean production with conventional practices. See the newsletter article on page 1 in this issue for a discussion of the results.

- Liebman, M., M. Helmers, L. Schulte and C. Chase (2013). Using biodiversity to link agricultural productivity with environmental quality: Results from three field experiments in Iowa. *Renewable Agriculture and Food Systems*. doi:10.1017/S17422170512000300

This article considers the impact of biodiversity on three research projects, all supported by the Leopold Center: the Marsden Farm rotations comparison [XP2013-01], prairie conservation strips at Neal Smith National Wildlife Refuge [E2011-20], and Comparison of Biofuels Systems [E2013-04]. They conclude that biodiversity can substantially reduce crop inputs without compromising yields or profitability while increasing agroecosystem health and resilience.

- Miller, J., L. Wright Morton, D. Engle, D. Debinski and R. Harr (2012). Nature reserves as catalysts for landscape change. *Frontiers in Ecology and the Environment*. doi:10.1890/100227

The Leopold Center supported research to introduce patch-burn grazing systems in the Grand River Grasslands in southern Iowa and northern Missouri. [E2012-01]

Our latest 'superheroes in training'

In May, the Leopold Center reached another milestone: 2,000 "likes" (also called followers) on Facebook, <http://www.facebook.com/LeopoldCenter>. In addition to learning about Leopold Center activities and what's going on in sustainability, our Facebook followers meet graduate students who work on Leopold Center-funded research projects. These "superheroes in training" want to make the world a better place. Our newest group includes **Usman Anwar**, who's interested in bioenergy and is part of the Landscape Biomass project; **Laura Kleiman**, who studies local and regional food systems; and French student **Alice Topoloff**, who's interviewing farmers in northeast Iowa.

Conversations

WITH DIRECTOR MARK RASMUSSEN

Our culture of exaggerated language



Have you noticed how coarse and exaggerated our language has become? Whatever the issue, there are always at least two viewpoints and as these sides trade salvos back and forth, their language grows in intensity and emotional content. As one trained in the world of scientific research and publication, I tend to write in a subdued “just the facts” manner. A review of any of my published research papers would soon convince the reader that this is not the stuff of a riveting novel. As a result, exaggerated language poses a real challenge for me. I struggle to appreciate its excesses and when I write, there seem to be limits drilled into me that I instinctively will not cross.

Things are different in the wide world of exaggeration. I am confident that you all have read some of the more commonly used terms: elitist, alarmist, debunking, superbug, superweed, activist and hoax. There also is a gallery of well-worn phrases such as “putting us out of business,” “tortured animals,” “most tested food on the planet,” “sound science,” “agenda driven,” “factory farm” and the most versatile: “anti(insert descriptive term here).” Each of us, depending on our point of view, no doubt can put these terms and phrases into context on a contentious issue regarding science, agriculture, food or environment.

Since moving from Washington, D.C. (ground zero for hyperbole and exaggeration) to the Leopold Center, I have had many occasions to ask myself why these issues end up becoming a printed word shouting match. Exaggerated language drives out more measured terms of debate, discourse and accuracy. It seems to be the literary equivalent of Gresham’s Law, which economists use to describe how bad money drives good currency out of circulation.

After I thought about this expansion of

incendiary language, I read some of the literature on the subject. I learned that most of us find facts and technical details quite boring. I discovered that exaggerated language usage is not intended to promote discussion and debate, nor is it designed to



“Exaggerated language drives out more measured terms of debate, discourse and accuracy.”

be particularly accurate. Instead overblown language is used to label, to denigrate, to intimidate, to suppress, to motivate, to recruit, but most of all, to stimulate the emotions. Outrage, fear, cynicism, distrust, self-righteousness, anger and motivation to action are desired outcomes of the fevered writer. Moderation would be considered less than desirable, even a failed outcome. Writers who achieved such tame results soon would find themselves out of a job at many issue-oriented organizations.

Most importantly, I learned that facts don’t matter much when issues become emotionally charged. In reality, things get more confusing when the players get into a contest of “dueling data.” Facts tend to get in the way when the primary goal is to provoke an emotional response from the reader. Fundamentally, the whole process is used to communicate an “us versus them” tribal-like message. Deception becomes part of the communication process.

Psychologists tell us that there are five

kinds of deception: lies, equivocations, concealments, understatements and exaggeration. Interestingly, humans are not the only organisms to practice the art of deception. It is widespread throughout biology. However, with our language skills we have taken the art of deception to great heights. While we like to think that we can rise above our biology to a different standard of behavior, we really have to work at it. Our current cultural environment does not encourage the pursuit of truth, which makes the task even more challenging.

I conclude by acknowledging what accomplished writers already know: Language and words are powerful tools and writers choose their words very carefully to convey proper meaning. So, next time you see or hear something on the internet or in the news on an issue you feel strongly about, look at the words

the writer is using. Determine if what was written was intended to inform and enlighten or to deceive and provoke. You might be surprised by what you discover. I certainly have and that is why I have made it my goal to ensure that Leopold Center communications reflect a measured approach based on available data and factual information.

