

## Leopold Center awards 21 new competitive grants

**T**wenty-one new projects are beginning work this year, thanks to the Leopold Center's long-running competitive grants program. The Center awarded the competitive grants, which total \$1,201,290, in January.

Six projects will complete their work in one year, while eight projects will run two years and seven projects will run three years. Combined with multiyear projects already in progress, the new grants bring the Leopold Center's currently funded research to roughly \$2.25 million.

The projects fit under all four of the Leopold Center's initiatives—Ecology, Marketing and Food Systems, Policy and

Cross-Cutting—and range from research on cover crops and bacterial resistance, to developing tools for local foods, to helping Iowa farmers understand and reduce their energy use.

"This year's Leopold Center grants represent a broad array of science-based projects that will serve Iowa on many levels," said Mark Honeyman, Leopold Center interim director. "The projects involve many fundamental topics: soil, water, crops, livestock, energy, food, farmers and land. Collectively, these projects will continue to build the sustainability of Iowa's agriculture and food systems."

**GRANTS** (cont. on page 6)

## Renewable energy on Iowa farms: Changing policy, creating incentives

By MELISSA LAMBERTON, Communications research assistant

**W**hen Gregg Heide installed a photovoltaic solar panel with a 25-year lifespan on his farm in Pomeroy, he hoped to diversify his income and contribute to environmental health. Now he worries about how he will pay back his investment when his five-year contract with the local utility runs out.

"I don't know what's going to happen to me in year six," he said. "I've got a wind project I've been wanting to construct, but I'm prevented from doing so by a lack of public policy in Iowa."

Heide isn't the only farmer faced with this dilemma. Small-scale distributed energy projects, scattered widely across farms and communities, offer many benefits to Iowa's economy and environment. But people who want to produce renewable energy face significant

hurdles, including high upfront costs, only one buyer for the energy produced and uncertain returns on their investment.

Research funded by the Leopold Center's Policy Initiative hopes to address those barriers with a public policy option called feed-in tariffs (FITs). By offering long-term contracts at a fair price, FITs encourage farmers, homeowners and businesses to invest in small-scale renewable energy projects like wind turbines and solar panels. If implemented, FITs will create a more resilient power grid in Iowa, one designed to strengthen rural economies and contribute to cleaner water and air.

"We're adding a lot of wind energy assets to the state, but we're using a business model where none of the profits

**ENERGY** (cont. on page 7)

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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.

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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](http://www.leopold.iastate.edu/news/results)

## Summaries

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

- Toward a new Homestead Act: Designing a farmstead transfer and leasing program for high-value farming and farmstead preservation
- Corn silage test plot to increase profitability for dairy farmers and reduce winter wind and water erosion
- Energy use and nutrient cycling in pig production systems
- Experiential educational engagement with working groups and communities of practice
- Engaging community planners and local elected officials with local food systems producers to integrate local food systems into community plans and policies
- Assessing the business development strengths and needs of women and Latino farmers in Iowa
- A food distribution network for the Northern Iowa Food and Farm Partnership
- Building student awareness and involvement in the Farm to ISU program
- Research and assistance in support of the Foodsheds in the Upper Midwest Initiative to measure the economic impacts of increased local food production and consumption

## Scientific Journals

Leopold Center-supported projects have produced these papers published in peer-reviewed journals. Check at a research library or the journal's website for a report.

- Delate, Kathleen; Daniel Cwach and Craig Chase (2011). Organic no-tillage system effects on soybean, corn and irrigated tomato production and economic performance in Iowa, *Renewable Agriculture and Food Systems* 23(1):49-59. <http://dx.doi.org/10.1017/S1742170511000524>, Published online by Cambridge University Press 19 December 2011.  
*This work was conducted at the ISU Neely-Kinyon Farm to use a no-tillage roller-crimper system for terminating cover crops prior to planting commercial crops of soybean, corn and tomato. The Leopold Center supports long-term organic plots.*
- Jarchow, Meghann et. al. (2012). The future of agriculture and society in Iowa: Four scenarios, *International Journal of Agricultural Sustainability* 10(1):76-92. <http://dx.doi.org/10.1080/14735903.2012.646730>, Published online by Taylor & Francis 09 March 2012.  
*This paper was an outcome of a graduate-level course on ecological economics offered at Iowa State University in cooperation with the Gund Institute for Ecological Economics. Facilitators included Jeri Neal of the Leopold Center and Gretchen Zdorkowski and Matt Liebman, ISU Agronomy.*
- Larsen, Drake, and Nancy Grudens-Schuck (2012). Using Delphi to track shifts in meanings of scientific concepts in a long-term, expert-lay collaboration on sustainable agriculture research in the Midwest. Paper presented at the Great Plains Society for the Study of Argumentation conference, June 1-2, 2012, Ames, Iowa.  
*This paper reports on research supported by the Leopold Center at the Neal Smith National Wildlife Refuge on use of prairie conservation strips. The evaluation was conducted by a student in the Graduate Program in Sustainable Agriculture who had received a fellowship from the Leopold Center.*
- Miller, James R., Lois Wright Morton, David Engle, Diane Debinski and Ryan Harr (2012). Nature reserves as catalysts for landscape change, *Frontiers in Ecology and the Environment* <http://dx.doi.org/10.1890/100227>, Published online by Ecological Society of America 14 February 2012.  
*This is related to work in southern Iowa and northern Missouri to restore grasslands and incorporate patch-burn grazing practices into land management. Investigators also are organizing a symposium as part of the Society for Conservation Biology North American Congress in California this summer.*

# Conversations

WITH INTERIM DIRECTOR MARK HONEYMAN

## Voices from the past: Benjamin F. Gue



Here's something remarkable: Anniversaries of events separated by more than 100 years coincide in 2012. The Leopold Center, created by the 1987 Iowa Groundwater Protection Act, is 25 years old this year. And 150 years ago in 1862, the Morrill Act provided federal land to states to fund colleges for studying agriculture and industry.