We ultimately are a research-funding organization and our primary mission is to support scientists who study and gather information on a wide range of issues concerning agriculture, farming and food. Detailed factual writing may not make for a spell-binding novel, but it reflects our sincere commitment to the scientific method and truthful communication.

Mark Rasmussen

ORGANIC PROVES PROFITABLE, SUSTAINABLE

ORGANIC (continued from page 1)

agriculture in the country.

"Farmers interested in transitioning to organic production will be happy to see that, with good management, yields can be the same, with potentially higher returns and better soil quality," said Kathleen Delate, the ISU agronomy and horticulture professor who leads the project.

Organic food sales have tripled in the United States over the last decade. To market a crop as organic, it must be grown on land that has received no synthetic chemicals for three years prior to harvest.

Although organic practices are not the only way to improve soil health, the LTAR experiment showed that some of the biggest changes over time were in soil quality, particularly once the system was established. Organic agriculture promotes soil-building practices such as extended crop rotations and composted manure applications. Weeds are managed by timely tillage, longer crop rotations, cover crops

and allelopathic chemicals from rye and alfalfa.

As a result of these practices, the organic plots had higher biological activity, lower soil acidity, and higher amounts of carbon, nitrogen, potassium, phosphorus and calcium. Healthy soils hold more water and improve water infiltration, characteristics that better withstand to droughts, flooding and other weather extremes.

Farming practices that build soil health also increase carbon storage in the soil, called carbon sequestration, which buffers against climate change and contributes to better water quality.

"Soil health is critical to any agricultural production system, and organic practices are among many ways to improve the health of our soils," said Leopold Center Director Mark Rasmussen. "We hope that what we are learning from the LTAR experiment can be applied to other production models."

Project investigators also gathered data on yields and economic viability, with promising results. Corn and soybean yields were statistically equivalent in the organic and conventional systems during both the transitional phase (1998-2001)

and established phase (2002-2010) of the experiment. Yields for organic oats and alfalfa exceeded county averages.

Based on plot-level data, the economic analysis showed that the organic crops received roughly \$200 more per acre over the 13 years of the study because of premium market prices and reduced input costs. In 2010, for example, an acre of land planted with the four-year organic rotation returned \$510, while an acre planted with conventional corn-soybean returned \$351.

On average, labor requirements doubled for the organic systems. There was no significant difference in the number of crop pests.

The LTAR experiment suggests that skilled management practices can overcome the need for synthetic inputs, not only earning the farmer premium prices on the market, but also building a farm better prepared to deal with an unpredictable climate.

Delate authored the Crop Management study with Cynthia Cambardella, USDA Agricultural Research Service; Craig Chase, Leopold Center Marketing and Food Systems Initiative; and Ann Johanns and Robert Turnbull, ISU Extension and Outreach.



The LTAR experimental plots near Greenfield, Iowa.

Leopold Center streamlines RFP process

The Leopold Center has modified its grant request process to encourage participation and better address current issues in agriculture.

The Summer 2013 Request for Pre-proposals (RFP) seeks ideas for research and projects that focus on soil health, identifying and managing vulnerabilities to agriculture, and food hubs. Projects that are selected for funding early next year become part of the Leopold Center's long-running Competitive Grants Program.

This is the first full RFP under the leadership of Director Mark Rasmussen. "Soil health becomes even more important when you face drought, flooding or other weather extremes," he said. "Besides soil health, we also want to fund work in other

areas where farmers may be vulnerable including those related to economics, energy and the structure of agriculture. Our third area, food hubs, would include efforts that smooth the connection between producers and retailers with regard to food products."

Rasmussen said the Leopold Center prefers research and projects that demonstrate a systems approach to an identified problem or situation, rather than single-tactic solutions. In addition to the focus areas, innovative research and project ideas will be accepted in any of the 10 subject areas defined in the RFP: Soil, Water, Landscape, Cropping Systems, Energy, Climate, Livestock Systems, Policy, Social, and Marketing and Food Systems.

Any Iowa nonprofit organization/ agency and/or educational institution, including soil and water conservation districts, schools and colleges, and regional development groups can submit pre-proposals. Farmers, landowners and farm-based businesses can participate but they must be associated with a nonprofit organization.

Deadline for submission of two- to three-page concept papers is July 19, 2013.