Enacted by Congress and signed by President Lincoln, the Morrill Act created colleges for the working class, now known as the network of land-grant universities including Iowa State University. The act has been heralded as a milestone in the "democratization of education" in the United States.

Iowa was the first state to accept the federal grant of land to fund what was then Iowa State Agricultural College and Model Farm. Many people contributed to this new institution, but one little-known figure stands out as Iowa State's founding father. The story of Benjamin F. Gue and the beginnings of Iowa State are intertwined and speak of his vision, perseverance and leadership.

Gue was born in 1828 to a family of Quaker abolitionists. His father died when he was 10 years old, forcing him "to give up all thought of higher education for life on the farm." He came to Iowa from New York in 1852 as a young man of 24, becoming a farmer, journalist, legislator and historian. He was active in the anti-slavery, temperance, public education and women's rights movements as well as the new Republican Party.

Gue was self-conscious about his lack of a formal education. He writes of these feelings of inadequacy when he and other farmer-legislators addressed "the educated professional gentlemen, lawyers skilled in long practice in public speaking with all the advantages of a college education."

In 1858, during his first term in the Iowa legislature, Gue and cohorts wrote the bill to create the Iowa State Agricultural College and Model Farm. Gue claimed that lack of educational possibilities caused the "country boys" to leave farming, creating a shortage of leaders in rural areas. He insisted on an educational option for the "farmer, mechanic, day laborer, inventor and manufacturer." He appealed to class equality and asked for a roll-call vote that would show the split "between the supporters of higher education for the privileged few and advocates of education opportunity for all."

When the new college's officials asked for more funds, the opposing faction felt that the young state could not afford this "ill-advised" investment. They moved to repeal the law and close the college. Gue used a motion to table that blocked the action and saved the new college.

In 1862, during a special session to consider war-related matters, Gue again led the way. The Iowa General Assembly accepted the terms of the newly enacted Morrill Act to receive 240,000 acres in support of a college for agricultural and industrial education. Realizing the abundant prospects of the major land grant, supporters of the University of Iowa moved to split the land between the two schools. Gue successfully argued that the two schools had separate missions and the land grant stayed with Iowa State College. In 1867, Gue was part of a two-man team that visited 16 colleges in 12 states to study their organizations and informally search for the college's new president and faculty.

Gue went on to chair Iowa State's Board of Trustees, recruited the first president, Adonijah Welch, and spoke at the opening of the College on March 17, 1869. For 11 years he had led efforts to create a "people's college." Gue predicted that "We may not live to see the day, but the time will surely come in which the graduates of the Iowa Agricultural College will be found among the most eminent men and women that our State or the country will produce." He emphasized that the college was open to "all of God's people" including both genders and that it was especially dedicated to the "education of the working people of Iowa."

Few of the 1,200 gathered at the 1869 opening ceremony would envision the future scope of Iowa State University, including the Leopold Center for Sustainable Agriculture. Iowa State University and the Leopold Center are the products of visionary legislators of two very different eras. We are all indebted to them.

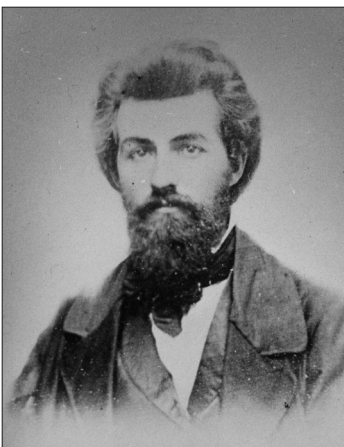


Photo courtesy University Archives, Iowa State University Library.

*Mark S. Honeyman*

**Note:** B. F. Gue quotes from "The Land Grant Act and the People's College, Iowa State University," A.H. Sheridan (ed), 2012; "History of Iowa State College," E.D. Ross, 1942; and "The Land-Grant Idea at Iowa State College," E.D. Ross, 1958.

**Historical note:** Among the legislators who contributed to the Iowa Groundwater Protection Act were David Osterberg, Sue Mullins, Don Paulin, Ralph Rosenberg, Paul Johnson, Jack Hatch and Don Shoultz. Reference: "Iowa Groundwater Protection Act," Proceedings of the Leopold Center 1997 Tenth Anniversary Conference, July 30-31, 1987, Ames, Iowa.



# High tunnel resources for Iowa growers

By MELISSA LAMBERTON, Communications research assistant

Imagine fresh, local raspberries at Thanksgiving dinner.

Fruit and vegetable growers can extend the growing season with high tunnels, plastic-covered, greenhouse-like structures that yield high-quality produce in a limited space. Linda Naeve, Extension program specialist with Iowa State University Extension's Value Added Agriculture Program, and other ISU specialists have developed new resources to teach growers how to use high tunnels to improve the profitability and sustainability of farms.

To date, funding from the Leopold Center's competitive grant program has produced two high tunnel publications, supported five workshops and trained 179 fruit and vegetable growers in Iowa. The investigators received additional funds from the Iowa Department of Agriculture and Land Stewardship (IDALS), Sustainable Agriculture Research and Education (SARE) and ISU Extension and Outreach to support a total of 12 workshops around the state in the past three years.

"There's currently a lot of interest and a high demand for information on growing fruits and vegetables in a high tunnel," Naeve said. "Many people tell me, 'I thought about doing that, but I just didn't know how to get the whole system to work efficiently.'"

Growers can produce a crop four to six weeks earlier inside a high tunnel, and extend the season longer in the fall, which helps them earn premium prices for produce like raspberries. High tunnels also improve the farm's sustainability through controlled nutrient and water management.

Naeve, Henry Taber, retired extension vegetable crop specialist, and Paul Domoto, extension fruit specialist, experimented with growing crops in high tunnels with a competitive grant from the Leopold Center's Marketing and Food System Initiative, awarded in 2007. They found the most profitable business plan was to grow multiple crops per year and carefully control the environment inside the high tunnel. They developed financial reports (available on the Leopold Center website) for certain high-value crops, including tomatoes, peppers, pole beans, raspberries, blackberries and Greek oregano. They also experimented with cucumbers and tulips.

With a second grant from the Marketing and Food Systems Initiative, the investigators continued offering introductory workshops and developed the *Iowa High Tunnel Fruit and Vegetable Manual* (PM 2098), a comprehensive workbook for growers. It is available from the ISU Extension Store in both English and Spanish.

"Several of the people we first trained with the manual are putting up their second tunnel now," Naeve said.

Susan Jutz, owner of ZJ Farm near Solon and a member of the Leopold Center's Advisory Board, constructed her first high tunnel a decade ago. Now she has a second, movable high tunnel that she can use in early spring, throughout the heat of the summer and into autumn. "Last spring without our high tunnels we would not have had an adequate supply of vegetables to support our spring share," Jutz said. "With our moveable tunnel we supplied 110 families with vegetables for five weeks

from late April to late May."

"I can't imagine being without a high tunnel, frankly," Jutz added. "I love my high tunnels."

According to Jutz, field days and demonstration projects are vital ways to introduce growers to new options. She has begun to make improvements to her original high tunnel to bring it up-to-date to the latest research. She also has visited the ISU Armstrong Research and Demonstration Farm near Lewis to take a look at Naeve's latest project: developing a prototype gutter system that catches, stores and reuses rainwater.

Rainwater sheeting off a high tunnel's curved roof can cause problems with erosion and soil saturation. The gutter system addresses these issues, while simultaneously supplying irrigation water for the crops inside the high tunnel. Naeve and Shawn Shouse, Extension Agricultural Engineer, recently completed the prototype system with funding from the Leopold Center's Ecology Initiative.

Growers interested in learning more can download a seven-page fact sheet, *Rainwater Catchment from a High Tunnel for Irrigation Use* (PM 3017), from the ISU Extension Store or Leopold Center website.

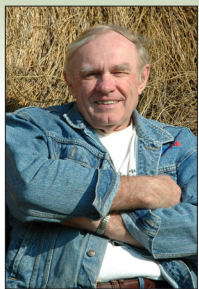
The USDA-NRCS Environmental Quality Incentives Program (EQIP) currently offers a Seasonal High Tunnel Initiative, which provides financial and technical assistance to growers interested in constructing high tunnels. The three-year pilot program will end this year. For details about how to apply, visit [www.nrcs.usda.gov](http://www.nrcs.usda.gov) or call your local NRCS office.

Here is what was growing in Susan Jutz' high tunnel mid-May 2011, all planted after April 1. She already was harvesting from the first position of the tunnel, which had been moved outside under row covers. Photo by Jutz.



## Learn more

- Find the high tunnel workbook, in Spanish and English, and the rainwater catchment fact sheet at: [www.leopold.iastate.edu/pubs](http://www.leopold.iastate.edu/pubs)
- Joseph Hannan, a horticulture field specialist, developed a "drip irrigation calculator" that calculates gallons to apply and run times for drip irrigation. The tool is available at: [www.iowaproduce.org](http://www.iowaproduce.org)
- Apply for EQIP funding at: <http://www.nrcs.usda.gov>
- Find reports from the "Tunnels to Tables" project at: [www.leopold.iastate.edu/marketing/resources](http://www.leopold.iastate.edu/marketing/resources)



TOWARD A SUSTAINABLE

Future

## From commodities to communities

*Lately I have been thinking that the point must be reached when scientists, politicians, artists, philosophers, and men [sic] of religion, and all those who work in the fields should gather here, gaze out over these fields, and talk things over together. I think this is the kind of thing that must happen if people are to see beyond their specialties. — Masanobu Fukuoka, Japanese philosopher and 'natural farming' practitioner (1978)*

In the Western world we seem to be enmeshed in a culture that values *things* more than *relationships*, and that same principle seems to hold true in our food and agriculture enterprises. As a consequence, our agriculture and food systems goals have been reduced to some simplistic objectives. Achieving the maximum yield of a few crops in one part of the world is more important than enabling people to feed themselves in their own communities. The problem of feeding nine billion people in a climate-changing world often is reduced to inventing a few new technologies. Producing more of our agricultural commodities with fewer farmers is considered more important than sustaining resilient rural communities where the farmers live. Maximizing profits in the short term is deemed more important than passing on biologically healthy soil to future generations.

Viewing food as a commodity also leads us to favor specialization over integrity. We tend to reduce complex systems to single tactic functions, complex problems to simple solutions. We adopt what economist Paul Thompson called a “productionist ethic,” that is, maximizing short-term profit for a small segment of the food system while largely ignoring the health and resilience of the whole. Each player in the food system tends to focus on one component. Input suppliers tend to believe that unlimited new technological solutions can solve any problem. Politicians tend to think that a few policy changes can enable us to meet future challenges. Economists tend to believe that the market eventually will solve all problems.

Ultimately perceiving food as a commodity causes us to ignore the complex, interdependent biological community of which we and our food are an integral part. Canadian ecologist and author Stan Rowe explains the relationship this way:

*We have been taught that we are separate living things, surrounded by other living things, but not so. The realities of the world are ecological systems of which organisms are components and without which no creatures of any kind could exist. The biggest ecological system, the planet or Ecosphere, is composed of regional and local landscape and waterscape ecosystems of which life is one property. Living on the land, under the sky, we people are inside the prairie landscapes, inside the continental ecosystem, inside the Ecosphere. The health of each and all is our health. (Rowe, 2002)*

In other words, the food we produce and eat is not just a commodity, it is an integral part of our ecological community.