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On the web:
www.leopold.iastate.edu/long-term-agroecological-research

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Leopold's ongoing dilemma

*As nearly as I can see, all the new isms – Socialism, Communism, Fascism and especially the late but not lamented Technocracy – outdo even Capitalism itself in their preoccupation with one thing: The distribution of more machine-made commodities to more people. They all proceed on the theory that if we can all keep warm and full, and all own a Ford and a radio, the good life will follow. Their programs differ only in ways to mobilize machines to this end. Though they despise each other, they are all, in respect of this objective, as identically alike as peas in a pod. They are competitive apostles of the same creed: **salvation by machinery.** — Aldo Leopold, 1933*

One of the core dilemmas that perplexed Aldo Leopold throughout most of his life was the conflict between a strong incentive motivating most of us to use land for maximum economic return – a “commodity belonging to us” – and the need to maintain the land’s “capacity for self-renewal” – transforming it into a “community to which we belong”. For Leopold this dilemma was driven by his awareness that the way we were motivated economically to use land would ultimately destroy its value, both economically and ecologically. As he put it, succinctly:

It was inevitable and no doubt desirable that the tremendous momentum of industrialization should have spread to farm life. It is clear to me, however, that it has overshot the mark, in the sense that it is generating new insecurities, economic and ecological, in place of those it was meant to abolish. In its extreme form, [industrial agriculture] is humanly desolate and economically unstable. These extremes will someday die of their own too-much, not because they are bad for wildlife, but because they are bad for farmers. (Leopold, 1945)

We are now reaching the point where the impacts of these “extremes” are becoming economically unsustainable for farmers and consumers alike: degraded soils, loss of biological diversity, loss of pollinators, CO₂ levels exceeding 400 ppm, depleted fresh water resources, and rising nitrate levels in our drinking water that are costing Des Moines, Iowa residents \$7,000 a day to remove amounts to make the water safe to drink again. The economic costs of our ecological damage may, indeed, be reaching that point of “too-much” that Leopold foresaw.

Leopold predicted that “when that day comes, the farmer will be asking us how to enrich the wildlife of his community.” That comment would have seemed almost laughable in Leopold’s time! But today farmers are deeply concerned about the loss of pollinators and how to restore them. Additional evidence that Leopold’s “day” may have arrived appears in two current issues of John Deere’s *The Furrow* magazine. The entire February 2013 issue is devoted to the economic importance to farmers of restoring the biological health of their soils. A subsequent “special issue” is entirely devoted to “taste” – in other words, how farmers can improve their economic performance by addressing the *quality* of their commodities rather than focusing solely on *yield*.

The only solution that Leopold could finally come up with for solving his deeply entrenched dilemma was to cultivate an “ecological conscience,” a cultural transformation that extends

and fosters a sense of value and respect, not only for one’s fellow humans, but for the entire “biotic community” of which we humans are simply “plain members and citizens.” If humans are an integral part of the “land community,” there is no way we can be healthy unless the *entire land community* is healthy. And, according to Leopold, land health “is the capacity of the land for self-renewal.” Therefore, we are ethically called to learn how to manage land to enhance its capacity for self-renewal, rather than relying solely on “technocracy” to increase yields. (Leopold, 1949)

Leopold realized that such a land ethic had to be “a product of social evolution, because nothing so important as an ethic is ever written.” He knew that simply writing about a land ethic was not going to make it happen. He acknowledged that such an ethic could never be “accomplished without an internal change in our intellectual emphasis, loyalties, affections, and convictions.” All of that would have to evolve in our conscience over time. He also admitted that in his time we had not yet “touched these foundations;” in fact, “philosophy and religion” had not yet even “heard of it.”

Perhaps the time has come when we can achieve this transformation, philosophy and religion can address it, and we can cultivate an “ecological conscience” within our culture. It may be in both our ecological and economic self-interests to do so.

We may have arrived at the time of our own “too much.” Impending ecologic and economic crises present a new opportunity to return to Leopold’s wisdom, allowing his land ethic to foster the “internal change” that creates a culture with an “ecological conscience.”

References:

- Aldo Leopold, 1933. “The Conservation Ethic,” in Flader, Susan & J.B. Callicott, *The River of the Mother of God*, Madison, WI: University of Wisconsin Press. 181-192.
- Aldo Leopold, 1945. “The Outlook for Farm Wildlife,” in Callicott, J. Baird, & E.T. Freyfogle, *For the Health of the Land*, Washington, DC, Island Press. 213-218.
- Aldo Leopold, 1949. *A Sand County Almanac*, New York: Oxford University Press.

RESEARCH TEAM AIDS FARMLAND DIVERSIFICATION

PRAIRIE (continued from page 1)

Taylor County is wearing out, especially on hill slopes. While terraces can slow erosion and runoff, Davenport noted that this conservation practice is expensive, limits the farmer's access to the field and isn't always appropriate for every type of farmland. At Watkins' request, Davenport began making cold calls to ISU researchers to look for other options.

Meanwhile, the STRIPs team was looking for landowners willing to collaborate on "Phase II" of the project. They plan to establish additional research and demonstration sites on Iowa farms, which will help them learn more about designing prairie strips to meet the needs of landowners.

"Everybody's in the right place at the right time," Davenport said.

Watkins is no stranger to diversifying farmland. The 2,800 acres of land in southwest Iowa that he owns, rents or manages include crop fields, pasture and natural habitat. He rotates 600 head of cattle through 2,300 acres of pasture to keep the land healthy and produce high-quality beef. He plants a diverse array of cover crops in his corn-soybean fields and has about 30 acres enrolled in the Conservation Reserve Program.

Watkins also preserves habitat for hunters, who keep the deer herds at a manageable level and provide an additional source of revenue for the farm—more than he could make by putting the same land in crops.

Watkins invited members of the STRIPs Research Team to visit last summer to hear their advice about how to plant prairie strips on his land. The team toured two potential sites for implementing prairie strips, both on hill slopes where Watkins hopes to control sediment movement.

Watkins expects it will take roughly three years for the newly seeded prairie to take root. The STRIPs team will monitor the effects on soil, water and wildlife. "My gut tells me that it's a good practice," he said. "If other people are going to buy in, they're going to need some hard data."

Research at the Neal Smith National Wildlife Refuge showed that planting 10 to 20 percent of a watershed in native prairie reduces the amount of soil leaving the watershed by more than 90 percent. Nitrate and phosphorous movement also decreases. The deep roots and stiff, upright stems of native prairie plants slow

surface runoff and hold soil in place more effectively than cool-season plantings such as brome, and also create better wildlife habitat

Matt Liebman, ISU agronomy professor, called demonstration projects like the one planned for Watkins' farm "lighthouses" that show, rather than tell, options for land conservation. Even small patches of prairie have the potential to greatly improve a farm's resilience to extreme climatic events, such as heavy rainfall and flooding.

Researchers calculated that prairie strips cost roughly \$32 to \$50 per acre annually. Landowners can contact the Iowa NRCS for technical and financial help by asking for the "contour buffer strip standard"

for hillsides and the "filter strip standard" for foot slope positions. Potentially, a farmer could graze or harvest hay from a prairie strip to provide additional revenue. Researchers hope to learn more about these options with the demonstration project on Watkins' farm.

"This is the kind of agriculture I love, to talk about the soil, about sustainability, about production," Watkins said. "Will I be able to say that I left the land better than I found it? That's what matters to me."


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Photo gallery of STRIPs team visit to Seth Watkins' farm:
www.leopold.iastate.edu/news/photos/putting-prairie-strips-practice

Top: An experimental prairie strip in a cropfield at the Neal Smith National Wildlife Refuge (photo by Anna MacDonald).

Bottom: Seth Watkins (second from left) shows STRIPs team members where he hopes to establish prairie strips (June 2012).



Watch our web calendar (www.leopold.iastate.edu/news/calendar) for details about an upcoming summer field day on Seth Watkins' farm, hosted by Iowa Learning Farms and the Leopold Center.

Researcher seeks strategies for managing winter rye

By MELISSA LAMBERTON, Communications assistant

In a lab on the Iowa State campus, potted corn plants sprout inside chilly control chambers. Tom Kaspar digs into the soil and comes up with a handful of roots from the winter rye that occupied the pot before the corn sprouted.

Those roots are the reason Iowa farmers plant cover crops such as winter rye. They help hold soil and nutrients in place during a time of year when corn and soybean crops aren't growing—particularly important during unusually wet weather like what the Midwest has seen this spring.

In the case of winter rye, however, the roots also harbor a mystery: They seem to host pathogens that sometimes carry over in the soil to cause a yield decrease in the following corn crop.

Kaspar, a plant physiologist at the USDA National Laboratory for Agriculture and the Environment in Ames, is investigating that scenario with a competitive grant project funded by the Leopold Center's Ecology Initiative.

Kaspar called winter rye "our best hope" for an effective cover crop in Iowa, because it can overwinter in temperatures far below freezing. Cover crops reduce erosion, recycle nutrients such as nitrogen and phosphorus, protect water quality and sequester carbon in the soil.



Tom Kaspar samples a winter rye plant in the field at an ISU research farm in Boone County, Iowa.

Yield decreases are sometimes observed when grass species are planted in succession, such as winter rye, winter wheat or triticale cover crops before corn, or continuous corn crops. The effect is difficult to study, because it does not occur every year or in every field.

That's why Kaspar began his experiment in the lab, where he can recreate the cold, wet conditions that encourage pathogen growth. The experiment compares corn grown with and without a rye cover crop, as well as fungicide-treated and untreated corn seed. Kaspar said he hopes to find "the smoking gun" that links common soil pathogens on the rye roots with the demise of young corn plants.

The lab experiment will help Kaspar interpret results from a larger field experiment taking place at the ISU Agronomy and Agricultural Engineering Research and Demonstration Farm in Boone County, Iowa. There, Kaspar tracks soil temperature and soil moisture, and compares management strategies such as tillage, corn planting date and winter rye kill date, to determine the conditions that encourage infection.

"The end result will be that we'll be able to make some suggestions to farmers on how they might manage winter rye," Kaspar said. "It's still an excellent cover crop before corn and many farmers successfully manage it without any problems at all. This experiment will help us understand why."