These insights, of course, are essential to the development of any kind of sustainable agriculture. As long as we regard food

and food production as a commodity we are unlikely to develop the social capital necessary to evolve the kind of “ecological conscience” required to make the necessary commitments to sustain the system.

As Aldo Leopold put it, “We abuse land because we see it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.” (Leopold, 1949)

So perhaps it is time for us to heed the invitation of Masanobu Fukuoka and come together as a community of scientists, politicians, artists, philosophers, theologians, farmers and food citizens, gaze out on the landscape in the communities in which we live, and begin the conversations about how we can make this important cultural transition. As Rowe reminds us, standing on the land in this manner, “humans should clearly see their roots in the land, understanding that they are from the land and belong to it in a way that it can never belong to them.”

*Stephen Kuehn*

### References:

Masanobu Fukuoka, 1978. *The One-Straw Revolution: An Introduction to Natural Farming.* (ed. Larry Korn), Emmaus, Pa: Rodale Press.

Stan Rowe, 2002. *Home Place: Essays on Ecology.* (Rev. ed.) Edmonton, Alberta: NeWest Press.

Aldo Leopold, 1949. *A Sand County Almanac.* New York: Oxford University Press.

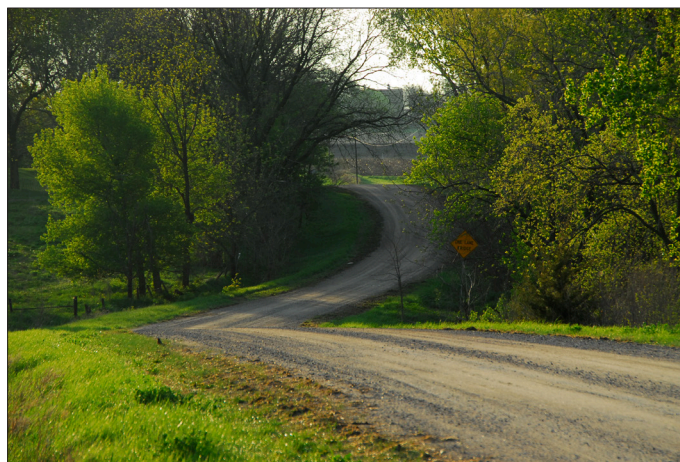


Photo by Barb McBreen, ISU College of Agriculture and Life Sciences

## NEW COMPETITIVE GRANT PROJECTS BEGIN

**GRANTS** (continued from page 1)

### Ecology

Six new projects in the Ecology Initiative were awarded a total of \$615,389. One study will investigate the fate and transport of pathogens on land that receives manure applications and address emerging issues in antibiotic resistance. Two others will focus on improving cropping systems by investigating soil organic matter and the effects of winter cover crops. The remaining three projects seek to understand the environmental effects of cattle grazing and incorporate sustainable grazing into Iowa's agriculture.

### Marketing

Eight new projects in the Marketing and Food Systems Initiative were awarded a total of \$258,104. The Regional Food Systems Working Group, formed in 2003, will use competitive grant funding to continue convening. Representatives from more than 25 groups meet quarterly to coordinate efforts to build vibrant regional food systems across Iowa.

Another project will field-test a semi-automated mechanical weeder for vegetable crops. Lie Tang, ISU Agricultural and Biosystems Engineering, developed the

weeder with previous grant funding from the Leopold Center.

Other marketing projects will create training programs, develop tools to procure local foods for farm-to-school chapters, and help small farmers and meat processors improve their management and profitability.

### Policy

Three new projects in the Policy Initiative were awarded a total of \$105,350. One grant will support research into how trust ownership impacts Iowa's landscape, and another will continue the Sustainable Agricultural Land Tenure (SALT) Initiative. The SALT Initiative began two years ago as a partnership between the Leopold Center and Drake University's Agricultural Law Center, with the goal of compiling resources for landowners about farm leases and sustainable practices. The third project will be a planning grant to expand use of prairie conservation strips studied at the Neal Smith National Wildlife Refuge in Jasper County.

### Cross-Cutting

Four projects in the Cross-Cutting

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Details about grants:  
[www.leopold.iastate.edu/  
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center-awards-21-new-grant-  
projects#grants](http://www.leopold.iastate.edu/news/02-01-2012/leopold-center-awards-21-new-grant-projects#grants)

Initiative received \$222,447 of competitive grant funding. This initiative, created in 2010, provides funding for research in multiple areas that will help balance competing economic, ecological, societal and political demands.

The Leopold Center awarded a grant to Practical Farmers of Iowa to prepare metered energy analyses for 25 Iowa farms. The project will analyze data both before and after the farmers have taken steps to adopt renewable energy or reduce their energy consumption.

With another Cross-Cutting grant, Iowa State researchers will raise awareness about the benefits of wild pollinators and natural pest enemies, and test the hypothesis that adding a refuge of perennial plants to cropland will improve the ecosystem services provided by beneficial insects. Other grants look at farrowing pigs in circular insulated tents (yurts) and help the University of Iowa develop a biorenewable fuel use and procurement plan.

## FEED-IN TARIFFS OFFER RENEWABLE ENERGY INCENTIVES

**ENERGY** (continued from page 1)

stay here," said Heide, a member of the Iowa Farmers Union and co-investigator for the project. "Most of the gross revenue just leaves the rural economy. I think we have a golden opportunity here to change the local rural economy for the better."

FIT programs have been used successfully in Europe and parts of the United States since 1990. To date, only one Iowa utility has adopted a FIT program. In 2009, Farmers Electric Cooperative (FEC) in Greenfield began offering incentive rates to its consumers with funding from its "green power" program, which collects donations from customers for renewable energy. FEC sets ten-year contracts for wind and solar energy at 20 cents per kilowatt-hour—almost double their usual rate—and offers rebates to help with installation costs.

All Iowa utilities are required by law to offer a "green power" program, but the funds are often invested in renewable energy projects thousands of miles away. FEC's program, in contrast, returns the

money to local farms and communities.

The benefits to local economies come with advantages for the environment as well. Each kilowatt-hour produced by solar power or wind energy reduces the need for fossil fuels, contributing to cleaner air and protecting Iowa's water.

Carole Yates, facilitator of the Farm Energy Working Group (FEWG), said that feed-in tariffs fit with the group's goal to reduce fossil fuel use on small to mid-sized farms by promoting renewable energy and energy efficiency. FEWG, housed at the University of Northern Iowa's Center for Energy and Environmental Education, has helped farmers install small wind, solar and biomass projects with funding from the Leopold Center. Many farmers have expressed interest in renewable energy, said Yates, but high upfront costs remain a barrier.

"We have subsidies that support oil and coal," Yates said. "It seems time we have some kind of policy that would support more introduction of renewable energy."

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Utilities also benefit from a distributed power system. With more renewable energy on the grid, they can buffer their customers from the rising costs of fossil fuels. They also have less risk of blackouts and brownouts. Solar panels produce the most electricity on hot days when demand spikes, and distributed energy makes the grid more stable and reliable.

FIT programs have proven successful at bringing more renewable energy on-line, since the cost of technology goes down as more and more projects are installed. Additionally, because utilities only pay for energy delivered to the grid, the owner has a strong incentive to maintain and improve his or her system.

While the investigators hope that

**ENERGY** (cont. on page 7)



## Iowa Farm Energy Working Group

The Iowa Farm Energy Working Group is funded by the Leopold Center and housed at the University of Northern Iowa's Center for Energy and Environmental Education. It provides a forum that helps reduce fossil fuel use through renewable energy and energy efficiency on small to mid-sized farms.

Learn more about the group's work by watching three recently released videos on YouTube (channel ceeeuni!). The videos feature innovative projects on three Iowa farms. Mark Rundquist and Linda Barnes of High



Hopes Gardens installed a wind turbine that provides 39 percent of their home and farm energy needs. Eric and Ann Franzenburg of Pheasant Run Farms discuss their corn kernel boiler and hot water system (pictured above). Tom and Irene Frantzen of New Hampton describe an energy analysis that showed them how to reduce their energy use.

FEWG awarded three demonstration grants for 2012. Recipients plan to install heating systems (a biogas digester and a wood boiler system) and a vegetable cooling system (the commercially available CoolBot system). Learn more at: [www.ceee.uni.edu/farmenergy.aspx](http://www.ceee.uni.edu/farmenergy.aspx).



Top to bottom: 1) Gregg Heide installed this photovoltaic solar panel on his farm in Pomeroy. 2) In the background is a small wind turbine that Mark Rundquist and Linda Barnes installed on their farm near Melbourne in 2008, connected to the local utility grid through a net metering program. 3) Members of the Iowa Farm Energy Working Group check out solar panels installed at Kalona High School as part of the Farmers Electric Cooperative's "green power" program. Photos by Gregg Heide, Linda Barnes, and Carole Yates.

### ENERGY (continued from page 6)

more Iowa utilities will follow FEC's lead and begin adopting FIT programs voluntarily, they also point to the need for comprehensive public policy at the state and federal level. The research resulted in three recommendations:

- Iowa utilities should begin offering FIT incentive rates now.
- Iowa policymakers should craft a comprehensive FIT policy and set long-term requirements for renewable energy development.
- Federal policymakers should provide states with the authority and flexibility they need to adopt FIT programs.

"There's enormous potential for distributed renewable energy projects in Iowa," said Nathaniel Baer, energy program director at the Iowa Environmental Council and principal investigator of the project. "Really, the sky is the limit."

The investigators compiled their findings in a white paper, *Renewable Energy Incentive Rates: Potential Opportunities for Iowa Farmers*, available on the Leopold Center website.

The Leopold Center's Policy Initiative awarded the grant for this research in 2010. The Energy Foundation and REAMP Global Warming Strategic Action Fund provided additional funding. Rich Dana, Dave Ryan, and Mary Challender of the National Center for Appropriate Technology and Sarah J. Elsie, MBA, contributed to the paper.

## Variety of local food efforts find home at Leopold Center

The Leopold Center is funding eight new competitive grants in the Marketing and Food Systems Initiative (MFSI) this year, which means that more than \$250,000 will support local food projects. The new projects range from shared-use kitchens and small meat processors to the kinds of machinery and skills these farmers need to scale up their operations.

But that's not the only work that will be done. A variety of smaller projects are being funded by MFSI and the new Local Food and Farm Initiative (LFFI), both coordinated by Craig Chase.

"These projects address critical short-term needs to build a strong local and regional food system in Iowa," Chase said. "There's a lot of momentum with the growth of farmers markets, farm-to-school programs and CSA producers, and this work complements those efforts."

Below is a summary of these projects and who's doing the work. Grant amounts vary, adding up to about \$40,600. Funds are from the Leopold Center's MFSI program, or allocated by the Iowa legislature for the LFFI program. In many cases the grants leverage existing funds from other sources.