Strip tillage, which leaves a band without winter rye where farmers can plant corn, may make the yield decrease less likely. Other possible management options include changing the timing of cover crop kill date and corn planting; planting mixes of cover crops; or developing a different variety of rye.

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On the Ground video:
www.leopold.iastate.edu/news/on-the-ground



Corn seedlings grow in climate-controlled chambers in pots that previously held winter rye.

Kaspar describes his research in a new On the Ground video on the Leopold Center website. This is the 36th video in the series, which showcases ongoing research projects that contribute to sustainability in Iowa.

Tom Moorman, USDA-ARS National Laboratory for Agriculture and the Environment, is co-investigator on the project. Partners include ISU Extension, Practical Farmers of Iowa and Iowa Learning Farms.

Fall field days to feature cover crops

A record 100,000 acres of cover crops were planted in Iowa in 2012 and officials expect that number to continue to rise. Learn from those who are using cover crops at fall field days planned by the Iowa Learning Farms and Practical Farmers of Iowa.

The fall field days follow a successful series of 8 events in March, April and May 2013 that attracted about 800 farmers throughout the state. Event info will be posted on the Leopold Center web calendar as soon as it is available:

<http://www.leopold.iastate.edu/news/calendar>

Conference charts roadmap for Iowa's local food efforts

By LAURA MILLER, Newsletter editor

Unexpected detours, bumps and numerous stretches of unfinished roads line the highway toward strong and efficient local food systems. For about 100 Iowans, however, the Iowa Local Food Conference provided a welcome rest stop to check how far we've come and be inspired by what's happening in other parts of the state and the country.

Following a theme of "Roadmap to Resilience: Empowering Iowa's Local Food Economy," the March 19-20 conference brought together farmers, educators and others who are working on local food issues. It was hosted by the Leopold Center, the Regional Food Systems Working Group, ISU Extension's Iowa Food System Working Group and the Local Food and Farm Initiative program coordinated by Craig Chase of the Leopold Center. Keynote speakers and concurrent breakout sessions focused on food hubs to help aggregate and distribute local products, efforts to involve schools, and resources for beginning and minority farmers.

"What I like about food is that it can bring all of us together," said keynote speaker John O'Sullivan, who is director of the Center for Environmental Farming Systems (CEFS) in North Carolina. He leads a statewide 10% Campaign that urges North Carolina consumers and businesses to spend 10 percent of their food dollars locally.

"Agriculture is a big tent, and there's

room for all of us," he continued. "Find common ground with all of your partners. It's awesome what meaningful conversations can take place between conventional agriculture and our partners. We need to talk about healthy food and healthy communities."

Sullivan talked about the hundreds of partnerships that have been built in his state since CEFS began working on alternative agricultural practices in 1994. What began at North Carolina State with other universities, the state department of agriculture and cooperative extension has grown to include farm organizations, environmental groups, local government officials, health professions, anti-hunger and faith-based groups, youth programs, economic developers and entrepreneurs.

He said the story that needs to be told is a compelling one. "We're trying to rebuild a local food system, something that was in place after World War II. We're bringing jobs back into your county, we're getting local foods in your school systems." A strong local food system, he added, "will help raise all boats."

U.S. Secretary of Agriculture Tom Vilsack also addressed the conference via video link. He talked about the need for new, regional food hubs that allow small producers to reach additional markets, and the importance of locally-produced food in rural economic development.

"While there are only about 220 food hubs around the country right now, they

are generating tremendous interest - and we hope to strengthen regional marketing opportunities in the years ahead," he said. "This year, USDA has set a goal to support at least 100 new local marketing opportunities nationwide."

Vilsack said he was pleased to see local food efforts in Iowa and the "continuing success" of the Iowa Local Food Conference. This was the seventh year that the Leopold Center has hosted a conference for others to learn about local food efforts throughout the state.

Lynn Heuss, Leopold Center program assistant who coordinated the event, said she was pleased with the turnout, in spite of a late winter snowstorm and poor driving conditions.

"This conference was a great gathering place for participants to get information on many different aspects of how to continue to develop a healthy, resilient local food system," Heuss said. "More and more people realize that in order to live a healthy life, independently and collectively, we have to make better decisions about what we eat. Having local food options is one way to contribute to a healthier lifestyle for ourselves and our communities."

Summaries of workshop presenters are included in a new publication from the Leopold Center, "Sharing the Lessons Learned from the 2013 Iowa Local Food Conference."