- The Volunteer Center of Story County and Prairie Rivers of Iowa RC&D will continue a pilot school garden at Kate Mitchell Elementary in Ames and launch a second garden in Ames at Sawyer Elementary School.
- Practical Farmers of Iowa will interview 25 growers and wholesale fruit and vegetable buyers for a case study, recommending strategies for farmers to improve their success in this market.
- Women, Food and Agriculture Network will train 12 farm interns and their mentors, who will work at Soper Farms in northwest Iowa and the Wallace Centers farm in southern Iowa during the 2012 growing season.
- Healthy Harvest of North Iowa and Prairie Winds RC&D are hosting a workshop to explore development of a food hub in the Mason City area.
- A student in the ISU Graduate Program in Sustainable Agriculture will look at ways to establish a permanent funding mechanism for the LFFI program.
- ISU Horticulture professors will study food hubs that aggregate products for distribution into wholesale markets and look at case studies of two existing food

hubs in Iowa.

- The Midwest office of the National Center for Appropriate Technology will work with the Des Moines School District on a summer school lunch program that uses more locally-grown products.
- A graduate student from Tufts University is developing a "food regulations at a glance" publication for Iowa farmers.

Chase also worked with his team to plan an April 3 Local Food Summit in Ames. The session looked at six focus areas in the Iowa Local Food and Farm Plan, developed by the Leopold Center in 2010, to determine "next steps" for the LFFI.



## Iowa Water Conference focuses on urban, rural water quality

A growing number of hypoxic zones in the world means that Iowa is not alone in efforts to reduce nutrient loads in streams to improve water quality in the Gulf of Mexico. However, Iowa and other states in the Mississippi River basin may need to double their efforts to achieve water quality goals set 10 years ago.

"The continental shelf is more sensitive to the same amount of nutrient load so it is harder to make changes as these systems become embedded," said Louisiana State University researcher Gene Turner, who has been measuring the hypoxic zone in the Gulf each June since 1985. "An additional problem is that we have lost 2,000 square miles of wetlands on the Louisiana coast."

Turner was a keynote speaker at the annual Iowa Water Conference March 6-7 in Ames. The Leopold Center is a partner in the event that combines groups from agriculture and environment, flood plain management, the Iowa Learning Farms, stormwater and water monitoring. The goal of the conference is to create greater awareness of Iowa urban and agricultural

water issues through sustainable watershed management.

Hypoxia is a low-oxygen zone in coastal waters, caused by excess nutrients that promote algae growth. Oxygen is consumed when algae die and decompose, creating areas that are unable to sustain life. Along the Louisiana coast, home to about one-third of U.S. fisheries, the hypoxic zone reduces shrimp populations, which also rely on wetlands in the estuary for reproduction. Boats also must travel further to reach fish that have been able to move to deeper waters.

Turner said the size of the Gulf hypoxic zone is determined by the Mississippi River nitrogen concentration in May. Last year, flooding in the Missouri River basin contributed to a larger volume of water, but nitrogen concentration was lower so the zone was smaller than predicted. The zone has continued to grow each year to about the size of Lake Erie. Warmer ocean currents also are affecting expansion of the system.

Turner thought some of the estimated

\$21 billion in fines from the 2010 BP oil spill should be used in the upper Mississippi River basin to demonstrate agricultural practices that reduce nutrient load to streams. "It would be a way to integrate our value system on a watershed basis," he said.

Iowa Secretary of Agriculture Bill Northey followed Turner with an update on the Iowa Nutrient Reduction Initiative. The initiative began in 2010 with an assessment of the science related to nutrient reduction and water quality. Northey expected that a preliminary report will be available this summer. The next step will be recommended strategies and practices that farmers can use in their operations.

"This will be a turning point," he said. "We will spell out what we want to put on the ground and make it easy and safe for farmers to be involved." He said the approach will be voluntary and similar to soil conservation efforts, which many farmers have adopted "because they work."



# New director prepares for move back to Midwest

By LAURA MILLER, Newsletter editor

Although he is not scheduled to begin work until June 1, Director-elect Mark Rasmussen has been learning all that he can about sustainable agriculture in Iowa and activities at the Leopold Center.

He was a guest at the center's advisory board meeting on March 1, and plans to attend the April 3 Iowa Local Food Summit organized by Leopold Center staff. He also has joined monthly staff meetings by telephone as he works to wrap up his responsibilities as a supervisory microbiologist at the Food and Drug Administration's Center for Veterinary Medicine in Laurel, Maryland.

"I'm the first to admit that I have a large learning curve and my goal is to listen a lot this first year," Rasmussen told advisory board members after they had shared their ideas of the most critical issues facing the Leopold Center in the future. He said he intends to visit each of the 17 members on their 'home turf' to further explore comments and issues raised during the meeting.

In some ways, his move back to Iowa may seem like he's coming home. Rasmussen grew up in northeast Nebraska and worked 18 years as a scientist and research leader at the U.S. Department of Agriculture's National Animal Disease Center in Ames.

During a public seminar in December that was part of the director search process, Rasmussen described his family's farm near Hubbard, Nebraska just west of Sioux City. "This farming experience and growing up as a farm kid have molded me in more ways than what I was probably willing to admit when I was younger," he said.

His family farmed 900 acres (about half maintained as pastures), fed about 1,000 cattle, and grew corn, soybeans, alfalfa and oats. The farm also included "bottomland" in the Missouri River valley as well as rolling terrain and steep slopes with sharply-cut gullies susceptible to erosion due to the fine Loess soils.

"Frankly, some of it was a pain to farm," he said. "But with proper methods – waterways, terraces, a proper crop mixture – it was possible to farm this land and do a pretty good job."

As production in the beef industry consolidated in the late 1970s, Rasmussen said his family had greater difficulty sourcing feeder cattle. Rasmussen decided

to enter graduate school and his father retired from farming. He shared aerial photos of the area showing how land use has changed over the past 20 years with fewer terraces and farming along land contours.

"What you see are two very different approaches to agriculture here in this one little section of land," he said. "One [landowner] has found it's still possible to farm with terraces and so forth and the other has decided not to. This shows the dual-edge effects of our technology of moving to larger equipment that doesn't lend itself to certain practices. The result can be soil erosion, nutrient loss and loss of habitat and wildlife diversity."

Rasmussen concluded that conservation needs to be a conscious effort, rather than a by-product of state and federal policies designed to manage other issues in production agriculture.

Armed with a Ph.D. in dairy science from the University of Illinois, Rasmussen went to Kingsport, Tennessee to work at a Kodak research farm developing nutritional products for cattle. When the facility closed three years later, he joined the NADC in Ames specializing in rumen microbiology.

Rasmussen further developed his expertise in food safety as a member of the USDA team that studied disease-causing bacteria linked to several outbreaks of foodborne illness and deaths. The

research led to two patents, including fluorescent 'blue light' technology to detect bacterial contamination on fresh meat.

At the FDA, where he has worked since 2009, Rasmussen manages a team of 25 scientists that tests and classifies microorganisms on meat products and animal feed. The group also provides technical guidance and research support for FDA regulatory decisions on drugs, feed additives and contaminants in animal feed.

At the public seminar in December, Rasmussen described his management style as being "participatory, transparent and consensus-seeking" and said that he seeks collaboration and advice before making important decisions. When asked about his views on soil erosion, and whether fertilizers should be used to accommodate for losses, he again pointed to one of his biggest concerns with today's agriculture.

"Having moved around the country, I know of places where they would kill to have a good foot of soil under them," he said. "We are blessed with a very abundant resource. But this is another part of our American culture, that when we have abundance we tend to squander it or overuse it until at some point we have to wake up and take better care of it."



Mark Rasmussen overlooks Olmsted Island at Great Falls of the Potomac River in Maryland. Frederick Law Olmsted, Jr., was an American landscape architect best known for wildlife conservation efforts and lifetime commitment to national parks.

 [www.leopold.iastate.edu](http://www.leopold.iastate.edu)

Listen to the seminar,  
read about his background:  
[www.leopold.iastate.edu/  
about/director-search](http://www.leopold.iastate.edu/about/director-search)

# Shivvers lecturer: Iowa has role in fight against fracking

By MELISSA LAMBERTON, Communications research assistant

Iowa's agricultural community can play an important role in abolishing the nation's unhealthy dependence on fossil fuels, acclaimed ecologist and author Sandra Steingraber told an Iowa State audience on March 5.

Steingraber was the speaker for the 2012 Shivvers Memorial Lecture at ISU's Memorial Union. Fred Kirschenmann, Leopold Center Distinguished Fellow, introduced her as a scientist, writer and mother who has become "the star in our community much as Rachel Carson was in her time." Steingraber's latest book, *Raising Elijah: Protecting Children in an Age of Environmental Crisis*, is a memoir about the joys and dilemmas of raising a child in a world threatened by climate change and toxic chemicals.

Steingraber targeted fossil fuel dependency as the root of our environmental crisis, driving climate change and serving as the feedstock for toxic wastes and chemicals. She focused her lecture on a process for extracting natural gas from bedrock called hydraulic fracturing, or fracking. The process involves pumping high-pressure fluid into the ground to shatter the bedrock. Steingraber described how fracking introduces toxic chemicals into groundwater and air, destroys unique microbial communities deep in the earth,

clogs rural roadways with trucks and heavy equipment and creates smog.

"Fracking literally turns the earth inside out. It's a shock-and-awe operation," Steingraber said.

Iowa gets involved at the beginning and end of this process. Energy companies mine a certain type of sand from Iowa to inject into the wellbores and keep the fractures propped open so the natural gas can escape. The gas goes to make petrochemical products that return to Iowa as fertilizers, farm chemicals, PVC pipes and common household items.

"I'm not asking people to shop differently, but to imagine themselves in a heroic place," Steingraber said. "Farmers, more than anyone I know, understand the web of direct and indirect interactions. The wisdom of farmers could provide a counter-voice to the shale-and-gas kind of thinking."

Steingraber won the Heinz Award in 2011 for her championing of human health and the environment. She donated the \$100,000 award to anti-fracking

efforts in upstate New York. In February, a precedent-setting court case upheld the right of towns and municipalities in New York to ban drilling. Elsewhere, Bulgaria

and France recently passed bans on fracking.

"I feel humbled and honored at this moment to be a mother and a biologist," Steingraber said. "Each of us holds a particular genius and skill set we can bring to bear on this, and I do believe it is the human rights issue of our time."

Steingraber is a scholar-in-residence at Ithaca College in upstate New York and has a doctorate in biological sciences from the

University of Michigan. Her other books include *Living Downstream: An Ecologist's Personal Investigation of Cancer and the Environment*; *Having Faith: An Ecologist's Journey to Motherhood*; and *Post-Diagnosis*, a collection of poetry.

The Shivvers Memorial Lecture series honors L.C. (John) Shivvers, a farmer from Knoxville who pioneered new techniques in sustainable agriculture. Learn more about the Shivvers Memorial Lecture at [www.leopold.iastate.edu/news/calendar/shivvers](http://www.leopold.iastate.edu/news/calendar/shivvers).



## New annual report celebrates 'perseverance'

The new FY2011 annual report from the Leopold Center echoes the year's theme of "Perseverance." The report also highlights the Leopold Center's 25-year anniversary with an illustrated timeline showing important events and turning points in the Center's history.

The report focuses on the breadth of activities sponsored, promoted and funded by the Center and its partners during the fiscal year. Among the stories featured in the recently issued report:

- Climate scientist Gene Takle presented the 2011 Shivvers Lecture.
- Audubon farmers Vic and Cindy Madsen accepted the Spencer Award.
- Descriptions of 19 new research grants awarded and 25 projects renewed.
- Three students in Iowa State's Graduate Program in Sustainable Agriculture were able to continue their studies with Leopold Center funds.