Sharing their stories

Here are quotes from conference speakers. You can listen to them all at: www.leopold.iastate.edu/news/calendar/2013-03-19/iowa-local-food-conference-road-map-resilience

Schools and healthy food

"Schools are a lucrative market for farmers because 31 million children are eating school lunch every day, and 16 million are eating breakfast at school. We are reaching 6 million children in 12,500 schools, or about 12.5 percent of the school population. We see [our program] as one of the strategies for the childhood obesity epidemic." – Anupama Joshi, National Farm to School Network

Rural development

"Local marketing holds potential to give farmers and ranchers another path to income, build the growing demand for locally-produced foods, and help Americans to learn more about where their food comes from." – Tom Vilsack, U.S. Secretary of Agriculture

Food hubs

"We really think of ourselves as an organization in the middle between the farm and retail consumers, at the intersection between affordable food and fair prices for farmers, as well as regional and local because this food comes from a region very close to consumers." – Sue Futrell, Red Tomato, a network of 40 small/midsize farms in nine northeastern states



Above: Flannery Cerbin (right) talks with two other FoodCorps Fellows. Cerbin said, "You are pretty much guaranteed a certain persistence and certain passion with these [FoodCorps] members. All of the 12 members here in Iowa have a deep devotion and enthusiasm for what they're doing."

Farm to School efforts plant seeds for success

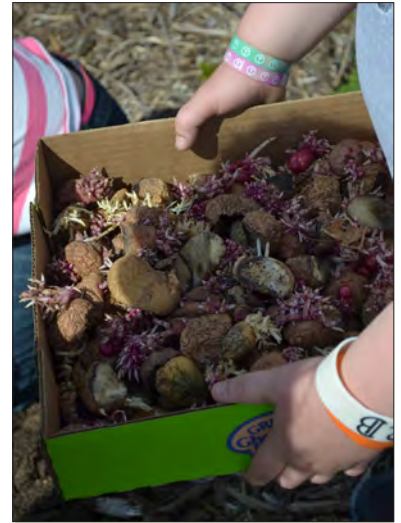
First-graders learn the secret of how raisins are made. A teacher slices a tomato to teach fractions in math class. A farmer brings samples of fresh cheese for students to taste. Kids eat kale-and-avocado salad in the cafeteria—and ask for the recipe to take home.

These are the kind of stories that Flannery Cerbin, a FoodCorps Fellow housed at the National Center for Appropriate Technology office in Des Moines, has collected for a new website showcasing Farm to School efforts across Iowa. Cerbin received a special grant through the statewide Local Food and Farm Program (LFFP) to create the website. LFFP is coordinated by the Leopold Center and Iowa State University Extension and Outreach.

The Farm to School Network is a nationwide effort to connect schools and local farms, with the goals of improving access to healthy foods, providing educational opportunities for students and supporting local farmers. Cerbin visited schools around the state to chronicle farm field trips, farmer visits, school gardens, nutrition education and efforts to bring local food into classrooms and cafeterias—from homemade sweet potato fries to fresh-picked cherry tomatoes.

“For some kids, that might be the only experience they’ve had with fresh food,” Cerbin said. “If kids grow food or help prepare it, they’re more likely to eat it.”

Visit the website for more information, photographs, an interactive map of Farm to School efforts in Iowa, and links to blogs and resources: www.iowafarmtoschool.org



All photos by Flannery Cerbin. Clockwise from top:

1) A student in Postville’s “Garden Club” carries seed potatoes to plant in the school garden. The garden yielded more than 800 pounds of produce last summer.

2) FoodCorps Service Member Daniel Schultz pots a tomato transplant for a student and his family at the Moulton Extended Learning Center in Des Moines. Schultz is one of the FoodCorps members helping with the Burpee’s Grow Anywhere tour, which gives away free transplants and produce to community members.

3) Jessica Weber from Independence Community School explains her Farm to School team’s vision for the school garden. Last year Weber and several volunteers shucked more than 600 ears of sweet corn for students to enjoy fresh from the garden.

4) Northeast Iowa farmer Vince Spain shows students at Postville Community School a handful of seeds. In 2011 the school and the Northeast Iowa Food and Fitness Initiative piloted “Face of the Farmer,” where farmers visited the school cafeteria to hand out samples of local produce. Students received a trading card with information about the farmer.

5) Students from the Central Campus Culinary Arts program visit Coyote Run Farm in Lacona, where they learned about raising beef and poultry, using hoop houses, and planting garlic.



News & Notes

ISU agronomy professor Matt Liebman has been appointed to the Institute of Medicine and National Research Council's Committee on a Framework for Assessing Health, Environmental and Social Effects of the Food System. The ad hoc expert committee will develop a systematic approach to determine the positive and negative effects associated with the ways in which food is grown, processed, distributed and marketed in the United States. The group also will consider alternative practices, and produce a report at the end of 2014. The Leopold Center supports Liebman's research on extended rotations and other alternatives. His appointment is considered provisional until the group's first meeting in mid-July. Details and committee membership are here: <http://www8.nationalacademies.org/cp/projectview.aspx?key=49544>

...

Iowa growers looking to scale up their vegetable operations have a new resource, the Transplant Production Decision Tool. The tool provides information about transplant production, maintenance and equipment based on case studies of nine produce operations in Iowa, Minnesota and Wisconsin. The Iowa Organic Association received a Leopold Center grant to develop the online resource seen at: http://www.leopold.iastate.edu/cool_tools/transplant-production-decision-tool

...

Melissa Lamberton, the Leopold Center's former communications research assistant, will attend the Wildbranch Writing Workshop this July. Located in Craftsbury Common, Vermont, Wildbranch is a week-long nature writing workshop sponsored by Sterling College and *Orion Magazine*. Lamberton received an MFA in Creative Writing and Environment from ISU in May.

New staff to focus on Leopold Center impacts

Thanks to external grants and related funding, the Leopold Center is building its capacity to document and measure the impact of its programs and those of its partners.

Arlene Enderton is a new program assistant working with Corry Bregendahl to conduct evaluation efforts at the Leopold Center. Laura Kleiman is a new research associate working with Craig Chase in local and regional food systems and other special projects at the Leopold Center.

Previously, much of the Leopold Center's work in evaluation has been associated with partnership activities at the Northeast Iowa Food and Fitness Initiative (NEIFFI), supported by the W.K. Kellogg Foundation. Enderton, who lives in northeast Iowa and has worked with the NEIFFI as a graduate intern, will expand her work to include the Regional Food Systems Working Group, ISU Extension's Iowa Food System Working Group and the statewide Local Food and Farm Program that Chase coordinates at the Leopold Center.

Kleiman will assist Chase in local and regional food system research, particularly documentation of food hubs and related business development opportunities.

For the past two years, she worked as a graduate research assistant, contacting project investigators and key partners of six long-term projects supported by the Leopold Center. She compiled the data into two-page "impact" briefs that outline goals and findings, products generated, outcomes, funds leveraged and future opportunities.

A native of New York, Kleiman moved to Iowa in 2011 to study sustainable agriculture and sociology. She received her master's degree from Iowa State in May 2013. Previously, she worked as production manager on a small organic farm in upstate New York, and received her B.S. degree from State University of New York-Geneseo.

Enderton recently received her master's degree in rural sociology from the University of Missouri. She grew up on a small, diversified farm in north central Iowa and earned undergraduate degrees in agricultural biochemistry and agronomy from ISU. Between degrees she spent five years working on community development in the Dominican Republic, where she gardened with children and opened a women's center. She also helps her husband manage an apple orchard.

New accountant joins Center staff

The newest member of the Leopold Center staff specializes in reporting – both financial and the current weather. Every day Heather Scott treks across campus between her two offices, one in Kildee Hall where she works for the Iowa Pork Industry Center, and another in Curtiss Hall



where she works for the Leopold Center.

As part of a new arrangement beginning April 1, the two centers are sharing the services of an administrative specialist. At the Leopold Center, Scott handles finances and accounting for the long-running competitive research grants program, as well as backup payroll and purchasing. She replaced Karen Jacobson, who retired in August 2012. Michele Rogers from the ISU College of Agriculture and Life Sciences handled many of the Center's financial duties in the interim period.

Although the position involves extensive training and a daily office switch, the former tax preparer doesn't mind the activity. "I'm used to constant deadlines working in the business world," Scott said.

Before coming to ISU, Scott worked 3½ years as staff accountant at the Allen L. Kockler Company in Nevada, Iowa. She prepared financial statements and corporate and individual tax returns. She mentored five interns and created a training program for the company.

Scott also knows agriculture, having grown up on a central Iowa farm near Ferguson in Marshall County. Her father and brother manage about 5,000 acres of farmland for a family-owned company and her brother raises cattle.

She has an undergraduate degree in accounting from Iowa State University (2010) and is an Enrolled Agent able to prepare individual and business tax returns. She lives in Ames.

Scott plans to spend most afternoons at the Leopold Center. She also will administer the Leopold Center's Competitive Educational Support Program (CESP).

UNI appoints two new reps to advisory board

The University of Northern Iowa has new representatives on the advisory board who are well-acquainted with the Leopold Center, local food and sustainability issues.

Environmental geography professor Dennis Dahms served briefly on the board after the Leopold Center was created in 1987. Likewise, Kamyar Enshayan has been associated with the Leopold Center since 1997, when he received his first grant to connect local farmers with institutional food buyers in the Waterloo area. Enshayan directs UNI's Center for Energy and Environmental Education (CEEE); Dahms teaches and conducts research on paleoclimate and landscape change in the Yellowstone region of Wyoming.

Both Dahms and Enshayan will serve four-year terms on the board. They replace long-time board member and UNI biology professor Laura Jackson and UNI geography professor Patrick Pease. We interviewed our new members to help you get to know them.

DENNIS DAHMS

What is your involvement in agriculture or farming?

My father grew up on a farm in southern Missouri and worked for the Soil Conservation Service (now the NRCS). I have fond memories of "the old home place" and the cycle of agriculture and nature as practiced in the 1950s and 1960s. To see them nearly forgotten in the rush to "modernize" (a 1960s term for ag industrialization) and globalize, only to be re-discovered as "alternative agriculture" has been a jolting experience for me. It is a pointed example of how little time it takes for a culture to lose its collective memory of the relations among soils, plants and nutrition cycles that, to my grandfather, were simply common knowledge.