- Fifteen working groups convened: six in Marketing, seven in Ecology, one in Cross-Cutting and in Policy.
- 179 educational events were sponsored.
- The Iowa Local Food and Farm Plan developed and produced for the Iowa Legislature.
- "Green Fire," a new documentary about Aldo Leopold, premiered in Iowa.
- Potential grantees learned at a Leopold Center workshop how to incorporate resilience thinking into their research and outreach.
- Distinguished Fellow Fred Kirschenmann shared the stage with the Prince of Wales.
- Long-Term Agroecological Research plots marked 13 years of comparing organic and conventional crops.

Copies of the 40-page annual report are available from the Center office (515/294-3711) or online.





# News & Notes

Prairie conservation strips help keep soil in crop fields and provide vital habitat for grassland birds. Watch the Leopold Center's newest On the Ground video that explains the importance of mixed prairie and cropping systems for birds: <http://www.leopold.iastate.edu/news/on-the-ground> As part of another research project, ISU horticulture professor Ajay Nair shows how he used row covers and calcium spray to grow lettuce outdoors last October. Watch his video here: <http://www.leopold.iastate.edu/news/other-videos>

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A new report from the Iowa Farm and Rural Life Poll explores farmers' attitudes about the benefits of and barriers to using cover crops. The 2010 Iowa Farm and Rural Life Poll found that Iowa's climate and lack of necessary equipment and knowledge were significant barriers to cover crop use, especially among larger-scale farmers. Read the report, and check out other resources, on the Leopold Center website page for the Iowa Cover Crops Working Group: <http://www.leopold.iastate.edu/ecology/covercrops>

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The U.S. Department of Agriculture has set up a new tool with information about projects and resources for local and regional food systems. The tool is

called the Know Your Farmer, Know Your Food (KYF) Compass at: [www.usda.gov/kyfcompass](http://www.usda.gov/kyfcompass) The website highlights USDA support for various projects, including the Northeast Iowa Food and Fitness Initiative, an interactive U.S. map showing case studies, food hubs, local meat and poultry processors and research, among other aspects.

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Iowa State University is offering a new undergraduate minor in sustainability, sponsored by four colleges at the university: Agriculture and Life Sciences, Design, Engineering, and Liberal Arts and Sciences. Students are required to enroll in 15 credits – six from two core courses and nine elective credits selected from a list of 50-plus courses. ISU also offers master's and doctorate degrees in the Graduate Program in Sustainable Agriculture, established in 2002.

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Leopold Center Distinguished Fellow Fred Kirschenmann was among the presenters for the Second Annual TEDxManhattan workshop on January 21, "Changing the Way We Eat," organized by the Glynwood Institute for Sustainable Food and Farming based in New York. Kirschenmann's 15-minute presentation, "Soil: From Dirt to Lifeline," was viewed more than 4,300 times the first month



Practical Farmers of Iowa presented its annual Achievement Award to Leopold Center Distinguished Fellow Fred Kirschenmann during their annual conference in January. The award recognizes those who have excelled in demonstrating sustainable agriculture and have been generous in sharing what they have learned with others. Kirschenmann, whose connections with PFI goes back more than 20 years, accepts a basket of local food from Francis Thicke (left) and PFI executive director Teresa Opheim. Photo by PFI.

after it was posted on YouTube. Fifty-nine viewing parties with nearly 9,000 computers tuned into the event, which was broadcast live online. The largest viewing party was in Louisville with 450 people. Watch Kirschenmann's presentation at: <http://www.leopold.iastate.edu/news/calendar/2012-01-21/changing-way-we-eat>

## Spencer Award goes to 2 Iowans

Michael Natvig, fifth-generation farmer, and Bernie Havlovic, long-time farm superintendent, received the Spencer Award for Sustainable Agriculture at the Leopold Center Advisory Board meeting on March 1. Board member Laura Jackson, a biology professor at the University of Northern Iowa, presented the Spencer Award to Natvig (back, right). Board member Joe Colletti (front, left), senior associate dean at ISU, presented the award to Havlovic (front, center). Interim director Mark Honeyman is in the back row, left. Read the full story at [www.leopold.iastate.edu/spencer-award/past-recipients](http://www.leopold.iastate.edu/spencer-award/past-recipients)





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IOWA STATE UNIVERSITY  
AMES, IOWA 50010

# Highlight Events

## More details, events

Check Leopold Center Web calendar:  
[www.leopold.iastate.edu/news/calendar](http://www.leopold.iastate.edu/news/calendar)

Learn about how to get support for events: [www.leopold.iastate.edu/grants/education](http://www.leopold.iastate.edu/grants/education)

### Field days on their way!

Check the Leopold Center calendar for dates of on-farm field days planned by the Iowa Learning Farms, Practical Farmers of Iowa and Iowa State University Research and Demonstration Farms. Events are open to the public and feature various aspects of agricultural production, including a series of early-spring field days on cover crops.

### Food Access and Health Working Group

This working group will host its spring gathering April 13 at the Cedar Falls Visitor Center. The day's events include a panel discussion about innovative food gardening projects in Iowa. The group is a network of food and nutrition assistance program providers, health professionals and food system stakeholders focused on cultivating a just and diverse food system that eliminates hunger, increases access to nutritious food and improves the health of all Iowans. Registration is required to attend the meeting.

### Historic reading

Erin Irish, associate professor of biology at the University of Iowa, reads a portion of the Iowa Groundwater Protection Act of 1987. The reading took place during the March 1 meeting of the Leopold Center Advisory Board to mark the 25th anniversary of the Leopold Center. Irish is one of two people who represent the University of Iowa on the board. Also shown are Maynard Hogberg



(right) and Paul Lasley (left), two of Iowa State University's three representatives on the board. Check out a timeline in the Leopold Center's latest annual report and on our website. See Interim director's column, pg.3.