What perspective do you bring to the advisory board?

I want to help keep the Center focused on policies and projects that, in my opinion, Leopold himself might have wished to see supported. In "Thinking Like a Mountain" Leopold illustrates how solutions to short-term problems often lead to longer-term problems of greater magnitude.

What role do you think the Leopold Center can play in Iowa agriculture?

The Leopold Center can (and should) play a significant role in relating to Iowans how the health of our land resources are critically related to the health of our society. If we can show people that our socio-economic well-being cannot be seen as separate from our environmental health, then we'll have made a contribution to the nation and the world that Aldo Leopold might be proud of.

Dahms is a Fellow of the Geological Society of America and serves on the Advisory Board of the Center for Global and Regional Environmental Research (CGRER) at the University of Iowa. He has a Ph.D. from the University of Kansas, master's degrees from the University of Colorado and University of Missouri, and an undergraduate degree from the University of Missouri. He is an avid gardener and mountaineer, and lives in Cedar Falls with his wife, Sharon.



KAMYAR ENSHAYAN

What is your involvement in agriculture or farming?

I am an agricultural engineer by training but my primary involvement in agriculture is through eating and gardening. I also have been working to expand local markets for locally grown agricultural products here in Iowa.

What perspective do you bring to the advisory board?

I was asked by our university president, and I accepted because I support the mission of the Leopold Center and would like to see it have significant impacts in Iowa. I want to be supportive of the Center and help it focus on highlighting and implementing what we already know about the cropping systems that bring biodiversity to farms, and significantly improving soil and water quality while improving yield and rural economic vitality.

What role do you think the Leopold Center can play in Iowa agriculture?

Many important roles—be a voice for systems of farming that have a proven record of improving soils and waters; help develop the markets that feature sustainably raised agricultural products; help strengthen Iowa's local food economy so that all Iowans will be clearly connected to the farms near them.

Enshayan came to UNI in 1993, after completing a Ph.D., master's and undergraduate degrees at Ohio State University in agricultural engineering and mechanical engineering. He has taught environmental and food and agriculture courses since 1993, and was named CEEE director in 2008. He says his highest honor was receiving the Sustainable Agriculture Achievement Award in 2008 from Practical Farmers of Iowa.

A 1997 Leopold Center grant was the "seed" for the UNI Local Food Project, which has continued to bear fruit. What began with three institutions – the UNI food service, Allen Hospital and a local restaurant – and about \$100,000 in annual food sales from local farmers, has grown to 30 businesses and about \$2.6 million in annual food sales. Enshayan lives in Cedar Falls with his wife, Laura Jackson, and two children.



 www.leopold.iastate.edu

On the web:
www.leopold.iastate.edu/about/advisory_board



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Highlight Events

More details, events

Check Leopold Center Web calendar:
www.leopold.iastate.edu/news/calendar

Learn about how to get support for events: www.leopold.iastate.edu/grants/education

Summer field days!

In spite of a cold, late spring and relentless rainfall, summer field days are underway. Investigators of Leopold Center-supported research often participate in field days and other events to explain their work and share findings. Check our web calendar for field days planned by our partners, Iowa Learning Farms, Practical Farmers of Iowa and ISU Research and Demonstration Farms.

Work groups meet

The Food Access and Health Work Group will host its summer gathering on July 12 at the University of Northern Iowa's Center for Energy and Environmental Education in Cedar Falls. The program will focus on the growing problem of food waste.

The Regional Food Systems Working Group will host its summer gathering August 7 in Ames. This organization now has 15 different groups working in 90 of Iowa's 99 counties to build and strengthen their local food systems. The Leopold Center convened

the organization in 2003. Currently, members are collecting data for a report on the economic impact of local food sales throughout Iowa during the past year.

Learning from the Loess Hills

Members of the Leopold Center Advisory Board got a lesson in ecological renovation when they toured Loess Hills State Forest prior to their June 5 meeting in the western Iowa community of Pisgah.

One of the highlights of the tour was a wagon ride through a 120-acre pasture that has been restored to native oak savanna. Beef cattle grazed among stately bur oaks, which are native to the area. Invasive sumac and elm trees had either been removed or controlled by prescribed burns. Warm-season grasses replaced brome, and many of the native forbs, which cattle prefer, had started to grow on their own.

The Iowa Department of Natural Resources manages the 11,600-acre forest, which includes about 1,800 acres rented to 14 area landowners for grazing or crop production. Farmers are required to plant food plots for wildlife consisting of milo, sorghum, alfalfa, soybean or corn, and maintain wide grassy buffers around each field.



Advisory board chair Bill Ehm (left) and members Jennifer Steffen and Dennis Dahms (right).